



Research Paper

More than just 'free heroin': Caring whilst navigating constraint in the delivery of diamorphine assisted treatment



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ABSTRACT

Background: In 2020, drug related deaths in the United Kingdom (UK) reached the highest rate in over 25 years, with hospitalisations and deaths particularly impacting people who use illicit opioids such as heroin. Treatment systems are increasingly required to be innovative to engage the most vulnerable at risk from premature morbidity and mortality. Heroin Assisted Treatment (HAT) is an alternative treatment modality for people for whom more traditional forms of opioid substitution therapy, such as methadone, have been ineffective. Middlesbrough, a town in the North-East England, was home to the first service in the UK to implement HAT outside of a clinical trial setting which closed for operation in November 2022.

Methods: Qualitative in-depth interviews with patients and health care providers ($n=17$) involved in the delivery of HAT were undertaken during 2021. This paper focuses on the health care provider interviews, the majority of which took place remotely. Interviews were audio recorded and thematically analysed.

Results: Health care providers navigated multiple layers of constraint during HAT implementation and delivery. We explore this in relation to three themes: 1) Negotiating risk and safety within treatment 2) More than a prescription: care beyond diamorphine 3) Internal and external delivery barriers and impact on treatment acceptability, identity and longevity.

Negotiating and managing risks of polysubstance use was a complex task. Benefits regarding access to holistic care, improved therapeutic and social relationships were recognised by practitioners. The rigorous delivery schedule was the biggest barrier to engagement. Outside the treatment room, socio-structural factors posed additional challenges.

Conclusion: Despite some operational complexities, health care providers viewed HAT as an effective method of engaging a high risk population with drug treatment services, with holistic benefits for clients over and above the treatment of opioid dependency. Findings will inform advocacy and innovation for future HAT interventions in England.

Introduction

In 2020 drug related deaths in the United Kingdom (UK) reached the highest rate in over 25 years (ONS, 2021). Data between 2001-2018 evidences a substantial increase in drug poisonings over time for people who use opioids, with risk increasing particularly between the years of 2010-2018, an effect which was not entirely explained by the ageing of this cohort (Lewer et al., 2022). The concentration of drug related deaths are geographically varied in the UK. Areas of high economic deprivation, such as North-East England have more than three times the

rate of drug related deaths than London (ONS, 2021). In the North East town of Middlesbrough citizens are statistically more likely to die from a drug related deaths than a car accident (Middlesbrough Council, 2020). Poverty, homelessness, an aging population of opioid users, unemployment, polydrug use and significant funding reductions for drug treatment services have been posited as contributing factors (ACMD, 2017; Lewer et al., 2022; ONS, 2019a, 2019b; Public Health England, 2018). The largest proportion of drug related deaths in the North-East of England are reported among men who are dependent on illicit opioids, such as heroin (ONS, 2022). The high prevalence of opioid usage in Middles-

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brough combined with an unregulated and toxic illicit street tablet market (substances such as z-drugs, benzodiazepine and gabapentinoids) provides a potentially fatal risk environment due to interactions between these depressant drugs, which can significantly increase risk of drug related deaths (Akhgari, Sardari-Iravani, & Ghadipasha, 2021; Ford & Law, 2014; ONS, 2021, 2022).

Opioid substitution therapy (OST) is an evidence-based treatment for opioid dependency, with treatment engagement shown to be protective against drug related deaths (Santo et al., 2021). In England, the primary OST medications prescribed are methadone and buprenorphine, with provision ranging from daily supervised consumption at pharmacy services to take-home weekly doses. There were an estimated 261,294 people dependent on opioids in the England in 2017 (Hay, Rael de Santos, Reed, & Hope, 2017) with approximately 140,599 (or 54%) receiving OST (OHID, 2021). Barriers to 'treatment engagement' for the 46% of those who are not receiving OST can include concerns regarding disclosure; experiences or fears of stigmatising treatment; geographical isolation; reluctance or inability to engage with often inflexible treatment requirements; poor treatment access/availability and/or dislike of medication effects (ACMD, 2015; Harris & Rhodes, 2013; Marshall, Maina, & Sherstobitoff, 2021). People who are multiply marginalised, including women who use drugs, those who are unstably housed, living with multiple social problems, and/or cycling through the criminal justice system can face additional barriers to treatment access and be at highest risk of a drug related death (Medina-Perucha et al., 2019; Public Health England, 2018). It is crucial therefore, that treatment systems are more responsive and innovative to engage the most vulnerable, reduce health harms and risk of premature mortality.

Heroin Assisted Treatment (HAT) is an alternate treatment modality for people for whom more traditional forms of OST have been ineffective. HAT is currently delivered in seven countries worldwide (Switzerland, Canada, Germany, Holland, Denmark, Luxembourg and the UK) with the longest standing programme operating in Switzerland. The service usually comprises provision of synthetic medical grade heroin (diacetylmorphine) for supervised self-injection, under medical supervision in a clinical environment. Prior to 2019 in England, clinically supervised HAT had only been provided as part of the Randomised Injecting Opiate Treatment Trial (RIOTT) in 2010 (Strang et al., 2010). Despite a robust international evidence base for the social and health benefits of HAT (Haasen et al., 2007; March, Oviedo-Joekes, Perea-Milla, & Carrasco, 2006; Oviedo-Joekes et al., 2009; Perneger, Giner, del Rio, & Mino, 1998; Strang et al., 2010; van den Brink et al., 2003) and strong results from RIOTT indicating improved outcomes for 'treatment refractory' people (i.e. people who have not benefited from the standard treatment offer), RIOTT did not continue beyond a trial basis. In considering possible reasons for RIOTT discontinuation, Strang et al (2015) drew on concerns about HAT noted in the international literature, such as: 1. public safety and security concerns (concentration of crime in the local area, diversion of medicinal heroin); 2. intervention expense (costs of pharmaceutical product, staff and facilities for supervised consumption); 3. diamorphophobia (anxiety around concept of heroin as medicine); and 4. patient safety (i.e. a 1 in 6000 risk of sudden onset respiratory depression) (Strang et al., 2015).

