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Examining the feasibility of integrating an alcohol detoxification protocol within primary care

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Abstract

Purpose: Medically supervised, in-home alcohol detoxification is safe, efficacious, cost-effective, and satisfying for patients. However, it remains underutilized within primary care practices. This feasibility study aimed to examine clinician perceptions of adopting a standardized outpatient alcohol detoxification protocol at a rural primary care clinic where no internal protocol exists. **Methods:** An ambulatory alcohol detoxification protocol was created using the *American Society of Addiction Medicine* guideline on alcohol withdrawal management and presented to 38 providers and 11 nurses. Twelve participants (six providers and six nurses) completed a modified version of the Implementation Process Assessment Tool. The instrument measured stakeholder perceptions of the protocol within the domains of *individual stages for behavioral change, individual activities and perceived support, collective readiness and support,* and *perceived effectiveness of the intervention*. Average sub-domain scores were analyzed using the one-sample *t*-test. **Results:** Meaningful increases in average IPAT scores were noted for *individual stages for behavioral change* among nurses (25.33, $p < 0.05$) and the total cohort (24.4, $p < 0.01$), and for *perceived effectiveness of the intervention* among nurses (18.33, $p < 0.05$), providers (21, $p < 0.05$), and the total cohort (19.4, $p < 0.01$). **Conclusions:** Stakeholders viewed the protocol favorably in terms of perceived effectiveness and openness to change. Neutral ratings related to perceived support and individual/collective readiness highlighted a need to tailor implementation strategies before trialing the protocol. This study was limited by its small sample size and nonresponse bias. Structured stakeholder interviewing and replication with a refined sampling methodology are recommended.

Keywords: alcohol use disorder; clinical protocols; ambulatory care facilities; feasibility studies; implementation science

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Introduction

Caring for individuals living with patterns of alcohol misuse within the community setting remains a challenging imperative for primary care medical home teams. Alcohol misuse encompasses harmful patterns of use that include binge drinking (4 or more alcoholic beverages per occasion for women or five or more drinks per occasion for men), heavy drinking (8 or more alcoholic beverages per week for women or 15 or more alcoholic beverages per week for men), and any drinking by pregnant women or individuals younger than 21 years of age (National Center for Chronic Disease Prevention and Health Promotion [NCCDPHP], 2021).

With time, psychologically driven heavy use and dependence patterns lead to alcohol use disorder (AUD). Adverse health outcomes attributed to unhealthy alcohol use include cognitive and psychological problems, heart disease, stroke, hypertension, liver disease, certain forms of cancer, injuries (falls, motor vehicle accidents, drownings, burns), violence (homicide, suicide, sexual assault), poisonings, overdoses, unintended pregnancies, sexually transmitted disease, and poor pregnancy outcomes (miscarriage, stillbirth, premature birth, and sudden infant death syndrome; NCCDPHP, 2021). Alcohol misuse is a leading preventable cause of death in the United States, causing one in ten deaths among working-age adults yearly (NCCDPHP, 2021). Nationally, it contributes to 95,000 deaths yearly, shortening lives on average by 29 years, and incurs over $249 billion annually in economic costs (NCCDPHP, 2021). Expanding alcohol misuse screenings and initiating early, comprehensive, patient-centered treatment can prevent downstream healthcare expenses related to alcohol use sequalae.

Problem Description

Expanding alcohol misuse treatment was among the top five community health priorities in the study clinic's 2022 Community Health Needs Assessment (Farnsworth et al., 2022). This survey was conducted within the study clinic's service region, encompassing 19 municipalities within both western NH and central Vermont, with a total resident population of 69,612 people (Farnsworth et al., 2022). Over 22% of adults reported excessive alcohol use using the Behavioral Risk Factor Surveillance System, higher than NH and VT statewide percentages (Farnsworth et al., 2022). The surveyors defined excessive alcohol use as: "drinking more than two drinks per day on average for men or more than one drink per day for women), or binge drinking (drinking five or more drinks on an occasion for men or four or more drinks on an occasion for women*"* (Farnsworth et al., 2022, p. 50). Emergency department and impatient hospitalizations due to drug and alcohol-related diagnoses account for 42 per 100,000 of the service area's population (Farnsworth et al., 2022). The 2020 pandemic drastically cut alcohol treatment programs across New Hampshire, going from 72 programs to 16 in the state capital (Burch, 2020). Sober living programs are reimbursed well below the detoxification cost and wait times for admission take between three to six weeks (Burch, 2020).

To meet community health priorities set forth by the State of Vermont, The New Hampshire Office of the Governor, and the service region's Community Improvement Plan, members of the Primary Care Substance Use Disorder Collaborative sought innovative ways to expand care delivery for paneled patients who screened positive for AUD during clinical encounters. This study's primary care clinic has an internal clinical practice guideline on harmful drug and alcohol use, which outlines the process for AUD screening, performing brief motivational intervention, and referral to addiction treatment (Substance Use and Mental Health

Initiative [SUMHI], 2021). The initial risk evaluation for developing alcohol withdrawal syndrome, encompassing level of care determination, and planning ambulatory management, is not an included part of this guide. This differs from recommendations put forth by the American Society of Addiction Medicine (ASAM; Alvanzo et al., 2020). Despite an awareness of the prevalence of alcohol misuse and barriers to treatment, no standardized approach to alcohol treatment initiation has been created for ambulatory primary care clinics at the institutional level.

Available Knowledge

A recent 2017 systematic literature review conducted by researchers at the University of Bath found that community-based alcohol detoxification is shown to be safe, efficacious, cost-effective, feasible, has high rates of completion, and is supported by patient stakeholders (Nadkarni et al., 2017). Considering their promising preliminary results, the researchers recommended a shift in policy to stepped-care collaborative models, wherein detoxification is first managed within primary care. Successful primary care detoxification programs must have clear eligibility criteria, daily structured monitoring of patient symptoms, medication protocols based on objective withdrawal symptom measurement, and direct linking of patients with continued maintenance treatment following detoxification (Nadkarni et al., 2017).

A synthesis table of in-home-based detoxification monitoring studies with the most substantial level of evidence, based on the level of effectiveness rating scheme proposed by Betty Ackley and colleagues, is provided in Appendix A (Ackley et al., 2008). This table includes an additional study conducted by Motoi Hayashida and colleagues from the *New England Journal of Medicine*, who report similar conclusions to the original systematic review (Hayashida et al., 1989). Community-based detoxification appears to have similar outcomes, minimal adverse events, and completion rates compared to inpatient detoxification. Additionally,

patients in the community reported better drinking outcomes relating to reduced consumption, cognitive and functional status, and continued abstinence than facility-based detoxification (Nadkarni et al., 2017).

Expanding alcohol detoxification management to ambulatory care clinics would reduce expenditure within more extensive hospital operating budgets. Various studies examining the costs of community-based alcohol detoxification estimate it to be 6 to 22 times cheaper than inpatient detoxification (Nadkarni et al., 2017). An Australian study showed that general hospital detoxification is 10.6 to 22.7 times the cost of home detoxification (Bryant & Rogers, 2001). In the United Kingdom (UK), inpatient detoxification for homeless individuals was roughly four times the cost of a community hostel (Haigh & Hibbert, 1990). Another UK study reported inpatient detoxification to be six times the cost of outpatient detoxification (Klijnsma et al., 1995). A community detoxification program conducted in the UK reported a 50% reduction in alcohol detoxification admissions to the hospital, translating to an estimated savings of 74 inpatient weeks (Collins et al., 1990). A similar study conducted in the United States projected savings of $600,000 within the first year of the outpatient program (Wiseman et al., 1997).

Patients find community detoxification highly acceptable, as they can continue working, perceive more excellent support from providers and team nurses, and appreciate frequent check-ins from members of their medical home (Nadkarni et al., 2017). Community detoxification allows for timely support from initial patient help-seeking, preventing anxiety and demotivation amongst those seeking help, mainly if a patient is seen within 24 hours (Nadkarni et al., 2017). Specialist treatment is often resource-intensive and difficult to access in rural communities, causing delays in treatment initiation. Community alcohol detoxification would allow for improved treatment initiation and meeting goals put forth by public health departments.

Despite its demonstrated benefits, primary care clinics rarely oversee home alcohol detoxication due to perceived operational and training practice barriers. General practitioner stakeholders cited several concerns over community-based detoxification. Concerns included perceived time constraints for conducting alcohol withdrawal risk assessments and care planning within the length of a standard visit. Clinicians were doubtful regarding patient adherence, sensing a lack of patient motivation, a lack of patients' ability to follow detoxification instructions, and a lack of patients having the social and environmental support to comply. Some perceived a lack of effectiveness of home detoxification, as clinics would need to ensure patients continued adherence to ongoing addiction treatment to maintain sobriety. Clinicians also cited concerns over the inability to oversee and manage detoxification, lack of specialized training, and lack of reimbursement (Nadkarni et al., 2017). To implement successful outpatient alcohol detoxification practices within primary care clinics, providers and faculty would need to be trained in standardized approaches to practice. The care process must be integrated into current workflows to ensure successful transitional care management following detoxification.

Suggested quality improvement strategies that address these barriers involve using standard protocols, assessment workflow schedules, and predetermined medication regimes for specific comorbidities and levels of dependence (Nadkarni et al., 2017). These strategies would minimize provider uncertainty regarding clinical approaches and how to address varying medical and psychiatric patient comorbidities. Standardized clinical workflows would clarify staff roles and responsibilities. Protocols would also guide withdrawal syndrome prescribing for different levels of dependence and medical comorbidities. Process standardization would also contribute to visit timeliness - streamlining patient examinations, care planning, and documentation. Research supports the use of standardized substance abuse intake processes. Thirty participating

counties of California's Medicaid Program adopted the *ASAM* criteria to determine the appropriate level-of-care for patients presenting with substance use disorder. Surveys conducted within these participating counties revealed that patients found the process more patient-centered and were more satisfied with their treatment setting (Mark et al., 2021).

Expanding outpatient detoxification services can minimize unnecessary emergency department utilization. In one study, extending access to outpatient addiction services following emergency room visits in a sample of 194 encounters led to an 82% reduction (p <0.001) in total-alcohol emergency room visits and revisits (Corace et al., 2020). Patients who received rapid outpatient alcohol intake and treatment reported reductions in alcohol use, depression, and anxiety (Corace et al., 2020).

Structured withdrawal monitoring delivered by a trained nurse or lay health person improves treatment outcomes. The Community Orientated Non-specialist Treatment of Alcohol Dependence study conducted in a low-resource community in Geo, India, trained lay healthcare workers (LHW) in detoxification monitoring. After a primary care physician confirmed patient eligibility for home detoxification, LHWs performed a drinking history assessment, explained the detoxification process, obtained patient consent, and delivered daily monitoring to patients prescribed benzodiazepine taper regimens. The researchers determined there was a significant decrease between baseline and follow-up in a) daily alcohol consumption in 15 patients who completed treatment (median 20.7 vs. 0, p = 0.04) and in 11 patients who received combined home detoxification and relapse prevention counseling (median 35.7 vs. 0, p = 0.006; Nadkarni et al., 2020). The 38-patient cohort demonstrated improved alcohol-related problems at follow-up (24.5 vs. 15.0, p = 0.002), as measured by the Short Inventory of Problems score (Nadkarni et al., 2020).

Similar outcomes were found at an Australian-based, nurse-led, community health clinic when implementing their outpatient alcohol detoxification program. The nurses created standardized eligibility criteria and procedures from published New South Wales Health guidelines. One-third of patients referred for withdrawal management were accurately assigned to higher levels of care following intake risk assessments. Of the eligible patients who commenced withdrawal treatment, 85% completed the four-day treatment regime, over 50% were transitioned to anti-craving medication, and 39% reported abstinence at one month (Ammit & Miles, 2021). Additionally, the wait time from intake to initial appointment was less than a week in 90% of cases (Ammit & Miles, 2021). Expanding the role of team nurses in withdrawal monitoring practices can help general practice settings hasten treatment initiation.

Rationale

It is postulated that the proposed use of a formalized alcohol withdrawal management guideline by primary care teams will increase community-based alcohol detoxification in patients who screen positive for heavy alcohol use. Furthermore, standardized approaches to clinical management could empower teams to screen, diagnose, and address heavy alcohol use within their patient population. Assessment of individual staff and collective site readiness for change is a necessary first step toward adopting an expanded ambulatory alcohol detoxification protocol. Expanded use of detoxification protocols can improve barriers related to patient access, reduce healthcare costs, and contribute to higher levels of patient satisfaction.

Creating a standardized outpatient alcohol detoxification process is supported by the Interaction Model of Client Health Behavior (IMCHB), developed by Cheryl Cox. This model illustrates the concept of the client-professional interaction as a framework to “(1) recognize the client’s individuality…in the attainment of positive health behaviors, (2) address the elements

that constitute client-professional interaction and their role in determining health behavior, and (3) guide the development of nursing interventions…specifically tailored to the individual client and the expressed care need" (Cox, 1982, p. 42). The IMCHB is a middle-range theory, analyzed to have significance, generality, testability, empirical adequacy, and pragmatic adequacy (Kim et al., 2020).

The model assumes client behaviors are influenced by various facets of their singularity and aspects of the "client-provider relationship" (Cox, 1982, pp. 46-47). Furthermore, it assumes clients should be allotted the maximal amount of control within the limits of their environment in determining the actions taken to preserve their state of health. A depiction of the IMCHB is replicated in Figure B1.

When planning supervised alcohol detoxification and stratifying risk in clients with AUD, providers must consider their client's singularity. The IMCHB suggests that a healthcare professional can assess aspects of client singularity in determining their approach to client interactions and intervention planning (Cox, 1982). These client-specific variables include background variables, client motivation, cognitive appraisal of their health state, and affective response to their health concern.

