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Utilizing Outpatient Telehealth as a Treatment Approach for Patients with Substance Use Disorder: A Quality Improvement Project

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Abstract

Background: The issue of substance use disorder (SUD) has demonstrated a growing prevalence both in the United States (U.S.) and globally. Effective treatment modalities have been devised for individuals afflicted by SUD, thereby enabling their post-treatment prognosis to be parallel to that of patients with other chronic diseases, such as diabetes. However, several factors or barriers impede individuals with SUD from assessing treatment. These barriers encompass financial constraints stemming from inadequate insurance coverage and high cost, the stigma surrounding SUD, which results in patient's hesitancy to seek treatment treat, adverse societal attitudes, collateral social percussions like work hour losses and disruptions in social life, deficiencies in healthcare provider training, diminished provider confidence in addressing addiction, institutional support in implementing treatment approach for SUD, shortage of mental health professionals, a dearth of patient awareness, and lengthy service waitlists.

Purpose: Limited scholarly research or quality improvement projects have been conducted to address evidence-based treatment approaches for SUD patients. One promising avenue to mitigate treatment challenges for patients with SUD is the utilization of telehealth services. This quality improvement project focused on scrutinizing and employing an outpatient telehealth treatment modality for SUD patients, specifically appraising the effectiveness of telehealth as a treatment approach. In tandem, healthcare providers and support staff were duly educated concerning telehealth applications as a treatment approach for SUD and using telehealth and assessment tools.

Local Problem: Telehealth for outpatient withdrawal management was introduced at Kolmac Centers during the tumultuous COVID-19 pandemic. Nevertheless, its effectiveness remains to be evaluated. The primary objective of this project was to reintroduce the utilization of telehealth

for withdrawal management (WM) and determine the effectiveness and safety of using telehealth to manage withdrawal symptoms in outpatients with SUDs.

Methods: A quantitative design was used for the project.

Interventions: This project juxtaposed the effectiveness of outpatient telehealth withdrawal management for individuals with SUDs against traditional in-person or in-patient treatment modalities. Furthermore, it probed into the perceptions of healthcare staff concerning the usefulness and effectiveness of telehealth as a mode of care delivery of withdrawal management services.

Results: An array of metrics was scrutinized for patients undergoing WM via telehealth, encompassing the number of patients commencing WM through telehealth, those successfully concluding WM via telehealth, and those subsequently transitioning into an intensive outpatient program (IOP). Over an eight-week project duration, 96% of all patients (155) who commenced telehealth WM successfully completed the program, with a minimal count of six patients discharged before completion. Furthermore, 94% of patients who completed the WM program transitioned into IOP. The results gleaned from the Technology Acceptance Model (TAM) questionnaire post-implementation underscored a significant upswing in the number of providers and support staff who strongly agreed and agreed significantly increased from the answers given pre-implementation. Following the educational in-service, healthcare providers and support staff evinced a heightened comfort level with telehealth for WM, deeming it efficacious and instrumental in enabling the clinic to deliver a more comprehensive service to patients with SUD.

Conclusions: Despite the relatively modest scale of this quality improvement initiative, the findings prominently highlight a substantial augmentation in the rates of patients completing WM and transitioning into IOP programs.
Keywords: Substance use disorder, telehealth, medicated-assisted treatment, addiction severity index, withdrawal management, substance detoxification, clinical institute withdrawal assessment alcohol scale, clinical opiate withdrawal scale, transtheoretical model of behavior change.

Table of Contents

Introduction

The Substance Abuse and Mental Health Services Administration (SAMHSA) (2020) reported that in 2017, the number of Americans with substance use disorder (SUD) was approximately 19.7 million, which implied that one out of every eight adults was using more than one substance. This is an alarming and concerning statistic. In the same year, SAMSHA reported that the economic impact of SUD on the United States exceeded $740 billion, encompassing healthcare expenses, crime-related costs, and workplace productivity. Consequently, healthcare providers face mounting pressure to implement evidence-based decision-making, enhance efficiency, and minimize errors in general medical care. Addiction is treatable with a multi-therapeutic approach known as medication-assisted treatment (MAT), which utilizes medications such as buprenorphine, naltrexone, and methadone combined with psychotherapy interventions and counseling to treat SUDs. The Institute of Medicine's (IOM) Crossing the Quality Chasm initiative urged healthcare organizations and facilities to improve their quality of care by revamping their care processes and systems (Kelley et al., 2023). While the IOM crossing the quality chasm framework has traditionally focused on chronic conditions, it has now been extended to include mental health problems and SUDs. Despite these recommendations, most mental health organizations and structures are hesitant to implement them and, while demand is high for services, leaving the system inadequate to meet these additional needs for improved quality of care. Incorporating process improvement approaches into managing addiction treatment services can help address these challenges (Kelley et al., 2023). Mental health organizations can improve service delivery for patients with SUDs by enhancing accessibility and retention through diverse treatment approaches.

The COVID-19 pandemic compelled mental health and SUD practices and treatment facilities to transition and change their care delivery model from in-person to telehealth visits (Mark et al., 2022). Before the pandemic, only 27% of SUD treatment facilities in the U.S. were equipped to provide telehealth services, with 0.1% of addiction treatment visits for patients with private insurance or Medicare being conducted remotely. According to SAMSHA's 2020 National Survey on Drug Use & Health (2020), approximately 40.3 million individuals (equivalent to twice the population of New York) had a substance use disorder that year, while only 6.85 million received treatment. The Ryan Haight Online Pharmacy Consumer Protection Act of 2008, a federal law mandating in-person prescribing of controlled substances, imposed limitations on the use of telehealth for SUD treatment (Mark et al., 2022).

However, in March 2020, due to the COVID-19 pandemic, a public health emergency (PHE) was declared in the U.S., prompting the relaxation of federal, state, and health insurance regulations and payment policies concerning telehealth (Sugarman et al., 2021). The Ryan Haight Online Pharmacy Consumer Protection Act of 2008 (the Ryan Haight Act), before the COVID-19 pandemic, allowed a prescribing practitioner, under certain exceptions, to prescribe controlled medications to patients only after they are seen and evaluated in person. Emergency exemption for the Ryan Haight Act allowed providers to prescribe schedule II–V controlled medications through audio-video telemedicine encounters for maintenance and withdrawal management treatment of opioid use disorder via audio-only telemedicine encounters without needing an in-person visit. Expanding and sustaining telehealth services may help address persistent gaps in delivering care for the treatment of SUDs. The Drug Enforcement Agency (DEA) (2023) recently proposed temporary telemedicine rules for prescribing controlled substances. This proposal garnered over 38,000 comments from patients, stakeholders, and

providers, all expressing support for the positive impact of telemedicine on the treatment of SUDs, particularly concerning buprenorphine. The DEA, after reviewing those comments, jointly worked with SAMHSA and issued a temporary rule that will take effect on May 11, 2023, and extends the full set of telemedicine flexibilities adopted during the COVID-19 public health emergency for six months – through November 11, 2023. The new rule ensures that any practitioner-patient telemedicine relationships that have been or will be established up to November 11, 2023, the full set of telemedicine flexibilities regarding the prescription of controlled medications established during the COVID-19 PHE will be extended for one year – through November 11, 2024. The DEA guideline introduced during this project proposal was temporary, and changes will be made and further discussed in the limitation section of this paper. The decision by the DEA and SAMHSA in May 2023 was in response to the significant backlash the proposed guideline received during the comment period, indicating the dissatisfaction of patients and providers. This temporary guideline highlights the importance of telehealth in healthcare delivery, particularly in SUDs and public health crises. Telehealth has proven effective in maintaining continuity of care and reducing the risk of exposure to infectious diseases. Therefore, exploring the potential of telehealth in healthcare delivery beyond the public health emergency is crucial. This shows that the DEA rules released would have re-established the austere restrictions on accessing treatment and use of controlled substances such as buprenorphine for opioid use disorder (OUD).

Problem Description

Substance use disorder poses a severe issue in the United States, placing significant burdens on individuals, their families, local communities, society, and the nation's healthcare system (Centers for Disease Control (CDC), 2022). The societal losses associated with SUDs are rooted

in decreased productivity among substance users, the impact of unplanned pregnancies, expenditures within the criminal justice system, deteriorating overall health among substance users, and, in some cases, fatalities (Hove et al., 2023). Several challenges impede the effectiveness of treatment approaches and limit the placement of patients with SUD. These challenges include:

1. Deficiency in several levels of care and settings available for the patient.
2. Limitations imposed by insurance companies enforce strict adherence to admission criteria, such as the predetermined number of treatments or restricted treatment duration.
3. Providers lack knowledge of treatment options for SUD or lack authority in determining the most appropriate level of care.
4. Inadequate insurance coverage for SUD treatment among patients with insurance coverage.
5. The uninsured or underinsured patients with no coverage for SUD treatment.
6. The absence of a clear solution or formula to address these challenges (Hser et al., 2023).

To address these problems, mental health organizations and providers must establish quality improvement initiatives and implement effective treatment plans to enhance the accessibility and sustainability of substance use disorder treatment while facilitating the integration of patients into society.

Patients with SUD aim to receive efficient care that aligns with their clinical needs with an appropriate level of care while remaining cost-effective. Care coordination, which involves organizing patient care activities and facilitating information sharing among all providers/facilities involved in a patient's care, is considered the foundation of patient-centered treatment and has been shown to improve health outcomes, patient satisfaction, and cost

reduction (Hser et al., 2023). However, care coordination is frequently lacking in treating individuals with SUDs. These individuals often have complex health needs, including comorbid mental health and underlying chronic medical conditions requiring treatment from multiple providers. When SUDs and other physical and mental health conditions are not simultaneously addressed, patients may struggle to adhere to medication regimens, leading to adverse consequences, such as poor control of hypertension and diabetes. To compound the issue, patients with SUDs have more emergency department visits, hospital readmissions, and increased risk of injury, disability, and mortality if not treated. Telehealth services have emerged as a promising approach to enhancing care coordination for patients with SUDs (Hser et al., 2023).

