

**Methamphetamine-Associated Heart Failure:  
Evaluating Patient Perceptions of Barriers to Medication Adherence**

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## Abstract

Methamphetamine-Associated Heart Failure (MethHF) is a serious complication of methamphetamine use (MU) that is associated with more hospitalizations and greater morbidity and mortality than non-methamphetamine related heart failure (non-MethHF). Currently, regular adherence to guideline-directed medical therapy (GDMT) for heart failure can lead to the reversal of heart failure, even when complete abstinence of methamphetamine is not maintained. However, adhering to GDMT is challenging for patients with MethHF since they experience comorbidities including housing and financial instability, co-occurring mental illness, and reduced social support among others. This quality improvement project utilized the Model for Improvement framework to evaluate patient perceptions of barriers to medication adherence in those with MethHF at a heart failure clinic in the Portland metro area. A patient survey was developed and over the course of five months and 14 patient surveys were collected. 100% of patients who reported active methamphetamine use reported forgetting to take their heart failure medications while only 11% of patients who were not actively using methamphetamines reported forgetting to take their heart failure medications. While lack of social support and comorbid mental health conditions affected both patients with and without active methamphetamine use, transportation, housing, and cost of heart failure medications were not found to be significant barriers. Ultimately, more research must be done to further evaluate how these barriers affect medication adherence in patients with MethHF to improve patient outcomes and patient-centered care in this population.

## **Problem Description**

In 2020, the National Survey on Drug Use and Health estimated that 0.8% of all individuals age 12 or older used Methamphetamines in the past year; while in Oregon, that percentage was double at 1.9%, equating to 80,000 Oregonians. Methamphetamine-Associated Heart Failure (MethHF) is a serious and closely linked complication of methamphetamine use (MU) that is associated with more hospitalizations, and higher morbidity and mortality than non-methamphetamine related heart failure (non-MethHF) (Manja et al., 2022; Reddy et al., 2019; Zhao et al., 2021). Dickson et al. found that 18% of study participants developed MethHF within one year of MU and that patients with MethHF are younger, more likely to have a psychiatric disorder, and to be experiencing homelessness (2021). Since patients with MethHF are more likely to have low SES, experience physical and psychiatric comorbidities, and experience unstable housing situations, individuals with MethHF have more barriers and presumed decreased medication adherence compared to the general population. In the US, 10% of hospitalizations in the general population are due to medication non-adherence (Kini & Ho, 2018). One study found patients with MethHF have 1.6 greater chance of experiencing a heart failure hospital readmission compared to their non-MethHF counterparts (Wang et al., 2019). While abstinence from MU could potentially reverse MethHF, 61% of recovering methamphetamine users experienced relapse within one year of discharge from initial recovery treatment (Brecht & Herbeck, 2014). Nonetheless, regular adherence to guideline-directed medical therapy (GDMT) leads to improved functional status, left ventricular remodeling, and the possibility of reversal of heart failure, even when complete abstinence of methamphetamine is not maintained (Dickson et al., 2021; Manja et al., 2022). This project will evaluate what patients with MethHF perceive are the barriers to medication adherence, with the goal of helping

identify how to help improve patient outcomes through improving medication adherence to GDMT.

### **Search Strategy**

The CINAHL and PubMed databases were searched to identify journal articles published from 2013 to the present. Keywords and MesH terms included *heart failure, methamphetamine-associated heart failure, cardiomyopathy, methamphetamine-associated cardiomyopathy, substance use, medication adherence, and barrier* were used. Additional articles were recommended by the clinic. A total of thirty-four journal articles were reviewed for this paper.

### **Available Knowledge**

Evidence-based practice guidelines from the American Heart Association (AHA) currently recommends GDMT consisting primarily of four drug classes, angiotensin receptor-neprilysin inhibitors (ARNI),  $\beta$ -blockers, mineralocorticoid inhibitors (MRA) and sodium glucose cotransporter 2 inhibitors (SGLT2is) for the treatment of heart failure (2022). While GDMT is most effective when all four medication classes are used jointly, known as quadruple therapy, the randomized, double-blinded PARADIGM-HF trial found that even the use of a single GDMT agent, an ARNI, lowered the risk for heart failure hospitalization or cardiovascular death by more than 20% when compared to a non-GDMT agent (Fala, 2015).