The IMCHB outlines the four components of the professional interactions that influence client heath behavior: (1) affective support, (2) health information, (3) decisional control, and (4) professional/technical competencies (Cox, 1982). A clinician-supervised outpatient alcohol detoxification protocol must be flexible in treatment approaches to allow the provider to grant their client the highest level of decisional control in the context of their singularity state. Simplicity and clarity in the protocol framework can facilitate a provider's technical competency to handle client interactions efficiently and on time. Follow-ups should reinforce client

motivations, cognitive appraisal, and affective response to their health state. This practice positively influences a client's utilization of health services, treatment adherence, disease severity, and satisfaction.

The IMCHB offers practical guidance on how advanced practitioners can best intervene in circumstances of addictive or noncompliant behaviors. Patients more apathetic toward drinking behaviors require greater decisional support, affective support, and environmental planning on behalf of their treatment team when undergoing detoxification. Current clinic practice of referring patients to self-management resources or community mental health programs is often insufficient in facilitating successful and sustained detoxification.

Throughout the vulnerable period of detoxification, client motivations and treatment adherence can be bolstered by supervision and affective support offered by known members of their medical home. Furthermore, assessing a client's decisional control is necessary during risk assessments for supervised outpatient alcohol detoxification eligibility. A highly motivated patient may prefer outpatient detoxification supervised by their primary care team but resist admission to treatment programs due to conflicting social and occupational responsibilities. In this way, expanding primary-care oversight of detoxification can enhance patient self-efficacy.

Efforts to translate evidence-based interventions, such as the *ASAM*'s alcohol withdrawal management guideline, into routine clinic practice can fail due to complexities within the implementation process. The Consolidated Framework for Implementation Research (CFIR) was the guiding framework to measure stakeholder perceptions of feasibility regarding implementing a standardized, clinician-supervised, outpatient alcohol detoxification protocol within the study's primary care clinic. The CFIR conceptualizes the implementation process as an "interactive

process where care providers constantly evaluate the pros and cons for supporting the implementation initiative" (Hartveit et al., 2019, p. 2).

The CFIR outlines five significant practice domains of implementation: *intervention characteristics, outer setting, inner setting, characteristics of individuals,* and the *intervention process*. *Intervention characteristics* relate to the suggested change's costs and benefits and how easily it can be integrated into current practice. *Outer setting* reflects stakeholder pressures and organizational goals driving the change (e.g., high rates of excessive drinking within the patient population). The *inner setting* relates to corporate culture and readiness for change (e.g., healthcare clinicians expanding activities aimed at treating alcohol use disorder in the context of routine primary care responsibilities and activities). *Characteristics of individuals* reflect individual employee perceptions of the planned intervention, confidence in achieving goals, and commitment to the process. Influenced by Edwards Deming's Plan-Do-Study-Act model, the *intervention process* domain illustrates the stepwise progression of the implementation process. The CFIR serves as a theoretical grounding for the Implementation Process Assessment Tool to assess how individuals feel and interpret specific implementation efforts. The conceptual framework for the CFIR is reproduced in Figure B2.

The CFIR conceptualizes team members' readiness for change. Readiness for change reflects the extent to which the organization and its members are inclined to accept, embrace, and adopt a particular plan to alter the status quo purposefully (Hartveit et al., 2019). *Individual readiness* reflects cognitive and affective perceptions of the implementation and practice environment. *Collective readiness* describes a group's capability and shared commitment to the change effort. The CFIR also illustrates how individuals in the organization move through adopting a planned intervention. Orientation is when providers become interested in an

implementation effort and involve themselves in the process. In the insight stage, providers reflect upon personal routines and the costs and benefits of adopting a change process. The acceptance stage is when individuals and collective groups decide and plan to support a practice change. In the change stage, the practice is implemented, and members seek to confirm their perception of gains toward organizational goals. The maintenance stage is when the implementation is integrated into the daily routine. Team members' progression through these *stages of change* can predict the success of practice implementation.

Stagnation and regression through stages indicate a high risk of improvement process failure. Using the CFIR as a conceptual framework, the perception of feasibility and readiness to adopt a standardized, clinician-supervised, outpatient alcohol detoxification protocol can be quantified and evaluated.

Specific Aims

The global aim of this project was to evaluate the feasibility of initiating clinically supervised outpatient management of alcohol dependence in primary care. The initiation target should be within 14 days of the outpatient visit diagnosis of AUD. The State of Vermont aims to initiate outpatient detoxification for 50% of Medicaid recipients seen within ambulatory practice settings by June 2023 (Alcohol & Drug Abuse Programs, Vermont Department of Health, 2020). This goal aligns with the Healthy People 2030 objectives to increase the proportion of people with a substance use disorder who received treatment in the past year from 11.1% to target 14% and reduce the proportion of people who had alcohol use disorder in the past year from 5.4% to target 3.9% by 2030 (Healthy People 2030, 2020).

The primary aim of this project was to evaluate clinical stakeholder perceptions on the feasibility of adopting a standardized, clinician-supervised, outpatient alcohol detoxification

protocol, adapted from the *ASAM* guideline, following stakeholder presentations on the developed internal protocol in the fall of 2022. A modified version of the Implementation Process Assessment Tool (IPAT) was used to measure clinician stakeholder perceptions of the protocol's feasibility (Hartveit et al., 2019). The target was to have clinician participants respond positively ("agree" and "strongly agree") on average scores for each of the four IPAT subdomains: *individual stages for behavioral change, individual activities and perceived support, collective readiness and support,* and *perceived effectiveness of the intervention*.

Methods

Methods for this stakeholder analysis study are detailed in the following segments. The Outcome Evaluation Plan presented in Appendix C summarizes the methodological interventions.

Context

The study site is a large primary care clinic in a rural setting operating within a regional, academic non-profit healthcare organization. The clinic employs 19 physicians, five internal medicine residents, two pediatricians, six advanced practice nurses, three physician assistants, and one chiropractor, all with varying full-time equivalents. Additionally, there are 18 medical assistants, 12 nurses, two licensed independent clinical social workers, five case managers, and one community health worker. The clinic onboarded three additional physicians and two additional advanced practice nurses in the fall of 2022, who were included in the stakeholder cohorts.

Two on-site professionals have been given a grant by New Hampshire Healthy Families to implement clinic-based quality improvement efforts regarding substance use disorders. The clinic is situated in Grafton County, New Hampshire, with a patient population panel

encompassing patients living in the Upper Valley region of New Hampshire and Vermont (Containing Grafton County, Orange County, and Windsor County). The service region is classified as mostly rural, with more than 50% of the county population in rural areas. Grafton is 68.7% rural, Orange County is 97.2% rural, and Windsor County is 75.6% rural (United States Census Bureau, 2010).

Panel analytic reports for the combined family and internal medicine departments revealed 297 female patients who reported drinking an average of ≥7 drinks weekly and 193 males who reported drinking an average of ≥14 drinks weekly in the past three years. None of these patients had documented alcohol screening within the 12-month 2021 fiscal year (FY). This revealed 490 known patients who met the criteria for elevated risk drinking within the past three years without a documented alcohol screening in FY 2021.

In FY 2021, the department saw 18 patients who met the DSM-5 classification for AUD and warranted treatment planning. Searching paneled patients using the diagnosis code grouper concept “alcohol abuse” resulted in 629 individuals with identified AUD. This indicates a potential data underreporting error, as patients overdue for annual alcohol use disorder screening assessments may have an undiagnosed AUD. Fiscal data may underrepresent the prevalence of AUD among paneled patients, as 3,573 patients were overdue for annual alcohol screening assessments.

The regional, academic non-profit healthcare organization published an internal clinical practice guideline (CPG) for Unhealthy Alcohol and Drug Use to guide practice for screening, diagnosis, and management of excessive alcohol use (SUMHI, 2021). The hospital network has no ambulatory policies or procedures for managing outpatient alcohol detoxification. A current workflow algorithm outlining the process of alcohol use disorder screening and management is

provided in Appendix D. The CPG does not outline clinical pathways to guide treatment planning once AUD is diagnosed. Options given for consideration are counseling patients on harm reduction strategies, offering resources for patient self-management or mutual help groups, prescribing medications to reduce cravings, offering primary care-based collaborative counseling with a behavioral health specialist, referring to addiction specialist programs, or referring to inpatient treatment (SUMHI, 2021, pp. 5-6). Self-management pathways frequently do not provide enough inertia for patients to modify health behaviors.

Intervention

At the initiation of the protocol development, a project team met to investigate root causes impacting barriers to initiating alcohol detoxification risk assessments and treatment within the study site. The project development team was formed through informal departmental recruitment and consisted of a DNP student project leader, a consulting physician, a consulting clinical nurse, consulting nurse supervisor, and a research informatics specialist.

Identified barriers aligned heavily with prior research on implementing alcohol use disorder pharmacotherapy in primary care settings conducted by Hildi Hagedorn and colleagues at Veterans Affairs Health Services Research and Development Center (Hagedorn et al., 2019). The project team constructed a Cause and Effect (Ishikawa) Diagram to explore barriers influencing the limited practice of ambulatory alcohol detoxification management within the study clinic. The diagram was created using the five domains of process implementation outlined in the CFIR: intervention characteristics, characteristics of individuals, external setting factors, inner setting factors, and process characteristics. This diagram is provided in Appendix E.

The protocol developed and utilized for this stakeholder analysis was adopted from recommendations by the *ASAM*'s clinical practice guideline on alcohol withdrawal management

(Alvanzo et al., 2020). The *ASAM* convened in 2017 to update their clinical guidelines on alcohol withdrawal management and address inconsistent treatment practices of alcohol withdrawal management in non-specialty settings. General primary care practice sites were included in the target audience. The guideline utilizes standards of care set by the United States Department of Defense and by numerous publicly funded state substance abuse services. It provides recommendations for alcohol withdrawal management in ambulatory settings regarding identification and diagnosis of alcohol withdrawal, initial assessment of alcohol withdrawal, level of care determination, and ambulatory treatment of alcohol withdrawal. The *ASAM* committee employed a hybridized approach of established methodologies to develop the guideline, including the Veterans Health Administration and Department of Defense Guideline for Guidelines, the RAND/UCLA Appropriateness Method (RAM), and evidence-based review and rating using standardized rating scales and methodology. Detailed descriptions of the guideline development methodology and specific interventions are published within the original *ASAM* guideline (Alvanzo et al., 2020).

The project team developed a standardized, clinician-supervised, outpatient alcohol detoxification protocol and care pathway algorithms to guide the initial assessment and management of alcohol detoxification. Project deliverables included the provider protocol; an ambulatory care nurse withdrawal monitoring protocol adopted from the *ASAM* guidelines; two standardized visit templates for electronic health record documentation; and printed reference materials for clinician participants. A comprehensive presentation of slide decks was developed to be utilized in any future educational competency training outside the scope of this intervention. The slide decks were then shortened into two higher-level overview presentations for the stakeholder cohorts: one focusing on the roles and responsibilities of the treating provider

and one focusing on the roles and responsibilities of team nurses. These deliverables addressed the lack of guidelines for detoxification treatment in the current CPG, variability in alcohol detoxification care delivery, and staff knowledge gaps regarding detoxification management. The finalized protocol, as well as the nurse and provider presentations, are included in Appendix F.

Study of the Intervention

This quality improvement project was a stakeholder analysis that involved translating the *ASAM* guidelines into actionable, clinic-based working protocols and familiarizing faculty stakeholders with the care pathways outlined within the protocol during the fall of 2022. Provider and nurse stakeholders participated in the presentations during monthly departmental educational meetings. The survey instrument was developed using the institutional version of the *Research Electronic Data Capture* secure data collection web application that met HIPAA compliance standards. Survey data were de-identified and password protected, with access only granted to the primary investigator.

The instrument was sent to faculty stakeholders via institutional electronic mail communications. Participants were prompted to review the study objectives and provide consent to participate. No client-specific data was gathered outside the employee's job function and departmental affiliation. Clinical roles were categorized as: physician, physician assistant, advanced practice nurse, behavioral health clinician, care coordinator, clinical registered nurse, medical assistant, clinical secretary, community health worker, executive leadership/manager role, or other (not listed). Departmental affiliation was categorized as: family medicine, internal medicine, leadership, or departmental float. The stakeholders completed the feasibility survey before and after their educational presentations.

Measures

Stakeholders' perceptions of implementation feasibility were measured using the Implementation Process Assessment Tool (IPAT), modified for an outpatient alcohol detoxification program. The IPAT is a 27-item questionnaire used to measure aspects of an implementation process from the perspective of individuals involved in the intervention. Implementation participants rate their feedback on proposed interventions related to four underlying constructional domains: *individual stages for behavioral change, individual activities and perceived support, collective readiness and support*, and *perceived effectiveness of the intervention* (Harveit et al., 2019). The IPAT is used as a quantitative tool to predict the feasibility of an implementation effort, with a high internal consistency score for the full scale and a Cronbach's alpha of 0.96 (Harveit et al., 2019).

Providers and team nurses involved in educational sessions on alcohol detoxification protocol were asked to complete an IPAT before and following a presentation on the workflows outlined within the protocol. Each question rated responses on a Likert scale scored from 0 (not agree/not true) to 5 (agree/correct). Question 20 asked respondents to select which stage of change they align with within the implementation effort. The target metric was to have average IPAT scores exceed the neutral median score within each domain, indicating positive feasibility ratings for the implementation effort. The benchmark scores were assigned as *(1) individual phases for behavioral change* ≥ 17.5, *(2) individual activities and perceived support* ≥ 17.5, *(3) collective readiness and support* ≥ 20, and *(4) individual perception of the intervention* ≥ 12.5. The adapted version of the IPAT assessment is provided in Appendix G.