The opening of the first UK HAT service in Middlesbrough in 2019 was therefore remarkable. The service in Middlesbrough was initially implemented as a 'whole systems approach' i.e. compromising partners from the health and justice sectors. The development of the Middlesbrough service is a novel example of 'bottom-up' policy making (i.e. pushed through by the collaboration of localised systems on limited budgets with little formal intervention from the UK government (Poulter, Moore, Crow, Ahmed, & Walker, 2022). The service closed for operation in November 2022 despite client reported benefits in relation to improved social supports and having access to an innovative treatment supporting a wide range of harm-reduction and recovery-oriented goals (Riley et al., 2023).

Qualitative research exploring client experiences of HAT programmes, highlights satisfaction in the quality and the range of care received, but also challenges faced in meeting the requirements of high intensity supervised service provision (Marchand et al., 2020; Oviedo-Joekes et al., 2014; Riley et al., 2023; Romo, Poo, & Ballesta, 2009). In most models of HAT service provision, clients are required to attend 2-3 times per day for their supervised injection, given the shorter acting mechanism of diamorphine, and concerns regarding adverse events (such as overdose) and diversion. The frequency of attendance requirements can be challenging for people with work and caring commitments, those who do not live in close proximity to the treatment service and/or who have restricted mobility (Boyd, Ivsins, & Murray, 2020; Boyd, Murray, & MacPherson, 2017).

Operational rules, such as attendance requirements noted above, can compromise the quality of client-provider relationships in HAT delivery (Demaret, Lemaître, & Ansseau, 2012; Oviedo-Joekes et al., 2014). This has also been noted in relation to fixed appointment times, especially when sanctions are applied for non-attendance. In the Canadian NOAMI trial, for example, a ten minute early/late rule demarcated a tight window of attendance, with treatment declined if clients were more than ten minutes late (Boyd, 2013). Violation of 'rules' can lead to exclusion from programs in some cases (Demaret et al., 2012). In this way, akin to the surveillant aspects of methadone treatment provision (Fraser & Valentine, 2008; Treloar, Fraser, & Valentine, 2007), HAT can be seen not only to 'treat' problematic substance use but to discipline and 'normalise' problematic client subjectivities (Haines & O'Byrne, 2021). The precarious 'trial' status of many HAT programs can intensify regulatory requirements and create an environment of uncertainty, for both providers and their clients (Boyd et al., 2017), posing a further barrier to engagement.

Crucially, not all HAT services operate as rigidly as this in practice (Demaret et al., 2012) and in drug treatment services more broadly, small acts of 'tinkering' or systems modification by health care providers can enhance treatment flexibility and access for their clients (Harris, Rhodes, & Martin, 2013). Negotiated flexibility is also evident in some long-standing HAT programs. For example, in Switzerland there is no time limit on length of treatment (i.e. long term if required) and take-home doses of diamorphine are allowed (Meyer et al., 2022). Services in the Netherlands provide a choice between inhaling or injecting diamorphine and offer support with assisted injection if required (Meyer et al., 2022; Strang & Taylor, 2018; Strang, Groshkova, & Metrebian, 2012). Although optimizing therapeutic relationships between HAT providers and clients is crucial to achieving desired health and social outcomes (Marchand et al., 2020; Oviedo-Joekes et al., 2014; Romo et al., 2009) there is a paucity of qualitative evidence from the perspective of health care providers who are fundamental to the function and operation of HAT services (Demaret et al., 2012). As such, this paper contributes to the international literature by focusing specifically on the perspectives of providers delivering HAT in Middlesbrough – one of the most economically deprived areas in the UK.

Methods

This paper reports findings from a qualitative study exploring HAT provision in Middlesbrough, England. Qualitative interview data was generated with clients and providers of the service. Here we report on findings from health care provider interviews.

Site

The HAT service is based in Middlesbrough in a specialist primary care service for drug and alcohol dependency and runs seven days a week from 8am to 6pm. Participants of the HAT service attend twice daily for supervised self-injected doses of diamorphine, in a controlled clinical environment.

Table 1
Roles of health care professionals included in the data collection ($n = 17$).

Role	Number Interviewed
Clinical Support Worker	6
Clinical Partner or Clinical Lead	3
Service Manager	1
Nurse Practitioner	3
GP	2
Core Support Team	1
Consultant	1
Total	17

Recruitment and data generation

Mixed purposeful and snowballing sampling was used (Naderifar, Goli, & Ghaljaei, 2017). Recruitment of health care providers working within the service or those who had been involved in the implementation of HAT were invited to take part in the interview ($n = 17$). Delivery staff working within the service were invited via the service manager, after the research team presented the research at the team meeting. Consultants and those not working within the treatment center were contacted by the clinical partner, following which contact with the research team took place. All providers who were subsequently contacted by the research team participated in the research.