Though effective treatment options exist, there are still several barriers to implementing GDMT in patients with MethHF, for one, current GDMT for heart failure involves complex medication regimens with multiple medications and twice-daily dosing (American Heart Association, 2022). Studies have demonstrated that the cognitive effects of MU are vast, including increased impulsivity, poor executive function, attention, and working memory, and

that medication adherence is decreased in those with MU (Hermanstynne et al., 2014; Potvin et al., 2018). MU is associated with increased rates of homelessness, and patients experiencing homelessness face unique barriers to medication adherence such as having their medications lost or stolen and having a lack of routine and sense of instability which make self-management of a complex medication regimen challenging (Coe et al., 2015; Pendyal, 2023). Additionally, patients with MU and heart failure are more likely to experience mistrust in the healthcare system, co-occurring mental illness, and reduced social support, making it less likely they will be willing or able to engage with healthcare providers and in their own medical care (DesJardin et al., 2021). In the general population, it is estimated that 30-50% of the general population do not adhere to their prescribed medication routine, and it is apparent that patients with MethHF experience far greater barriers to medication adherence and presumably lower rates of medication adherence. However, while the relationship between MU and decreased medication adherence has been studied in other populations, such as those receiving antiretroviral treatment for men who have sex with men living with HIV and in patients receiving treatment for opioid use disorder, the relationship of MU and medication adherence in patients with heart failure has yet to be studied (Lai et al., 2020; Russell et al., 2023).

## **Rationale**

The Model for Improvement quality improvement framework centers around four components that compose a Plan-Do-Study-Act (PDSA) cycle: planning to test a change, testing the change itself, evaluating the efficacy of the change, determining what corresponding adjustments to make based on these findings moving forward (Institute for Healthcare Improvement, 2023). This framework will be used to guide the identification and implementation

of changes to patient care in patients with MethHF. This is part of a PDSA cycle that is already underway, and this project is focused on the Plan and Do stages of the PDSA cycle.

This project also utilized the concept of patient-centered care (PCC) which helps to engage patients in their own care by eliciting their needs, values, and preferences to design patient care that is more effective (Edgman-Levitan & Schoenbaum, 2021). After surveying the literature, it is apparent that patients with substance use face disproportionately higher rates of stigma and mistreatment in healthcare settings (Yang et al., 2018). This project seeks to employ PCC to assess the barriers to medication adherence in this patient population through directly surveying patients with MethHF.

### **Specific Aims**

This project aims to evaluate patient perceptions of barriers to medication adherence in patients with MethHF through patient surveys by February 16, 2024. Results and recommendations from this survey will be shared with clinic staff by April 2024.

### **Context**

This project will take place at a heart failure clinic within an academic health center located in the Portland metro area. The heart failure clinic is part of a greater cardiovascular institute comprising eight different divisions including pediatric cardiology, adult cardiology, cardiothoracic surgery, vascular surgery, VA cardiology, developmental health, epigenetics, and preventive cardiology. This clinic serves patients primarily located in the Portland metro area and in southwest Washington.

In April 2022, a PDSA cycle was initiated by members of the academic center's heart failure team to further evaluate heart failure readmissions at this academic health center. From

April 2022 to December 2022, data surveillance and a root cause analysis conducted revealed that the majority of patients experiencing heart failure readmissions had a diagnosis of MethHF. In November 2022, a work group was established to create a clinical pathway for these patients with MethHF experiencing heart failure readmission. In January 2023, this work group found that since their last analysis the number of patients with MethHF and hospital readmission increased to approximately one-third of their heart failure patients. In March 2023, the development of a community forum was established to formulate ideas to improve care for these patients with MethHF; one of the ideas that emerged from this forum was utilizing alternative medication packaging solutions to increase medication in patients with MethHF. A quality improvement (QI) team consisting of one heart failure nurse practitioner, and one doctor of nursing practice student will use the findings of this previous PDSA cycle to evaluate patient perceptions of barriers to medication adherence for patients with MethHF. Additional individuals reviewed content as needed in support of the project, however, were not part of the primary project team.