The site for the quality improvement project was the Kolmac Integrated Behavioral Health Centers in the Maryland region. Kolmac follows a model of treating patients with substance use disorder and their co-occurring health conditions in Maryland, Virginia, Delaware, Pennsylvania, and the District of Columbia. Withdrawal management (WM) or telehealth outpatient detoxification was prohibited in the District of Columbia until April 2023, and it has not been permitted in Delaware as of the time of completing this project. Nevertheless, the Kolmac Centers expanded their use of telehealth for outpatient withdrawal management for patients with SUDs, providing increased access to WM and follow-up (Kolodner, 2021). The Kolmac Center's findings underscore the importance of early interventions, which is crucial for patients with alcohol use disorder because withdrawal can lead to serious, potentially life-threatening complications, including seizures and delirium tremens (Kolodner, 2021). Telehealth at Kolmac Centers reduced the waiting time for patients to be evaluated by clinicians to 30 minutes, and withdrawal symptoms could be alleviated within a couple of hours. It also extended

the monitoring period for clinicians to observe patients' response to medication and facilitated the provision of weekend services. In November 2022, some Kolmac Centers began offering in-person treatment, including WM services. However, as the clinics shifted their focus towards in-person outpatient visits, the acceptance rates by patients at Kolmac Centers started to decline. Preliminary metrics from the electronic medical records indicated that 56% of patients who initiated WM in person at Kolmac Centers did not complete the treatment compared to telehealth treatment during the COVID-19 pandemic. Patients reported that coming to the clinics interfered with their daily lives or work schedules during admission or intake, and they often preferred telehealth. The data also suggested that patients referred to inpatient WM or detox did not proceed with admission, typically involving a 28-day stay. The metrics discussed implied that inpatient WM treatment was not favorable for some patients with SUDs.

The medical director and WM program director at Kolmac acknowledged that patient and staff awareness and education regarding the impact of telehealth treatment for patients with SUDs represent a novel upstream thinking process, and the implementation during the COVID-19 pandemic was rushed. Consequently, the organization recognized the importance of continuing to provide this treatment approach and educating staff and patients accordingly. Consequently, a quality improvement project was initiated to focus on staff education and assess their perceptions to successfully establish telehealth as an alternative approach to SUD treatment. Additionally, the project aimed to collect metrics on the number of patients treated using the telehealth WM approach compared with outpatient and how it increased the accessibility of care for SUD patients.

Available Knowledge

A comprehensive literature search was conducted through the National Institute of Health (NIH) and National Library of Medicine websites to gather relevant evidence for reviewing substance use disorder (SUD), telehealth or telemedicine, and detoxification. Medical subject headings (MeSH) terms were utilized for the search, and the Cumulative Index of Nursing and Allied Health Literature (CINAHL), PsycINFO, and MEDLINE databases were reviewed for literature published between 2015 and 2023. Treatment disparities for SUDs have been a significant concern even before the onset of the COVID-19 pandemic. However, the pandemic has exacerbated the opioid crisis in the U.S. due to factors such as social isolation, closure of treatment facilities, and limited access to care (Substance Abuse and Mental Health Services Administration, 2020). In 2019, over 20 million individuals aged 12 years and older in the U.S. reported having an SUD, but only 10% received treatment for their condition. Among those with SUDs, 24% were unaware of where to find the appropriate treatment, and 21% lacked health insurance and could not afford treatment costs. The treatment completion rate in 2018 was approximately 42%. Disparities in access to care and low utilization rates were notably higher in racial/ethnic minority groups compared to white individuals. Black, Hispanic, and American Indian/Alaska Natives (AIAN) individuals had limited access to buprenorphine and were less likely to complete publicly funded treatment programs. Asian and AIAN individuals were also less likely to receive SUD treatment, although they exhibited higher treatment completion rates compared to other racial/ethnic minority groups.

The COVID-19 pandemic has significantly impacted substance use, with approximately 1 in 10 adults admitting to starting or increasing alcohol and drug use as a means of coping with isolation and uncertainty (Substance Abuse and Mental Health Services Administration, 2020).

Drug overdose deaths, particularly from opioids, significantly rose during the pandemic, reaching over 93,000 deaths in 2020. This marked the highest recorded number of overdose deaths and represented an almost 30% increase compared to overdose deaths reported in 2019. Detoxification refers to the process of eliminating drugs or alcohol from the body. Medications are available to manage withdrawal symptoms and prevent severe complications for most substances (Timko et al., 2019). However, patients who receive detoxification treatment without subsequent follow-up care for their addiction often experience relapse, and the overall success of the treatment is limited. Among individuals receiving detoxification services without immediate entry into addiction treatment, approximately 73% to 88% were able to abstain from substance use for 1 to 3 days, 12% to 45% for one month, 12% to 23% for six months, and only 10% for one year. This emphasizes the significance of intensive outpatient programs (IOP) in effectively addressing SUDs following detoxification and controlled withdrawal. Recent research has indicated that individuals who receive addiction treatment within 14 days of detoxification have a lower likelihood of relapse and are more likely to achieve long-term abstinence from drug or alcohol use.

Mahmoud et al. (2021) conducted a comprehensive literature review to examine the clinical effectiveness, non-clinical effectiveness, perceptions, and regulatory considerations associated with telehealth-delivered medication-assisted treatment (MAT) for individuals with SUDs. MAT is widely recognized as the standard of care for opioid use disorder treatment, involving medications such as methadone, naltrexone, buprenorphine, or buprenorphine/naloxone. Extensive literature supports the efficacy of MAT in reducing withdrawal symptoms, cravings, opioid use, overdoses, relapses, and infectious diseases and improving retention rates when compared to psychosocial treatment alone. However, numerous

barriers hinder access to MAT, including limited availability and funding, stigma, treatment costs, and transportation issues. The review by Mahmoud et al. (2021) revealed that most studies reported favorable outcomes associated with telehealth-delivered MAT, including improved retention and abstinence rates, positive patient experiences, and enhanced feasibility with relaxed regulatory guidelines. However, the long-term effects of telehealth-administered MAT were not consistently monitored. Adverse findings included difficulties adapting workflows and limited access to technology and the internet among disadvantaged populations.

The COVID-19 pandemic prompted the relaxation of government regulations regarding telehealth services and significantly changed the treatment of SUDs in the United States (Ngo et al., 2022). Even before the pandemic, telehealth platforms were gaining popularity for treating mental illnesses, and data indicated comparable treatment success rates to in-person visits. However, the adoption of telehealth in SUD treatment lagged due to barriers such as federal regulations, reimbursement rates, and platform usability. Nevertheless, the pandemic accelerated the expansion of telehealth platforms, and emergency federal and state policies lifted geographic and site-of-service restrictions. Insurance coverage for telehealth services also increased, with many states implementing take-home services for methadone, eliminating face-to-face visits for buprenorphine prescriptions, and waiving prior authorizations for opioid use disorder medications.

Drake et al. (2021) published a concise review outlining crucial strategies for maintaining the role of telehealth services in substance use treatment and ensuring a smooth transition post-pandemic state of emergency. These strategies, based on their experiences during the pandemic, encompass the following four steps:

1. Invest in telehealth infrastructure to enable providers and patients to continue utilizing telehealth.
2. Train and equip providers with the necessary knowledge and skills to utilize telehealth for SUD treatment.
3. Provide patients with the essential financial and social support, hardware, and training required for telehealth utilization.
4. Make temporary changes to laws and regulations regarding telehealth to ensure continuity of care for all mental health patients, especially those with substance use issues, leading to better outcomes.

These strategies, when utilized, will ensure that staff are adequately trained and make treatment accessible for patients with SUDs.

Ngo et al. (2022) conducted a comparative analysis of treatment-related outcomes and predictors of treatment effectiveness in traditional in-person settings, telehealth treatment settings, and telehealth-based group therapy. The study also aimed to identify provider characteristics contributing to patient engagement and improved outcomes. One significant finding of the study was that patients participating in hybrid programs combining in-person and telehealth modalities exhibited longer treatment retention and lower discharge rates against staff advice than those receiving in-person or telehealth-based treatment. Sweeney et al. (2022) evaluated the feasibility and effectiveness of telehealth, remote biometric monitoring, and digital smartphone app interventions in treating SUDs. Remote monitoring involved devices capable of measuring breath alcohol concentrations and conducting biological fluid drug testing, eliminating the need for in-person sample collection. The study demonstrated that these

technologies are both feasible and effective in treating SUDs, potentially overcoming treatment barriers that prevent many individuals with SUDs from seeking help.

Aronowitz et al. (2022) conducted a qualitative study that evaluated the perspectives of providers and staff from several outpatient programs in Philadelphia regarding telehealth as a treatment delivery method. These clinics follow a low-barrier treatment model tailored to marginalized individuals who use substances. The study identified three themes:

1. Telehealth eases access for patients facing logistical and psychological barriers to in-person appointments, such as transportation, work, and childcare.
2. Limited access to and comfort with technology can impede engagement with telehealth.
3. Provider perceptions of patient stability rather than patient preferences may influence access to telehealth treatment.

Assessing the effectiveness of telehealth services necessitates examining the perceptions of both providers and patients.

In a similar project, Sugarman et al. (2021b) conducted a Quality Assessment and Improvement Initiative at McLean Hospital, a psychiatric hospital in Boston, during the COVID-19 pandemic. The study aimed to assess the experiences of outpatient mental health and SUD clinicians after transitioning to almost entirely virtual care through telehealth. A survey was administered to 107 participating clinicians utilizing telehealth for approximately ten weeks. Findings indicated that most clinicians strongly agreed or agreed that telehealth enabled rapport-building with patients and adequately met their needs. Interest in continuing telehealth varied, but it was noted that telehealth improved access to care for patients facing logistical barriers and had some challenges when treating patients with specific needs, such as those requiring social

skills development or experiencing psychosis, paranoia, catatonia, high distractibility, or severe symptoms.

