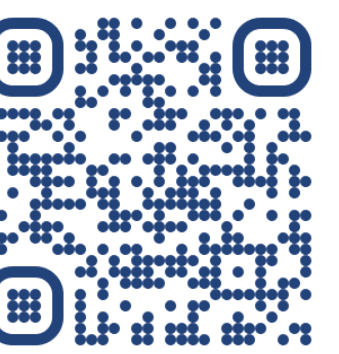


Community Based Medications First for Opioid Use Disorder- Care utilization and mortality outcomes

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BACKGROUND AND AIMS

A large treatment gap exists for people with opioid use disorder (OUD) receiving medications for opioid use disorder (MOUD) which are the most effective evidence-based treatments. Most people with OUD want to stop/reduce their use and are interested in MOUD¹. Many access services in harm reduction and other community-based organizations and have had difficulty starting or engaging in care at treatment centers of primary care offices. We previously implemented and tested a low-barrier buprenorphine clinic at a Seattle syringe services program (SSP), utilizing a nurse care manager model, that was feasible with positive intermediate outcomes². This study adapts that model by adding care navigators and implementing it in multiple, diverse sites across WA State.

Our primary aim tests the impact of the intervention on morbidity and mortality outcomes. Other aims test if housing status modifies the impact of the intervention and the impact of the intervention on MOUD utilization.

CLINICAL INTERVENTION AND SETTINGS

The Community Based Medication-First (CBMF) intervention is based upon rapid, typically same-day, access to medications; convenient, non-appointment based care; no exclusions for poly-substance use; no counseling mandates (but services readily available); and ongoing, easy to access care. The model is intended for people who may have barriers to appointment-based care, including those who are unhoused. Staffing for Community-Based Medication-First (CBMF) was based upon project-funded care teams comprised of a nurse care manager and care navigators, as well as a prescriber's time to oversee clinical activities.

All clinics began with drop-in, same-day visits (no appointment required) with workflows designed to provide same-day medication starts when medically appropriate and desired by clients. CBMF staff were often co-located at SSPs to facilitate linkage.

The study's clinical intervention support team provided initial training and ongoing, twice-monthly and ad hoc technical assistance and clinical consultation for nurse care managers and care navigators. Clinical support was provided to prescribers in monthly calls. Site administrators met with the team twice monthly to discuss administrative, clinical, and research issues.

Clinical/Research settings: The goal of this project is to provide care where people with OUD already receive other services and often have established trusting relationships with staff and volunteers. Settings included existing SSP's and other programs providing social and health services for marginalized and unhoused people. The six sites were purposefully selected to represent different types of organizations and geographic variability. Three of the sites were in Eastern Washington (Spokane, Walla Walla, Kennewick) and three in Western Washington (Tacoma, Seattle, Centralia).

METHODS

Study participants People with opioid use disorder, per clinician judgment, who were interested in starting on an FDA approved medication for OUD were eligible for the study if they were: between the ages of 18-70 and willing to provide access to state records data. Potential participants were approached about study involvement *after* their initial CBMF service encounter. The clinical intervention was implemented, and study recruitment and enrollment began August 2019. The last month of new clients beginning the 6-month clinical intervention was September 2021. 12 months of follow-up data from the date of beginning the clinical intervention was utilized.

Study Design & Analyses A prospective cohort study was conducted to test the impacts of the intervention on MOUD and care utilization. A synthetic comparison group analysis, based upon a statistically matched from WA State agency administrative data sources, was conducted to test the impact of the intervention on mortality. Descriptive statistics are presented. Pre-post comparison of rates of care utilization based on days supply of buprenorphine or number of months with an event was tested with an unadjusted model regressing change score on housing status. The all-cause mortality rate difference between the intervention and comparison group was tested in a logistic regression model accounting for propensity score weighting and included history variables used in estimating the propensity score as covariates, followed by marginal effects estimation to calculate an average risk ratio. In the first stage of creating a comparison group, members of the large de-identified comparison pool with an indication of OUD were assigned the treatment group member's start date and matched on key broad indicators of OUD history. In the second stage, propensity score matching was implemented with more fine-grained history variables to match and balance the samples.

RESULTS

Characteristics of clients served and analytic sub-groups

1,325 people received the CMBF clinical intervention. 825 people enrolled in the study and 813 were matched to state records. CBMF service recipients had similar age and gender as those enrolled in the study and those with complete Medicaid data Table 1). Those with complete Medicaid eligibility were similar to all enrolled in the CBMF study except they had higher rates for care measures. Those with complete eligibility for Medicaid had lower rates of arrest, likely due in part losing Medicaid eligibility while incarcerated. Those with complete Medicaid data had a somewhat smaller proportion who were unstably housed.

