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RESEARCH ARTICLE

Pharmacists' perspectives on methamphetamine use disorder in the Australian community setting

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Abstract

Background: Methamphetamine Use Disorder (MUD) poses significant harm to individuals and communities. In Australia, pharmacies have been involved in harm reduction services, primarily focusing on opioids. While much is known about pharmacists' attitudes toward opioid use disorder, there is limited understanding of their perspectives and management of MUD. This study aimed to explore pharmacists' perspectives on the provision of services to clients with MUD. **Methods:** Recruitment of pharmacists involved a snow-ball and convenience sampling strategy across Sydney, Australia. Semi-structured interviews were undertaken to explore pharmacists' perspectives on the treatment and management of MUD in the pharmacy setting. Transcribed interviews were qualitatively analysed using an inductive approach, coding themes from the data emerging. **Results:** Nineteen pharmacists completed the interviews. The strongest theme emerging from the transcripts described pharmacists' reported unfamiliarity with MUD. Participating pharmacists almost unanimously perceived there was a lack of educational resources surrounding MUD, inadequate university curricular on MUD, and a lack of support for pharmacists' role in any prospective MUD treatment programs. **Conclusion:** Studies indicate that pharmacists are often unfamiliar with MUD, which, along with insufficient educational resources, causes low confidence and hinders their ability to support individuals with MUD. Implementing targeted educational interventions for pharmacists is essential to improve their effectiveness in MUD treatment programmes.

Introduction

Crystalline methamphetamine use presents a serious healthcare and societal problem for many countries (UNODC, 2022). The potent crystalline methamphetamine is reportedly the main form of methamphetamine used in Australia (Australian Institute of Health & Welfare, 2024; UNODC, 2022), which has been associated with increased harm, frequency of use and increased risk of dependence (Degenhardt *et al.*, 2017; McKetin *et al.*, 2006). Subsequently, increased frequency of methamphetamine use has been a significant problem in Australia for many years, accompanied by increases in arrests, hospitalisations and deaths (Man *et al.*, 2022). Uthurralt and colleagues (2023) found that methamphetamine was the principal drug of concern most commonly seen by women-only Substance Use Disorder (SUD) treatment services (Uthurralt *et al.*, 2023). Other documented methamphetamine-related harms at the population level include increases in amphetamine-related helpline calls and treatment in drug and alcohol services (Degenhardt *et al.*, 2017). Studies have also shown the societal cost of methamphetamine use in Australia to be substantially high, thereby warranting further investigation into potential interventions (Tait *et al.*, 2018).

Currently, there are no approved pharmacotherapeutic options for the treatment of clients with Methamphetamine Use Disorder (MUD) (Chan *et al.*, 2019; Siefried *et al.*, 2020). However, studies are underway assessing the effectiveness of different pharmacotherapies for the treatment of MUD (Siefried

et al., 2020). Further, Ritter and colleagues (2019) have shown that there are insufficient alcohol and drug treatment places available in Australia to meet the demand for SUD, which includes methamphetamine dependence (Ritter *et al*., 2019). Barriers to the provision of healthcare services for people who use methamphetamine include lack of knowledge, stigma, limited clinical experience and treatment options (Ward *et al*., 2021). Ward and colleagues (2021) also highlighted the need to address the lack of skills and knowledge across the healthcare system so that accessible and appropriate healthcare services in rural Australia are available to meet the healthcare needs of people who use methamphetamine (Ward *et al*., 2021).

The Australian National Drug Strategy sets out a harm minimisation policy that aims to reduce drug-related harms to the individual, the community, and families. Addressing harm reduction from the use of licit and illicit drugs is one of the pillars of this policy. Historically, pharmacists have contributed to harm reduction via implementation and participation in services such as the opioid treatment programme and pharmacy needle and syringe programmes (Watson & Hughes, 2012).

Pharmacists are accessible healthcare providers with an extensive role in the provision of treatment and services for other SUD (Chaar *et al*., 2011). Numerous studies have explored pharmacists' perspectives, attitudes and knowledge regarding the provision of services for opioid use disorder (Comanici *et al*., 2023; Murnane *et al*., 2022; Muzyk *et al*., 2019). These studies found that lack of education regarding opioid use disorder was a key concern raised by pharmacists, affecting the effectiveness of existing treatment programmes (McMillan *et al*., 2021).