Rationale

The disparities in care and stigma associated with substance use disorders (SUDs) significantly impact the ability of many individuals to access adequate treatment and achieve long-term success in maintaining sobriety and preventing relapses. There is a pressing need to develop innovative treatment modalities and programs for individuals with SUDs. The addiction treatment industry faces challenges in providing follow-up care to patients who have undergone inpatient treatment. Studies indicate that less than half of the patients receiving inpatient addiction treatment receive appropriate follow-up care, leading to a relapse rate of over 90%. However, outpatient treatment programs are more effective in providing follow-up care, with over 85% of patients transitioning to outpatient addiction treatment. The adoption of telehealth tools in the addiction treatment industry has been slow, primarily limited to providing buprenorphine-based treatment in rural areas with a high prevalence of opioid addiction. Incorporating telehealth tools in addiction treatment can significantly improve the quality of follow-up care and provide real-time support to patients, thereby reducing the risk of relapse. Telehealth can help overcome geographical barriers and ensure access to follow-up care for patients who are unable to physically visit treatment centers. The addiction treatment industry must embrace telehealth tools to enhance patient care and reduce relapse rates (Kolodner, 2021).

Kolmac Centers is a network of intensive outpatient (IOP) addiction treatment centers in Maryland, Pennsylvania, northern Virginia, and Washington, DC. The project specifically focused on the centers in the Maryland region, namely Columbia, Towson, Silver Spring, and Annapolis. The Kolmac model, developed by George Kolodner, M.D., over 50 years ago, offers

a treatment approach that provides easier access, greater program flexibility, and significantly lower costs compared to traditional inpatient programs while maintaining the same level of effectiveness (Kolodner, 2021). In addition to offering all three phases of treatment (detoxification, rehabilitation, and continuing care), Kolmac Centers also provide treatment for co-occurring psychiatric disorders and offer education and resources for family members and referring professionals.

Several years ago, Kolmac Centers established the necessary infrastructure to explore the utility of telehealth. However, its use was limited due to regulations and restrictions (Kolodner, 2021). Since the beginning of the COVID-19 pandemic, Kolmac Centers have utilized telehealth in withdrawal management (WM) for patients with substance use disorders (SUDs). Before the pandemic, women accounted for 33% of individuals with SUD who did not seek treatment. Recent studies indicate that women prefer virtual treatment due to its enhanced privacy. Outcomes from virtual women's meetings have shown high completion rates, with 89% of participants completing the program and 92% completing WM transitioning into intensive outpatient rehabilitation (IOP). These findings suggest that virtual treatment options may be particularly effective for women hesitant to seek in-person treatment for SUD. Further research is needed to explore the reasons behind the higher completion rates in virtual treatment and determine the most effective integration of virtual treatment options into SUD treatment programs. The utilization of telehealth during the pandemic has enabled more patients with SUD to receive evaluation and treatment at Kolmac Centers. Preliminary data from this project indicate that approximately 1,500 patients with SUD were effectively and safely treated using telehealth services during the COVID-19 pandemic. The data also revealed that around 75% of patients completed WM and transitioned into the intensive outpatient program (IOP). In

comparison, the average connection rates from inpatient detox/rehab/hospitals to planned aftercare for substance use disorder are typically around 25-30%.

Specific Aims

Utilizing telehealth as a treatment approach for patients with substance use disorders (SUD) can ensure timely diagnosis and provide an alternative treatment plan. Expanding telehealth services also helps bridge care gaps in SUD treatment, positively impacting population health outcomes, including reducing substance overdoses and alleviating the burden on patients and healthcare systems. However, the effective implementation of this approach depends on the comfort level, knowledge, and skills of staff and providers in utilizing telehealth. To achieve this, educating staff, patients, and the community about telehealth withdrawal management for SUD is crucial. The Quality Improvement (QI) project aimed to assess the effectiveness of withdrawal management (WM) services delivered through telehealth compared to in-person care. Additionally, the project sought to evaluate providers' perceptions regarding the use and effectiveness of telehealth for WM.

Methods

Context

The design and implementation of this project were guided by the Plan-Do-Study-Act (PDSA) framework. The first step in this framework was to identify an area that requires improvement (Plan), which, in the case of this project, is to increase treatment options for patients with substance use disorder (SUD). The project’s results were analyzed for observation (Study), translating the evidence into a practice change or initiating a new cycle (Act). In the first cycle of the planning phase, three key questions were asked and answered. These questions

included determining what needs to be accomplished, how to determine if a change represents an improvement, and what changes can be implemented to achieve improvement (Johns Hopkins Medicine, 2022). The answers to these questions helped establish the project's aims, outcome measures, and interventions. The aims or goals of the project followed the SMART format, ensuring they were Specific, Measurable, Achievable, Relevant, and Time-bound. This approach ensured that the focus was clear and understood by all stakeholders and team members. Upon completing the planning phase, the project was implemented on a small scale to test its effectiveness in addressing the project question.

The conceptual framework for this Quality Improvement (QI) project was the transtheoretical behavioral change model (TTM). The TTM understands the shifts in opinions, objectives, and performances during the change process (Hashemzadeh et al., 2019). In this QI project, the TTM was utilized to screen adults with substance use disorder (SUD) and assess the severity of their condition in an outpatient setting. The model involved measures to encourage adults with SUD to transition from substance abuse to abstinence. The change process was initiated and facilitated by a multidisciplinary team consisting of psychiatrists, psychiatric mental health nurses, social workers, addiction counselors, psychologists, and registered nurses. Assessment tools such as the Clinical Opiate Withdrawal Scale (COWS), Clinical Institute Withdrawal Assessment Alcohol Scale (CIWA), Morse Fall Scale, and Addiction Severity Index (ASI) were used to evaluate patients with substance use and determine their suitability for outpatient telehealth detoxification or WM services.

Kolmac Centers are outpatient integrated behavioral health centers that provide treatment for individuals with alcohol or substance use disorders. The program combines inpatient treatment's effectiveness with outpatient care's flexibility and affordability. Patients receive

individualized treatment planning, group therapy, medication-assisted treatment, detoxification, relapse prevention, and family programs. The treatment at Kolmac Centers consists of three overlapping phases: outpatient detoxification (if needed), intensive outpatient, and outpatient treatment. If detoxification is necessary, patients stay at the clinic for 5-8 hours on the first day and receive medication-assisted treatment to alleviate withdrawal symptoms. The IOP program includes three-hour group therapy and education sessions, gradually reducing frequency. In the third phase of treatment, patients attend two hours of group therapy once a week, along with monthly education sessions related to recovery. The project's goal was to evaluate the effectiveness of telehealth during the first phase of SUD treatment, explicitly focusing on withdrawal management (WM). Although this intervention was implemented during the COVID-19 pandemic, its efficacy had not been evaluated, making this project necessary to determine its effectiveness and safety. The project involved reintroducing telehealth for WM services.

Cost Benefit Analysis/Budget

According to Timko et al. (2019), inpatient detoxification is not considered a form of addiction treatment but a service that provides medical supervision for patients undergoing withdrawal from drug or alcohol addiction. Its primary purpose is to minimize the severity of withdrawal symptoms and prevent serious medical complications. It is important to note that inpatient detoxification is one of the most expensive types of care when considering the cost per day of treatment. However, the cost of detoxification can vary widely depending on the specific treatment facility and the individual's needs. For instance, the cheapest medical detoxification for one person for one episode in 2022 was reported to be $175,000 (National Center for Drug Abuse Statistics, n.d.). In comparison, inpatient rehabilitation programs typically cost over

$6,000 per month, while a 3-month outpatient rehabilitation program costs approximately $5,000. By utilizing telehealth for withdrawal management (WM) services, the cost for patients can be significantly reduced, which also leads to a reduction in healthcare expenditure by the government for individuals with substance use disorder.

The cost or budget required to implement this project involved acquiring new laptops or replacing existing ones for staff members participating in telehealth WM services and providing mobile phones to facilitate the intervention. Since the organization already issued laptops for telehealth during the COVID-19 pandemic, there was no additional cost for this QI project. Other cost analyses related to the project can be found in the table provided in Appendix B. It is essential to consider that implementing this project can increase the organization's revenue due to the higher number of patients being served.

Interventions

The initial intervention for this QI project involved an education and training module delivered to providers, including Nurse Practitioners, Physician Assistants, MDs, psychologists, registered nurses, social workers, and addiction counselors at the selected project site. The education module was conducted via PowerPoint presentation, which was presented during an in-service meeting at the Kolmac Centers in Maryland via Zoom. This PowerPoint presentation can be found in Appendix E. The presentation was also emailed to providers and staff who could not attend the meeting. The presentation's content covered various aspects of telehealth utilization for withdrawal management (WM) in patients with substance use disorders (SUDs). It also provides an overview of the WM process, information about post-acute-withdrawal syndrome (PAWS), the importance of using assessment scales (CIWA, COWS, ASI) for early detection of withdrawal symptoms, and training on scoring and interpreting these scales.

Additionally, protocols for determining the level of care needed for each patient with SUD and appropriate referrals, such as inpatient detoxification, telehealth medication-assisted treatment WM, intensive outpatient programs (IOP), group therapy, or individual counseling, were discussed. Patient education was also an ongoing process during the admission process. The providers and staff were trained to provide necessary information to patients regarding telehealth WM services.

