Diamorphine Assisted Treatment in Middlesbrough: A UK drug treatment case study

Main/Corresponding author: Mrs Hannah Louise Poulter*

Address: School of Social Sciences, Humanities and Law, Teesside University, Middlesbrough, TS1 3BX

Tel: 01642 384680

Email: H.Poulter@tees.ac.uk

Co-author: Dr Helen Moore

Address: School of Social Sciences, Humanities and Law, Teesside University, Middlesbrough, TS1 3BX

Co-author: Mr Rob Crow

Address: School of Social Sciences, Humanities and Law, Teesside University, Middlesbrough, TS1 3BX

Co-author: Mr Danny Ahmed

Clinical Lead

Address: Foundations Medical Practice, Acklam Road, Middlesbrough, TS5 4EQ

Co-author: Professor Tammi Walker

Address: Durham University, Department of Psychology, South Road, Durham, DH1 3LE

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Abstract

Diamorphine Assisted Treatment (DAT) is a treatment offer for individuals with Opiate Dependency (OD), who have failed to benefit from standard treatment. Self-administered injectable synthetic heroin (diacetylmorphine) is offered to participants twice daily, under the supervision of medical staff in a controlled and safe environment. This case report evidences outcomes from the first DAT service implemented in the UK. Data from participants who engaged with year 1 of operation (n=14) is presented detailing engagement, harm reduction, psychosocial outcomes, and criminal behaviour of the cohort. We present this work as an example of bottom-up policy making within the context of UK drug treatment and implications for practice discussed.

Keywords

Diamorphine assisted treatment (DAT)
Supervised injectable heroin
Harm reduction

Introduction

Diamorphine Assisted Treatment (DAT) is a treatment offer for individuals with Opiate Dependency (OD) which involves offering self-administered injectable synthetic heroin (diacetylmorphine) twice daily, under the supervision of medical staff in a controlled and safe environment. Internationally, the evidence base for DAT is convincing and has been shown to improve many health and social outcomes compared to standard opiate substitute treatments (OST) [typically Methadone Management Treatment, MMT] across seven Randomised Control Trials (RCTs) in Switzerland, the Netherlands, Spain, Germany, Canada, England [The

RIOTT trial] and Belgium (Perneger et al., 1998; van den Brink et al., 2003; March et al., 2006; Haasen et al., 2007., Oviedo-Joekes et al., 2009; Strang et al., 2010; Demeret et al, 2010).

The first line treatment model in the UK for OD is MMT which is effective for the majority of individuals (Strang et al., 2007). Yet around 5-10% of individuals who use opiates do not benefit from this treatment (Byford et al., 2013). Individuals who fail to benefit from the standard treatment offer are a small, but important, cohort in terms of outcomes (Strang et al., 2012). Generally, this population engage with long term entrenched opiate usage and are disproportionately impacted by negative outcomes issues such as homelessness and poor physical outcomes (Office for Health Improvements and Disparities, 2021). This population also experience 'failing' the offered OST treatment on a number of occasions which can create shame and stigma (Boyd et al., 2020). However, some suggest that it is the treatment services on offer which have failed this population due to not being able to meet their needs (Boyd et al., 2020).

The emergence of DAT in the UK

England was the pioneer of 'take home' prescribing opiates for OD, following the report of the Rolleston committee in 1926 which aimed to provide more human treatment approaches for people who use drugs (PWUD,), in a scheme which was known as 'The British System' (Strang & Sheridan, 1997). The system is different from DAT in that it involves 'take home' prescriptions of opiates as opposed to supervised doses. Though, a study conducted in 1990 found this was in practice rarely adopted (Strang & Sheridan, 1997). Since 2010, the UK policy landscape for drug treatment is one which has been heavily focused on abstinence as opposed to harm reduction approaches (English Harm Reduction Group, 2017), which some critics

argue increased poor outcomes for PWUD (Hickman et al., 2011). The popularity of harm reduction based interventions is increasing as was evident in the governments newly released 10 year drug treatment plan (HM Government, 2021). However, exactly what interventions this could include is very vague, and will be left up to individual areas to decide exactly what menu of interventions is available for PWUD.