The primary method of data generation was through in-depth interview, comprising interviews with 17 health care providers (see Table 1 for details of participants). The majority of interviews were conducted by authors HP and FR and one by an external research associate linked to the University between August and December 21. One interview was undertaken face-to-face but, due to Covid-19 restrictions, the rest were conducted remotely using Microsoft teams. Interview duration was from 30-90 minutes and audio recordings were taken with the participants' consent. Interviews were informed by a topic guide developed with support from a senior team member (MH). The topic guide orientated around provider perceptions of the delivery process such as: the implementation of operational processes, risk management, delivery schedules and staff/ participant relationships.

Analysis

Audio recordings were transcribed verbatim. Analyses were assisted by NVivo8 software. Data were thematically analysed following the six step analytic principles outlined by (Braun & Clarke, 2006). A portion of interviews were open coded by HP using a data driven inductive approach. These initial open codes were then consolidated in conversation with MH to develop a coding frame. All transcripts were coded by HP against the coding framework and reviewed by MH for consistency of approach. Second-stage coding of each category in the coding framework was then undertaken, with weekly analysis meetings (HP and MH) to review and refine data interpretation and categorization.

Ethics

HRA and HCRW Approval was obtained (IRAS ref: 292909) to conduct the research within an NHS Trust setting. Interviews commenced after informed consent was obtained and participant names have been pseudonymized.

Findings

We present analysis of the health care provider data against three themes pertaining to HAT delivery: 1) Negotiating risk and safety within treatment; 2) More than a prescription: care beyond diamorphine' 3)

Internal and external delivery barriers and impact on treatment acceptability, identity and longevity.

Negotiating risk and safety within treatment

Health care providers described a process of actively trying to delimit and judge what was safe vs 'risky' in relation to diamorphine treatment delivery, with accounts highlighting the tensions inherent in providing a nascent service with limited practice and guidance to draw on. Provider accounts referenced procedures and rules informed by Home Office and Public Health England guidance, but also the ways in which this could compromise as well as protect client safety and engagement.

Injecting practices

Femoral and jugular injecting are prohibited in the Middlesbrough HAT service, due to perception of enhanced injecting related risk (Zador et al., 2008). Providers generally reflected on this as a positive rule that safeguarded participants from further harm. This was complicated, however, by the difficulties some of their clients faced regarding venous access. Due to a history of long-term injection drug use, many clients had compromised peripheral veins and relied on the femoral vein for ease of injection access. The injecting experience, therefore, could be one of frustration, causing tensions between clients and providers:

We had an instance where one of the patients got really annoyed because he couldn't find a vein, and he threw his needle at the, in his booth, but it then kind of bounced back, ...if that had hit one of the staff members, it would have been horrific. (HCP 9)

These tensions could be exacerbated by a time pressure to achieve an injection once blood had entered the syringe (due to coagulation) and clinic prohibitions against replacing a dose that was lost in this way:

And then we'd recommend that they would go IM [Intra-muscular] because ...after 15 minutes they can risk losing the dose. So, if they're trying to draw back blood into the medication it can congeal. (HCP 2)

Providers described strategies to avoid these tensions by offering new equipment after 15 minutes for intramuscular injecting (which they framed as removing anxiety about the perceived loss of their only dose of medication), reassuring participants that they can take their time rather than feeling an urgency to rush:

So, we look for decent veins... or the right size pin [needle] for them as well ... we want them to be able to continue to inject if that's what they want to do. We'd also recommend IM ... to give the veins a rest. (HCP 2)

Judgement calls: polydrug use and intoxication

Polydrug use, particularly the use of 'street tablets' (predominantly z-drugs, benzodiazepines, and gabapentinoids), was described by all providers as one of the most challenging risk to assess and manage. Assessment of intoxication was mandatory in the centres regulatory and governance approval guidance. This however, required a judgement call by providers on how any presenting indicators of intoxication might interplay with risk. If, for example, a person was deemed to be too intoxicated to receive their dose of diamorphine, they might then leave the premises to use potentially more unsafe unregulated opioids. Providers tended to frame HAT as based on an ethos of acceptance of additional drug use outside the centre:

This isn't a punitive system ... It's about genuinely trying to support them and trying to give them the best opportunities that we can. (HCP 13)

Yet within the treatment centre, a risk hierarchy was often applied, with some substances seen to be more problematic and difficult to man-

age. While any continued use of street heroin was an undesired but manageable risk, the use of other sedatives and hypnotics especially street tablets was perceived as a substantial threat to client safety and adherence:

We've had people that have started on HAT. We've never been able to really stabilise them because they've continued to use street drugs. Not so much heroin but all the other things like I say the tablets particularly and that leads then to missed doses, not turn up, be over sedated so we can never really titrate them up enough to get them on a comfortable dose where they're not wanting to use and you just end up in a bit of a vicious circle. (HCP 14)

The perceived risk of polysubstance use was reflected in the prominence and frequency of drug screening within the treatment space. Clients were visually assessed for signs of intoxication daily, required to submit a weekly urine sample for drug screening, and conduct a breathalyser test if alcohol use was suspected. The potential toxicity of street tablets in combination with opioids and/or HAT was of heightened concern, due to the unknown composition and fluctuating purity of these 'counterfeit' prescription drugs:

Taking tablets and then injecting heroin ... that's probably the biggest cause of drug deaths ... is people using tablets and then injecting heroin. (HCP 14)

The nurse held the primary responsibility for making an intoxication judgement (and would make the final call regarding presentations of intoxication where there was a discrepancy of opinion). In practice, these would normally take place in collaboration with a clinical support worker. While this was regarded by many as a positive safety measure which removed the sole pressure of responsibility on nurses, there were some instances where two perspectives appeared to cause tension if not in agreement:

It is a judgement call, yeah I [clinical support worker] might say "He looks a bit iffy, looks a little bit sleepy. He's nodding." Then the nurse might go down to see them and they've perked up, absolutely fine ... they might witness that and I might witness something very, very different, but it's always the nurse's decision' (HCP 8).