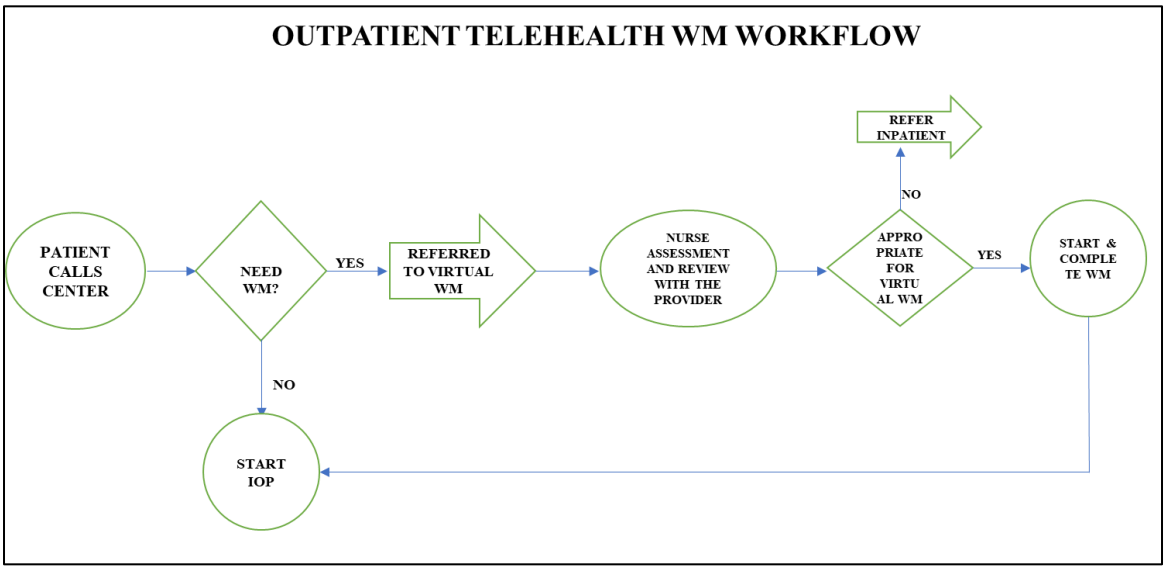
A questionnaire based on the Technology Acceptance Model (TAM) was utilized to assess the providers' perceptions and effectiveness of the education module on telehealth, perceived usefulness, and perceived ease of use. The questionnaire can be found in Appendix A. The questionnaire comprised 20 items divided into five domains, with four items per domain. Providers at the Kolmac Centers received the questionnaire via email and the survey platform SurveyMonkey, which is free to utilize. The questionnaire utilized a 5-point Likert scale for participants to indicate their agreement or disagreement with each statement. The scoring method was completed by averaging the total summation for each item. The questionnaire domains assessed perceived usefulness and ease of use, which are significant factors influencing attitude in the TAM. Using a 5-point scale instead of a longer one, such as a 7-point or 9-point scale, provides questions and responses that are simple and easy to understand for participants. In addition, the shorter scale has been validated to produce better data distributions, making it easier to interpret. The TAM model has been validated in numerous studies, supporting its end-use analysis explanation (Lewis, 2019).

The primary intervention for this QI project was the implementation of telehealth for delivering WM services, representing a change in the existing process at the project site. Patients are usually seen in person for WM after being contacted by phone, but telehealth allows for a

more rapid and efficient assessment, typically within 30 minutes. This is crucial for patients experiencing severe withdrawal symptoms who require immediate care to prevent serious medical consequences or a return to substance use. Telehealth eliminated the need for patients to travel to the centers daily during WM, which can be a barrier to care and inconvenient. A simplified workflow of the WM process at the Kolmac Centers in Maryland can be found in Figure 1, illustrating the steps and decision-making involved in delivering telehealth WM services.

Figure 1

Workflow for Delivering Telehealth WM Services



During the project's implementation, the evaluation process ensured that patients received the appropriate level of care based on their condition and the severity of their withdrawal symptoms. The WM nurse assesses the patient's symptoms and determines if telehealth can effectively manage their complexity and severity or if in-person clinic visits are necessary. The home environment was also assessed to ensure that a responsible adult can assist with medication administration, assessed using the Addiction Severity Index (ASI) scale. Medication

prescriptions were sent to the patient's pharmacy after a consultation with a psychiatrist or psychiatric nurse practitioner. The patient designates a patient support person (PSP) to oversee the prescribed medications and administer them under the nurse's direction. To involve the PSP, the patient signs a release of information (ROI) and consent form specifying the information that can be shared with the PSP. The PSP is crucial in supporting the patient throughout the withdrawal management (WM) process, particularly within the first 24-48 hours of initiating detoxification.

The WM nurse maintains regular contact with the patient and the support person. The nurse initially contacts them every hour for 3-6 hours until withdrawal symptoms resolve. This frequent communication allows for ongoing assessment of withdrawal symptoms using scales such as COWS, CIWA, and Morse. As the patient progresses, outpatient group therapy sessions are initiated as soon as possible, preferably on the same day. The WM nurse continues to contact the patient on the second morning and throughout the day to adjust medication dosing based on the patient's ongoing withdrawal symptoms, as indicated by the assessment scales. This close monitoring and adjustment of medication dosing continue until the patient reaches medical stability.

Once the acute withdrawal symptoms have subsided, the WM nurse collaborates with the clinic to ensure ongoing management of any residual withdrawal symptoms. The goal is to provide patients with comfort and alleviate their withdrawal symptoms without overmedicating them. Regular vital signs monitoring is conducted, and formal scales are completed daily to track the patient's progress. However, determining medication dosing for WM is primarily based on the patient's subjective reports. It is essential to transition patients into the Intensive Outpatient Program (IOP) group immediately after administering the first dose of medication unless their

withdrawal discomfort is exceptionally severe. Patients are advised not to drive after receiving medication on the first day and to arrange alternative means of transportation. Follow-up meetings are scheduled daily to monitor the patient's progress and ensure they receive appropriate care. These protocols and procedures are vital for effective withdrawal management, prioritizing patient comfort, safety, and overall well-being. See Appendix C for telehealth WM procedures.

To determine the effectiveness of telehealth for delivering WM services, data for patient outcomes was collected and analyzed during the pre-and-post implementation of the project. The privacy and confidentiality of patients at the Kolmac clinics were protected by deidentifying all data so that it contains no information that can be associated with a specific patient. The outcome measures were evaluated for patients receiving WM via telehealth and through usual care consisting of in-person appointments. They include:

- Number of patients entering WM with telehealth
- Number completing WM with telehealth.
- Number transitioning into IOP after completing WM with telehealth.

The primary goal of this project was to improve the care and treatment of patients with SUDs requiring the management of withdrawal symptoms using the most effective and efficient approach. The above outcome measures were monitored continuously throughout the project to determine if any changes need to be made and to ensure the safety of patients, providers, and staff. Both interventions were completed within eight weeks. This project followed the DEA-proposed guidelines in May 2023 and November 2024 and was adjusted accordingly.

Study of Interventions

To assess the perceptions of the use of telehealth for withdrawal management (WM) and its impact on patient outcomes, the TAM questionnaire (Appendix A) was administered to the healthcare professionals involved in the project at the Kolmac Centers in Maryland. The questionnaire utilized a 5-point Likert scale and included questions about the telehealth intervention's perceived usefulness, ease of use, and effectiveness in improving patient outcomes. The questionnaire was administered both before and after the implementation of the intervention. The decision to use a 5-point Likert scale instead of a more extended scale is based on its simplicity and ease of understanding for the participants. It has been validated to produce data distributions that are easier to interpret.

The TAM questionnaire aligns with the Plan-Do-Study-Act (PDSA) principles and Transtheoretical Model (TTM), providing a framework for evaluating the intervention's validity and effectiveness. By measuring the providers' perceptions before and after the intervention, the questionnaire assessed the impact of telehealth as a treatment approach and its potential to expand treatment options for patients with substance use disorder (SUD). In addition to the TAM questionnaire, data was collected on the number of patients entering WM, completing WM, transitioning into the Intensive Outpatient Program (IOP) after completing WM, and completing the IOP. This information was used to evaluate the effectiveness of telehealth intervention and its impact on patient outcomes.

Measures

Quality measures used in research and quality improvement (QI) projects can be defined as "tools that help us measure or quantify healthcare processes, outcomes, patient perceptions, and organizational structure and systems that are associated with the ability to provide high-

quality healthcare and that relate to one or more quality goals for health care" (Jazieh, 2020, p. 144). The primary outcome measures for this project included the number of patients entering WM, completing WM, transitioning into IOP after completing WM, and completing IOP. Process measures included the time it takes for patients to be evaluated by non-medical staff for withdrawal symptoms and the time it takes for patients to be assessed by medical staff for the severity of withdrawal symptoms and whether they can be treated as an outpatient.

Quantitative data for all outcome and process measures was collected pre- and post-implementation and weekly once implementation began. Secondary outcomes included providers' perceptions of pre- and post-implementation of telehealth for WM, which was collected using a 5-point Likert questionnaire. Qualitative data from the questionnaire were coded to determine themes in providers' perceptions. Visual charts or graphs were utilized to understand the variability of the data and gain insights into the meaning of the results.

Analysis

Descriptive statistics were utilized as the initial data analysis, summarizing the collected data and describing the relationships between variables in the sample (Kaur et al., 2018). This served as a crucial first step in conducting the QI project. Providers' perceptions about the ease of use and usefulness were analyzed pre-and post-intervention. Data from the Electronic Health Record (EHR) and the TAM questionnaire were entered into an Excel spreadsheet for quantitative analysis.

Ethical Considerations

Before implementation, the DNP student submitted a human subject determination form to the University of New Hampshire Human Research Protection Office Internal Review Board (IRB) to obtain consent. The IRB reviewed the project to assess its compliance with federal

regulations concerning human subject research. Based on the responses provided on the initial determination form (Appendix C), the project and site did not require IRB consent. All discussions and interviews with staff, clinicians, nurses, and mental health providers regarding clients with SUD and treatment modalities strictly adhered to the Health Insurance Portability and Accountability Act of 1996 (HIPAA) confidentiality standards and the project site privacy procedures. Participants' private information was de-identified, replacing initials with numeric identification figures and letters during data storage (Chevrier et al., 2019). The privacy and confidentiality of patients at the Kolmac clinics were safeguarded by ensuring that all data were de-identified and contained no identifiable information. Access to the data was limited to the project leader, who stored it in a password-protected and encrypted file. Ethical procedures were followed to ensure the full protection of participants in the project.