## **Interventions/Study of Interventions**

### **Phase 1**

First, a survey for the heart failure care team was administered at their monthly staff meeting on July 25, 2023, asking them to identify what they perceived the primary barriers to medication adherence were apart from MU itself (Appendix A). Additionally, in Phase 1; two pharmacists, two nurses, and three nurse practitioners who work closely with this patient population in the community were interviewed on what they thought the major barriers to medication adherence were. Collectively, the staff survey and interview were used to get a

baseline understanding of potential primary barriers to medication adherence in patients with MethHF.

## **Phase 2**

In phase 2, a patient survey was then developed to further evaluate these identified barriers with categories including transportation, housing, cost of medications, support system, mental health, heart failure medication dosing regimen, and methamphetamine use. Survey questions were adapted from existing validated tools, survey results, and expert interviews and approved by the project team. A research data analyst at the Oregon Clinical and Translational Research Institute (OCTRI) and various team members were then consulted for survey design improvements. An initial piloted survey was administered to three patients and patient feedback was implemented to compile the final survey draft (Appendix B).

## **Phase 3**

This final survey was conducted on an individual basis either in-person or via phone through Qualtrics. All patients were read question and answer options aloud, and all surveys were administered by the author. Prior to survey administration, patients were read a description of the survey's intended purpose and gave verbal consent before the author proceeded with survey administration, no identifying patient information was collected. Convenience sampling was utilized, and patients surveyed in-person at the hospital were currently admitted for MethHF. Patients surveyed by phone were contacted through a list compiled by the heart failure nurse practitioner of patients in her care that had a history of MethHF.



## **Phase 4**

A final poster of survey findings was created in March 2024 and this poster, and recommendations based on these findings will be shared with the clinic at a staff meeting in April 2024.

## **Measures**

The outcome measure of this project was the number and type of barriers to medication adherence identified through patient survey results. The types of barriers measured included transportation, housing, cost, support system, mental health, heart failure medication dosing regimen, and methamphetamine use. In addition, the balancing measure used was identifying what form of medication packaging patients with MethHF would find helpful to improving their medication adherence. This balancing measure was selected after members of the QI team observed and reported that patients with MethHF had previously suggested altering medication packaging from pill bottles to blister packs or pill packs could minimize inconvenience to patients and thereby improve medication adherence.

## **Data Analysis**

This quality improvement project was implemented over the course of five months starting in September 2023 and ending in January 2024. The data collection was completed directly by the author with support from the heart failure nurse practitioner. Quantitative data was collected via Qualtrics Survey which was composed of predominantly closed-ended yes or no questions so that data could easily be coded. This data was then exported into excel and analyzed with the assistance of a biostatistician. Although the sample size of 14 survey respondents was too small to evaluate for meaningful statistical significance, with the assistance

of the biostatistician, correlation and trends in the data were analyzed for common barriers to medication adherence identified by patients and for difference between patients who were and were not actively using methamphetamines, defined as patients who had MU in the past 3 months.

### **Ethical Considerations**

Each survey respondent was provided informed consent prior to initiating the survey detailing that no identifying information would be collected or shared and that responses would not affect future medical care. In addition, all participation was voluntary and the participating hospital unit and clinic that participated in this improvement project provided a clinical letter of support. The OHSU Investigational Review Board approved this quality improvement project (Study #00026234) and decided this project did not qualify as research and no further review was necessary (Appendix C).

### **Results**

Fourteen patient surveys were collected in total and significant patient-identified barriers to heart failure medication adherence (HF-MA) included support system, mental health, and heart failure medication dosing regimen (HF-MDR). Patients who reported methamphetamine in the past 3 months were categorized as those with active methamphetamine use (A-MU) and those who had not were categorized as those who were not actively using methamphetamines (NA-MU). Five patients reported A-MU, and all of those reporting A-MU also reported forgetting to take their heart failure (HF) medications while 9 patients reported they were NA-MU and only 1 of these 9 patients reported forgetting to take their HF medications.