Analysis

Statistical analysis was conducted using GraphPad Prism version 9.4.1. Downloaded data files were stored in a password-protected format, with access only granted to the primary investigator. Data were analyzed for the total cohort of stakeholders and each job role subcategory. Job roles were grouped as registered nurses and providers (encompassing the roles of physicians, physician assistants, and advanced practice nurses.)

Descriptive statistics for each sub-domain of IPAT scores (*stages of change*, *individual activities and perceived support*, *collective readiness and support*, and *perceived effectiveness of the intervention*) were calculated for the total cohort and each job role subcategory. Descriptive statistics included the number of responses (*n*), median score (*Mdn*), average numeric score ($\overline{X}$), *SD* of $\overline{X}$, *SE* of $\overline{X}$, and the 95% CI of $\overline{X}$. Box-and-whisker plots were created comparing the pre and post-presentation score distributions for the total cohort and each job category (nurses and providers). The scores are graphed against the neutral benchmark feasibility scores for each domain.

Data for the total cohort and each job role subcategory were analyzed using the one-sample *t*-test. The benchmark scores represented H_o in one-sample *t*-testing. Data outputs for the one-sample *t*-test included *t*, df, the two-tailed *p*-value, the significance interpretation using the standard $\alpha = 0.05$, the discrepancy (DISCR) between the observed mean and benchmark score, the *SD* of the discrepancy, and the 95% CI of the DISCR. The *p*-value was considered significant if $p < 0.05$, meaning that the probability that the observed difference in mean scores is due to a coincidence arising from random sampling is less than 5%. Observed *p* values between 0.01 to 0.05 were considered significant (probable in less than 5% of instances), and values of 0.001 to 0.01 are very significant (probable in less than 1%). The DISCR measures the mean IPAT score

minus the neutral benchmark score. Positive discrepancy scores indicate the observed mean score was higher than the neutral benchmark score. Negative discrepancy scores indicate the observed mean score was lower than the neutral benchmark score.

The one-sample *t*-test challenges the assumption that the mean IPAT scores of the clinic population are equal to the hypothetical neutral benchmark scores. Average scores significantly higher than the benchmarks reject the assumption that the sample's mean is higher due to random variation and that the observed increase is significant enough to be a relevant indicator of improved feasibility. This test assumes that feasibility rankings are continuous between 0 to 5 and that the sampled data are from a population that follows a normal Gaussian distribution. The Shapiro-Wilk test was used for normalcy using an alpha level of 0.05. If the sample data failed normalcy testing, a non-parametric Wilcoxon signed rank test was run to compare the median of the sampled IPAT scores against the benchmark mean (H_o).

Ethical Considerations

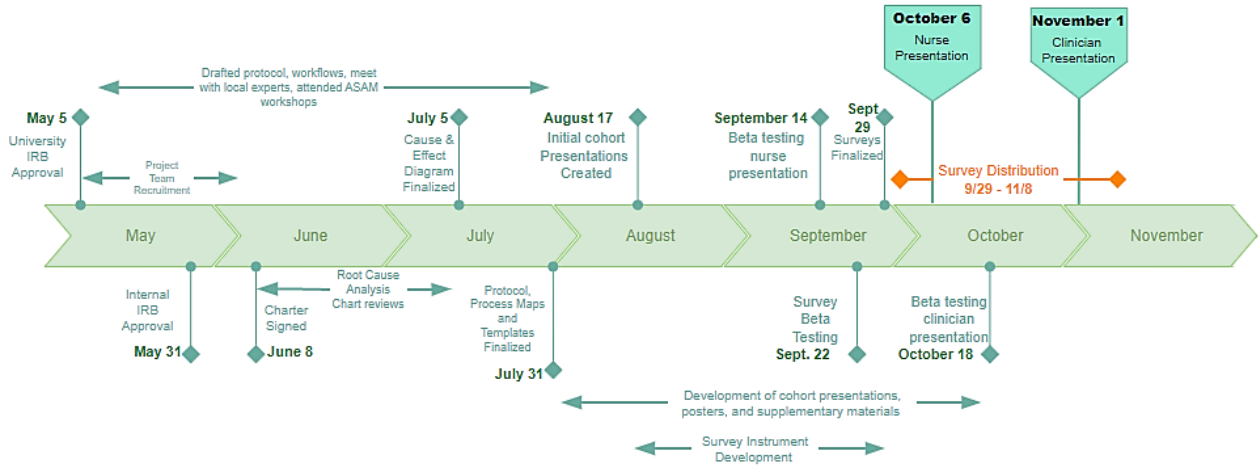
Efforts were made to ensure this quality improvement project was not human research testing. Any aspects of the intervention process did not blind the project team. The clinical staff was not exposed to risks beyond standard medical care practices, and clinical decision-making was preserved. Participants were required to consent before filling out the survey. This project underwent review by the DNP project committee to determine the need for institutional ethic board review. **According to the policy-defining activities which constitute research at the University of Vermont/University of Vermont Health Network, this work met the criteria for operational improvement activities exempt from IRB review** (see Appendix H). This author would like to acknowledge the cooperation of the nursing and medical staff in the clinic.

Results

A timeline diagram of the project with relevant milestones is presented in Figure 1. Process milestones were met within the expected timeframes and included the development of a cause and effect diagram for current processes; the drafted protocol; process maps for screening encounters, provider alcohol detoxification assessment encounters, and supervised nurse alcohol withdrawal monitoring encounters; presentation slide decks; process map posters; electronic health record documentation templates; and supplementary material workbooks. Development of project deliverables was enhanced through meeting with community addiction specialists, attending meetings with the institutional Substance Use Disorder Collaborative between June 2022 and October 2022, attending *ASAM* educational workshops, and regular biweekly meetings with project team members between June 2022 and September 2022.

Figure 1

Timeline Diagram for Outpatient Alcohol Detoxification Protocol Feasibility Initiative



Designing the Ishikawa diagram allowed the project team to undergo a root-cause analysis regarding the barriers to practicing ambulatory alcohol detoxification within the clinic. The root cause analysis revealed that alcohol screening processes were limited due to a lack of data metric reporting on paneled patients overdue for alcohol screenings. There was also a lack

of accessible visibility as to whether a patient was outstanding for or scored high on their alcohol screening assessment within visit encounters.

Reviewing the multiple process steps to determine detoxification risk severity, the project team concluded that easily accessible criteria and decision support tools should be readily available in the electronic health record. Documentation templating that outlined key assessment components of intake visits would minimize process complexity for clinicians. To address concerns related to knowledge gaps and lack of self-efficacy in managing alcohol withdrawal syndrome, faculty would require support in the form of training, resource materials, and the ability to consult with experienced support colleagues when attempting to oversee outpatient alcohol detoxification.

Throughout this initiative, the project team secured two dates to present the standardized, clinician-supervised outpatient alcohol withdrawal protocol. The nursing cohort received their presentation on October 6th, 2022, and the provider cohort received their presentation on November 1st, 2022. Pre-presentation surveys were distributed one week before cohort presentations, and post-presentation surveys were distributed the following week. Survey distribution used automated email invitations to users within the departmental user lists. Because survey completion was voluntary, response rates were contingent on individual stakeholders' interest in the initiative and the time to complete the survey instruments. Participants were invited to contact the principal investigator for pre-recorded versions of their cohort's presentation if they could not attend a scheduled presentation date. One nurse and one physician requested this.

Nursing Cohort

Surveys were sent to 11 registered nurses, two also employed in nursing leadership positions. A total of six nurses (54.5%) completed the pre-presentation feasibility survey, and six (54.5%) completed the post-presentation feasibility survey. Four nurses (36.4%) completed both items. Survey invitations were automated to send every two days for six attempts. When interviewed, nurses who did not respond cited most often that the survey invitations were lost amongst other institutional emails or that the survey instrument was too lengthy to dedicate time to respond to during work hours and did not have the means to access institutional emails at home.

Descriptive statistics of nurses' IPAT responses with associated one-sample *t*-testing are presented in Table 1. A box and whisker plot of pre-presentation and post-presentation IPAT domain scores are displayed in Figure 2.

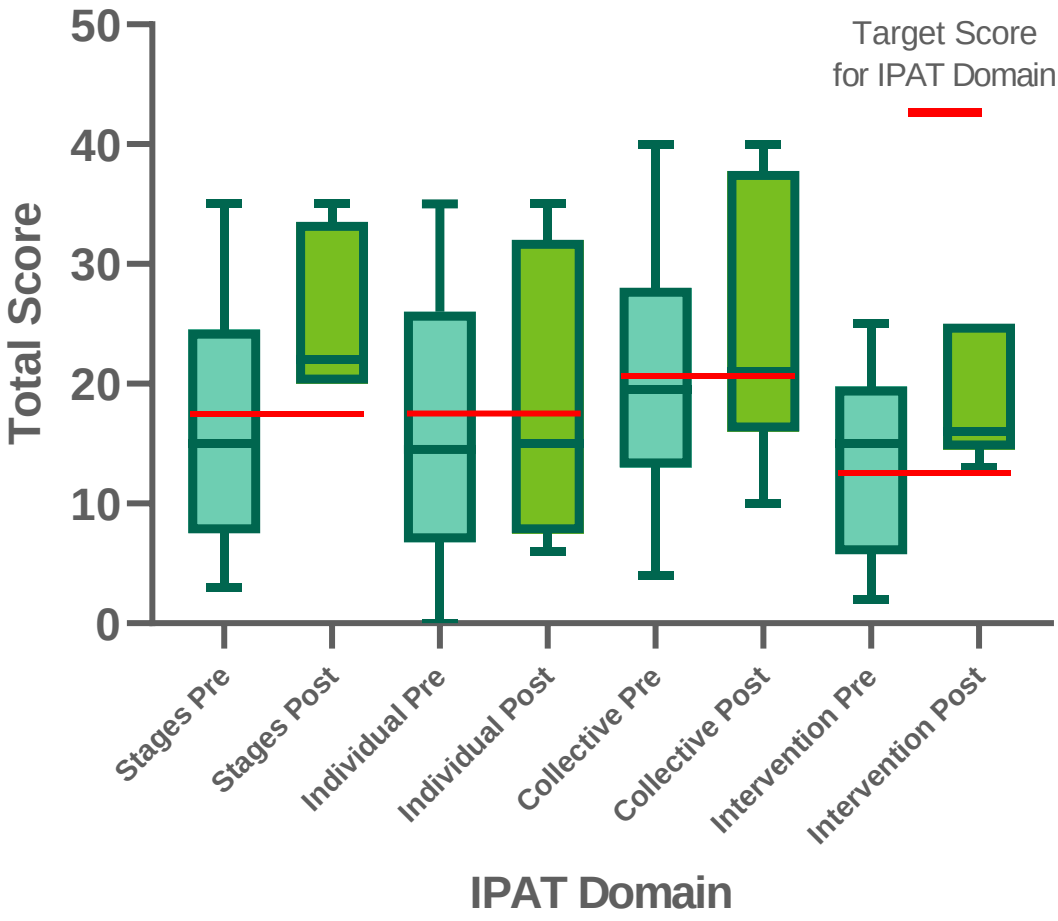
Table 1

Descriptive Statistics and One-Sample t-Tests of Nursing Cohort IPAT Responses

Statistic	Pre-presentation				Post-presentation			
	Stages	Individual	Collective	Intervention	Stages	Individual	Collective	Intervention
n	6	6	6	6	6	6	6	6
Mdn	15	14.5	19.5	15	22	15	21	16
$\bar{x}$	16.33	16	20.5	13.67	25.33	18.33	24.5	18.33
SD	11.08	12.33	11.93	8.238	6.802	12.14	11.67	5.279
SE	4.522	5.033	4.870	3.363	2.777	4.958	4.766	2.155
95% CI of $\bar{X}$	4.71 to 27.96	3.062 to 28.94	7.981 to 33.02	5.021 to 22.31	18.2 to 32.47	5.589 to 31.08	12.25 to 36.75	12.79 to 23.87
				One-sample *t*-test				
H_o	17.5	17.5	20	12.5	17.5	17.5	20	12.5
t, df	0.258, 5	0.298, 5	0.1027, 5	0.3469, 5	2.821, 5	0.1681, 5	0.9441, 5	2.707, 5
p	0.8067	0.7777	0.9222	0.7428	0.0371	0.8731	0.3884	0.0424
$p < 0.05$	No	No	No	No	***significant**	No	No	***significant**
DISCR (*SD*)	-1.167 (11.08)	-1.5 (12.33)	0.5 (11.93)	1.167 (8.238)	7.833 (6.802)	0.8333 (12.14)	4.5 (11.67)	5.833 (5.279)
95% CI	-12.79 to 10.46	-14.44 to 11.44	-12.02 to 13.02	-7.479 to 9.812	0.6951 to 14.97	-11.91 to 13.58	-7.752 to 16.75	0.2935 to 11.37

Figure 2

Box and Whisker Plot of Nurse Cohort Pre and Post-Presentation IPAT Responses



The nursing cohort demonstrated higher mean post-presentation IPAT scores and positive discrepancy scores than hypothesized neutral benchmark scores across all subdomains. *Stages of individual change* revealed the most substantial positive discrepancy on one-sample *t*-testing (7.833, *SD* 6.802). Interestingly, the pre-presentation mean IPAT scores demonstrated positive deficiency scores on one-sample *t*-testing for the *perceived effectiveness of the intervention* (1.167, *SD* 8.238) and *collective readiness and support* (0.5, *SD* 11.93).

Responses to the free-response post-presentation item requesting feedback on the protocol reflected staff nurse interest in the intervention but hesitancy related to the capacity to integrate the workflow into routine clinic activities. Table 2 presents this feedback.