Results

Provider/Staff Education

Before the project was implemented, providers and staff participated in an educational in-service to prepare them for the implementation of the project. Thirty-three providers and staff participated in the in-service. See Table 1 below. The in-service consisted of a 1-hour overview that provided information about why the project was being conducted, eligibility criteria and requirements for patients to be seen via telehealth for WM, and the importance of the project to improving access to the WM process. A question-and-answer session was held immediately after the in-service. An additional 1-hour presentation was given to the providers and WM nurses to discuss clinical protocols.

Table 1

Providers and Staff Participating in Education In-Service

Staff Demographics	
Role	**Attended Education Training**
Provider (MD/NP/PA)	6
WM Nurses (RNs)	5
Addiction Counselors	17
Patient Access Specialists/Medical Assistants	5

Provider and Staff Survey

The TAM questionnaire, found in Appendix B, was emailed to 33 providers and staff members on June 16, 2023, and they were asked to complete and return it within five days. Thirty questionnaires were returned, and results were reviewed on June 22, 2023. Project implementation occurred on June 26, 2023. Another email with the TAM questionnaire was sent to 33 providers on July 10, 2023; the results were reviewed on July 16, 2023. Before project implementation, 3 out of 6 providers (50%), 3 out of 5 WM nurses (60%), 1 out of 17 addiction counselors (0.05%), and 1 out of 5 patient access specialists/medical assistants (20%) responded that they strongly agreed that using telehealth for WM was effective and allowed the clinic to provide a more comprehensive service to patients. Only 1 out of 6 providers (16.6%) and 2 out of 17 addiction counselors (11.7%) disagreed with using telehealth for WM.

After implementing the project, several providers and staff strongly agreed that using telehealth for WM was effective and allowed the clinic to provide a more comprehensive service

to patients. Results from the TAM questionnaire post-implementation showed that 4 out of 5 providers (80%), 5 out of 6 WM nurses (83%), 13 out of 17 addiction counselors (76%), and 4 out of 5 patient access specialists/medical assistants (80%) strongly agreed. None of the providers or staff disagreed or strongly disagreed after the project implementation. See Figures 2, 3, and 4 below for pre-and-post-implementation data from the TAM questionnaire.

Figure 2

Responses to TAM Questionnaire Before Project Implementation

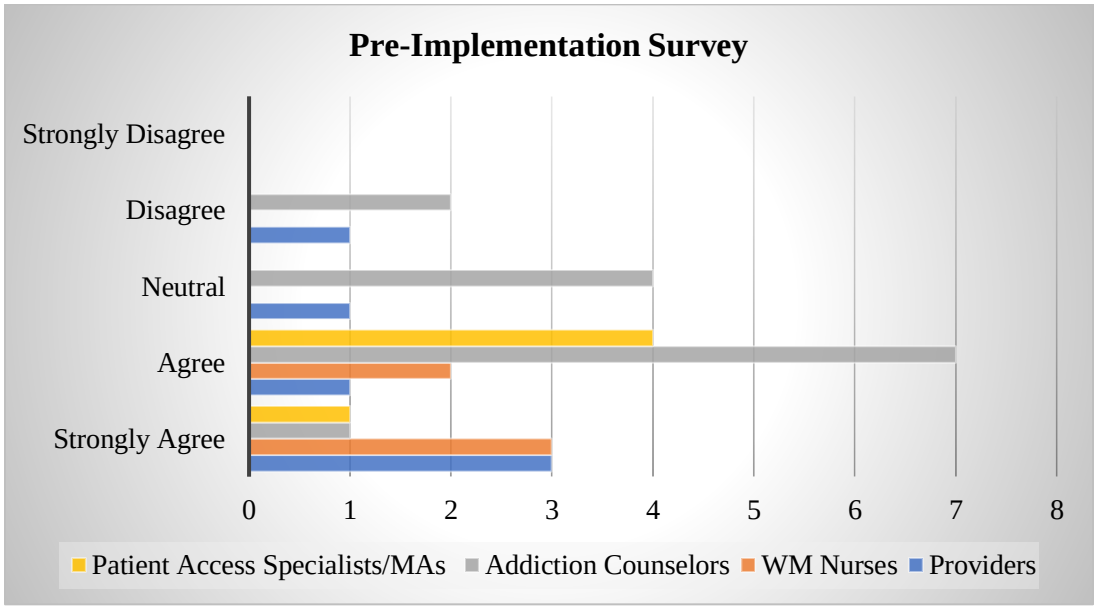


Figure 3

Responses to TAM Questionnaire After Project Implementation

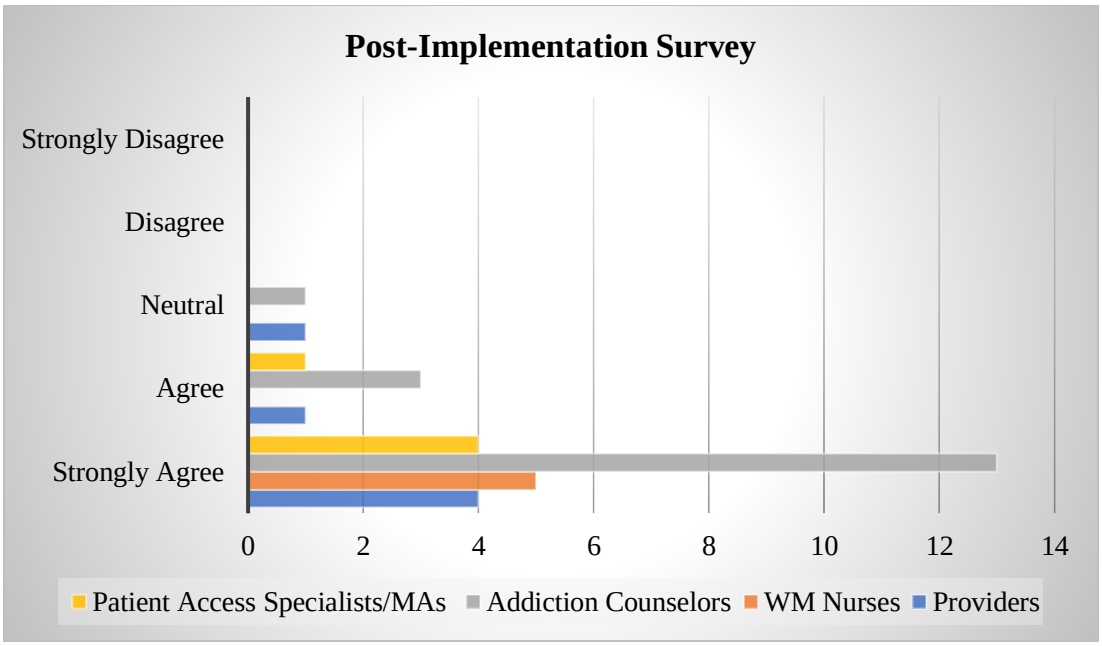
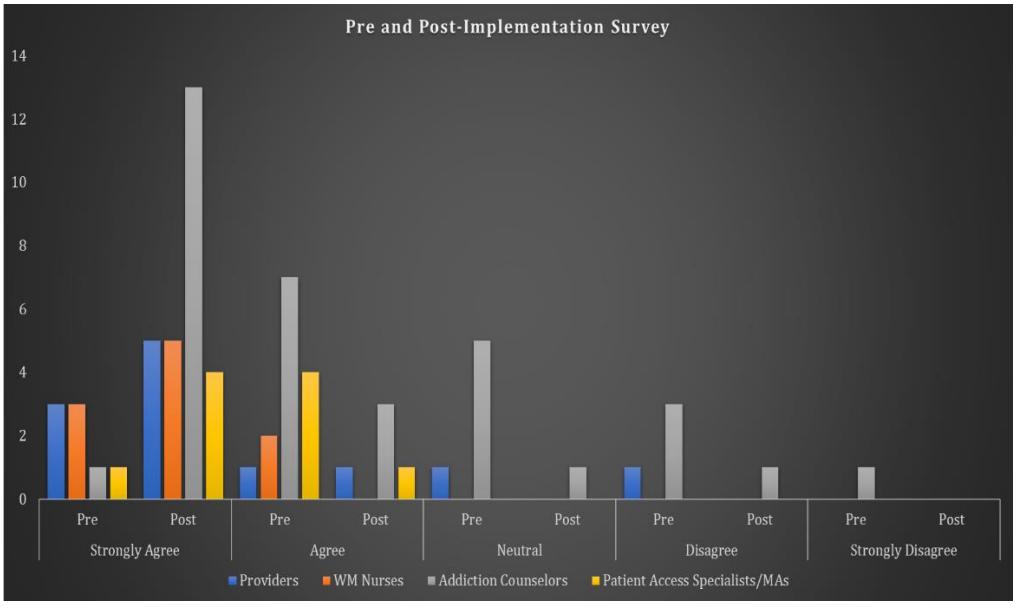


Figure 4

Staff Responses to TAM Questionnaire Pre and Post-Project Implementation (Comparison)



Telehealth Withdrawal Management

Patients began to be admitted to the telehealth WM service beginning June 26, 2023. They had to meet the following requirements:

- Patients were required to have a personal support person (PSP) who could be with them during WM – how long the PSP needed to be present varied depending on the substance used and any issues identified in their medical and psychiatric history that may be concerning. The PSP was usually needed only for the first two days of WM.
- Patients could not drive during the first day of WM.
- Patients were required to take off work for at least the first two days of WM, and sometimes longer depending on the substance used. If they were working remotely and could maintain hourly contact with the nurse, they could either work during the first day of WM or take that day off.
- Antabuse was required for alcohol during WM for safety reasons.