Provider accounts indicated that their expectations around abstinence from street tablets could result in clients being untruthful about their drug use in order to obtain their diamorphine prescription. There was however, some equanimity within the clinic about the inevitability of this situation:

We had a guy turn up the other day and he had some blue round his mouth. He had obviously been taking some zopiclone and he was quite disorientated. He denied all drug use, but we knew he'd had something, and he was sent away. And he came back later, the next day and apologised and said, "Yeah, you were right." (HCP 8)

Difficulties in ascertaining risk were exacerbated by lack of a rapid objective test for street tablet or benzodiazepine use, whereby judgement calls were relied on, which may not always be accurate: "When it's a suspicion of maybe tablet use, benzos or something, there's not a hard and fast check you can do, like breathalyse you for benzos." (HCP 1). As previously noted, the risks of 'getting it wrong' were heightened in the context of a fluctuating market in street tablets, of uncertain potency and quality, with variable onsets of action:

Well before the T20s [a local variant of street tablet] were about a lot of people liked to use zopiclone ... T20s kind of came in and filled that gap. ... they contain other novel benzodiazepines like flubromazolam, ... there's no quality control in there. They don't know what they're taking. Some of them are extremely potent. (HCP 1)

Within these uncertainties and constraints, providers acted to negotiate a flexible approach to risk of intoxication, with the aim of retaining their clients in care and enabling the HAT administration where possi-

ble. Here a nurse describes implementing a breathalyser test for alcohol prior to receiving a dose of diamorphine due to concerns with intoxication:

If... they've blown too high we would say, 'Look I can't give you it at the moment, go away for an hour, come back, drink plenty of water, go for a walk, we'll re-test you. (HCP 10)

This negotiation of intoxication risk was reported as one of the most difficult operational challenges faced by HAT providers. Keeping clients safe on the one hand required withholding their dose if perceived to be intoxicated, but on the other, risked their disengagement from the program and use of illicit substances in an unregulated and illegal drug market. The quote above evidences a middle ground approach whereby the dose was not withdrawn from administration but postponed for the short term to allow alcohol metabolization.

More than a prescription: care needs beyond prescribing diamorphine

Provider accounts emphasised the way in which the HAT service offered care beyond substance dependence treatment, with treatment attendance requirements and service co-location offering opportunity for preventative and proactive health care provision and social supports.

While the diamorphine prescription provided strong motivation for clients to attend the service, providers highlighted how this facilitated the offer of other services, such as wound care, hepatitis C testing and treatment linkage. One provider described HAT metaphorically as a 'holding measure' (HCP 16) likening it to a defibrillator to maintain life, whilst attending to other needs beyond substance use. Tangible outcomes included linkage to hepatitis C testing and treatment, including among clients with extensive injecting histories for whom screening should have been routine but was often not possible due to previously low engagement: 'he had very abnormal liver function. We did some more screening and picked up that he had hepatitis C so he's being referred for treatment' (HCP 14).

Difficulties in seeking treatment for acute health concerns are commonly reported by people who use drugs, particularly the most marginalised. Provider accounts support analyses indicating that structural barriers, rather than a lack of care or responsibility, underpin health care delay (Harris, 2020). Providers spoke with enthusiasm about the enhanced opportunity to facilitate health and social care supports to clients previously perceived as difficult to engage:

"Oh, while I'm here, can I sort this?" and "while I'm here can I sort that?" It seems to work better, once you've got them in the building, you can get more done with them. (HCP 9)

In this way, regular attendance and the development of trusting relationships between clients and providers helped support preventative and proactive care:

because they're seen regularly these other things get picked up much more quickly we've been able to act much more quickly on severe health conditions than we would otherwise have been able to. (HCP 14)

The provision of adjunct care was aided by the facility's location within a relatively central specialist primary care service, with which participants were already familiar:

I think it makes it more accessible. It ... doesn't isolate them from the drug service, from the GP practice. It's good for staff. Ideal because core support are here, the GP's here, everybody that they need to see's in one place. (HCP 9)

One participant (HCP2) described the service as a 'one stop shop' for meeting unaddressed health needs. Co-locating the service amongst existing specialist provision enhanced the visibly of this group of people to others engaged in the service. Some providers felt that seeing the HAT cohort as 'succeeding' in this treatment was the best advertisement for engaging others into treatment: "It's difficult to quantify but there's

definitely been a positive impact just having this cohort of people turn up and do well and to be seen to do well.” (HCP 14).

Provider participants reported that their connection and relationships with patients improved throughout the duration of the HAT service, attributed in some part to the high frequency contact. The time and attention afforded by HAT was seen as crucial both to develop trusting relationships with clients and to achieve broader health equity ambitions:

The inverse care law was a term coined [meaning] that the people who need the care most get the least of it ... I think HAT's managed to turn that around a bit (HCP 16).