There is, however, very little known about pharmacists' perspectives on the treatment and management of people with MUD. Future MUD treatment programmes are likely to involve pharmacotherapies, and therefore, pharmacists will have a crucial role to play. As such, it is essential that the perspective of pharmacists is understood early so that concerns can be addressed and necessary supports, resources, and education established to enhance the accessibility of future MUD treatment programmes and optimise healthcare outcomes. This study was an initial exploration aimed to explore pharmacists' perspectives using in-depth qualitative interview methods. The authors aimed to examine pharmacists' perspectives on the provision of services to clients with MUD, with a focus on their knowledge and experience working with people with MUD.

Methods

This study was approved by The University of Sydney Human Research Ethics Committee (Reference number 2022/594). Informed consent was obtained from all participants, and there was no compensation for their participation.

Sampling

Recruitment of a diverse range of community pharmacist perspectives was sought via a convenience and snow-ball sampling strategy across different regions of Sydney, Australia. Thirty community pharmacists were approached at their place of practice and invited to be interviewed. To explore a broader range of perspectives, the research imposed only one inclusion criterion – only practising pharmacists registered with the Australian Health Practitioner Regulation Agency were eligible.

Researchers' reflexivity

Researchers BC and AM are both registered pharmacists and academic researchers who have extensive experience in the treatment and management of clients with SUD. The researcher (CD) has expertise in the field of SUD and addiction medicine research. An effort was made by the research team to be self-aware, ensure neutrality of language used in the interview and adopt an overall non-biased approach throughout data collection and thematic analysis.

Design

This qualitative study involved semi-structured interviews with practising pharmacists in Sydney, Australia. Interview questions (Appendix A) explored a range of topics, including pharmacists' knowledge regarding MUD, their possible clinical experience dealing with the condition, and their views on prospective MUD treatment programmes and services that may involve pharmacists. The questions were based on existing literature on MUD, elements of pharmacy practice standards and the expertise of the research team. Initial pilot testing of open-ended questions allowed for further refining of questions through practice runs between members of the research team, allowing for a comprehensive and diverse insight into participants' perspectives. One researcher (AM) performed all interviews, ensuring a uniform interview process. The interviews mainly took place in a quiet space at the pharmacist's place of practice or at another venue that the pharmacist preferred. The interview timeframe was between 20-30 minutes. De-identification of all recorded interviews

ensured participants remained anonymous and were not re-identifiable.

The transcribing platform "*Otter*" was used to transcribe the de-identified recorded interviews (Otter.ai, 2023). Coding for themes then followed after the transcribed data was entered into the coding management software NVivo (NVivo, 2020).

Analysis

An inductive thematic analysis method was utilised as codes were generated iteratively from the data collected. This method allowed for themes to emerge from the data rather than setting preset categories before data collection. Regarded as the purest form of qualitative content analysis (Strauss & Corbin, 1998), iterative induction suits an in-depth analysis of the data, allowing the creation of meaningful themes (Corbin & Strauss, 2014; Richards, 2005; Srivastava & Hopwood, 2009).

Coding of the data involved multiple readings of the transcripts by a primary coder for initial familiarisation. Each one of the other research team members then independently coded a sample of the transcripts. This involved grouping passages from the transcribed data under common concepts throughout the transcribed interviews. Emerging themes from the coded data were then developed by each of the research team members. Themes were then compared and analysed until consensus was achieved by the research team.

Results

Demographics

Nineteen of the 30 pharmacists approached across regions of Sydney that spanned Western Sydney, the Inner-West, Central Business District, and North Sydney agreed to participate. Eleven participants identified as women and eight as men. The years of practice of participating pharmacists ranged between 1-20 years. Various themes emerged until the fifteenth interview; at which point thematic saturation was observed; however, confirmation of saturation was ensured by continuing to interview until the nineteenth interview was completed.

Thematic analysis

The most compelling theme to emerge from the data was pharmacists' unfamiliarity with MUD. Most participants expressed their concerns regarding the insufficient continued education and resources available to pharmacists regarding MUD. Some were concerned with almost negligible content in the pharmacy curriculum covering MUD and any advancements or available treatment programmes and services. Interestingly, concerns were expressed by participating pharmacists regarding the working conditions of pharmacists and the lack of government support for daily operations in the community pharmacy setting, constituting barriers to their participation in future MUD treatment programmes.