DAT raises political and public attention due to the nature of providing an addictive substance as a 'medicine' for the very same addiction (Romo et al., 2009). Adding to its political salience, often patients, providers and policy makers have different ideas about retention and success in DAT (Vogel et al., 2017).

Since the RIOTT trial (Strang et al., 2010), the notion of DAT as a treatment offer in the UK gained traction, yet there has been a marked hesitation of implementing DAT in clinical practice. Here we can recognise this issue as an important example of the disconnect between science and policy within the context of drug treatment. Whilst it is acknowledged by the scientific community that this treatment is the 'gold standard' for this population (Strang et al., 2015), and recommended for use in the UK guidelines on the clinical management of OD (Department of Health [UK], 2017); it has taken nearly a decade since RIOTT to get the first service in the UK implemented in practice.

DAT as an example of bottom-up policy making in action

In 2017, a steering group was established between local public health and crime services to drive forward the DAT agenda in Middlesbrough in the UK. Middlesbrough became the first area in the UK to obtain Home Office licenses to deliver a DAT service in October 2019,

(hereafter referred to as the *'Middlesbrough DAT Service'*) outside of a research trial. The organic development of the Middlesbrough DAT Service serves as a valuable case study of bottom-up policy making in action. Despite the UK being a highly centralised nation (Institute for Local Government, 2014), this pilot has been pushed through primarily by the will, determination and resources of individual local services who have come together as a whole system, to address the need for an alternative treatment offer for OD. What was noted as useful for driving this agenda forward in Middlesbrough, was the pooling of resources, creating a 'whole systems approach' i.e., health and criminal justice services collaborating for projects which support shared priorities.

Whilst it was evident that in the UK, DAT was successful under RCT conditions for individuals who had failed to benefit from the standard treatment offer (i.e. RIOTT), (Strang et al., 2010), prior to the Middlesbrough DAT Service opening in 2019, it was not known if such a service could be implemented in the UK or share the same success as the RIOTT trial. This case study report provides evidence from the first pilot of DAT in the UK which indicates that it is not only possible to implement DAT in the UK, but that it would be worthwhile exploring the roll out of DAT at a larger scale to deal with the epidemic of drug related deaths (DRD's) in the UK (Office for National Statistics, 2021).

Case report of first DAT service in the UK

This case report details the outcomes of the first DAT service in the UK (Poulter, 2021), the Middlesbrough DAT Service. This study took place between 2019-2021 analysing quantitative data from a small population of (n=14) of individuals who had engaged with the

Middlesbrough DAT service in its first year of operation (October 2019-October 2020)[1]. The project was approved by a Teesside University Ethics Committee (Ref: 2020 Oct 1328 Poulter). A co-production / participatory research approach (Pain, 2004) in collaboration with the steering group was used to select four outcome areas, which the felt might indicate the behaviour change of this population; . 1) Engagement and retention, 2) street drug usage, 3) psychosocial outcomes, 4) criminal behaviour and associated costs. The data was pseudonymised and shared electronically with the evaluation team and a secondary data analysis of data collected by the Middlesbrough DAT service took place in December 2020.

Table 1. Study demographics of DAT participants involved in year 1 study

Number of Participants	14
Ages (mean)	41.2 years
Ages (range)	35-51 years
Male (n=12)	85.7%
Female (n=2)	14.3%

Table 1 illustrates that the sample was predominantly male which mirrors the data into DRD's as men account for around two thirds of drug poisonings, and the largest proportion of DRDs in the North-East of England are men who are misusing opiates (Office for National Statistics (ONS), 2021). The average age of the Middlesbrough DAT Service population was 41.2 years, and individuals between 40 and 50 (also known as 'Generation

[1] Crime data analysed all crimes committed by participants in their offending career prior and during the DAT pilot.