Attempts to mitigate the daily constraints of the rigid delivery model (supervised sessions twice a day) were common. One provider recognised these modifications were in conscious recognition of the burdens of the treatment regimen: “allowing them to control their life a little bit” (HCP 6). For example, providers spoke of taking interest in their clients daily activities and rescheduling appointments to accommodate these if necessary:

If they want to go somewhere ... we'll get them in early on the morning ... we're quite flexible, and then - give them it last thing, you know, things like that. (HCP 7)

Further examples cited were “absorb[ing] ... [client] lateness” (HCP 4) despite this presenting operational difficulties in managing multiple treatment slots with a mandatory four-hour gap between doses, to adapting the service opening times to accommodate people with early waking schedules: “we changed our times, so instead of starting HAT at half past nine, we started at ten past eight to accommodate [them]” (HCP 2). Beyond flexibility in treatment structure, providers highlighted other ways they attempted to improve the acceptability of a controversial treatment offer. For example, allowing patients to change the name of the service to diamorphine assisted treatment to improve its outward legitimacy in the wake of negative press, and educating their own personal networks against misinformation about the program:

When I first started here and I spoke to my family members about it and they were mortified at first, “Why are you doing this? ... but then when I've discussed it and educated them on it. (HCP 6)

Trust was framed by providers as a two way process, which they endeavoured to model through clear, respectful and friendly communication: “we're open and honest with them, in turn they're still open and honest.” (HCP 10). These small acts of care and attention, in combination with diamorphine provision and holistic health care, were perceived as achieving substantive changes in clients' lives:

I've seen people's lives changed. I feel very privileged to have been around people and to get to connect with them more. It has been a real privilege and an access into people's worlds that I just wouldn't have ever been able to get. (HCP 11)

This provider speaks with pride of the privilege of witnessing these transformations. Indeed, there is some expectation of transformation above and beyond the facilitation of a prescription. While the clinic acts to provide more than medication, the medication is also expected to act in ways beyond the pharmacological – reducing engagement with the criminal justice system and improving social relations: “with the reduction or reoffending I think that's a massive net positive for the community. People that were prolific offenders certainly are now not offending”. (HCP 1)

Internal and external delivery barriers and impact on treatment acceptability, identity and longevity

Evidence of navigating multiple barriers permeated the narratives of provider participants, both internally to service delivery and from sources outside the treatment room.

Barriers to engagement for eligible clients by the intensive treatment model

All providers referenced the burden of the delivery model on HAT clients in terms of travelling to the clinic twice daily, a particular challenge for those with limited finances for transport or mobility difficulties. For this reason, some high-risk individuals who were eligible for a place on the HAT programme declined the treatment offer:

To get here it would have taken her two buses, two buses home. By the time she got home she would need to come back she said, I can't do it'...transport is probably one of the main things. (HCP 2)

For those clients who did attend regularly, providers spoke with some pride of their commitment, noting that it was not one that they themselves could necessarily adhere to:

We've talked about the commitment ... and praise given for coming because it is a massive, don't know if I could commit to something like that. (HCP 10).

Adapting to this delivery model from previous lifestyles was understandably a difficult transition for some clients. As noted, it prevented engagement onto the programme for some. Providers noted the contradictions inherent in a programme which targeted the most marginalised yet excluded those unable to meet its exacting delivery schedule. For some, this led to concerns about the sustainability of mandatory twice daily supervised appointments and/or the impact this might have on clients lives and social reintegration: “I think a lot of them will get to that point where they'll be saying, ‘I don't have a life, because this is my life.’” (HCP 9)

Structural challenges

Despite these concerns, and with awareness of the effort demanded of clients who did attend regularly, providers spoke of the HAT service as a ‘trailblazer’ in the implementation and delivery of injectable diamorphine to a highly marginalised population. While there was pride in these accounts, they also emphasised the challenges of operating with limited social and political supports in a predominantly ‘recovery’ oriented drug treatment system. This included the difficulty of working with a narrow definition of ‘success’, one orientated toward policy goals of ‘abstinence’ and ‘recovery’:

The general public and I think the [commissioner partner] think that success or outcomes in addictions is measured by people becoming drug free. (HCP 14)

Providers noted that the HAT programme was held to higher evidential expectations than other drug treatment services, due to the politically contentious nature of its operation. Even when key evidence around impact had been generated, it appeared disregarded by key policy stakeholders, intensifying funding barriers and overall insecurity experienced by the service:

We have impacted individuals, we've seen that, we have impacted crime, the findings from [University evaluation] show a 60% reduction in crime, which is a phenomenal amount in this particular group of individuals, but the commissioner has said publicly that he couldn't see any actual reduction in crime, which I don't quite understand really. (HCP 11)

Providers spoke of navigating unforeseen hurdles with little prior experience to draw on and felt they had received little governmental support or guidance apart from regulatory approval. Some noted changes to policy guidance, released after the HAT had been operational for 18 months, as creating barriers to effective service provision. Revised guidelines limited diamorphine storage and reconstitution to single use ampules, as opposed to the previous multi-use vials due to interpreting reconstituting diamorphine as manufacturing of a medicine. This therefore presented an inferred legal requirement for the presence of a pharmacist and specific preparation environment. This restriction

was framed as a policy response to concerns about infection control for multi-use vials outside of aseptic conditions, but scepticism about this rationale was widespread:

[Guidance] changed so we have to now use single vial diamorphine bottles, so we have to make them up when they come. so that adds extra time... it's been an extra cost. (HCP 9)

This guidance, which is not a policy implemented in any other country where HAT has been operating for a number of years, was viewed as being driven from a political standpoint as opposed to a clinical one:

There was a bit of a feeling like there was no good clinical reason for this but there was a bit of a political 'let's make a difficult for HAT schemes' reason. (HCP 16)

The change in legislation around the medication interacted with existing financial pressures experienced by the service, exacerbating supply problems and inflation of the price of medication, reducing the numbers of individuals it could accommodate: 'it [medication costs] might have changed by 500% this year' (HCP 16).