Hence, the two sub-themes emerging from the thematic analysis were: 1) lack of educational resources and continued education, and 2) lack of support. An in-depth analysis of the two themes ensued as follows.

Lack of educational resources and continued education

Lack of educational resources and continued education were among the main themes that emerged from these interviews. The lack of resources was identified as a gap often filled with misinformation or non-evidence-based information from social media. It was also reported that dramatisation by the media generated and fed a rising stigma. The perceived need for educational resources that "*humanise*" people with MUD highlighted aspects of social stigma.

> *"We're only hearing stigmas…Not only on treatments but also how to protect yourself. Or how to really see them as a person rather than having a stigma. Because to us, they're just scary people." (Interview #15)*

There was an emphasis on the need for education and training of pharmacists to increase awareness of the specific needs of people with MUD. Addressing these issues was deemed important to enable and enhance any future role that pharmacists may have in the treatment and management of MUD.

> *"There is not much talk about MUD…we have a lot of talk about opioids. We have much talk about methadone… If there's something similar we can do for 'Ice'[methamphetamine], of course, we need more info and more education about how we can deal with such situations…customers or patients, when they come in, probably have some needs we need to know and be aware of. That's why we probably need more education and more training." (Interview #11)*

The current level of education and training about the condition was argued to be insufficient for any potential prospective role that pharmacists may play in the treatment and management of MUD. There were perceived complexities of the healthcare needs of people with MUD that created hesitancy amongst participating pharmacists from potentially attending to

their healthcare demands. Enhancing the skillset of pharmacists to deal with the complex and challenging healthcare needs of people with MUD was underlined to address this issue in preparation for a future role pharmacists may have in providing services to this population.

> *"We're not at that level to handle it, it's not a simple drug addiction. There's more to it than just a straight drug addiction." (Interview #10)*

The need for adequate guidelines and recommendations for the provision of services to clients with MUD was deemed necessary and important for any prospective MUD treatment programmes in pharmacy. There was a keen desire to participate in workshops that would offer pharmacists reliable education about MUD and any current or future MUD treatment programmes and services. Emphasis was placed on the proper management of MUD clients' healthcare conditions through the accessibility of treatment protocols.

> *"We don't have streamlined guidance on what to do for MUD. You do this if the patient is willing to take the next step … I don't have any specific treatment management steps for Ice addiction." (Interview #5)*

> *"To me, in general, pharmacy doesn't have much education or support about how to handle this [MUD]. A workshop would be helpful. I don't know if there is any workshop out there at the moment." (Interview #16)*

Although pharmacists are currently involved in the provision of opioid agonist treatment in community pharmacies, Continued Professional Development (CPD) on the opioid treatment programme in the form of journals and courses were reported as scarce and difficult to come by. In preparation for any prospective role pharmacists may have in MUD treatment programmes, suggestions were made to enhance the CPD experience for MUD.

> *"I don't find that I am able to find much support (surrounding opioid treatment programme education) like for example, not many CPD available. We need support to start off with (for MUD), we definitely need education." (Interview #2)*

An example used was the previous mandatory COVID-19 vaccination training programme run by the Department of Health and Aged Care in Australia. This involved the use of online modules as training and education for pharmacists and other COVID-19 vaccination providers in preparation for the COVID-19 vaccination rollout. A similar pedagogical approach with the use of an interactive online component was recommended for the training and education of pharmacists on MUD.

> *"We are keeping ourselves very informed with CPDs [continuing professional development in pharmacy practice]... There is no proper CPD course (on MUD). There should be a bit more, either they can do online courses or modules… Just like the covid vaccinations and the updates required, the same thing should be done for this, if anything comes up in future (for MUD treatment programmes)." (Interview #9)*

Inadequate teaching at the university undergraduate level was perceived to have resulted in their lack of familiarity with and understanding of MUD. Consequently, there was an identified inability to recognise people under the influence of methamphetamine and, in turn, provide adequate healthcare provision to this group. Non-pharmacological treatment options for MUD were not comprehensively covered to the satisfaction of the interviewees.