Fifty-seven percent of total participants responded that they did not have friends, family, or others to help them when things were tough, without significant differences in responses between 60% of A-MU and 56% of NA-MU responding they did not have social support. Another significant barrier identified was mental health, in that 43% of total participants reported they had a known mental health condition including but not limited to anxiety, depression and bipolar disorder but only 50% of both A-MU and NA-MU individuals reported they were currently receiving mental healthcare. In terms of HF-MDR, 1 patient reported not taking their HF medications, 5 patients reported they were on once-a-day dosing, while 8 patients reported they were on twice a day dosing. Interestingly, while 80% of patients on once-a-day dosing reported forgetting to take their HF medications, only 12.5% of patients on twice a day dosing reported forgetting to take their medications.

Less significant barriers to HF-MA included transportation, housing, and cost of HF medications. Only 21% of total participants cited lack of transportation to the pharmacy as a barrier to HF-MA. Notably, none of those in the A-MU group reported housing or cost of HF medications as a barrier to HF-MA while only 22% of NA-MU indicated housing or cost of medications as a barrier to HF-MA.

In terms of HF medication packaging, 79% of patients currently received their HF medications in a pill bottle, 21% relied on blister packs, and no participants used pill packs. Eighty-six percent of participants believed that switching from the default packaging of pill bottles to a different form of medication packaging would help them take their HF medications more regularly. Of those participants, 7% believed only blister packs would be helpful, 29% believed only pill packs would be helpful and 43% believed switching to either blister or pill

packs would be helpful. Significantly, 30% of those indicating either option would be helpful were on twice a day dosing.

## **Discussion**

Results confirmed findings consistent with the literature that MU is significantly associated with poor HF-MA (Hermanstynne et al., 2014). Our survey sought to evaluate what other barriers may exist to HF-MA for patients with MethHF in this clinic. We found the prevalence of mental health conditions and receiving mental healthcare was the same for both those with A-MU and with NA-MU irrespective of MU. Similarly, both individuals who were actively and not actively using methamphetamines reported lack of a social support network when going through difficult times. These findings are not generalizable due to the small sample size, however, suggest that while mental health and poor social support is a barrier for patients with MethHF, no significant differences exist in whether individuals have active MU.

We did not find that transportation, housing, or cost of HF medications were significant barriers to HF-MA among those surveyed. One reason we did not find transportation and housing as significant barriers could be partially explained by the fact that some of our survey participants were already part of a recuperative care program that provided housing and had an on-site pharmacy. Also, we found that most survey participants qualified for Oregon Medicaid (ex: numerous respondents reported being on disability) and while they would not be able to afford their medications otherwise, cost was not a barrier since Oregon Medicaid fully covered the cost of their HF medications.

While the literature supports that reducing dosing frequency to once daily dosing significantly improves medication adherence for numerous chronic conditions, including

cardiovascular disease (Baryakova et al., 2023; Weeda et al., 2016), we found that those with a twice daily HF-MDR had significantly better HF-MA than those with once-a day-dosing. One possible reason for this is that individuals on twice daily dosing may have more severe and symptomatic HF resulting in more careful adherence or more rapid worsening of symptoms if medication doses are skipped compared to their once daily counterparts. Secondly, medications with twice daily dosing have shorter peak times than once daily dosing, thereby providing relief from faster relief from HF symptoms and enforcing positive feedback to continue taking medications.

Lastly, while the majority of patients received their HF medications in pill bottles, many patients with MethHF believed switching to a different packaging modality would be helpful in improving their medication adherence. Practically, some patients reported having difficulty opening pill bottles due to having conditions such as arthritis or peripheral neuropathy. Others reported that blister or pill packs could save them the time of filling their weekly pill box organizers manually while still allowing them to easily visualize what medications they have already taken. Patients also felt blister or pill packs would make it easier to carry medications around with them, especially if they were on twice a day dosing and needed to take their medications again later in the day when they were not home. Notably, some of the participants who selected the “pill pack only” option as being helpful were previously or currently using blister packs already and felt that they were still inconvenient to carry around.