The biggest external influence on HAT delivery cited by providers was the withdrawal of imminent funding by the main commissioning partner while clients were still engaged in treatment. HAT had been initially commissioned as an innovative 'whole systems approach' involving both health and crime partners. A change in political leadership and associated service reprioritisation resulted in the withdrawal of key financial support from policing partners. While funding challenges had been anticipated by the operational steering group, what was not anticipated was the way this news was communicated to both providers and clients:

The first that we'd heard about it that [commissioning partner] wasn't going to continue the funding [...] I had to hear about it on BBC breakfast, these are people's lives he's talking about, already vulnerable people, but he obviously just had no comprehension of what making that announcement on public television without telling us first [would have]. (HCP 14)

For some, the police moving away from funding HAT was a 'step backwards' (HCP 6) impacting key stakeholder perceptions of service acceptability. The withdrawal resulted in a significant funding shortfall and put the future of the project in jeopardy, creating insecurity for staff and clients. Providers spoke of the way in which this negatively impacted clients, but also how it fostered a sense of collective identity and desire to advocate for change. This included requests from clients about how they could advocate for their needs and generate funds to support treatment continuation:

They are all heavily invested. ...a couple of them in particular would say things like, "Is there anything that we could do? Would it help for us to speak to people to say the benefits that we found out of it? (HCP 8)

Regular attendance requirements, while difficult for many, also acted to facilitate a sense of community, providing clients with the opportunity to meet and share both the frustrations and benefits of HAT engagement. This provider spoke of benefits clients experienced through disengagement with illicit economies and networks, also noting that HAT acts to fill a potential void by providing an alternative community option:

From housing, relationships, families, all the rest of it, and actually that's the other thing that HAT does, it doesn't just remove the unpleasant things they're having to do to acquire drugs, it also gives them a bit of a community. (HCP 16)

Due to these benefits, and the work undertaken to build trust with clients, providers expressed concern about the negative impact on clients if the service was withdrawn. The ethical implications of what was perceived to be a 'life-saving' treatment option being discontinued were of particular concern, with a general view that this would result in clients returning to high risk illicit drug use: "I hope that for the sake of

the clients it continues, because it's devastating to watch people relapse like that." (HCP 4)

Socio-structural barriers

Within the confines of the treatment centre, providers described working hard to reduce the impact of surveillant procedures to improve client experience. Yet external surveillance, by a national, regional, and local audience, was experienced as pervasive:

People are watching us, the neighbourhood is watching [they] ...turn up and [they] take little video clips on their camera phones and upload them to social media and things like that. (HCP 16)

Community level stigma and negative public opinion towards HAT were framed as an external socio-structural barrier to client and provider wellbeing, over which providers had little control. Many were concerned about "getting the blame for things" (HCP5), a pressure exacerbated by media coverage of the service. Providers cited headlines such as: "Addicts to get 'pure' heroin for free on NHS" ([The Sun, 2019](#)) as negatively influencing public opinion:

I know when it first started it was a big news story. It was in quite a lot of national outlets. Some good press but a lot of tabloid-type sensational stuff about it, which I think did no good for the local community and how well we're accepted by them. (HCP 1)

The narratives of providers emphasised the pervasive impact of stigma as permeating multiple layers of the HAT infrastructure. Clients managed this by keeping their treatment engagement secret from important others in their lives: "I think it's hard with the stigma ...a lot of them just don't tell people they're on the programme" (HCP 9). Providers attempted to mitigate this by advocating for the benefits of HAT and speaking out against perceived misinformation: "part of working here means that we have to take on board that role of being an advocate for it [...], shouting it far and wide." (HCP 4). They voiced apprehension, however, that poor public opinion created by media coverage had influenced the political narrative, creating an ongoing cycle of mistrust and stigma against HAT. This influenced key stakeholder perspectives, further exacerbating the funding insecurity pervading the intervention:

I think because of that public opinion that meant that potentially some of those with political influence were less willing to have a discussion about the treatment program (HCP 11)

Discussion

Health care provider accounts accentuate the navigation of constraints, operational, social and structural, in their delivery of HAT to a marginalized population at high risk of drug related health harms. While operating within the context of a highly structured delivery model, providers negotiated flexibility where possible, acting to 'tame' the impact of regulatory controls on patient engagement ([Harris et al., 2013](#)). Appointments were made with attention to clients' daily schedules and time provided, where permissible, for the impact of intoxicants to wear off prior to diamorphine administration. Providers were attuned to the care work required to facilitate trust with a population for whom previous experiences of drug treatment had not always been positive. In doing so, they emphasized the way in which diamorphine provision facilitated client benefits over and above drug dependency treatment, including reduction of care delay for acute physical issues; engagement with a proactive versus reactive model of care; reduced crime activity and improved social relationships, including with family members. These findings are supported by published analysis of client accounts generated over the same duration as provider interviews ([Riley et al., 2023](#)).