X') are the most likely to die from a DRD (Office for National Statistics, 2019). Taken together, study demographics suggests the Middlesbrough DAT service targeted individuals who may have been most at risk of experiencing a DRD.

Table 2. Case report from individuals who engaged with DAT pilot during its first year of operation in the UK.

Engagement and Retention	
Attendance	97% attended the clinic daily
Attendance	50% had less than three half days in total absence
Attendance	A small minority (20%) accounted for 67% of the 'failures to attend'. Some individuals dropped out and a causal reason for (4 out of 5 individuals) cited by staff was an illicit novel benzodiazepine ('T20') flubromazolam.
Harm reduction	
Toxicology Screens	80% of all urine toxicology screens for street heroin were negative.
Drug related deaths and overdoses	No drug related deaths and only one non-fatal overdose incident
Self-reported hospital visits	A complete cessation in self-reported hospital visits due to wounds or infections associated with injecting street drugs
Psychosocial outcomes	
Engagement with Psychosocial Interventions (PSI's)	100% engagement with non-mandatory psychosocial interventions by month 2 of treatment.
Wellbeing	Short Warwick Edinburgh Mental Wellbeing Scale [SWEMWBS] (Warwick Medical School. 2020). Mean entry level scores (14.1), indicating 'probable depression but increases by 56% to a mean score of 22 by month one, (within the normal bounds of wellbeing scores of the general population)
Wellbeing	Overall, this treatment offer appears to be associated with a mean wellbeing score of 23.7 (indicative of the general population), compared to the entry score of 14.1 (indicative of probable depression), and an increase of 68%.
Housing	Four individuals were rough sleeping on entry, and this reduced to 0 at the end of year 1
Criminal behaviour and associated costs	
Offending career prior to DAT	Mean 'offending career' of 19 years, of over 1092 offences, with a total MOJ (Home Office, 2018) cost of £4,343,700 The total accumulated prison time of this cohort prior to DAT spans over 52 years.
Rate of offences per participant (offences : per individual)	Prior to DAT: 3:1 compared with 1.2:1 during study period.
Number of offences	Year prior to DAT 42 compared to 17 during the study period (-60%)
Total MOJ costs	Year prior to DAT £172,300 compared to £74,500 during the study period (-57%) a reduction of £97,800

There was a high level of engagement from the cohort, particularly considering individuals are required to attend the Middlesbrough DAT Service twice daily. A small majority of individuals accounted for a large majority of ‘failure to attend’. Some individuals dropped out of the Middlesbrough DAT Service, and a common causal factor for 4 out of 5 of these cases cited by delivery staff were changes in the local illicit drug market and the emergence of ‘flubromazolam’ (locally known as ‘T-20’). This substance was tested locally and was found to be an extremely potent novel benzodiazepine. Anecdotal evidence from the Middlesbrough DAT Service delivery staff identified individuals taking this substance whilst engaging with DAT dropped out due to it being unsafe to continue administer DAT or due to missing more than three days of treatment.

The relationship with street heroin was extinguished in the majority (80%) of all toxicology screens taken by all participants during the year. A suggested reduction of the harms of injecting street heroin was observed, there was only one incident of non-fatal overdose and during the pilot individuals self-reported ceasing unplanned hospital visits due to a new wound or infection associated with injecting. Large gains in wellbeing and improvements in secure housing were reported. Prior to the Middlesbrough DAT Service commencing, the cohort were small in number but had large impact in terms of their offending behaviour which was very costly to the public purse. In the year prior to the HAT compared to the year of HAT, there was a substantial reduction in crimes committed in terms of the volume (a reduction of 60%) and the associated costs (-57%), with an associated saving of £97,800 (Home Office, 2018).