Table 2

Nurse Responses to Qualitative Feedback Question

Please add any additional comments regarding the learning, as well as your thoughts about the benefits/strategies and/or drawbacks/barriers related to integrating alcohol detoxification/management into regular clinic workflows:
• This would be a wonderful change if staffing structures were able to support it. Unfortunately, that is not the case at this time.
• Great idea. Not feasible to initiate at this time due to staffing challenges. I personally do not feel I have the necessary skills and knowledge to participate in this program at this time.
• RNs just do not have the staff to initiate this protocol at the moment. It's certainly a worthwhile endeavor.
• I feel that this is a good idea and support the face-to-face interactions with patients. I would like to know the percentage of our…patient population in need of an outpatient detox program, and I am also interested in learning more about alcohol detox.
• Need more by ins re the providers, and we are chronically understaffed at this time- it may be difficult to implement this protocol easily- perhaps next step would be at our monthly staff meetings.

Provider Cohort

Surveys were sent to 27 physicians and 11 advanced practice providers in the stakeholder cohort. Physician and advanced practice provider data were grouped to allow for data analysis. A total of two advanced practice providers (18.2%) completed the pre-presentation feasibility survey, and one (9%) completed the post-presentation feasibility survey. One advanced practice provider (9%) completed both items. A total of four physicians (14.8%) completed the pre-presentation feasibility survey, and three (11%) completed the post-presentation feasibility survey. Two physicians (7.4%) completed both items. Survey invitations were automated to send every two days for three attempts.

Descriptive statistics of provider IPAT responses with associated one-sample *t*-testing are presented in Table 3. The box and whisker plots of pre-presentation and post-presentation IPAT domain scores are displayed in Figure 3.

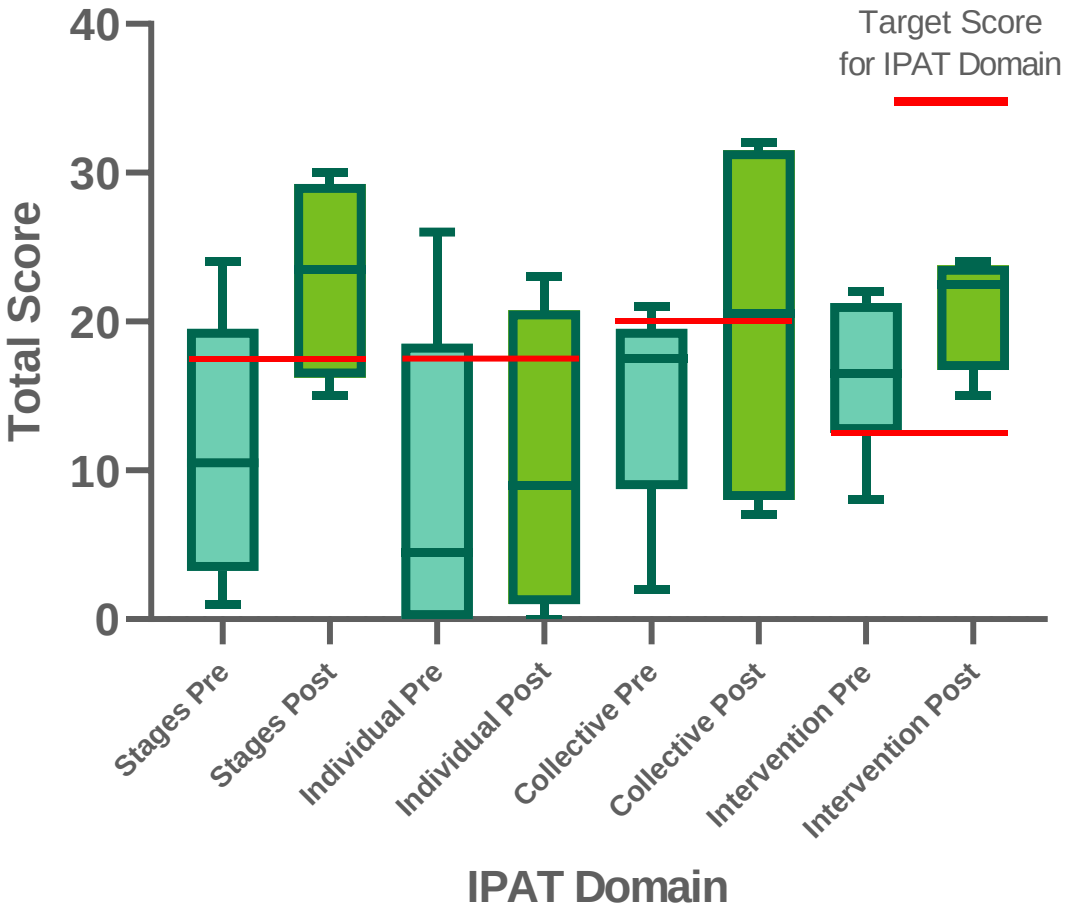
Table 3

Descriptive Statistics and One-Sample t-Tests of Provider Cohort IPAT Responses

Statistic	Pre-presentation				Post-presentation			
	Stages	Individual	Collective	Intervention	Stages	Individual	Collective	Intervention
Mdn	6	6	6	6	4	4	4	4
$\bar{x}$	10.5	4.5	17.5	16.5	23.5	9	20.5	22.5
SD	11.33	8.5	14.67	16.33	23	10.25	20	21
SE	8.571	10.43	7.062	5.164	6.782	10.34	12.83	4.082
95% CI of $\bar{X}$	3.499	4.256	2.883	2.108	3.391	5.17	6.416	2.041
Mdn	2.338 to 20.33	-2.441 to 19.44	7.256 to 22.08	10.91 to 21.75	3.193 to 42.81	-19.95 to 40.45	-17.48 to 57.48	9.077 to 32.92
				One-sample *t*-test				
H_o	17.5	17.5	20	12.5	17.5	17.5	20	12.5
t, df	1.762, 5	2.114, 5	1.85, 5	1.818, 5	1.622, 3	1.402, 3	0, 3	4.164, 3
p	0.1383	0.0881	0.1236	0.1287	0.2033	0.2554	>0.9999	0.0252
$p < 0.05$	No	No	No	No	No	No	No	***significant**
DISCR (*SD*)	-6.167 (8.571)	-9 (10.43)	-5.333 (7.062)	3.833 (5.164)	5.5 (6.782)	-7.25 (10.34)	0 (12.83)	8.5 (4.082)
95% CI	-15.16 to 2.828	-19.94 to 1.941	-12.74 to 2.077	-1.586 to 9.253	-5.292 to 16.29	-23.7 to 9.203	-20.42 to 20.42	2.004 to 15

Figure 3

Box and Whisker Plot of Provider Cohort Pre and Post-Presentation IPAT Responses



Perceived effectiveness of the intervention demonstrated the most substantial positive discrepancy on one-sample t-testing (8.5, SD 4.082). The pre-presentation mean IPAT score for perceived effectiveness of the intervention also demonstrated a positive discrepancy score on one-sample t-testing (3.833, SD 5.164). The provider cohort demonstrated higher mean post-presentation IPAT scores than hypothesized neutral benchmark scores across all subdomains.

Responses to the free-response post-presentation item requesting feedback on the protocol reflected provider interest in the intervention and willingness to make alcohol

detoxification an interdisciplinary effort. One physician reported issues with identifying results of alcohol screening assessments during patient encounters and that noticing screening tools after-the-fact may present a challenge for implementation. Table 4 illustrates this feedback.

Table 4

Provider Responses to Qualitative Feedback Question

Please add any additional comments regarding the learning, as well as your thoughts about the benefits/strategies and/or drawbacks/barriers related to integrating alcohol detoxification/management into regular clinic workflows:
• I certainly feel empowered to give this a 'go" next time I have a patient who seems appropriate based on the criteria outlined. I have every confidence that our RN staff can do a great job speaking to these patients by phone. • I am likely one of the providers who doesn't see the AUDIT prior to the visit, and misses the BPA because I don't see it until I'm charting. Though I can try to change my practice in "looking ahead" before I walk into an exam room, I'm not sure I'll be successful. If there's a way to nudge the MAs to look at AUDIT scores as part of their initial assessment and letting me know ahead of time, that would be useful. • I support further discussion of the proposed protocol as a practice and hope that it may be implemented in some form in the future.

Total Cohort

Surveys were sent out to 49 total stakeholders during this intervention. A total of 12 faculty stakeholders (24.5%) completed the pre-presentation feasibility survey, and ten (20.4%) completed the post-presentation feasibility survey. Descriptive statistics of total cohort IPAT responses with associated one-sample *t*-testing are presented in Table 5, and the box and whisker plot of pre-presentation and post-presentation IPAT domain scores are shown in Figure 4.

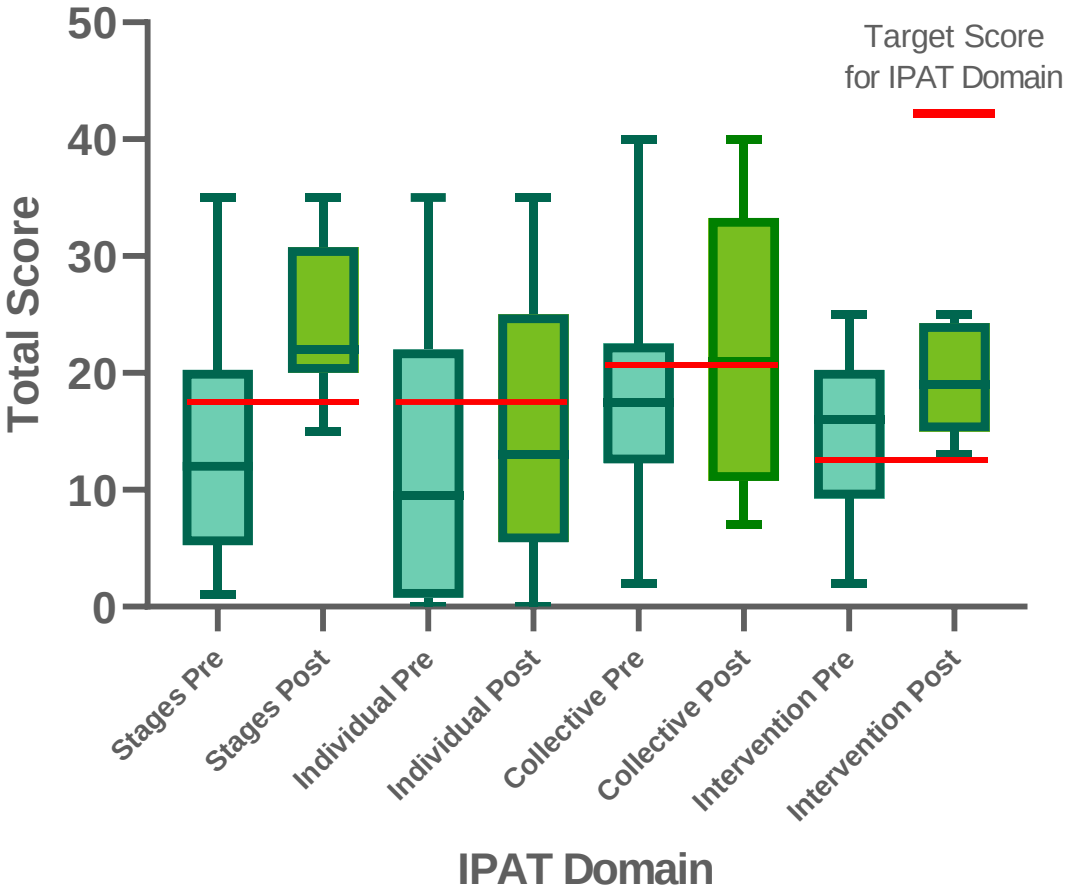
Table 5

Descriptive Statistics and One-Sample t-Tests of Total Cohort IPAT Responses

Statistic	Pre-presentation				Post-presentation			
	Stages	Individual	Collective	Intervention	Stages	Individual	Collective	Intervention
Mdn	12	12	12	12	10	10	10	10
$\bar{x}$	12	9.5	15.5	16	22	13	21	19
SD	13.83	12.25	17.58	15	24.4	15.1	22.7	19.4
SE	9.796	11.57	9.83	6.701	6.518	11.62	11.66	4.789
95% CI of $\bar{X}$	2.828	3.34	2.838	1.935	2.061	3.674	3.688	1.514
Mdn	7.609 to 20.06	4.899 to 19.6	11.34 to 23.83	10.74 to 19.26	19.74 to 29.06	6.789 to 23.41	14.36 to 31.04	15.97 to 22.83
				One-sample *t*-test				
H_o	17.5	17.5	20	12.5	17.5	17.5	20	12.5
t, df	1.297, 11	1.572, 11	0.8516, 11	1.292, 11	3.347, 9	0.6532, 9	0.7321, 9	4.556, 9
p	0.2213	0.1442	0.4126	0.2227	0.0086	0.5299	0.4827	0.0014
$p < 0.05$	No	No	No	No	****significant**	No	No	****significant**
DISCR (*SD*)	-3.667 (9.796)	-5.25 (11.57)	-2.417 (9.83)	2.5 (6.701)	6.9 (6.518)	-2.4 (11.62)	2.7 (11.66)	6.9 (4.789)
95% CI	-9.891 to 2.558	-12.6 to 2.101	-8.662 to 3.829	-1.758 to 6.758	2.237 to 11.56	-10.71 to 5.911	-5.643 to 11.04	3.474 to 10.33

Figure 4

Box and Whisker Plot of Total Cohort Total Pre and Post-Presentation IPAT Responses



The total cohort demonstrated higher mean post-presentation IPAT scores and positive discrepancy scores than hypothesized neutral benchmark scores across all subdomains except *individual activities and perceived support*. *Perceived effectiveness of the intervention* demonstrated the most substantial positive discrepancies on one-sample *t*-testing (6.9, *SD* 4.7879). The pre-presentation mean IPAT score for the *perceived effectiveness of the intervention* also showed a positive deficiency score on both one-sample *t*-testing (2.5, *SD*

6.701). Following the presentations, the total cohort's discrepancy score decreased on one-sample *t*-testing (-2.4, *SD* 11.62) in the *collective readiness and support* category.