## **Conclusion**

While undoubtedly those with active MU were significantly more likely than those without active MU to adhere to taking their HF medications, lack of social support and comorbid mental health conditions were identified as barriers for these patients regardless of MU use.

Currently, transportation, housing, and cost of medications do not seem to be significant barriers to medication adherence. However, recommendations to improve medication adherence in patients with MethHF include improving social support and access to mental healthcare. Our findings also found that patients with MethHF endorse that switching medication packaging from pill bottles to blister packs or pill packs would be helpful in improving medication adherence. Future work should be done on how to connect patients desiring this option with pharmacies offering it. Ultimately, more research must be done to further evaluate how these barriers affect medication adherence in patients with MethHF.

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## Appendix A: Initial Heart Failure Care Team Survey

### Identifying barriers to medication adherence in patients with MethHF

Please identify your role at OHSU working with heart failure patients \_\_\_\_\_

In your role, do you work with patients with Methamphetamine-associated Heart Failure (MethHF)?

Yes

No

Apart from methamphetamine use, please identify what you perceive as the #1 barrier to medication adherence for patients with MethHF?

\_\_\_\_\_

In the context of a patient survey, what question(s) would you recommend asking patients to better identify this barrier to medication adherence?

\_\_\_\_\_

In your experience, have there been any effective tools to help address methamphetamine use in this patient population?

\_\_\_\_\_

Please feel free to add an additional suggestions, questions, or comments below:

\_\_\_\_\_

## Appendix B: Patient Survey

Hello, My name is Christine and I am a student working on a project to learn more about Meth use and heart failure so that I can help improve patient care in the future. This survey will be anonymous, meaning I will not be sharing any of your personal information and nothing you share with me will be linked to you or your medical care in the future. It will take about 15-20 minutes to complete and there are no right or wrong answers and we really want you to be as honest as possible when answering these questions. Do you agree to take my survey?

Yes

No

Location of survey administration

Hospital

Clinic

Phone

Date of survey administration

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In the last year, not having a ride made it hard for me to go to the doctor or to get my medicine

Yes

No

I have people like friends, family, or others who can help me when things are tough.

Yes

No

In the past 6 months, did you have a hard time finding a place to live?

Yes

No

Do you expect to stay in your current housing for the next 6 months?

Yes

No

I forget to take my heart failure medication

Yes

No

I don't know which medications I take are for heart failure

Yes

No

I find it hard to take my heart failure medication because I am on a water pill and don't have access to a bathroom

Yes

No

It is hard to take my heart failure medication because the way my medications are currently packaged make them hard to carry around

Yes

No

What else makes it hard for you to take your heart failure medication because {other reason}

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My heart failure medications do not work for me because I still am short of breath

Yes

No

My heart failure medications do not work for me because I still feel tired

Yes

No



My heart failure medications do not work for me because my legs are still swollen

Yes

No

In the last 12 months, I stopped taking my heart failure medication because because my heart failure medications stopped working

Yes

No

In the last 12 months, I stopped taking my heart failure medication because I started using Meth again

Yes

No

How often do you take your heart failure medications?

I do not take my heart failure medications

Once a day

Twice a day

More than twice a day

Choose Yes or No to whether these situations apply to you: I do not have any difficulty getting my heart failure medications

Yes

No

I forget to get more of my heart failure medication from the pharmacy

Yes

No

I don't have enough money for my heart medicine

Yes

No

I cannot get to the pharmacy to pick up my medications

Yes

No

Do you stop taking your heart failure medications when you feel better?

Yes

No

How do you currently get your heart failure medications from the pharmacy? \*refer to picture\*

- Pill Bottle
- Blister/Bubble Pack
- Pill Pack
- None of these
- Something else \_\_\_\_\_

Which of the following would help you take your medications more regularly?

- Pill box/Organizer
- Blister/Bubble Pack
- Pill Pack
- None of these
- Something else \_\_\_\_\_

In the last 3 months, have your heart failure medications been lost or stolen?