Discussion

The findings of this work are novel and provide a small early evidence base in the UK supporting the efficacy of DAT as an applied treatment offer for individuals who fail to benefit from the standard treatment for OD. Individuals who engaged with DAT during its first year of operation in the UK were able to either completely abstain or reduce their street heroin usage, were happier, had started to engage with PSI's, engaged in less crime (which was associated in reduced costs to the Ministry of Justice (MOJ) and had secure accommodation. These benefits were all delivered within the uncertain context of the COVID-19 pandemic. Importantly, consumption of other illicit substances impacted some individuals dropping out of the Middlesbrough DAT Service and the emergence of street tablets such as novel benzodiazepines are a worthy area of future study.

By co-locating DAT within the existing services in Middlesbrough, a population who would traditionally struggle to engage with a single appointment (in some cases even for basic health appointments prior to DAT), were able to engage twice daily. Whilst attending the Middlesbrough DAT Service, our data shows that care provided for other health needs such as infections or wounds associated with injecting street drugs and diverted demand away from emergency health services. These results show that there is clear merit in exploring the impact of DAT over a longer period, with a larger population.

There are some limitations of this work such as the small sample size meaning detailed statistical analysis was not possible and descriptive statistics were used which impacts the confidence in the results. Also, the perspectives and lived experience of this population were not considered due to the limited budget available for this work. Exploring participant and stakeholder experiences and quality of treatment is a crucial step in the evaluation of DAT in OD (Vogel et al, 2017), particularly in the first DAT to be implemented in the UK. These

perspectives are key elements of our current research project, funded by NIHR Applied Research Council North East and North Cumbria (NIHR ARC NENC) which commenced in March 2021. The last author of this paper is the Principal Investigator for the NIHR ARC NENC funded study. Within this new programme of work, qualitative methodologies will explore issues with DAT participants and providers such as poly drug use within the context of DAT. A key strategic aim of this work is identifying areas of continuous improvement to aid the scale up and roll out of DAT in Middlesbrough and beyond.

Political changes in Middlesbrough have resulted in the Middlesbrough DAT service experiencing funding insecurity. Leaving the existence of DAT up to local policy makers will result in these services acting in silos, and very much susceptible to political changes (as happened in May 2021 in Middlesbrough with the election of a new police and crime commissioner, who did not support their financial involvement in the Middlesbrough DAT Service) which in turn results in funding insecurity. This is synonymous to a 'post-code lottery', where the services you can access depend on where you live. Pooling together pilot areas for DAT could, and should, be of strategic importance to the UK considering the worsening outcomes in relation to OD nationwide (Office for National Statistics (ONS), 2021).

Policy makers in the UK should adopt a more proactive approach if DAT is to be rolled out nationally. This will avoid responsibility being placed on individual services to drive agendas forward, given that many are already over-burdened, working with limited resources and budgets. We suggest that this be achieved through measures such as ring-fenced funding and resources, or capacity building. The Home Office have recently announced 'Project Adder' [Addiction, Diversion, Disruption, Enforcement and Recovery] (Home Office, 2021) which is

the government's pathfinder programme combatting drugs misuse, providing funding for four local pilot areas which may be used towards harm reduction interventions such as DAT. However, it can be used on a variety of interventions and is not specifically ringfenced for DAT.

The UK Government have recently published a ten-year plan strategy for drug treatment services (HM Government, 2021). Although the paper committed to a large injection of money into drug treatment services, the paper focused predominantly on recovery-based services and specified nothing on DAT thus leaving it up to commissioners in different areas to implement and fund a DAT service (or not). In stark comparison, the Scottish government announced in May 2021 that additional funding will be available to ensure that DAT services are more widely accessible across the country (Scottish National Party, 2021). Tracking outcomes between England and Scotland in relation to DAT is likely to be a valuable area of comparison for the future.

Conclusion

The implementation of DAT in the UK is a strong case study of innovation in drug treatment which has been generated via a relatively small and localised area developing interventions which meet shared priorities. The Middlesbrough DAT Service is a trailblazer in the UK, showing that not only is it possible to implement and embed a DAT service within an existing service on a limited budget, but that there is strong potential in terms of outcomes and impact for this population.

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