Admissions, WM Completion, and Transition to IOP

During the study, a total of 155 patients received telehealth for WM. Of these, 149 patients (96%) completed the program successfully. Six patients were discharged or did not meet the criteria for outpatient telehealth and, therefore, were referred to inpatient or rehab. Eleven patients opted for WM only without connecting to IOP. The reasons for inpatient referrals included non-compliance with WM requirements, not being appropriate for outpatient detox, and lack of PSP for support. Of the 149 patients who completed the WM program, 140 (94%) transitioned smoothly into an intensive outpatient program (IOP). Please refer to Table 2 for the complete data on admissions, WM completion, and transition into an IOP for eight weeks.

Table 2

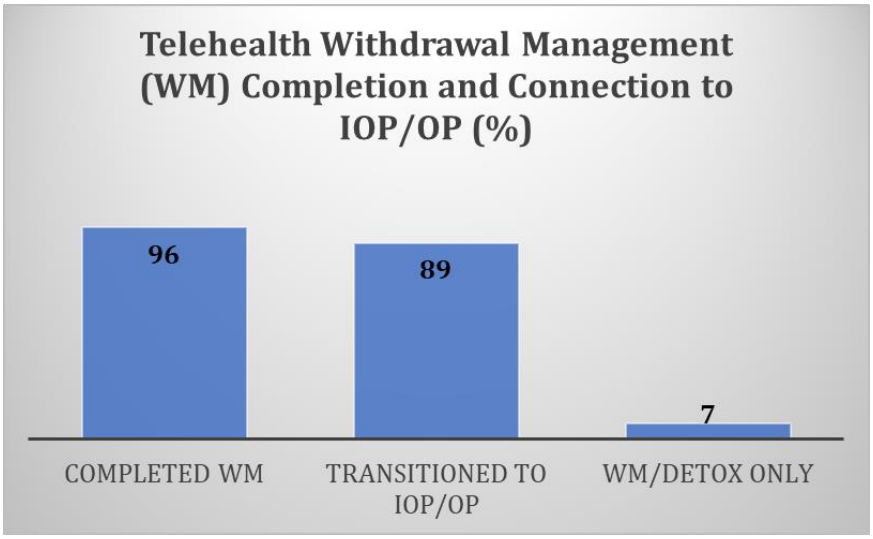
Withdrawal Management Completion and Connection to IOP/OP

Week	Admissions	Completed WM	Connected to IOP/OP After Completing WM
1	12	12	10
2	16	15	12
3	18	17	17
4	19	19	18
5	22	22	20
6	22	20	20
7	21	21	18
8	25	23	23
Total number of patients	155	149	138

During the eight weeks, the number of patients admitted, completed WM, transitioned to an IOP/OP, and detox only was calculated by percentage and displayed by chart. See Figure 5 below.

Figure 5

Withdrawal Management Completion and Connection to IOP/OP (Percentage)



Substances

The substances that were included in the telehealth WM program were alcohol, opioids, benzodiazepines, kratom, Phenibut, sedative hypnotics/Z-drugs, and cannabis. The length of the time for the WM process varied based on the type of substance, but these were the expected timeframes:

- Alcohol: 3 days
- Cannabis: 2 days
- Opioids: 3-5 days (depending on the type)
- Benzodiazepines, Z-drugs, Phenibut: 3 days
- Kratom: 2-3 days

It was expected that additional days may have been needed for patients with polysubstance use. The prevalence of each of the substances was calculated using the following formula:

- Prevalence rate (%) = Number of patients using the substance during the same period/Population size x 100.

Alcohol had the highest prevalence out of all the substances used by patients entering WM, followed by opioids and cannabis.

Table 3

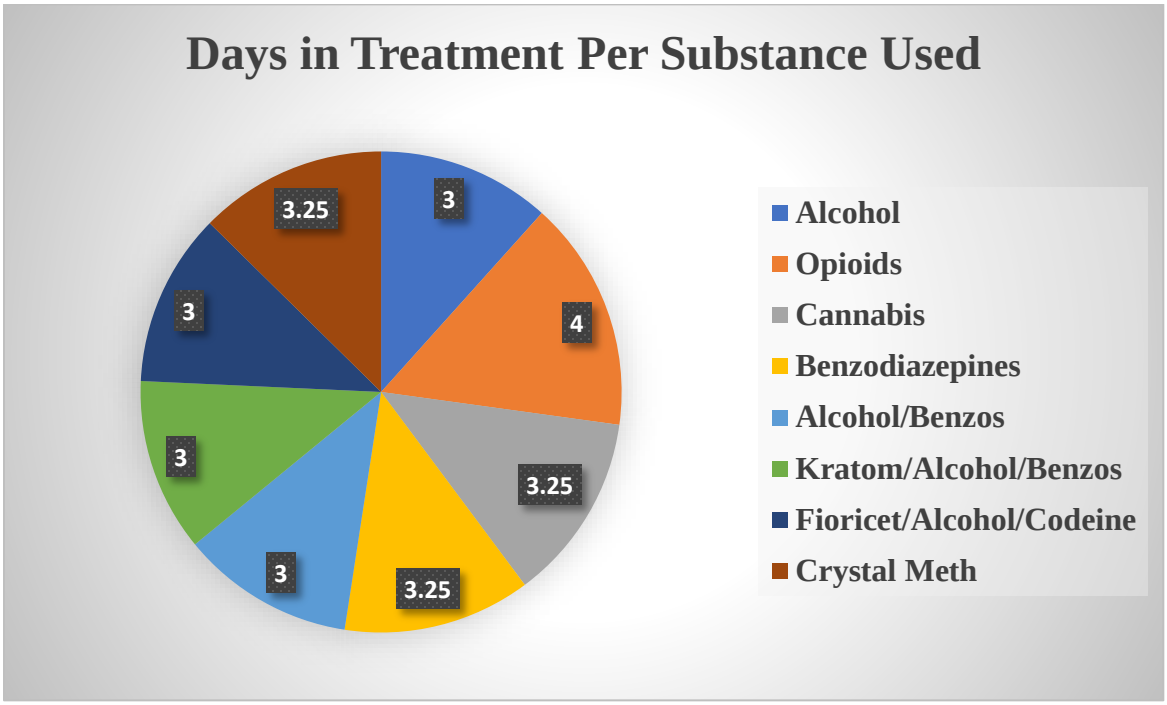
Prevalence of Substances

Prevalence of Substances Treated		
Substance	**Patients**	**Rate (%)**
Alcohol	101	77.1
Opioids	14	10.7
Cannabis	4	3.1
Benzodiazepines	4	3.1
Alcohol/Benzodiazepines	5	3.8
Kratom/Alcohol/Benzodiazepines	1	0.8
Fioricet/Alcohol/Codeine	1	0.8
Crystal Meth	1	0.8

Figure 6 shows the average days spent in WM for each substance.

Figure 6

Days in Treatment for Each Substance



Discussion

Summary

During the COVID-19 pandemic, Kolmac Centers could utilize telehealth to evaluate and treat patients with SUD due to the relaxation of regulatory requirements. Preliminary data from that time indicated that approximately 1,500 patients with SUD were effectively and safely treated using telehealth services. The data also revealed that around 75% of patients completed WM and transitioned into the intensive outpatient program (IOP). Since the intervention was not

evaluated for efficacy and safety, the current project was implemented. The project focused on provider and staff education and assessing their perceptions about the use of telehealth for WM in patients who met specific criteria. In addition, the primary goal was to successfully establish telehealth as an alternative approach to SUD treatment. The outcome measures evaluated for patients receiving WM via telehealth included the number of patients entering WM with telehealth, completing WM with telehealth, and transitioning into IOP after completing WM with telehealth.

The findings demonstrated that 96% of all patients (155) admitted for telehealth WM completed the program, and only six were discharged or did not meet the criteria. 89% of the patients who completed the WM program transitioned into an intensive outpatient program (IOP) or outpatient program (OP). 7% of the patients completed WM only without transitioning to IOP. Although this far surpassed the original data of 75% (1,500 patients) during COVID-19 at the project site, the sample size was much smaller.

Provider and staff perceptions of the usefulness of telehealth for WM were measured with the TAM questionnaire before and after project implementation. The results from the TAM questionnaire post-implementation indicated that the number of providers and staff that strongly agreed and agreed significantly increased from the answers given pre-implementation. Providers appeared more comfortable using telehealth for WM after the educational in-service. They agreed that it was effective and allowed the clinic to provide a more comprehensive service to patients.

Interpretation

Preliminary data from the electronic health records of patients at Kolmac Centers indicated that 56% who initiated WM in person did not complete the treatment compared to 75%

who completed WM using telehealth during the COVID-19 pandemic. Patients reported that coming to the clinics interfered with their daily lives or work schedules during admission or intake, and they often preferred telehealth. The data also suggested that patients referred to inpatient WM or detox did not proceed with admission, typically involving a 28-day stay. The data suggested that inpatient WM treatment was not favorable for some patients with SUDs. The findings from this project demonstrated that the completion rate for patients entering the telehealth WM program was significantly higher than in-person treatment and the initial data from telehealth used during the COVID-19 pandemic by 40% and 21%, respectively. The findings suggest that using telehealth for WM in SUD patients is safe and effective.

Limitations

The utilization of outpatient telehealth as a treatment approach for patients with SUD can present limitations. These limitations include limited access to reliable technology and digital skills among certain patients, potentially impeding their active participation in telehealth treatment. Concerns related to privacy and confidentiality, as well as the risk of unauthorized access to virtual sessions, may compromise the integrity of the therapeutic environment. Furthermore, telehealth may not comprehensively capture non-verbal cues that are critical for diagnosis and treatment, making it challenging to monitor physical signs of substance use. Handling medical emergencies during telehealth sessions introduces unique challenges, which can result in delays in providing critical care when needed. The monitoring of medication adherence and ensuring the safe use of medications can also be problematic when in-person visits are not feasible. Comprehensive assessments, including procedures such as drug screening,

may be limited to within a virtual setting, impacting the ability to plan and tailor treatment strategies effectively.