Yes

No

In the last 3 months have you used Meth?

Yes

No

If you answered yes to the last question, how often did you use Meth in the last 3 months?

I have not used Meth in the last 3 months

Less than once a month

A few times every month

A few times every week

Every day

A few times every day

For the following statements, please choose Yes or NO: Meth helps me feel better about myself

Yes

No

Meth helps me be more productive or focused

Yes

No

Meth gives me energy or motivation

Yes

No

Meth improves my mood

Yes

No

When I use Meth, I still take my heart failure medications consistently as they are prescribed to me

Yes

No

N/a: I am not currently using meth

My Meth use worsens my Heart Failure

Yes

No

N/a: I am not currently using meth

I think that decreasing Meth use will improve my heart failure

Yes

No

Not sure

N/a: I am not currently using meth

I have tried to quit using Meth before

Yes

No

I have already quit using Meth

Do you have a mental health condition?

Yes

No

Not sure

If yes, which condition?

- I do not have a mental health condition that I know of
- Depression
- Anxiety
- Bipolar Disorder
- Other mental health condition

Are you currently receiving mental healthcare?

- Yes
- No
- N/a, I do not have a mental health condition that I know of

Do you want to reduce or stop using meth?

- Yes
- No
- Not sure

I have already quit using meth

Please select YES OR NO to the following: Family and other relationships in my life were/are a reason for me to decrease or stop using meth

Yes

No

My mental health was/is a motivation for me to reduce or stop using meth

Yes

No

My physical health was/is a motivation for me to reduce or stop using meth

Yes

No

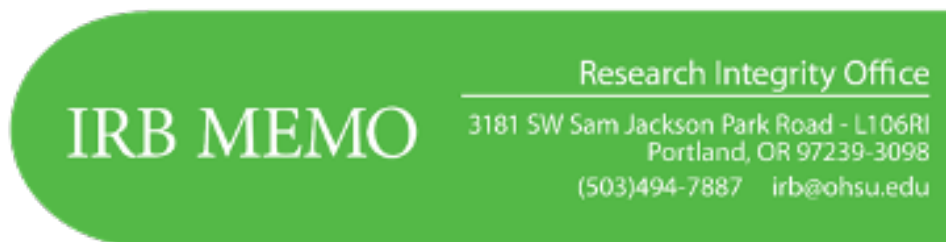
Choose Yes or No to the things you would find helpful that you don't have already:

	Yes	No
Relationships (social connections with peers, family, friends, pets)	<input type="radio"/>	<input type="radio"/>



Stable Housing	<input type="radio"/>	<input type="radio"/>
Employment, activities/staying busy	<input type="radio"/>	<input type="radio"/>
Someone to help you find services and resources that are available to you	<input type="radio"/>	<input type="radio"/>
Mental Health Support	<input type="radio"/>	<input type="radio"/>
Primary Health Care	<input type="radio"/>	<input type="radio"/>
Substance Use Disorder Support	<input type="radio"/>	<input type="radio"/>

## Appendix C: IRB Approval



### NOT HUMAN RESEARCH

August 30, 2023

Dear Investigator:

On 8/30/2023, the IRB reviewed the following submission:

Title of Study:	Evaluating Perceptions of Barriers to Medication Adherence in Patients with Methamphetamine-Associated Heart Failure: A Quality Improvement Project
Investigator:	<a href="#">Rebecca Martinez</a>
IRB ID:	STUDY00026234
Funding:	None

The IRB determined that the proposed activity is not research involving human subjects. IRB review and approval is not required.

Certain changes to the research plan may affect this determination. Contact the IRB Office if your project changes and you have questions regarding the need for IRB oversight.

If this project involves the collection, use, or disclosure of Protected Health Information (PHI), you must comply with all applicable requirements under HIPAA. See the [HIPAA and Research website](#) and the [Information Privacy and Security website](#) for more information.