We draw on these findings to propose recommendations for HAT intervention improvement and sustainability in the UK. For clients with poor venous access, the prohibition of femoral and jugular injecting

could on occasion create pressure in the treatment room. The introduction of and (additional finance for) access to vein finder technology as is used in HAT in Switzerland, may help alleviate some of these tensions through aiding clients to achieve a venous injection (Strang & Taylor, 2018). Rules prohibiting assisted injecting, hold potential for review (including legal implications), given allowances for medically assisted injecting in some international HAT services such as in the Netherlands (Strang et al., 2012). As well as being practically helpful, this reinforces to clients that achieving a venous injection is a shared goal between them and the provider, which can facilitate trust and retention in care.

Navigating competing demands of engagement, safety and risk when handling poly-drug use within HAT settings was described as a delicate task. The most marginalized individuals at risk of drug related deaths in England are often engaged in long term, polydrug use (Lewer et al., 2022), with street tablet (such as z-drugs and benzodiazepines) use being particularly common in the North East of England and Scotland (McAuley, Matheson, & Robertson, 2022). Tablets sourced can be illicitly manufactured and therefore of uncertain strength and quality. Given the heightened fatal overdose risk that multi-sedative use poses, particularly in relation to the variable potency of street tablets in combination with heroin, this can operate as a factor promoting poor treatment retention for HAT (Poulter et al., 2022). A balancing act is therefore required, between ensuring client safety from fatal overdose use within the service and retaining in care the population most at risk of a drug related death from illicit drug use. Ascertaining and managing multiple risks (of polydrug use-related overdose within the service, versus disengagement and worsened outcomes, including drug related death on the street) was a reported source of anxiety for practitioners delivering this novel intervention with limited local precedents to inform action. Polydrug use, including of other sedatives such as benzodiazepines is not uncommon in HAT client samples reported elsewhere. For example, from a sample of 90 HAT clients in Switzerland, (72% in HAT), 49 (54%) engaged in prolonged benzodiazepine use (more than 2 months), with approximately half obtained from illegal sources (Vogel et al., 2013).

Looking to the experiences of other HAT services in managing co-occurring polydrug use, including in relation to alcohol, can inform the UK approach. As in Switzerland (where polydrug use is described as the rule and not the exception within this population), taking a proportional approach by accepting the co-occurrence of polydrug use especially within the initial phases of engagement (or at key periods such as relapse and reengagement) could increase the reach and impact of HAT. In the Middlesbrough service, although there were no formal sanctions outlined by providers, accounts highlighted there was an implicit expectation that street drug use would cease from the first session of HAT, due to concerns with patient safety. Employing a proportional attitude at key time periods during their engagement may also reduce instances where patients feel compelled to hide disclosure of polydrug use in order to obtain their usual HAT dose. This practice, where clients are subsequently 'found out' through the employ of testing technologies, can erode the development of mutual trust between providers and patients, and exacerbate shame and stigma among an already vulnerable population.

Learning from Switzerland where there are no sanctions for polydrug use and testing is only conducted on entry to support dosage decisions, could improve engagement overall. Once engaged in HAT, implementing planned harm reduction measures, such as gradual reduction schedules for street tablet use, if desired by the client, including through replacement with prescribed benzodiazepine can be an appropriate treatment goal and has been found to be effective (Liebreinz, Boesch, Stohler, & Cafilisch, 2010). More innovative measures, such as real time testing facilities for street tablets, are required both to enhance retention in care, reduce health harms and inform responsive harm reduction and messaging strategies. There are currently no harm reduction measures (beyond advice) available in Middlesbrough regarding street tablet usage, which was a clear source of anxiety for providers

working within a setting predominantly dealing with complex polydrug use.

The intensive supervised delivery model, while clearly associated with health and social benefits over and above drug treatment, was a barrier to engagement for some eligible candidates, and was regarded the most negative aspect of the delivery of HAT for health care providers. Alternative suggestions to the delivery model which may facilitate the benefits and reduce costs, include the implementation of a nurse-led outreach model. This would allow a more geographically dispersed population to engage with HAT and may allow the service to reach and engage the most marginalized individuals who don't have access to transport and are at high risk of premature morbidity and mortality. While there is no evidence base for this approach regarding HAT delivery, it has been successfully implemented to expand access to other harm reduction and health care interventions for people who use drugs. Nurse-led outreach provision of hepatitis C testing and treatment has facilitated successful outcomes for people unwilling or unable to access clinic-based services (Richmond et al., 2020; Selfridge et al., 2022) and home delivery of methadone and other OST medications is documented as an 'early innovation' in relation to facilitating access during COVID-related restrictions (Krawczyk, Fawole, Yang, & Tofghi, 2021).

The UK Drug Policy Commission submitted evidence to Levenson enquiry regarding the media reporting of drugs, outlining mechanisms where it can negatively influence public policy decisions, public opinion, and cause harm to an already marginalised population (UK Drug Policy Commission (UKDPC), 2012). As reported in the literature on overdose prevention sites in Scotland, this analysis highlights these outcomes as a consequence of media reporting of HAT, fostering a hostile local operating environment for the service and exacerbating the sense of surveillance experienced by providers and clients. Media discourses (e.g. (The Sun, 2019) regarding HAT as 'enabling of addiction' provided an unbalanced of the harms (compared to the benefits) of HAT. Providers reported media appearances by key local commissioning partners which claimed 'no evidence' of impact of HAT (without any reference to the locally generated evidence or international RCT evidence) had influenced local commissioners and intensified funding pressures experienced by the service. Framing a complex evidence-informed intervention in such reductionist way (as 'enabling addiction') can provoke feelings of injustice in terms of resource allocation, and increase 'othering' (Atkinson, McAuley, Trayner, & Sumnall, 2019; Lancaster, Seear, & Treloar, 2015). This can be particularly challenging for an intervention seeking legitimacy and recognition in a policy environment largely orientated toward abstinence (Dennis, 2021). For clients, stigma can be compounded, whereby in the public eye not only is their drug use stigmatised, but their treatment. We fully endorse recommendations made in respect of the Levenson enquiry and other attempts to improve the regulation of media reporting such as fact checking mechanisms (Australian Press Council (APC), 2021; Everymind, 2018; UK Drug Policy Commission (UKDPC), 2012).