> *"To be honest I don't think I would really recognise an 'Ice'(methamphetamine) addict [sic]. That's the problem. I don't think at uni we really learned that much about drug use and substance abuse and when we do it's really only just touched upon lightly." (Interview #14)*

> *"Not very detailed learning (at university) that we have in terms of that area, we learnt probably the surface of the problem. Like the behavioural cognitive programmes. Only bits of this, but not very in-depth research on this area." (Interview #17)*

Although there are no available pharmacotherapeutic treatment options in pharmacy for people with MUD, interviewees stressed the need for better educational initiatives that enable pharmacists to refer clients to the broader drug and alcohol healthcare team, ensuring continuity of care and their holistic role as pharmacists. This brings to light the importance of interdisciplinary education in pharmacy and across the healthcare system.

> *"My knowledge in those sorts of services (for MUD) is actually quite limited. I guess just what I've come across in practice. But what we learn at uni is very, very limited.... I mean, you learn about the pharmacology. You learn about abuse. You learn about black and white how to see someone with abuse. But you don't learn about a particular programme that you can refer this patient on to. If we're really going to fulfil our role as a holistic clinician, then we should be referring this person on to somewhere where we can help them in some way.." (Interview #7)*

Lack of support

Many participating pharmacists expressed a lack of support for their current role in treatment programmes and services for other healthcare conditions and SUD in pharmacy. There was frustration about the perceived lack of communication from government organisations regarding changes to rules and regulations that govern pharmacy practice and a disregard for the mounting pressure and responsibilities that pharmacists have. Adequate notice from governing bodies was highlighted as essential to address these issues, especially for any future MUD treatment programmes that may involve pharmacists. Poor interdisciplinary networking and communication between healthcare providers was a primary concern raised by pharmacists in this study, affecting their provision of treatment and services for opioid use disorder in pharmacy. A sense of isolation from the broader drug and alcohol healthcare disciplinary team was a prevailing feeling perceived by some interviewees.

> *"When something new happens, we don't really know how to implement it and to do it fast enough. Whereas if you're given some time, yes, we can prepare ourselves. And that will be really important…I'm guessing will be similar to how the methadone programme works already. But with this [future MUD treatment programmes] there might be added, legislations and things we need to be careful with." (Interview #14)*

> *"I feel that there's a lack of support from doctors sometimes and sometimes from the actual programme itself (opioid treatment programme), the programme administrators, and sometimes pharmacists are left in the lurch without any guidance." (Interview #1)*

Increased workload and problematic workplace conditions were of major concern to pharmacists, affecting their role and scope of practice. Participants flagged that increased pressure to finish assigned work and added time constraints were hurdles to their ability to offer adequate healthcare provision to people with SUD. This lack of support for pharmacists' duties was viewed as a barrier to their role in the opioid treatment programme, resulting in an inadequate amount of time and attention paid to clients receiving opioid agonist treatment. Addressing this barrier was highlighted as a matter worthy of attention so that pharmacists are well-equipped to address the healthcare needs of people with SUD and for their potential role in prospective MUD treatment programmes.

> *"There are loads of paperwork that we have to do but not enough time and staffing, not enough support from the government." (Interview #15)*

> *" Sometimes we are so much under pressure to do 100 scripts that we don't have the extra five minutes to talk to clients on opioid agonist treatment properly." (Interview #5)*

> *"I don't know that it's fair to put it on us. How much are we going to handle? How much time are we going to put in these poor patients? Time constraints are shocking in retail, shocking. What are you going to handle first?... Handling patients addicted to any product is a multi-multifaceted problem." (Interview #10)*

Inadequate funding and a perceived under-appreciation of the role of pharmacists and the services they provide were issues raised by some interviewees. Greater recognition of the expertise of pharmacists and the provision of their services was highlighted to support and enhance their role as clinicians. Increased funding was deemed an essential avenue for supporting and appreciating the role that pharmacists may play in any future MUD treatment programmes and services.