Sincerely,

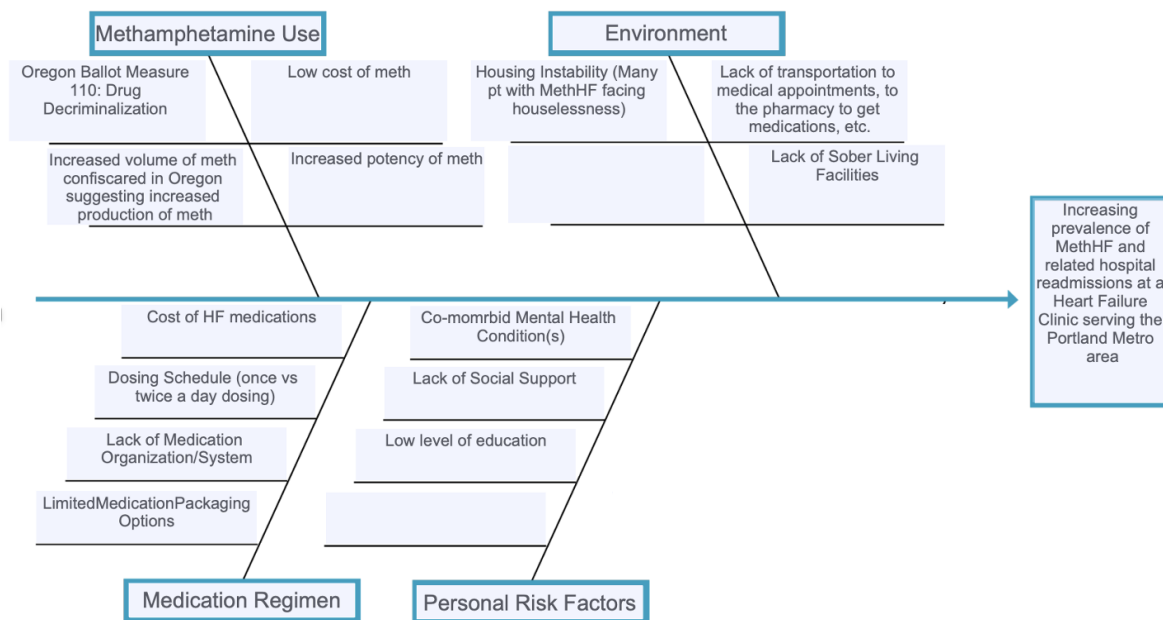
The OHSU IRB Office

## Appendix D: Project Timeline

Methamphetamine-Associated Heart Failure:  
Evaluating Patient Perceptions of Barriers to Medication Adherence  
Project Timeline

	June	Jul	Aug	Sep-Oct	Nov-Jan	Feb	March
Finalize project design and approach	X						
Complete IRB determination or approval		X					
Phase 1 of PDSA Cycle			X				
Phase 2 of PDSA Cycle				X			
Phase 3 of PDSA Cycle					X		
Phase 4 of PDSA Cycle						X	
Final data analysis						X	
Complete final project proposal						X	
Prepare for project dissemination							X

### Appendix E: Cause and Effect Diagram



## Appendix F: Clinical Site Letter of Support

Date: 09/19/2023 Dear *Christine Lee*

This letter confirms that I, *Jayne Mitchell* allow *Christine Lee* (OHSU Doctor of Nursing Practice Student) access to complete his/her DNP Final Project at our clinical site. The project will take place from approximately *September 2023* to *December 2023*.

This letter summarizes the core elements of the project proposal, already reviewed by the DNP Project Preceptor and clinical liaison (if applicable):

- **Project Site(s):** *[List the specific site name(s) and address(es) for all sites which the organization is providing access for the student to implement their project.]*
  - OHSU Hospital
    - 3181 SW Sam Jackson Park Rd, Portland, OR 97239
  - OHSU Knight Cardiovascular Institute Cardiology Clinic, South Waterfront
    - 3303 S. Bond Avenue Portland, Oregon 97239
  