Table 1- Participant characteristics at baseline and utilization prior 12 months	All clients served	Enrolled and matched to state data	Complete Medicaid data
n=	1,325	813	463
Demographics			
Age- mean	...	36.85	37.78
<20	2.1%	0.6%	0.4%
20-29	24.9%	27.4%	25.3%
30-39	36.6%	37.9%	36.7%
40-49	18.8%	20.5%	21.4%
50-59	10.0%	9.7%	12.1%
60+	4.5%	3.8%	4.1%
missing	3.0%	0.0%	0.0%
Female	41%	40%	49%
Unstably/un-housed	...	44.1%	40.6%
Medications for opioid use disorder utilization			
Buprenorphine - days supply	...	32.0	42.8
Buprenorphine - any	...	52.3%	58.8%
Buprenorphine - months with	...	2.35	3.02
Methadone - any	...	6.03%	8.21%
Methadone - months with	...	0.27	0.38
Naltrexone - any	...	2.8%	3.2%
Naltrexone - months with	...	0.071	0.08
Any OUD medication - months with	...	2.66	3.43
Any OUD medication	...	56.0%	63.7%
Arrests			
Arrests % any	...	40.0%	34.6%
Arrests month with	...	0.91	0.71
Emergency Department and Inpatient Hospital Utilization			
ED Poisoning - any	...	3.8%	4.1%
ED poisoning - months with	...	0.044	0.045
ED non-poisoning - any	...	54.7%	65.0%
ED non-poisoning - months with	...	1.42	1.71
Hospitalization - any	...	25.7%	30.0%
Hospitalization- months with	...	0.48	0.57

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DISCUSSION & CONCLUSION

Our findings indicate a **statistically and clinically significant increase in medications for OUD after receiving CBMF and a significant decrease in mortality relative to the comparison group**. Our goal was to provide services to housing-insecure people and 40% of participants studied were housing insecure and unhoused participants also had a substantial and statistically significant increase in time on medications. We did not see a change in ED poisoning visits, but it is important to note that the rate of these recorded visits is very low and that previous research indicates that many people who have an overdose do not seek medical care. Not seeking care for an overdose was perhaps even more likely given the high rates of naloxone availability in the community (approximately 80% per local SSP surveys) and the reluctance of people to go to the ED during COVID. Conversely, there was a significant increase in inpatient hospitalizations which does not align with ED poisoning findings and may be related to care utilization for COVID.

Limitations We know that SARS-CoV-2 precautions severely limited clinical visit time which decreased study enrollment opportunities. Many sites needed to switch from drop-in care to appointments for initial and ongoing care, potentially decreasing ongoing service utilization and study enrollment.

In preparing for this study we estimated an annual mortality rate of 6% for those with opioid use seen for care in the ED, based on a Seattle study³ as well as very similar findings in Massachusetts⁴. In this study the matched comparison, which had an extensive history of medication use for OUD, had a lower mortality rate than we anticipated, and yet the intervention group still had a significantly reduced mortality rate.

Impact of CBMF on medications for OUD and health care utilization

Care utilization outcome analyses were restricted analyses to those with complete Medicaid eligibility in the 12 months prior to and following receiving CBMF. Table 2 compares the year before and after starting CBMF.

Table 2. Changes pre-post among intervention participants	Fully Medicaid eligible*		Fully Medicaid eligible w/ housing data			Stably housed at baseline			Unstably housed at baseline			Change by housing status
	n=	463	446		p<0.05	265		p<0.05	181		p<0.05	
	Pre	Post	Pre	Post	p<0.05	Pre	Post	p<0.05	Pre	Post	p<0.05	p<0.05
Medications for opioid use disorder utilization												
Buprenorphine days supply	42.76	107.85	43.64	111.02	*	45.18	121.27	*	41.38	96.02	*	*
OUD medication- months with any	3.43	7.07	3.47	7.15	*	3.42	7.55	*	3.54	6.57	*	*
Buprenorphine- months with any	3.02	6.35	3.06	6.46	*	3.08	6.95	*	3.03	5.75	*	*
Acute care utilization												
ED poisoning visit- months with any	0.05	0.04	0.05	0.04		0.02	0.03		0.08	0.07		
ED non-poisoning visit- months with any	1.71	1.60	1.71	1.60		1.51	1.45		2.00	1.81		
Any hospital stay- months with any	0.57	1.63	0.59	1.65	*	0.53	1.65	*	0.67	1.65	*	*

*Noted as Medicaid eligible in all 12 months before and after the start month

- **Days supply of buprenorphine, Months with any OUD medication, and Months with any buprenorphine all increased significantly overall and for both housed and unhoused people.** Those who were housed had a significantly greater increase compared to those who were unhoused.
- **Both Months with and without an ED poisoning did not change overall, nor by housing status.**
- **Months with an inpatient stay increased significantly overall, but did not differ significantly by housing status.**
- **Among those who had any buprenorphine in the pre-period (n=243) the change in buprenorphine days supply and increased significantly from a mean of 81.5 days to 136.5 days (p<0.05).** (data not shown)

Mortality analyses

Using a different analytic approach for mortality analyses, we used a matched comparison group drawn from state records data. For the matched comparison analyses, intervention participants were included if they had an indication of a history of OUD based upon the presence of an OUD or opioid poisoning diagnosis and/or a previous indication of having received a medication for the treatment of OUD. The comparison group was matched based upon multiple variables including geography, demographics, care utilization, and arrest history.

The observed annual death rate in the first year for the intervention group was 0.45% (3 out of 664) compared to 2.2% (222 out of 9893) in the comparison group in the 12 months; a relative risk of 0.323 (95% CI 0.11-0.94) p-value = 0.039. This can be interpreted as **the CBMF intervention has a significant impact on reducing mortality with an estimated 68% reduction (95% CI 6%-89%) relative to the comparison group**.

DECLARATIONS

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