> *"You know, if there's sufficient funding attached to pharmacies offering service, why not?." (Interview #4)*

> *"I feel that the programme's (future MUD treatment programmes) a good option to have out there depending obviously on a few factors. So, for example, funding (is important) whether the programme will be funded the same as the opioid replacement therapy programme." (Interview #1)*

Discussion

Findings from this study clearly highlighted the perception of a lack of familiarity and understanding of MUD and any treatment programmes, including potential pharmacotherapies, by participating pharmacists. Many interviewees raised concerns about the lack of educational resources and continuing education regarding MUD while stressing the need for adequate teaching resources to address this problem. This included a lack of an educational curriculum at university about SUD, particularly MUD, raising doubts about the role of pharmacists in any prospective provision of services to people with MUD. Pharmacists reported that they felt overloaded and unsupported in their current work and isolated from the interdisciplinary drug and alcohol healthcare team. Given the lack of literature on education for pharmacists about MUD, study findings will be discussed in light of research that documents the lack

of education for other SUD and the interventions used to address that. This approach may inform the development of similar measures to address the findings from this study.

Previous studies have reported that deficiencies in training and knowledge of healthcare professionals on different pharmacotherapy used for various SUD were barriers to the accessibility and delivery of healthcare services (Tomko & Giannetti, 2013; Nielsen et al., 2016; Hattingh & Tait, 2017; Williams *et al*., 2018). For example, Nielsen and colleagues (2016) found that low levels of knowledge and training of pharmacists around naloxone constituted barriers to the supply of naloxone and the provision of information to people seeking this service (Nielsen *et al*., 2016).

Concerns about prevailing social stigma and deficiency in knowledge on MUD identified in this study aligned with findings of studies that have linked similar stigmatisation of people who use drugs such as heroin and deficiencies in pharmacists' knowledge to gaps in service delivery by pharmacists for people with SUD (Sachidanandan *et al*., 2022). The need to address the presence of stigmatising attitudes and beliefs manifested by some pharmacists towards people with MUD has also been highlighted in the literature (Makki *et al*., 2024).

Inadequate pharmacy curricula relating to MUD and other SUD were deemed by participants to affect their confidence in the provision of services for people with MUD. Parallels have been drawn relating to inadequate formal education and teaching hours dedicated to SUD at pharmacy schools, which reportedly fall below recommendations to prepare pharmacists for their role in providing care to clients with SUD (Wenthur *et al*., 2013; Thomas & Muzyk, 2018). Similarly, a review by Smothers and colleagues (2018) found that Nursing School curricula in the United States of America on SUD were less than optimum, and more education on SUD was needed in their core curriculum (Smothers *et al*., 2018).

The International Pharmaceutical Federation (FIP) has developed a guideline for faculties and pharmacy schools worldwide to implement competency-based education concepts in pharmacy education and training (FIP, 2022). Necessary skills and education for lifelong learning are the key goals of these guidelines in order that pharmacists are competent to deal with public health needs, health challenges, and advanced drug therapies and meet the expectations of different population needs. Evolving patient and societal healthcare needs have resulted in pharmacy schools' recognition of the necessity of curricula transformation with the application of competency-based education (Katoue & Schwinghammer, 2020; Nagy *et al*., 2023). The incorporation of pedagogical strategies and the development of problem-solving skills prepare pharmacists to be competent in the provision of healthcare and their expanded scope of practice. This is important for meeting the demands of a changing healthcare landscape, particularly the healthcare needs of people with MUD.

Studies have reported that the incorporation of interdisciplinary education, in addition to a range of pedagogical approaches, resulted in increased clinical knowledge, self-reported confidence, and reductions in the stigma of students across different healthcare professions in the provision of care to people with SUD (Countey *et al*., 2018; Odusola *et al*., 2021; Loera et al., 2023; Musco et al., 2022). For example, Musco and colleagues (2022) showed the utilisation of pedagogical approaches such as active learning, educational technology and interprofessional education increased pharmacy student skills and subjective confidence in the provision of harm reduction services such as naloxone (Musco *et al*., 2022). The incorporation of similar teaching methods in future curricula guidelines for education on MUD may help meet the educational needs and expectations of student pharmacists in preparation for a potential role in prospective MUD treatment programmes and services in pharmacy.