Interpretation

Summary

This stakeholder analysis achieved clinically meaningful increases in average scores compared to the neutral benchmark scores following the educational presentation for *stages of change* and *perceived effectiveness of the intervention* in both the total cohort and nursing cohort. Additionally, the provider cohort achieved a clinically meaningful increase in average score compared to the neutral benchmark score for *perceived effectiveness of the intervention* following their presentation. Development and dissemination of the alcohol detoxification care pathway amongst the stakeholders strengthened perceptions of the improvement potential offered by the protocol's standardized approach to decision-making and care management. The increases noted in the *stages of change* reflect a shift in knowledge of alcohol detoxification care from unawareness to engagement in change efforts. *Individual activities and perceived support* represented the weakest shift in scores across all three groups, suggesting that individuals felt a lack of self-efficacy and commitment to adopting the proposed care pathways within the context of the current work environment and perceived support and facilitation from managers and colleagues.

Nursing Cohort

Across all IPAT subdomains, mean scores following the presentation were higher than the benchmark, meeting the project aim. The nursing cohort demonstrated increased perceptions of protocol feasibility following the educational presentation, as demonstrated through the shift from negative to positive discrepancy scores compared to neutral benchmark scores within the

domains of *stages of change, individual activities and perceived support,* and *collective readiness and support*. *Stages of change* achieved the most remarkable positive discrepancy following the presentation, illustrating the increased willingness of participants to adopt the protocol. The nurse cohort demonstrated positive discrepancy scores compared to benchmark scores for the *intervention's perceived effectiveness both before and after* the presentation, indicating positive attitudes towards standardized, nurse-supervised withdrawal monitoring protocol itself. The post-presentation mean IPAT scores in the category for *perceived effectiveness of the intervention* (18.33, *SD* 5.279, $p = 0.0424$) and *stages of change* (25.33, *SD* 6.802, $p = 0.0371$) demonstrated statistical significance on one-sample *t* testing, indicating the observed increases were significant enough to be a relevant indicator of improved feasibility. The post-presentation IPAT score for *the intervention's perceived effectiveness failed the Shapiro-Wilk normalcy test*. However, it achieved significance on the nonparametric Wilcoxon signed rank test ($p = 0.0313$), indicating a meaningful increase in the median score (16) from the neutral benchmark ($H_o = 12.5$). We can conclude that the nursing cohort favorably viewed the protocol in terms of the effectiveness of the detoxification intervention and moved forward in adopting the change.

Provider Cohort

Across all IPAT subdomains, mean scores following the presentation were higher than benchmark scores in *stages of change, collective readiness and support,* and *perceived effectiveness of the intervention,* partially meeting the project aim. The provider cohort demonstrated increased perceptions of protocol feasibility following the educational presentation, as demonstrated through the shift from negative to positive discrepancy scores compared to neutral benchmark scores within the domains of *stages of change* and *collective*

readiness and support. *Stages of change* achieved the most significant positive discrepancy change following the presentation, illustrating the presentation increased participant willingness to adopt the protocol. The provider cohort demonstrated positive discrepancy scores compared to benchmark scores for *perceived effectiveness of the intervention* both before and following the presentations, indicating positive attitudes toward the usefulness of implementing a standardized, clinician-supervised ambulatory alcohol detoxification protocol itself. Following the presentation, the provider score for *perceived effectiveness of the intervention* (19.4, *SD* 4.789, $p = 0.0252$) demonstrated statistical significance on one-sample *t*-testing, indicating the observed increases were large enough to be a relevant indicator of improved feasibility. This assumption is supported by the cohort score distributions passing the Shapiro-Wilk test of normalcy across all categories. The clinicians failed to shift from negative to positive discrepancy scores compared to neutral benchmark scores in *individual activities and perceived support,* inferring that clinicians perceived limited personal efficacy in carrying out the proposed interventions within the context of the departmental support structure.

Total Cohort

Across all IPAT subdomains, mean scores following the presentations were higher than benchmark scores in *stages of change*, *collective readiness and support*, and *perceived effectiveness of the intervention*, partially meeting the project aim. The total cohort demonstrated increased perceptions of protocol feasibility following the educational presentations, as demonstrated through the shift from negative to positive discrepancy scores compared to neutral benchmark scores within the domains of *stages of change* and *collective readiness and support*. Before and after the presentations, the total cohort demonstrated positive discrepancy scores compared to benchmark scores for the *perceived effectiveness of the intervention*, reflecting

positive attitudes toward the protocol's usefulness. The post-presentation mean IPAT scores in the category for *perceived effectiveness of the intervention* (19.4, *SD* 4.789, $p = 0.0014$) and *stages of change* (24.4, *SD* 6.518, $p = 0.0086$) demonstrated statistical significance on one-sample *t* testing, indicating the observed increases were large enough to be a relevant indicator of improved feasibility. We can conclude that the total cohort favorably viewed the protocol in terms of the effectiveness of the detoxification intervention and moved forward in adopting the change. The total cohort failed to shift from negative to positive discrepancy scores compared to neutral benchmark scores in the category of *individual activities and perceived support*, inferring that the stakeholders perceived limited personal efficacy in carrying out the proposed interventions within the context of the departmental support structure.

Discussion

Summary

Following the dissemination of the drafted clinician-supervised alcohol detoxication protocol, nurse-supervised alcohol withdrawal monitoring protocol, and project deliverables (workflows algorithms, documentation templates, and pocket guidelines), the project team partially met the goal of improving stakeholder feasibility perceptions within the domains of *stages of change*, *collective readiness and support*, and *perceived effectiveness of the intervention*. The observed scores for *stages of change* were significantly higher than the neutral targets in the total cohort and nursing cohort, and the observed scores for *perceived effectiveness of the intervention* were significantly higher across all groups. The increases in the observed scores for *collective readiness and support* failed to demonstrate a meaningful increase compared to neutral scores.

Interpretation

The stakeholders rated the clinician-supervised alcohol detoxification protocol favorably regarding perceived effectiveness. In terms of antecedent assessments before process implementation, these results indicate a high level of acceptability of the protocol, relating to the extent it was perceived as "agreeable, palatable, or satisfactory" (Damschroder et al., 2022, p. 5). The high scoring within the category of *stages of change* reflected a shift from limited awareness of detoxication management within primary care teams towards actively assessing the process and voicing support. This finding demonstrates a positive shift toward implementation readiness regarding antecedent assessments for process implementation (Damschroder et al., 2022). This move toward adoption illustrates an intention among stakeholders to employ the care processes when a clinical need arises (Proctor et al., 2011).

The observed neutral to negative discrepancy score in *individual activities and perceived support* highlights a need to assess the implementation climate and feasibility. Likewise, neutral ratings in the *collective readiness and support* category failed to demonstrate meaningful increases in scoring, reinforcing a perceived hesitation amongst stakeholders for the collaborative team's shared commitment to and capability of change. These attitudes were illustrated in narrative statements voicing concerns over successfully identifying candidates through current screening practices and having enough staff resources to dedicate to the intervention. Further assessments must be aimed at optimizing the intervention climate and optimizing the protocols in terms of appropriateness and feasibility. Appropriateness reflects the compatibility of the evidence-based practice for a given practice setting, and feasibility determines how well the practice can be carried out within a given practice setting (Proctor et al., 2011).

These findings are consistent with prior studies exploring general practitioner perceptions regarding home alcohol detoxification interventions. A qualitative study to determine general practitioners' views regarding home alcohol detoxification concluded that generalists were willing to actively participate in facilitating home detoxification (Roche et al., 2001). However, generalists cited a need for professional support, responsive infrastructure, clear policy guidelines, professional training, team approaches to management, and improved remuneration for the time-intensive processes involved (Roche et al., 2001).

Similar CFIR barriers to implementation were identified in a qualitative study using semi-structured interviews delivered to primary care providers working within the US Veterans Health Administration. The investigators utilized the CFIR framework to identify barriers to AUD pharmacotherapy in primary care settings. Four significant barriers emerged among provider respondents: the limited compatibility of AUD treatment within existing primary care processes, the complexity of providing AUD pharmacotherapy in generalist settings, limited knowledge and negative beliefs about pharmacotherapy, and negative attitudes toward patients with AUD (Hagedorn et al., 2019). Site-specific barriers included a lack of relative advantage of prescribing within primary care over current practice, competing priorities of addressing AUD in primary care, and limited resource availability to implement pharmacotherapy (Hagedorn et al., 2019). Though our study participants did not identify limited knowledge or negative beliefs as barriers, issues about the complexity of the intervention and compatibility with primary care processes were noted to be barriers to implementation.

Another study identified organizational and supervisory support, rather than experience or education, as the strongest predictor of healthcare workers' perceptions of their role legitimacy and role adequacy in managing alcohol and other drug-related issues (Skinner et al., 2005). Role

adequacy addresses a healthcare professional's sense of self-efficacy in responding to alcohol-related problems. In contrast, role legitimacy concerns their perceptions of the boundaries of their professional responsibility and right to intervene (Skinner et al., 2005). Role legitimacy and adequacy perceptions directly mediate the professional's motivation and satisfaction with alcohol-related work (Skinner et al., 2005). Clinical supervision, mentoring, and formal and informal support improved role perceptions toward managing AUD. Nurses mainly required improved perceptions of their role legitimacy to be motivated to participate in AUD care (Skinner et al., 2005).

To specifically address feasibility barriers related to both individual and collective readiness and perceived support, leadership can consider strategic trade-offs to enhance implementation efforts. Specifically, initiatives should focus on strengthening the implementation climate, creating tension for change, refining the protocol's compatibility, increasing its relative priority, expanding available resources, and improving the faculty's sense of self-efficacy. Specific implementation barriers were defined by Thomas J. Waltz and colleagues based on CFIR construct definitions; Table 6 provides descriptions of these selected process implementation barriers (Waltz et al., 2019). Most of the barriers exist within the CFIR's inner setting domain and were inferred from the respondents' qualitative feedback concerning concerns with staffing resources, inefficient clinic processes, and lack of experience with alcohol detoxification management.

Table 6

Selected Barriers to Implementing the Clinician-Supervised Alcohol Detoxification Protocol within the Study Site

CFIR Construct	Definition
Implementation Climate	There is little capacity for change, low receptivity, and no expectation that the use of the innovation will be rewarded, supported, or expected.
Tension for Change	Stakeholders do not see the current situation as intolerable or do not believe they need to implement the innovation.
Compatibility	The innovation does not fit well with existing workflows nor with the meaning and values attached to the innovation. It does not align well with stakeholders' needs, and/or it heightens the risk for stakeholders.
Relative Priority	Stakeholders perceive that implementing the innovation takes a backseat to other initiatives or activities.
Available Resources	Resources (e.g., money, physical space, dedicated time) are insufficient to support the implementation of the innovation.
Self-Efficacy	Stakeholders do not have confidence in their capabilities to execute courses of action to achieve implementation goals.

Note: Originally defined in *Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions*, authored by Thomas J. Waltz, Byron J. Powell, María E. Fernández, Brenton Abadie, and Laura J. Damschroder (2019).

Targeted implementation strategies to address these barriers present cost opportunities for leadership. Waltz et al. (2009) developed a tool matching these CFIR barriers to selected Expert Recommendations for Implementing Change (ERIC) interventions. It allows implementation investigators to query ERIC strategies by identifying specific barriers of interest. Strategies are ranked by cumulative percentage value across multiple barriers, listing individual endorsement percentages for each barrier. The tool is based on results for the top seven ERIC strategies selected to address specific CFIR barriers. Experts obtained a majority endorsement for 22 ERIC strategies across 21 CFIR barriers, with 36 instances of majority endorsement out of 2,847 opportunities (Waltz et al., 2019). Table 7 presents the top ten ERIC implementation strategies targeting the selected barriers obtained from this study. Broadly, leadership can consider

conducting a needs assessment, initiating local discussions about implementing the protocol and identifying clinical support champions to facilitate small tests of change.

Table 7

Selected Strategies to Address Implementation Barriers for the Alcohol Detoxification Protocol

ERIC Strategies	Cumulative Percent	Implementation Climate	Tension for Change	Compatibility	Relative Priority	Available Resources	Self-efficacy
Assess for readiness and identify barriers and facilitators	181%	52%	35%	34%	36%	13%	11%
Identify and prepare champions	157%	37%	48%	21%	18%	4%	30%
Conduct local consensus discussions	150%	19%	43%	41%	46%	0%	0%
Alter incentive/allowance structures	137%	44%	22%	10%	39%	17%	4%
Conduct local needs assessment	122%	26%	43%	21%	32%	0%	0%
Promote adaptability	110%	15%	17%	45%	18%	4%	11%
Tailor strategies	104%	19%	13%	38%	14%	9%	11%
Capture and share local knowledge	96%	15%	13%	14%	14%	22%	19%
Conduct cyclical small tests of change	96%	11%	4%	38%	4%	13%	26%
Access new funding	92%	0%	0%	3%	11%	78%	0%

Note. ERIC strategies were selected using the CFIR-ERIC barrier buster tool (Version 0.53) developed by Laura Damschroder, Byron Powell, and Thomas Waltz (2019).