- **Project Plan: Use the following guidance to describe your project in a brief paragraph.**
  - Identified Clinical Problem: *[Briefly summarize the nature and significance of the clinical problem to be addressed.]*
    - Methamphetamine-Associated Heart Failure (MethHF) is a serious and closely linked complication of methamphetamine use (MU) that has shown to have more serious symptoms and higher morbidity than individuals with non-methamphetamine related heart failure (non-MethHF). Current guideline directed medical therapy has the potential to improve or reverse MethHF, however, many barriers currently exist to medication adherence for patients with MethHF.
  - Rationale: *[Briefly detail why the proposed intervention is expected to lead to improvement, including any frameworks, models, concepts or theories, and assumptions that were used to develop the intervention.]*
    - While evidence-based guideline directed medical therapy (GDMT) is available for patients with MethHF, adherence to such a regimen is not feasible for patients with MethHF given that the majority of these patients do not have stable housing, are of low socioeconomic status, have low levels of education, and no support system, in addition to their concurrent Methamphetamine use. The identification of patient perceptions to these barriers to medication adherence is needed to better understand how to adapt and integrate GDMT into the care of patients with MethHF to improve patient outcomes of these patients long-term.
  - Specific Aims: *[Identify 1-2 measurable improvements you are trying to accomplish.]*
    - The aim of this DNP project is to collect patient surveys and to use these survey responses to generate a resource that will equip providers caring for patients with MethHF to integrate patient-centered care with GDMT.

- o Methods/Interventions/Measures: *[Describe the measures you will be collecting, the intervention you will complete, and the methods for implementing and evaluating your intervention.]*
  - A literature review and an initial survey of healthcare workers who care for patients with MethHF will be administered and results will be utilized to develop an electronic survey for patients with MethHF. Interventions include the design, implementation, and analysis of these surveys collected via Qualtrics from patients with MethHF seen at OHSU HF Clinic and at the OHSU Hospital. Questions from patient surveys include Likert scale, multiple choice, and checkbox questions regarding socioeconomic status, transportation access, support system, current heart failure medication practices, mental health, goals and motivation, and methamphetamine use. Patient Surveys will be administered from September-December 2023 and data analysis will take place from December 2023-January 2024.
- o Data Management: *[Briefly detail the data management plan—what data will be collected, whether data will be identifiable or de-identified, and what protections will be in place to protect the data, e.g. password protected, encryption, etc.]*
  - Survey data will be collected through Qualtrics anonymously and data analysis will be done through Qualtrics and Excel. Password protection and two-factor authentication will be utilized for the purposes of data protection.
- o Site(s) Support: *[Detail what support the study site(s) agree to provide to further the project, such as provide space to conduct activities, authorize site employees to identify persons who might qualify for inclusion, distribute questionnaires, retrieve patient data from Site files, etc.]*
  - The study site will provide space to conduct activities, authorize site employees to identify patients who might qualify for inclusion in this DNP project, and help distribute patient surveys.
- o Other: *[Outline any other agreements you and the organization have made to further the project, if applicable.]*
  - Will pilot survey on 9/25/23 before DNP Project Preceptor leaves for vacation
  - Will implement an updated/improved version of patient survey based on feedback from pilot survey from 10/4-10/20/23 before DNP Student leaves for their rural clinical rotation. DNP student will resume patient survey collection from 11/20-12/8/23. Should MethHF patients be willing and eligible to be surveyed on days the DNP student is not at the project site or at their rural clinical rotation, DNP Project Preceptor or heart failure nurses will administer a paper version of this survey that DNP student will manually input into Qualtrics.

During the project implementation and evaluation, *Christine Lee* will provide regular updates and communicate any necessary changes to the DNP Project Preceptor.

Our organization looks forward to working with this student to complete their DNP project. If we have any concerns related to this project, we will contact *Christine Lee* and *Rebecca Martinez* (student's DNP Project Chairperson).

Jayne Mitchell, Nurse Practitioner, [mitchjay@ohsu.edu](mailto:mitchjay@ohsu.edu), (971) 409-8826

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DNP Project Preceptor (Name, Job Title, Email, Phone):

*Jayne S. Mitchell, ANP-BC, CHFN*

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Signature

9/21/2023

Date Signed