Additionally, telehealth's legal and regulatory complexities, particularly in cross-state practice, may pose substantial hurdles to its adoption and implementation. The findings of this project may be affected by a new regulation proposed by the Drug Enforcement Administration (DEA) that states that when the prescribing practitioner wants to prescribe controlled medications via telemedicine, an in-person medical evaluation must be conducted beforehand. DEA recently extended telehealth through November 2024. However, the Kolmac Centers have a contingent plan to begin having all patients evaluated by a medical provider in person on the first day of WM for assessment and continuation of telehealth services. Furthermore, telehealth can potentially exacerbate health disparities, particularly for underserved populations with limited access to technology, further complicating the provision of equitable care. Lastly, it is noteworthy that some patients may exhibit resistance or disengagement from treatment when it is exclusively offered through telehealth, potentially impacting treatment adherence and effectiveness. These limitations underscore the importance of carefully considering and addressing these challenges when implementing telehealth as a treatment modality for patients with substance use disorder.

Conclusion

Effective treatment modalities have been established for individuals with substance use disorder (SUD). However, substantial impediments frequently impede their access to appropriate care. Despite achieving treatment outcomes that are on par with those of other chronic conditions, such as diabetes, persisting disparities in healthcare access continue to impede entry

into SUD treatment programs. The results derived from this study exemplify that the implementation of telehealth services for Withdrawal Management (WM) significantly enhances program completion rates and facilitates a seamless transition to Intensive Outpatient Programs (IOP), thereby facilitating the continuum of the recovery process. Nevertheless, the potential impact of the newly introduced regulatory measures by the Drug Enforcement Administration (DEA) on these findings remains uncertain. Consequently, the ongoing collection of data and vigilant monitoring of patient outcomes are imperative to ascertain this intervention's sustained safety, effectiveness, and long-term viability. Additional research is needed to continue examining telehealth's impact on patient outcomes beyond this project. There will be ongoing staff education within the organization about the benefits of telehealth. There is also the plan to educate local emergency rooms or hospitals and staff to capture patients who are seen for alcohol withdrawals and overdose from substances. There will be ongoing integration of substance use disorder treatment as collaboration with private medical practice to educate on the benefits of utilizing telehealth as a treatment approach, removing some of the barriers to care.

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Appendix A: Technology Acceptance Model Based Survey

Attributes of Telemedicine (Pre-and-Post-Implementation Survey)

Please indicate to what extent you agree or disagree with the following statements on staff satisfaction with utilizing telehealth for WM services and acceptance in Kolmac facilities by circling the appropriate number/scale.

(1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree)

Perceived Usefulness (PU)					
Questions	**Responses**				
1. Using telehealth for WM would enable me to provide care more quickly.	*1*	*2*	*3*	*4*	*5*
2. Using telehealth for WM would support treatment planning for my patients.	*1*	*2*	*3*	*4*	*5*
3. Using telehealth for WM would provide a more comprehensive care service.	*1*	*2*	*3*	*4*	*5*
4. Using telehealth for WM would enhance the effectiveness of the intervention.	*1*	*2*	*3*	*4*	*5*
5. Using telehealth for WM would make providing care for people with SUDs easier.	*1*	*2*	*3*	*4*	*5*
6. I am satisfied with using telehealth services for WM.	*1*	*2*	*3*	*4*	*5*

Perceived Ease of Use (PEU)					
7. Learning to use telehealth for WM would be easy for me.	*1*	*2*	*3*	*4*	*5*
8. I will gain rich and diverse experiences in WM telehealth services delivery.	*1*	*2*	*3*	*4*	*5*
9. My interactions with patients using telehealth for WM are clear and understandable.	*1*	*2*	*3*	*4*	*5*
10. I find using telehealth for WM clear and understandable.	*1*	*2*	*3*	*4*	*5*
11. It would be easy for me to become skilled at using telehealth for WM.	*1*	*2*	*3*	*4*	*5*
12. I intend to adopt telehealth for WM because of its benefits.	*1*	*2*	*3*	*4*	*5*

Appendix B: Budget

Itemized Details of Cost-Benefit

Item	Description	Total Cost
Computers	$1000 per computer	$0.00 (provided by facility)
Survey printing for surveys, handouts, and training sessions.	N/A	$0.00 (provided by facility)
Toner cartridge for printer	N/A	$0.00 (provided by facility)
Office supplies and souvenirs	N/A	$0.00 (provided by facility)
Zoom Application for Telehealth	Zoom app as a secured video app and phone service	$0.00 (provided by facility)
Location for training and project implementation	A conference room was allocated for the training session, office space and bill	$0.00 (provided by facility)
Clinical staff	Staff members who will participate	$0.00 (provided by facility)
Staff training	Allocated time for staff training 3 hours	$0.00 (provided by facility)
Total Costs		**$0**

Appendix C: Telehealth Withdrawal Management Procedures and Protocols

I. General Principles for All Substances

1. **Comfort:** To optimize the effectiveness of the treatment approach, patients are advised to arrive at the Kolmac Centers in a state of mild to moderate withdrawal. This ensures that their withdrawal symptoms can be addressed promptly and efficiently without excessive medication. However, in cases where patients do not exhibit any withdrawal symptoms, consulting with other medical staff is recommended before determining the appropriate level of care and considering a referral to the next stage, such as an Intensive Outpatient Program (IOP). This collaborative approach helps patients receive the most appropriate and tailored care based on their needs.
2. **Tracking Progress:** Vital signs should be taken whenever possible on admission and each follow-up day. Pulse is sometimes a helpful indicator of withdrawal severity, but blood pressure is not unless it is extremely high. Formal scales, such as COWS and CIWA, should be completed once daily at the start of the day, but the most significant reliance for dosing should be placed on the patient's subjective reports:
    a. Ask patients to rate their withdrawal discomfort on a scale of 0 (no withdrawal symptoms) to 10 (worst symptoms they ever had). Say, "If zero is feeling completely comfortable and ten is the worst withdrawal you have ever had, what number would you put on your withdrawal discomfort right now?"
    b. Track this number hourly and adjust the medication dosing accordingly.
3. **IOP Right Away:** Patients should always be put into the IOP group immediately after being given the first dose of medication unless this disrupts the 2nd hour of IOP.

Exceptions should only be made if their withdrawal discomfort is extremely severe. If patients resist, empathize with their concerns but respond that the groups are where the critically important addiction treatment occurs, and we do not want to delay that treatment.

4. **Driving Advisory:** Patients should not drive after being medicated on the first day of treatment and must arrange for alternative means of transportation. Caution: The patient is not to drive on the following days of treatment if feeling sedated or otherwise impaired.
5. **Follow-Up:** Day 2, 3, and 4 meetings, either in person or by video, should be arranged daily.
6. **Emergency Procedures:** If, during the initial evaluation, it is determined that the patient requires withdrawal management, the Kolmac medical staff assesses whether it can be conducted on an ambulatory basis, either in-person or via telehealth. In cases where inpatient management is necessary, arrangements are made for transfer to a local facility that is licensed to provide this service, either through emergency services or with the assistance of the patient's family.

If, at any point during the assessment or treatment process, the patient exhibits signs of a medical or psychiatric condition that requires a higher level of care, immediate arrangements are made for emergency transfer to an appropriate medical facility capable of addressing the specific problem. Kolmac maintains a 24/7 on-call system for crisis and medical intervention to support withdrawal management. A member of the Kolmac medical staff is always available and can be reached through a mobile phone. Outside of regular business hours, when the Kolmac program is closed, an answering system provides the patient with an emergency cell phone number. A

Kolmac clinician monitors this cell phone throughout non-business hours. If the issue cannot be resolved, a member of the Kolmac medical staff is consulted and may directly engage with the patient to provide assistance.

II. Medication Protocols

1. Alcohol

- **a.** Benzodiazepines and Anticonvulsant hybrid
- **b.** Symptom-Driven VS Fixed Dose
- **c.** Antabuse, Naltrexone, Acamprosate
- **d.** Gabapentin for post-acute withdrawal symptoms (PAWS)

2. Benzo/Z-Drug

- **a.** Extended taper with phenobarbital

3. Cannabis

- **a.** Gabapentin Regimen

4. Pharmaceutical Grade Opioids & Kratom

- **a.** Buprenorphine-Naloxone
- **b.** Narcan

5. All Other Opioids

- **a.** Bridge to buprenorphine Mono-products
- **b.** Buprenorphine-Naloxone
- **c.** Narcan

III. Procedures for Withdrawal from Multiple Classes of Substances

1. Alcohol + Benzodiazepines and Z-Medications

These can be done simultaneously. Initiate the alcohol protocol and transition into the benzodiazepine protocol. This may require higher doses initially than when treated separately.

2. **Alcohol + Opioids**

   These can be done simultaneously using the protocols for each. Chlordiazepoxide or clonazepam require more cautious dosing, and observation for respiratory depression may be indicated.

3. **Opioids + Benzodiazepines, Barbiturates, and Z-Medications**

   These are usually done sequentially. The best practice is to stabilize the patient on buprenorphine and then address the benzodiazepines in the second week.

Appendix D: Application for Nursing Clinical Project Review

Name and contact information of student: Veronica Kwegyir-Afful

Program Track: DNP

Title of the Project: Utilizing an Outpatient Telehealth Treatment Approach for Patients with Substance Use Disorder

Consider these questions:

1. Will the activities of this project occur within the standard of care? If NO, then proceed to IRB review. **YES**
2. Is there a risk? If YES, this project requires QI or IRB review by the nursing department committee. **NO**
3. Is this project primarily intended to generate generalizable knowledge? If YES, proceed to IRB review. **NO**
4. Does this project involve vulnerable populations? **NO**

Appendix E: PowerPoint Presentation

Brief Overview of Virtual/Telehealth Withdrawal Management (WM) Services

The goal is to give patients the option to provide WM through telehealth.