Limitations

This stakeholder analysis has limited generalizability to other practice settings, as the study focused specifically on assessing the perceived feasibility of implementing the protocol within the context of the study clinic's specific organizational culture, organizational goals, and priorities; the stakeholders' perceptions, confidence, and commitment to practice change; and the stakeholders' readiness for change. Dynamics of the larger practice setting context may have influenced beliefs of feasibility. This practice setting is a combined family and internal medicine clinic operating within an extensive academic hospital system in a rural northeast United States.

The setting's service area has an estimated 111.37 full-time equivalents (FTE) per 100k of the population (NH DHHS Services Rural Health & Primary Care, 2021). The average FTE in rural areas of New Hampshire is 43.1 per 100k of the population, indicating that the practice site may not be comparable to other primary care practice sites in its residing US state (NH DHHS Services Rural Health & Primary Care, 2021). Different rural practice settings may be more or less inclined to adopt a standardized, clinician-supervised, outpatient alcohol detoxification protocol depending on their conflicting practice burdens and the needs of their local paneled patient population. Results focused on the *perceived effectiveness of the intervention* may be more transferable to other primary care practice settings looking to adopt similar standardized alcohol detoxification monitoring protocols.

All conclusions from the sample group data must be interpreted with caution. This feasibility analysis is limited by low-response rates among the faculty cohorts, contributing to a non-response reporting bias. Factors that may have contributed to low response rates included stakeholders forgetting to complete surveys during the distribution timeframe, stakeholders assuming they should not take part because of not attending their cohort's presentation or viewing the asynchronous presentation, stakeholders not having the time to complete the survey instruments, the length of the survey instrument itself, and stakeholders voluntarily choosing to not participate in the intervention.

Efforts to minimize non-reporting bias included automating surveys to re-send to participants who had not completed them, offering pre-recorded presentations for the stakeholders who could not attend the presentations, and explicitly not requesting identifying information of study participants outside their job titles and department. The low response rates amongst the stakeholders are of note, as a lack of interest to participate in the feasibility study

may signal that many participants were not yet in the “orientation” stage of change, where individuals begin to take an interest in the implementation effort and involve themselves in the process.

Conclusions

This study found that developing a clinician-supervised alcohol detoxification protocol specified for the practice site enhanced clinicians' and nurses’ perceptions of the usefulness of managing non-complex alcohol withdrawal among their eligible outpatients. Dissemination of the protocol through educational presentation resulted in a shift in participants’ stage of behavioral change, characterized by a progression from unawareness towards engagement in trialing and adopting the interventions. This study is the first to examine primary care faculty perceptions on initiating supervised alcohol detoxification management using the Implementation Processes Assessment Tool within the CFIR framework.

The findings hold implications for practice-site administrators, given national, statewide, and hospital-system initiatives to reduce alcohol-related morbidity and mortality, improve treatment access, and promote sustained treatment initiation. Sustainable protocol adoption is contingent on enhancing the implementation climate regarding technological and staffing infrastructure, clinical champion mentorship, and workflow integration.

Findings from this small-scale feasibility study can be shared amongst other primary care practice sites within the hospital system network to generate discussions amongst leadership on enhancing the guideline's compatibility within existing care processes. Practice sites looking to adopt and trial the protocolized workflows could provide valuable insights into how care processes could be adjusted to support the local needs of patients and healthcare providers. Opportunities include dissemination amongst clinical champions affiliated with the institution’s

Primary Care Substance Use Disorder Collaborative and through institutional Grand Rounds lectures.

Specific efforts must be taken to enhance faculty perceptions of support within the inner context of the site to move towards successful trialing and sustained implementation of the care processes outlined within the protocol. Improving electronic record health record infrastructure could include making results of alcohol screening instruments readily accessible when opening a patient's chart (for instance, listing/flagging results in a patient snapshot along with the most recent vital signs data). The electronic health record SmartSet for Unhealthy Alcohol Use could be modified to include additional decisional support for clinicians. SmartSets refer to a grouping of order sets, order panels, flowsheets, documentation tools, communications, patient instructions, and billing codes that can be used for specific diagnoses. The current Unhealthy Alcohol Use SmartSet could be modified to include components such as withdrawal medication taper regimens with instructions for patients, a flowsheet for withdrawal severity scoring, a flowsheet for ASAM withdrawal risk assessment scoring, a quick reference guide identifying indications for inpatient detoxification, and detailed instructions on home detoxification for patients and families. Such modification would reduce the decisional complexities of managing alcohol detoxification amongst outpatients.

Regarding enhancing organizational support, collaborative care networks could be utilized. Such entities include institutional health system addiction specialists or outside peer-to-peer support services such as the Massachusetts Consultation Service for the Treatment of Addiction and Pain (MCSTAP, 2019). Peer-to-peer consultative services through phone or electronic health record communication could offer additional support to teams managing an outpatient detoxification case as the team gains familiarity with providing the service. Partnering with

implementation facilitators such as the University of Vermont Center on Rural Addiction (UVM CORA) would offer consultation, resources, training, and technical assistance to tailor strategies for protocol implementation (UVM Center on Rural Addiction, 2021). Innovative strategies could include accessing funding for peer-recovery coaches or trained-layperson to provide withdrawal monitoring services as a lower-cost alternative to hiring additional registered nurses. Alternatively, triaging and scheduling activities performed by clinic nurses could be partially outsourced to telehealth helpline agencies at a reduced cost, freeing clinic nurses for greater involvement in chronic disease and behavioral health management for paneled patients.

This stakeholder assessment presents opportunities for further study. There is potential for the IPAT survey instrument to be simplified further and distributed to all practice site stakeholders to produce higher-powered results. The dissemination and replication of the study within other rural practice sites would provide valuable information as to whether individual and collective readiness and perceived support are common feasibility barriers to supervised detoxification management in primary care teams.

At the practice site level, conducting local consensus discussions and readiness assessments are suggested ERIC strategies for implementation. Developers of the CFIR have created a structured interview guideline, coding templates, and resources for aggregating, summarizing, and rating data for semi-structured interviews with stakeholders. Qualitative readiness assessment with stakeholders would provide a more robust synthesis of implementation barriers and tailor strategies for implementation. The suggested next step for practice site investigators would be implementing the ERIC strategies derived from this study. Readiness assessment would include qualitative interviewing of stakeholders and field notes

from site visitations based on CFIR domains and constructs. Local needs assessments could be conducted through stakeholder interviewing and consensus discussions.

The next steps for clinical leadership would involve integrating decision tools into electronic health record infrastructure, identifying clinical champions, and trialing the protocol. Involving information technology specialists to integrate assessment scales, decision support, documentation tools, and order sets into the electronic health record would enhance the protocol's simplicity and adaptability. Leadership could partner with the investigational team to identify clinical champions who could support faculty overseeing ambulatory alcohol detoxification. Potential champions would be clinicians and nurses, either on-site or with easy access through the institutional network, who are trained/experienced with ambulatory alcohol detoxification and invested in moving the protocol implementation forward. Trialing the protocol amongst eligible patients would allow for cyclical small tests of change (Plan-Do-Study-Act or PDSA cycles) to further refine clinical processes and promote the protocol's adaptability.

Accessing new funding would aid quality improvement efforts. Funding could be allocated towards partnering with UVM CORA, facilitating formalized training of clinic staff, hiring additional behavioral health staff, conducting qualitative research and PDSA cycles, updating the electronic health record, and developing infrastructure to track quality improvement metrics related to alcohol use and treatment among paneled patients. Grant opportunities include *New Hampshire Opportunity Grants* sponsored by the Endowment for Health; the *Notice of Special Interest* grant funded by the National Institute of Mental Health and National Institute on Drug Abuse; and the *Health Services Research Projects (R01)* grant and *Small Research Grant Program (R03)* grant sponsored by the National Institutes of Health Agency for Healthcare Research and Quality (Fulton & Hession, n.d.; NIMH & NIDA, 2022; NIH AHRQ, 2018a; NIH

AHRQ, 2018b). Shifting towards full-scale implementation of a standardized, clinician-supervised outpatient alcohol detoxification protocol will require engagement and support from leadership to secure this funding. This study demonstrated that clinical stakeholders support the proposed implementation so long as they are given the tools, training, and time necessary to deliver evidence-based detoxification care to outpatients.

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Appendix A

Home-Based Detoxification Literature Review Synthesis Matrix

Author, YEAR	Study Design Theoretical Framework	Sample Characteristics & Setting	Variables: Independent / Dependent	Data Analysis	Main Findings	Level of Evidence
Allan, Smith, & Mellin, 2000	Quasi-experimental, non-randomized recruitment design	65 patient sample, United Kingdom, the home group compared to hospital day program, 67% male, 33% female	**Independent**: home detoxification service or Alcohol Problems Treatment Unit **Dependent**: past and recent alcohol use, contact with treatment services, Severity of Alcohol Dependence questionnaire, Alcohol Problems questionnaire, measure of social disruption, Treatment Satisfaction Scale, criteria for successful completion of detoxification, outcomes at six days (reported consumption, return of alcohol-related problems, breathalyzer, independent source)	Interviews at ten days follow-up and 60 days, means, SD, t-test, %	79% successfully detoxed at ten days (78% in the day program), and 45% (vs. 31% in the day program) showed significant improvements in alcohol-related difficulties at 60 days. Further attendance improved outcomes for both groups. Other measures were comparable	III
Alwyn, John, Hodgson, & Phillips, 2004	Randomized control trial	91 patient sample, United Kingdom, 57% male, 41% female, treated for detoxification in home settings	**Independent**: treatment as usual (medication/support from visiting nurse) or enhanced psychological intervention (manual - motivational interviewing, coping skills training and social support) **Dependent**: Form 90 instruments (days abstinent, drinks per drinking day, total consumption during the previous three months, other drug use), Severity of Alcohol Dependence Questionnaire (SADQ), Alcohol Problems Questionnaire (APQ), Social Satisfaction Scale, Self Esteem questionnaire	Baseline, three months and 12 months analysis of variance (%, SD, p score), cost analysis	Substantial improvements in outcome measures for both groups show that home-based medical detoxification improved outcome measures. Furthermore, the addition of brief psychological intervention during encounters added little cost. At three and 12-month follow-ups, the psychological intervention showed significant improvement in days abstinent, social satisfaction, alcohol consumption, alcohol-related problems, and self-esteem. This cost was a ninth of the cost of inpatient treatment.	II

Ammit & Miles, 2021		21 patients referred to community healthcare center, a nurse-led clinic in Sydney, Australia, that received outpatient detoxification.	**Independent**: Nurse-led, outpatient alcohol withdrawal management **Dependent**: Completion rate, abstinence rate, adverse events, wait time		85% completed the treatment regime, and 39% reported abstinence at one month. 90% had a wait time from a referral to the first visit in less than a week.	V
Bartu & Saunders, 1994	Quasi-experimental matched groups	40 patient sample, Australia, 70% male, 30% female, domiciliary detoxification managed by Community Nursing Service (outpatient) vs. inpatient facility (inpatient)- matched to control variables	**Independent**: control is impatient detoxification, treatment is community-based detoxification **Dependent**: Alcohol consumption (standard drinks), binges (>10 drinks), number of months worked, Alcohol Problems Questionnaire, cost analysis	Baseline, 12, and 18-month follow-up comparison (Chi-squared, df, p scores)	Community detox was 4-8 times less costly than inpatient detoxification. Significant baseline differences in mean drinking for groups at the start of the study (consumption over two times higher in the inpatient group). The community group had a significant difference in the quality of relationships and quality of health.	III
Binnie, 1998	Randomized control trial	76 patient sample, United Kingdom 77.6% male22.4% female, home detoxification service	**Independent**: home detoxification (HD) program compared to minimal intervention (MI) strategies **Dependent**: Length of abstinence(weeks), alcohol consumption (units), Severity of Alcohol Dependence Questionnaire (SADQ) score	Pre/post interviews at six months, mean and *SD with p* score	Improved means in the HD group, with a significant length of abstinence in the HD group (period of abstinence doubled in HD group)	II
Corace et al., 2020		191 patients who presented to the Alcohol Medical Intervention Clinic (AMIC) between May 26, 2016, and June 30, 2017. Situated in Ottawa, Ontario.	**Independent**: Patients presenting to Ottawa Hospital Emergency Department who experienced alcohol withdrawal, were at risk of experiencing alcohol withdrawal, or if alcohol was considered a significant concern. **Dependent**: # of ED visits in 30 days before and after treatment – per patient Total # of alcohol-related ED visits in 12 months before and following AMIC. Self-reported measures in intake and at 30-day follow-up: AUDIT, SADQ, ASSIT, PHQ-9, GAD-7	Means and standard deviations at time periods. Paired-sample t-tests and McNemar Inferences were two-tailed, and a < 0.05 level significance	For patients served by AMIC, from May 26, 2016, to June 30, 2017 (n = 194), there was an 82% reduction in 30-day visits and re-visits ($p < 0.001$). An 8.1% reduction in total alcohol-related 30-day TOH-ED revisit rates and a 10% reduction in total alcohol-related TOH-ED visits were found. After receiving AMIC services, clients reported reductions in alcohol use, depression, and anxiety ($p < 0.001$).	IV