Advances in pharmacy practice, professional standards and the provision of services by pharmacists require that pharmacists be up to date with pharmacological and non-pharmacological interventions for various disease states through their participation in CPD (Kheir & Wilbur, 2018). CPD is an ongoing learning process designed to meet the goals and objectives of pharmacists that improves the health outcomes of patients and the public (Rouse, 2004). The process of CPD allows pharmacists to achieve lifelong learning to remain competent healthcare practitioners in the face of a changing and challenging healthcare landscape (Rouse, 2004; Driesen *et al*., 2007). The need for increased training and education in the form of CPD for MUD has been identified as an urgent matter by participants of this study. Sachidanandan and colleagues (2022) demonstrated that increases in CPD and continued education programmes for pharmacists are a means to address gaps in the provision of services for people with SUD (Sachidanandan *et al*., 2022). Continuous education training programmes for pharmacists on opioid harm reduction have been shown to result in sustained positive outcomes on the provision of these services and communication with engaging clients (Hagemeier *et al*., 2015; Matheson *et al*., 2016; Eukel et al., 2019; Eukel et al., 2020; DiPaula et al., 2022). Furthermore, continuous education training programmes resulted in positive embracement and increased provision of these services, including

increases in pharmacist self-efficacy and confidence in the provision of both treatment services and information to people with SUD in community pharmacies (Hagemeier *et al*., 2015; Matheson *et al*., 2016). Similar educational initiatives and CPD regarding MUD were suggested by pharmacists in this study to enhance their role in prospective MUD treatment programmes.

Participating pharmacists raised concerns about the lack of government support for pharmacist duties and the perceived absence of interprofessional collaboration with broader drug and alcohol teams. Studies have cited similar pharmacist concerns on time constraints and reduced funding as barriers to effective collaboration with other healthcare members and the provision of services to people with SUD (Horsfield *et al*., 2011; Williams et al., 2018; Lukey *et al*., 2020). Future MUD treatment programmes involving pharmacists must take into consideration time constraints and improve collaboration with other members of the healthcare system. This is also supported by research which has highlighted the need for better communication and integration of pharmacists into the addiction healthcare team to better utilise their current role in harm reduction and treatment services for SUD (Matheson *et al*., 2016).

Strength and limitations

This qualitative study provided an initial in-depth understanding of community pharmacist perceptions about working with people with MUD. A unique perspective of community pharmacists in Australia was gained, focusing on a prospective role they may have in the provision of services for people with MUD.

The small sample size of 19 participants was a potential study limitation; however, upon reaching thematic saturation by the fifteenth interview, a further four interviews confirmed saturation, and there was no need for further recruitment. Also, the convenience and snow-ball sampling strategy may have limited the diversity of participating and non-participating pharmacist perspectives. Although this may have impacted the generalisability of study findings, the study sample was not a representation of all pharmacist perspectives. The work is the first of its kind to explore the issue of MUD and its treatment in the pharmacy setting, and the sample size achieved was sufficient to provide insight into pharmacists' perspectives on the topic. However, more research is needed to ensure a greater breadth and depth of understanding, given the very small sample size. Future studies would benefit from larger-scale sample sizes to confirm and expand on findings and generalisability both within Australia and elsewhere.

Conclusion

This study found participating pharmacists in Australia were unfamiliar with MUD. Attributed mainly to scarce unbiased educational resources and a lack of support for pharmacist duties, many participating pharmacists expressed a lack of confidence and inability to undertake their prospective role in the provision of services to people with MUD. A deficiency in appropriate educational resources and support for healthcare professionals surrounding SUD is reportedly widespread and contributes to gaps and barriers to the delivery of services to people with SUD. There is a strong need for further research to explore and address the findings from this study through the development and incorporation of an educational intervention to ensure pharmacists are competent to deliver services in any future MUD treatment programmes.

Conflict of interest

The authors declare no conflict of interest.

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Appendix A: Interview protocol for pharmacists

Do you offer the methadone program as a service in your pharmacy? How do you find the service?

Have you implemented the monitoring system for patients requesting pseudoephedrine in your pharmacy?

How successful do you think this system has been in deterring some patients from diversion for the production of 'ice'?

Do you come across many patients who have a methamphetamine dependence? What kind of services do you offer? [prompt: How do you feel about engaging with methamphetamine-dependent patients?]

What approach would you have for dealing with a patient possibly influenced by the use of methamphetamine?

Currently there are trials being conducted testing pharmacotherapies for people with a methamphetamine dependence, that may require daily dosing. If they are proven safe and successful, what are your thoughts on the supervised dosing of patients with future treatment for methamphetamine dependence?

What kind of treatment options or services for people with a methamphetamine dependence could pharmacists offer in your opinion?