Substances: This quality improvement project seeks to provide WM services for patients using alcohol, opioids, benzodiazepines, kratom, phenibut, sedative hypnotics/Z-drugs, and cannabis.

Expected Timeframes for WM: The length of the WM process varies based on substances, but these are the expected timeframes. Additional days may be needed for polysubstance protocol as follows:

- Alcohol--3 days
- Cannabis--2 days
- Opioids--3-5 days (depending on type)
- Benzodiazepines, Z-drugs, Phenibut--3 days
- Kratom--2-3 days

Process:

- Patients will have a thorough assessment with a WM nurse within 1 hour of completing their evaluation with a clinician. Their substance use, medical, and psychiatric histories will be reviewed to determine if they can complete WM virtually.
- Once approved for VWM, the nurse will work with the patient to develop a plan to start either the same day or at a later time, depending on their needs/schedule
- Medications will be ordered to their preferred pharmacy, and the patient will pick them up and begin dosing on their identified start date.

- Nurses will maintain hourly contact with the patient (either by phone or Zoom video chat) to assess their symptoms, dose medications, and reevaluate. As WM progresses and pts stabilizes, the contact frequency will decrease as indicated.
- Patients will be seen via telehealth by the Provider (NP, PA, MD) covering WM within 24 hours of starting for a face-to-face evaluation.
- At the end of WM, the nurse will review the finalized medication regimen, schedule a follow-up appointment with the patient's medical provider, and provide a handoff detailing their progress/plan.

Requirements:

- In almost all cases, patients are required to have a PSP (personal support person) who can be with them during WM – how long the PSP will need to be present varies depending on the substance used and any issues identified in their medical and psychiatric history that may be areas for concern. The PSP is usually needed only for the first two days of WM.
- Patients cannot drive during day 1 of WM.
- Patients must take off work for at least the first two days of WM, sometimes longer depending on substance use and any concerns. If they are working remotely and can maintain hourly contact with the nurse despite working, they may either work through the WM or take off only the first day.
- ANTABUSE IS REQUIRED FOR ALCOHOL DURING WM FOR SAFETY REASONS

After WM Process- Intensive Outpatient Program (IOP)

Patients will be required to attend 3-4 days per week IOP group therapy sessions after WM as part of the program to ensure continuity of care, treat PAWS, and prevent relapse.

Virtual WM services will also be provided for patients seeking IOP services outside the organization.

Appendix F: Clinical Institute Withdrawal Assessment of Alcohol Scale Revised (CIWA-AR)

Patient: _____

Date:_____ Time (24-hour clock, midnight = 00.:00) _____

Pulse or heart rate, taken for one minute:

Blood pressure:

Nausea and Vomiting--Ask, "Do you feel sick? Have you vomited?" Observation.

0: No nausea and no vomiting

2: Mild nausea with no vomiting

3: Intermittent nausea with dry heaves

4: Constant nausea, frequent dry heaves, and vomiting

Tremor — Arms extended, and fingers spread apart. Observation.

0: No tremor

1: Not visible, but can be felt fingertip to fingertip

2: Moderate, with the patient's arms extended

3: \Severe, even with arms not extended

Paroxysmal Sweats--Observation.

0: No sweat visible

1: Barely perceptible sweating, palms moist

2: Beads of sweat evident on the forehead

3: Drenching sweats

Anxiety--Ask, "Do you feel nervous?" Observation.

0: No anxiety, at ease

1: Mild anxiety

2: Moderate anxiety, or guarded, so anxiety is inferred

3: Equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

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Agitation--Observation.

0: Normal activity

1: Somewhat more than normal activity

2: Moderately fidgety and restless

3: Paces back and forth during most of the interview, or constantly thrashes about

---

Tactile Disturbances--Ask "Have you had any itching, pins and needles sensations, any burning, any numbness, or do you feel bugs crawling on or under your skin?" Observation.

0: None

1: Very mild itching, pins and needles, burning, or numbness

2: Mild itching, pins and needles, burning, or numbness

3: Moderate itching, pins and needles, burning, or numbness

4: Moderately severe hallucinations

5: Severe hallucinations

6: Extremely severe hallucinations

7: Continuous hallucinations

Auditory Disturbances--Ask, "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything disturbing to you? Are you hearing things you know are not there?" Observation.

0: Not present

1: Very mild harshness or ability to frighten

2: Mild harshness or ability to frighten

3: Moderate harshness or ability to frighten

4: Moderately severe hallucinations

5: Severe hallucinations

6: Extremely severe hallucinations

7: Continuous hallucinations

Visual Disturbances--Ask "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything disturbing to you? Are you seeing things you know are

not there?" Observation.

0: Not present

1: Very mild sensitivity

2: Mild sensitivity

3: Moderate sensitivity

4: Moderately severe hallucinations

5: Severe hallucinations

6: Extremely severe hallucinations

7: Continuous hallucinations

Headache, Fullness in Head--Ask, "Does your head feel different? Does it feel like there is a band around your head?" Do not rate dizziness or lightheadedness. Otherwise, rate severity.

0: No present

1: Very mild

2: Mild

3: Moderate

4: Moderately severe

5: Severe

6: Very severe

7: Extremely severe

Orientation and Clouding of Sensorium--Ask, "What day is this? Where are you? Who am I?"

0: Oriented and can do serial additions

1: Cannot do serial additions or is uncertain about the date

2: Disoriented for the date by no more than 2 calendar days

3: Disoriented for the date by more than 2 calendar days

4: Disoriented for place/or person

Patients scoring less than 10 do not usually need additional medication for withdrawal.

Total CIWA-AR Score:
Rater's Initials:
Maximum Possible Score: 67

Appendix G: Clinical Opiate Withdrawal Scale (COWS)

Flow sheet for measuring symptoms of opiate withdrawals over some time.

For each item, write the number that best describes the patient's signs or symptoms. Rate on just the apparent relationship to opiate withdrawal. For example, if the heart rate is increased because the patient was jogging just before the assessment, the increased pulse rate would not add to the score.

Patient's Name:_____ Date: _____ Enter scores at time zero, 30min after the first dose, 2 h after the first dose, etc. Times: _____ _____ _____ _____				
Resting Pulse Rate: (record beats per minute) *Measured after the patient is sitting or lying for one minute.* 0: Pulse rate 80 or below 1: Pulse rate 81-100 2: Pulse rate 101-120 3: Pulse rate greater than 120				
Sweating: *Over the past ½ hour not accounted for by room temperature or patient activity.* 0: No report of chills or flushing 1: Subjective report of chills or flushing 2: Flushed or observable moistness on the face 3: Beads of sweat on the brow or face 4: Sweat streaming off the face				
Restlessness: *Observation during assessmen*t 0: Able to sit still 1: Reports difficulty sitting still but can do so 2: Frequent shifting or extraneous movements of legs/arms 3: Unable to sit still for more than a few seconds				
Pupil Size: 0: Pupils pinned or normal size for room light 1: Pupils possibly larger than normal for room				

light 3: Pupils moderately dilated 4: Pupils so dilated that only the rim of the iris is Visible				
Bone or Joint Aches: *If the patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0: Not present 1: Mild diffuse discomfort 2: Patient reports severe diffuse aching of joints/ muscles 3: Patient is rubbing joints or muscles and is unable to sit still because of discomfort				
Runny Nose or Tearing: *Not accounted for by cold symptoms or allergies* 0: Not present 1: Nasal stuffiness or unusually moist eyes 2: Nose running or tearing 3: Nose constantly running or tears streaming down cheeks				

GI Upset: *Over the last ½ hour* 0: No GI symptoms 1: Stomach cramps 2: Nausea or loose stool 3: Vomiting or diarrhea 4: Multiple episodes of diarrhea or vomiting				
Tremor: *Observation of outstretched hands* 0: No tremor 1: Tremor can be felt, but not observed 2: Slight tremor observable 3: Gross tremor or muscle twitching				
Yawning: *Observation during assessment* 0: No yawning 1: Yawning once or twice during the assessment 2: Yawning three or more times during the assessment 3: Yawning several times per minute				

Anxiety or Irritability: 0: None 1: Patient reports increasing irritability or anxiousness 2: Patient irritable anxious 3: The patient is so irritable or anxious that participation in the assessment is difficult				
Gooseflesh Skin: 0: Skin is smooth 1: Piloerection of skin can be felt or hairs standing up on arms 2: Prominent piloerection				
Total Scores (with the observer's initials)				

Scoring:

5-12: Mild

13-24: Moderate

25-36: Moderately severe

> 36: Severe withdrawal

Appendix H: Patient Education Handout

What Is Withdrawal Management (WM)?

1. WM are services designed to assist patients in safely withdrawing from alcohol or other substances.
2. Also called medication-assisted treatment and detox.
3. WM not only helps with physical symptoms, like nausea, sweating, or fever, but it also includes psychological care for mental distress, such as anxiety and insomnia.

Can I Access WM Virtually?

Yes, if you meet the requirements.

Requirements for Telehealth WM:

1. Patients must have a personal support person (PSP) who can be with them during WM.
2. The length of time the PSP needs to be present varies depending on the substance used and any areas for concern identified in their medical and psychiatric history.
3. Usually, the PSP is needed only for the first 2 days.
4. Patients cannot drive during the first day of WM.
5. Patients must not work for at least the first 2 days of WM.
6. Patients working remotely may either work through WM or take off the 1st day only if they are able to maintain hourly contact with the nurse.

Kolmac Integrated Behavioral Health currently provides WM services for opioids, benzodiazepines, kratom, phenibut, sedative hypnotics/Z-drugs, and cannabis.