Haigh & Hibbert, 1990	Randomized control trial	50 patient sample, United Kingdom, 96% male, 4% female, homeless adults in a hostel vs. inpatient unit	**Independent**: detoxification in the homeless hostel under GP supervision visitation vs. inpatient alcohol detox unit **Dependent**: assessment attendance, acceptance of detoxification, mean chlordiazepoxide, total 5-day symptoms score, detoxification completion, abstinence at one month, the time between referral and assessment (<12 hr., 12-24 hr., >24 hr.)	Chi-square, p score	Comparable efficacy scores, longer wait times in the alcohol unit, and waiting over 24 hours hurt attendance and detox. The community program is shown to be cheaper, quicker, and comparable in outcomes	II
Hayashida et al., 1989	Randomized control trial	164 patient sample, United States, 100% male veterans, outpatient clinic vs. inpatient detoxification	**Independent**: outpatient medical clinic compared to inpatient detoxification closed ward **Dependent**: Michigan Alcoholism Screening Test (MAST), Severity of Alcohol Dependence Questionnaire (SADQ), Beck Depression Inventory (BDI), Symptom Checklist-90 (SCL-90), Addiction Severity Index (ASI), entry into long-range rehabilitation programs, the incidence of re-detoxification during the six-month follow-up period, SSA of the Alcohol Withdrawal Syndrome, cost assessments	Evaluations at baseline, one month, and six months - analyzed by two-tailed t-tests in the case of continuous data or the chi-square test in the case of categorical data	Duration of treatment was shorter for outpatients, significantly more inpatients completed detoxification, no serious medical complications in either group, fewer medical problems among outpatients at one month, and fewer alcohol-related problems among inpatients at one month. Otherwise, no significant difference was found in outcome measures between groups at 1 and 6 months. Costs were 9 to 20 times lower for outpatients.	II
Mark et al., 2021	Natural experiment	851 patients in California: ASAM group: 15 providers and seven counties Computerized ASAM group: 9 providers and one county Non-ASAM group: 9 providers in 4 counties	**Independent**: use of ASAM intake criteria for substance use disorder treatment placement determination (ASAM, computerized ASAM, no criteria) **Dependent**: Adapted patient survey with three domains: (1) respect to patient values, preferences, and expressed needs, (2) coordination and integration, (3) information that is attentive, responsive, and tailored to patient's needs	Stakeholder assessment survey using inverse-probability weighting and computed differences in the weighted means	patients who underwent intake based on ASAM assessment criteria experienced more patient-centered intake in areas related to patient-provider interactions and satisfaction with the choice of treatment setting	III

Nadkarni et al., 2020	Treatment cohort with before-and-after design	recruited a convenience sample: 38 men with alcohol dependence, Goa, India	**Independent**: detoxification and relapse prevention counseling or only relapse prevention counseling **Dependent**: Alcohol (in gms) consumed in the two weeks preceding the outcome assessment, heavy drinking days, and Short Inventory of Problems (SIP) score-baseline and three months Time Line Follow Back (TLFB) - mean daily alcohol consumption and percentage days of heavy drinking (PDHD) – baseline and three months.	Pre and post medians compared with Wilcoxon signed rank test.	Two unplanned hospitalizations. Observed high completion rates for home detoxification. A potential solution to bridging the AUD treatment gap in a low-resource setting. A significant difference between baseline and follow-up for SIP and TLFB in those who received both home detoxification and relapse prevention counseling	V
Stockwell, Bolt, Milner, Pugh, & Young 1990	Mixed methods (treatment cohort with quantitative and qualitative interviews)	41 patient sample, United Kingdom, 68.3% male, 31.7% female, home detoxification service	**Independent**: Home Detoxification service by Exeter Community Alcohol Team **Dependent**: self-reported alcohol consumption, breathalyzer, liver enzyme, and blood tests, Severity of Alcohol Dependence Questionnaire, Alcohol Problems Inventory, Treatment Satisfaction Questionnaire, report of alcohol-related problems from relatives, general practitioner questionnaire	10-day interview, 60-day interview, Paired t-tests, p scores, Chi-squared	The home was the preferred location for detox in subjects. Half would have been unwilling to accept hospital care. Clients and careers were highly satisfied with services. 60 days from the start of treatment, 11 clients were abstinent, two controlled their drinking with relatively few problems, 13 had 'improved,' 14 were not 'improved,' and one had an unknown outcome. Later involvement in treatment was high. Attendance in aftercare improved outcomes. A significant, modest change in general practitioner practice toward more use of home detoxification	IV

Note. This level of effectiveness rating scheme is based on the following: Ackley, B. J., Swan, B. A., Ladwig, G., & Tucker, S. (2008). Evidence-based nursing care guidelines: Medical-surgical interventions. (p. 7). St. Louis, MO: Mosby Elsevier.
Search strategy: [(Alcohol/ OR Alcohol dependence/ OR Alcohol dependent/OR Alcohol dependence syndrome/ OR Alcohol problems/ OR Alcohol abuse/ OR Alcohol use disorder/ OR Alcoholism/ OR Alcohol addiction/ OR Alcohol addict/ OR Alcohol withdrawal/ OR Alcohol withdrawal syndrome/ OR Delirium tremens/ OR Alcoholic/) OR (Alcohol$.tw OR Alcohol dependen$.tw OR Alcohol problems.tw OR Alcohol use disorder.tw OR Alcohol addict$.tw OR Alcohol withdrawal.tw OR Alcohol withdrawal syndrome.tw OR Delirium tremens.tw)] AND [(Detoxification/ OR Detox/) OR(Detox$.tw)] AND [(Community/ OR Home/ OR Ambulatory/ OR Outpatient/) OR (Community.tw OR Home.tw OR Ambulatory.tw OR Outpatient.tw)]

Appendix B

Conceptual Frameworks

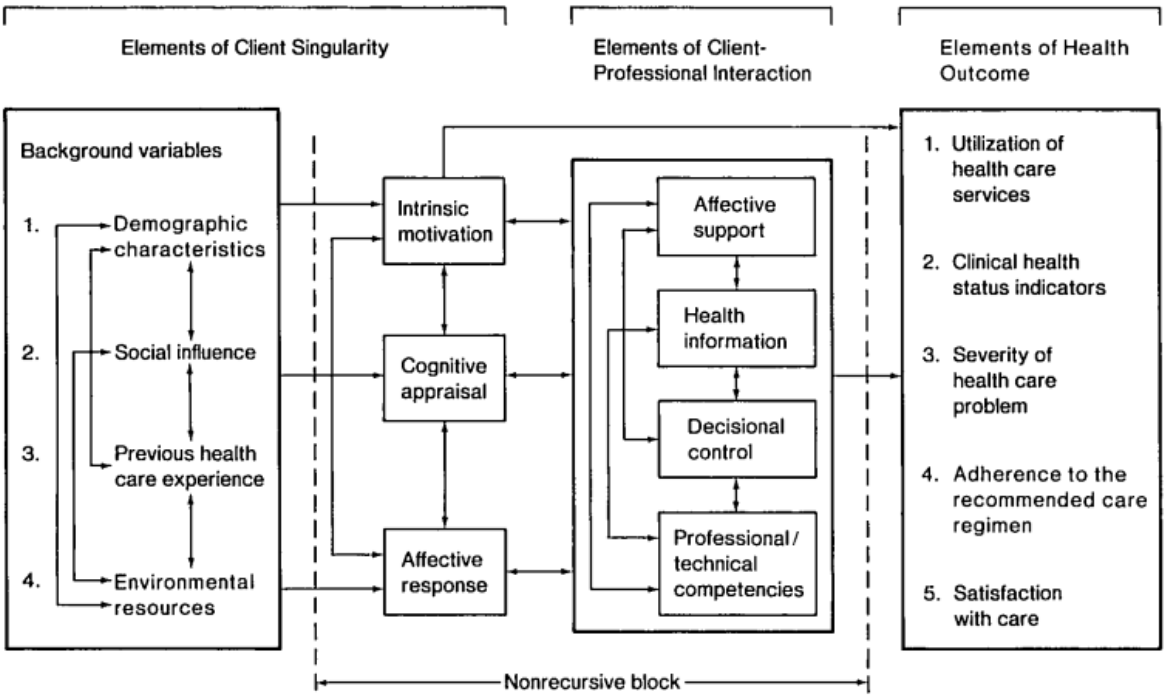


Figure B1. Interaction Model of Client Health Behavior reproduced from Cox, 1982

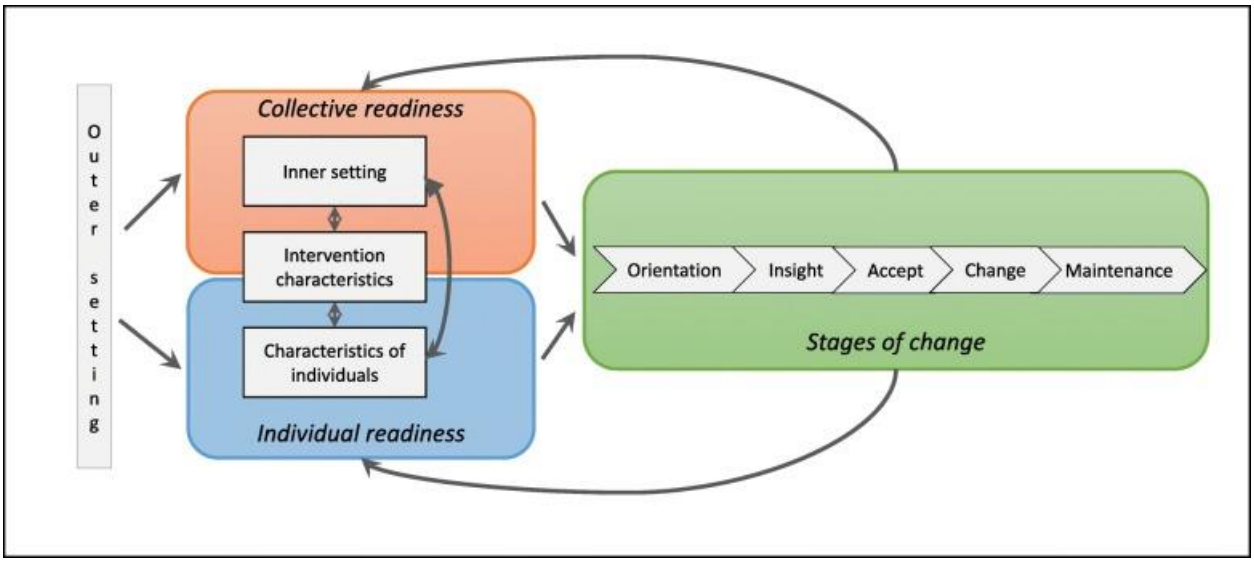


Figure B2. Illustration of the theoretical grounding for the Implementation Process Assessment Tool (IPAT), reproduced from Hartveit et al., 2019.