In addition, many providers felt that HAT was held to questionably 'higher' standards in regard to operational regulations than other services. For example, the imposed implementation of guidance suggesting aseptic preparation of diamorphine (not used in any other country where HAT had been operating for a number of years) was introduced at the same time as the COVID-19 pandemic, in which non-medical volunteers can administer multi-vial doses of vaccines in community venues (NHS England).

Policy implications

On a local policy level, changes in political leaders in terms of appetite for, and advocacy of, HAT exacerbated constraint (funding insecurity, anxiety) experienced by providers. Future HAT pilots may wish to consider implementing strategies such as having a clear 'exit' communication strategy for all commissioning partners (even prospective can-

didates) i.e. any communications regarding HAT being mutually agreed by all parties, particularly where a partner intends to exit the commissioning agreement. The UK government taking a more proactive role in supporting implementation and delivery of HAT should, in our view, be a priority, if they wish to meet their aim of significantly reducing drug related deaths in the next 10 years (HM Government, 2021). Ensuring these services do not have to survive within a disruptive and frequent procurement cycle should be of strategic importance to avoid poorer outcomes in respect of drug related deaths and the draining of vital resources (ACMD, 2017).

This could be achieved in several ways. Firstly, simply defining commissioning responsibilities relating to the intervention at a policy level (i.e. should it be driven primarily by health or shared between health and crime budgets) is suggested. This would have safeguarded the 'whole systems approach' funding model from breaking down mid-delivery. Either HAT would not have been commissioned like this to begin with, or it would be clear that HAT sits within the commissioning remit of the justice sector alongside health. In turn, other constraints placed on providers and clients would have been reduced or removed, such as administrative burdens from the short-term commissioning cycle of the service. Providing a heroin prescription can result in substantial savings to crime and welfare budgets, yet HAT programs were predominantly funded from health budgets who did not secure significant savings in the short term (Strang & Taylor, 2018). A more comprehensive way to engage all commissioners in HAT would be ring-fenced funding (as has been announced in Scotland) (Poulter et al., 2022; Scottish National Party, 2021).

Secondly, the evidence presented here suggests the provision of take-home doses of diamorphine should be revisited as is standard in other countries where HAT operates. A study in Switzerland where criteria for being able to access take home doses of diamorphine was relaxed during the COVID-19 pandemic found that engagement in treatment increased (Meyer et al., 2022) with good adherence. If HAT is truly about engaging those most at risk of harm, having the eventual option of take-home prescriptions may well improve uptake. Progressing this point, the legacy 'British System' of non-supervised prescribing of diamorphine is still (albeit tenuously) in operation in England and the benefits of the flexibility of this system are documented (Dennis, 2021). Conditions to safeguard against the diversion of the product could be implemented such as a having individual ampules with unique registration numbers which would have to be returned to the pharmacy before a repeat prescription of diamorphine could be issued, as is standard process with the British System (Strang & Taylor, 2018). Indeed a small trial of take home injectable diamorphine or methadone in London in 2001 using this system found no evidence of diversion, no post dispensing problems and recorded improvements in health and social domains between three and 12 months (Metrebian et al., 2001).

Limitations

The volume of interviews drawn upon is limited and given all providers were recruited from within the treatment centre delivering HAT, perspectives may be skewed towards a more positive view of the intervention. Services outside of the healthcare system were not approached to take part in the project, for example, the crime and justice partners which may have given more thorough understandings of concerns, such as cost effectiveness.

Conclusions

As a case study of implementing a harm reduction intervention in a recovery-oriented system, this analysis provides insights into operational challenges experienced within the HAT treatment center and beyond. Delivering HAT from the perspective of providers appears to be an effective method of engaging some of the most, albeit potentially not the very most, marginalised and high risk people who use drugs into

treatment services. Benefits reported extend beyond the pharmaceutical provision of diamorphine to impact care provision for acute physical health concerns, the quality of social relationships and individual self-esteem. Yet, multiple layers of avoidable constraint were experienced by providers, much of which could be reduced with appropriate policy level intervention.

Ethics approval

HRA and HCRW Approval was obtained (IRAS ref: 292909) to conduct the research within an NHS England setting. Interviews commenced after informed consent was obtained and participant names have been pseudonymized.

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Declarations of Interest

Danny Ahmed works as clinical lead for Foundations Medical Practice which delivers HAT in Middlesbrough. Danny Ahmed was not part in the development of interview schedules, data collection or analysis but contributed to reviewing final manuscript for context. D.A. was interviewed as part of the research to gather his important perspectives by an external member of the research team so not to introduce bias during the interview process.

Data availability

The dataset(s) supporting the conclusions of this article is(are) not included due to the low sample size leading to possible secondary disclosure.

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