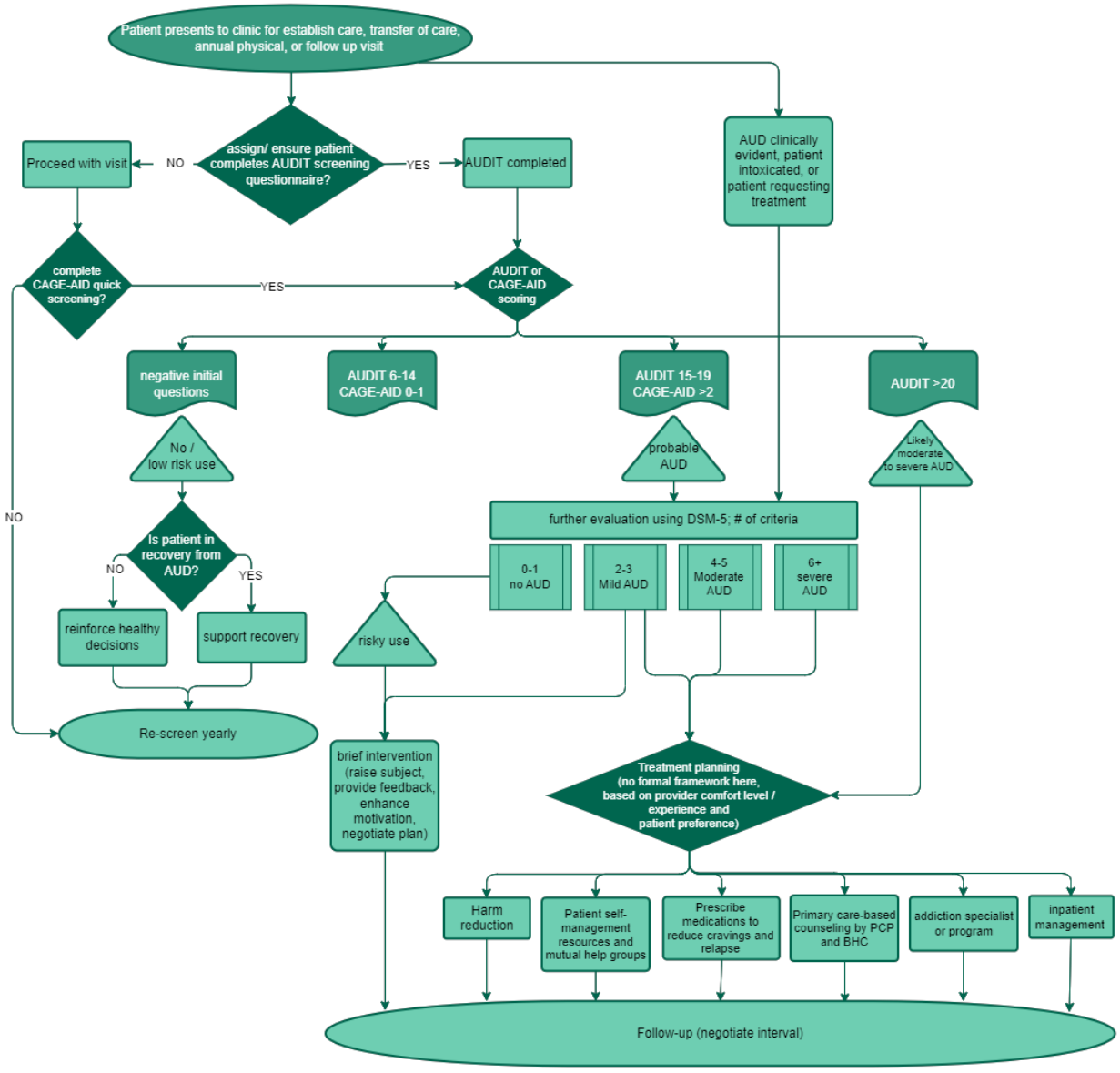
Appendix C

Outcome Evaluation Plan

Element	Outcome Detail
Approach	Stakeholder analysis
Design	Pre-implementation feasibility project for evidence-based protocol implementation
Purpose/ Aims	Educational intervention related to adopting standardized, clinician-supervised, outpatient alcohol detoxification protocol based on the *ASAM* guideline (Alvanzo et al., 2020) Goals: ↑ clinician perception of protocol feasibility
Process	Concerns regarding treatment gap in 22% of patients reporting excessive alcohol use on Behavioral Risk Factor Surveillance System. Vermont has a target level of lowering this to 18% in adults over 65. Vermont aims to initiate treatment within 14 days of outpatient visit diagnosis to 50% of Medicaid eligible population—treatment initiation delays due to lag in referral times to outpatient treatment centers and community support groups. The *ASAM* Alcohol Withdrawal Management Guideline offers evidence-based strategies and standards of care for alcohol withdrawal management in ambulatory settings regarding identification and diagnosis of alcohol withdrawal, initial assessment of alcohol withdrawal, level of care determination, and ambulatory treatment of alcohol withdrawal. Trial of guideline implementation within the primary care practice teams with a presentation, provider, nurse protocols, clinical encounter templating, and clinical reference tools.
Outcome Measures	Name: Implementation Process Assessment Tool (IPAT) Objective: To assess faculty perceptions of the feasibility of adopting a standardized, clinician-supervised, outpatient alcohol detoxification protocol using the IPAT. Clinician respondents will demonstrate a significant increase in average scores across all 4 IPAT sub-domains post-intervention: (1) individual phases for behavioral change (IPAT 1–5, 7, and 20) (2) individual activities and perceived support (IPAT 8–11, 14, 15, and 18) (3) collective readiness and support (IPAT 21–27 and 6) (4) individual perception of the intervention (IPAT 12, 13, 16, 17, and 19) Numeric Target: Average post-presentation scores will score ≥ median score for subdomain: (1) individual phases for behavioral change ≥17.5 (2) individual activities and perceived support ≥ 17.5 (3) collective readiness and support ≥ 20 (4) individual perception of the intervention ≥ 12.5 Exclusion Criteria: exclude any respondent with four or more missing items
Analysis	Pre and post-survey mean and 95% confidence interval. One-sample *t*-test *with* $p < 0.05$ for significance using numeric targets as hypothesized values. H_o: no significant difference in IPAT scores across the four feasibility domains compared to target scores.

Appendix D

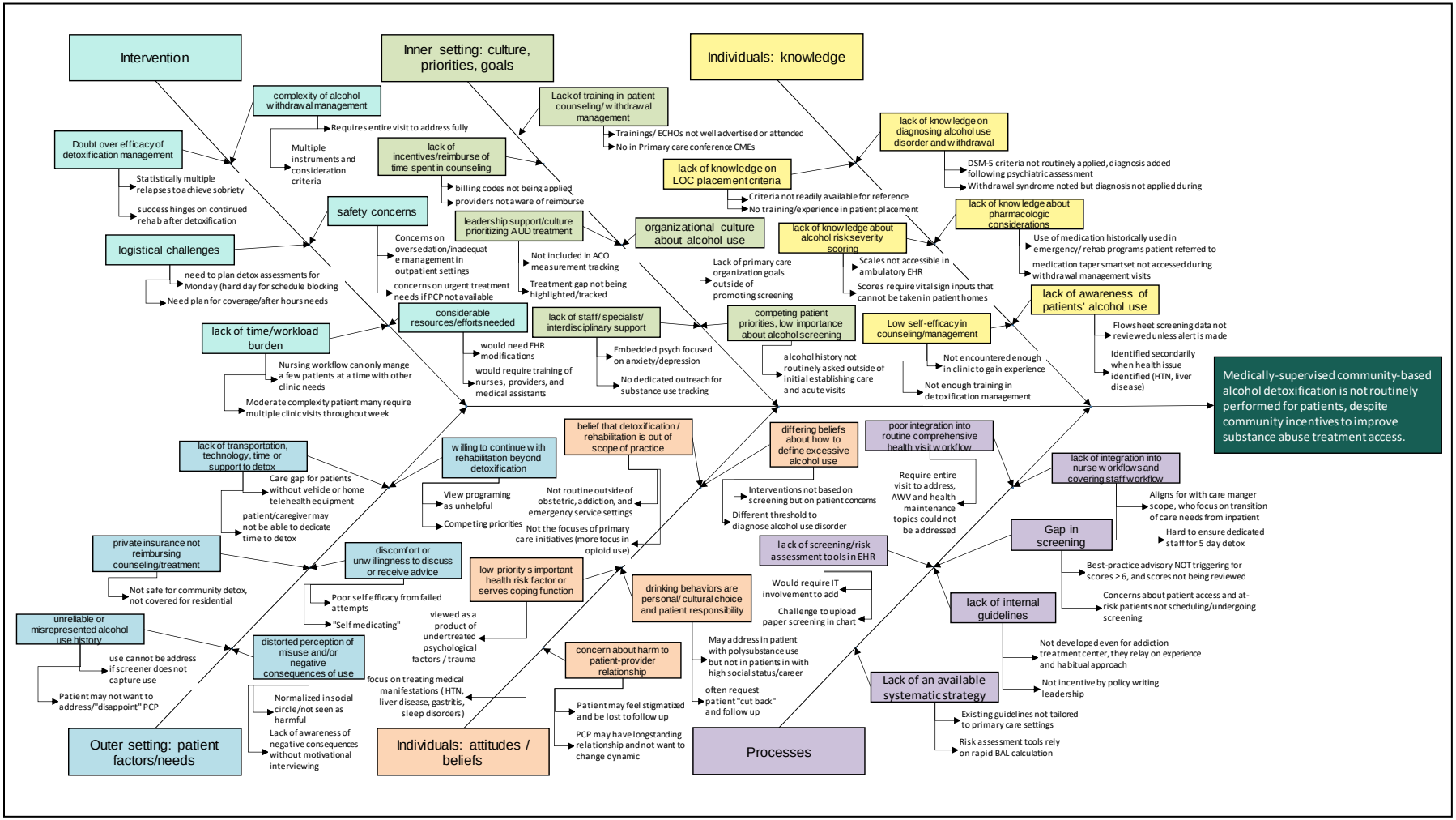
Workflow Diagram: Primary Care Alcohol Use Management



Note: Created with assistance from Visual Paradigm Online Free Edition.
Abbreviations – AUD: Alcohol use disorder; AUDIT: Alcohol Use Disorders Identification Test; CAGE-AID: Cut down, Annoyed, Guilty, and Eye-opener, adapted to include drugs questionnaire; DSM-5: Diagnostic and Statistical Manual of Mental Disorders - fifth edition; PCP: primary care provider; BHC: behavioral health clinician.
Full access to the guideline is available at: https://www.dartmouth-hitchcock.org/sites/default/files/2021-06/V-2.0-UADU-Guideline-2021.pdf

Appendix E

Cause and Effect (Ishikawa) Diagram



Appendix F

Drafted Ambulatory Alcohol Detoxification Protocol and Stakeholder Presentations

Figure F1. The current version of standardized, clinician supervised, outpatient alcohol detoxification protocol, published to web 9/12/2022: https://drive.google.com/file/d/1xJqMrtbOQfx0LiRfeo87u0lw4HX7Yxk8/view?usp=sharing

Figure F2. Provider presentation slide decks, published to web 1/31/2023: https://drive.google.com/file/d/1KxUmCu_TpeSLYkhDhP5E-f2mcFX-s0Y5/view?usp=sharing

Figure F3. Nurse cohort presentation slide decks, published to web 1/31/2023: https://drive.google.com/file/d/124HdO4R2Q-LIbYX38v1pBG8vHkKRNoeQ/view?usp=sharing

Appendix G

Modified Implementation Process Assessment Tool

Question	Response					
Please respond as honestly as you can to the following statements on the improvement work on outpatient alcohol detoxification management.						
1. I am aware our unit will make efforts to improve outpatient alcohol detoxification management	0 not agree/not true	1	2	3	4	5 agree/ correct
2. I have recently learned of a new working method/practice for outpatient alcohol detoxification management that has interested me	0	1	2	3	4	5
3. I have considered the consequences of this new way of working for my own work	0	1	2	3	4	5
4. I have discussed with colleagues how this new practice will work in our clinic	0	1	2	3	4	5
5. I have considered the pros and cons of the new practice, and I believe the benefits will outweigh the effort	0	1	2	3	4	5
6. I am willing to take on the necessary additional work to improve outpatient alcohol detoxification management	0	1	2	3	4	5
7. I make it clear to my colleagues that I want to work to improve outpatient alcohol detoxification management	0	1	2	3	4	5
8. I have changed my way of working to make my contribution to the new practice in outpatient alcohol detoxification management	0	1	2	3	4	5
9. I provide constructive feedback to help us achieve the change	0	1	2	3	4	5
10. I keep track of the data we get in our clinic's performance to see how things are developing	0	1	2	3	4	5
11. I remind myself and my colleagues of our new practice if we deviate from it	0	1	2	3	4	5
12. I believe we have a clear potential for improvement in our outpatient alcohol detoxification management	0	1	2	3	4	5
13. I believe the efforts and interventions are appropriate to improve outpatient alcohol detoxification management	0	1	2	3	4	5
14. I find that I get the necessary facilitation from management to succeed in the improvement work	0	1	2	3	4	5
15. I find I get the necessary support from key colleagues to succeed in the improvement work	0	1	2	3	4	5
16. I believe the patient will benefit from the improvement	0	1	2	3	4	5
17. I believe the improvement will benefit me personally (e.g., saving time, increasing my confidence, and enhancing predictability)	0	1	2	3	4	5

18. I feel I am getting adequate support to enable me to carry out my part of the improvement	0	1	2	3	4	5
19. I believe I will manage the effort and be able to comply with the new practice	0	1	2	3	4	5
20. Which of the following sentences describes you best in relation to outpatient alcohol detoxification efforts?	0. ☐ I have received information about the new practice, and I am not interested and/or I do not think this is the right time to consider changing practice regarding alcohol detoxification management 1. ☐ I have not studied what this improvement work is about 2. ☐ I have received information about the new practice, and it seems interesting, but I have not thought more about it 3. ☐ I am interested in improvement in the area in question and think that our clinic should change its practice in line with the recommendations 4. ☐ I think our clinic should change its practice in line with the recommendations, AND I understand this will involve some additional work. But I believe the benefits will be greater than the effort. 5. ☐ I play an active part in changing our practice by following the guidelines, and I want to help to solve the challenges involved in the change					
For the following statements, please assess the situation of improvement work in the clinic where you work. To what extent do you agree with the following statements? ("Our clinic" / "we" = your team working with the patient group concerned.)						
21. We who work here agree that we have the potential for improvement in outpatient alcohol detoxification.	0	1	2	3	4	5
22. We agree that the proposed interventions are appropriate for realizing the improvement potential	0	1	2	3	4	5
23. We all feel good about the improvement efforts in outpatient alcohol detoxification	0	1	2	3	4	5
24. We have agreed to make every effort to implement outpatient alcohol detoxification	0	1	2	3	4	5
25. We feel confident that we have the necessary knowledge and experience for systematic improvement	0	1	2	3	4	5
26. We feel confident that our organization will involve everyone in this improvement work in outpatient alcohol detoxification	0	1	2	3	4	5
27. In our view, management is committed to implementing and following the results of the improvement work in outpatient alcohol detoxification	0	1	2	3	4	5

Note. Adapted for Outpatient Alcohol Detoxification quality improvement from Hartveit et al., 2019. Measures for *individual stages of behavioral change* are highlighted in green, measures for *individual activities and perceived support* are highlighted in blue, measures for *collective readiness and support* are highlighted in red, and measures for *perceived effectiveness of the intervention* are highlighted in yellow.

Appendix H

IRB Self-Determination of Research Tool Certification

The University of Vermont
Research Protections Office

To: Emily A. Miller, RN-BSN
From: Research Protections Office
Date: May 5, 2022
Sponsor: UVM Nursing DNP Project
RE: Feasibility of Adopting a Standardized, Clinician Supervised, Outpatient Alcohol Detoxification Protocol Within Primary Care

Thank you for completing the Research Not Requiring IRB Review Self-Determination Tool. The proposed activity DOES NOT meet the regulatory definition of research under 45 CFR 46.102(d):

(d) Research means a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge.

Therefore, this research does not require IRB review and approval.

Note: If this is a sponsored project (projects that are managed through SPA), please be prepared to provide a copy of this document to the SPA Award Acceptance Officer.

Determinations made utilizing the self-determination tool require that for any publications, conferences, sponsors, etc., the project be accompanied by the following statement "According to the policy defining activities which constitute research at the University of Vermont/University of Vermont Health Network, this work met criteria for operational improvement activities exempt from IRB review."

Recipient Data:
Time Finished: 2022-05-05 08:03:50 MDT
IP: 75.69.94.212
ResponseID: R_1imnxtSTCQf6VhP
Link to View Results: Click Here
URL to View
Results: https://qualtrics.uvm.edu/CP/Report.php?SID=SV_3VtN1eDdM0oeTrw&R=R_1imnxtSTCQf6VhP
