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Opioid substitution treatment in New Zealand: a 40 year perspective

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Abstract

We provide an overview of the history and philosophy of the treatment for opioid dependence, which has been dominated by methadone substitution treatment for the past 40 years in New Zealand. Although changes in approach have occurred over this time, influenced by various sociopolitical events and changing ideologies, opioid substitution treatment has still "not come of age".

It remains undermined by stigma and risk concerns associated with methadone and has struggled to be accessible and attractive to illicit opioid drug users, comprehensive and integrated into mainstream health care. However, the introduction in 2012 of Pharmac-subsidised buprenorphine combined with naloxone (Suboxone) in the context of an emerging trend towards a broader recovery and well-being orientation could signal a new era in treatment.

The availability of buprenorphine-naloxone may also facilitate a further shift in treatment from primarily siloed specialist addiction services to integrated primary care services. This shift will help reduce stigma, promote patient self-management and community integration and align opioid substitution treatment with treatment for other chronic health conditions such as diabetes and asthma.

Opioid substitution treatment (OST) was pioneered in the 1960s by Drs Vincent Dole and Marie Nyswander through providing a maintenance dose between 80–120mg of the mu opioid receptor agonist medication, methadone. Their results were so startling they termed heroin addiction, a "metabolic disease", to emphasise the effectiveness of a blockading dose of an opioid substitution medicine in combination with psycho-social rehabilitation. In so doing, they made the point that addiction is best considered a medical rather than moral issue.[1]

Subsequent randomised controlled trials and outcome studies confirmed the effectiveness of OST in reducing injecting opioid use, mortality, criminal offending and improving health and general functioning.[2] However, studies have also shown that variability in engagement and retention rates (indicators of effective treatment) and patient outcomes are influenced by stigma and misperceptions associated with methadone treatment.[3]

Furthermore, that service related factors influence patient outcomes.[4] These include adequacy of methadone dose, leadership and philosophical approach, how restrictive treatment policies are, staff stability and attitudes and the quality of staff/patient relationships.

Opioid substitution treatment was introduced into New Zealand in the early 1970s by psychiatrists Dr Fraser McDonald in Auckland and Dr John Dobson in Christchurch.

The first national Methadone Conference was held in 1979 in Palmerston North which initiated a Ministerial Drugs Advisory Committee (DAC). The DAC, under the chairmanship of John Hannifin, subsequently led to the development of methadone treatment programmes throughout New Zealand and the publishing of a National Protocol in 1992.[5]

The first 20 years of opioid substitution treatment in New Zealand

During the first 20 years of OST in New Zealand five different perspectives influenced methadone treatment trends and tensions in service delivery.[6]

Firstly, Dole & Nyswander's model implied that opioid dependence was a chronic medical condition. It was thought that the person could very well stay on the medication for many years or for as long as he or she was benefiting from the treatment, if not for life, similar to prescribed insulin for a patient with diabetes.

In direct contrast to this approach was an abstinence model with an associated catch-cry that "methadone treatment is like giving gin to an alcoholic". This moralistic perspective significantly impacted on both the dose and the duration of treatment. There was an expectation of prescribing lower and often sub-therapeutic doses of methadone and shorter versus longer term treatment.

Clinicians became more narrowly focused on the patient's substance use in contrast to taking a broader health and functioning perspective. Rather than positive reinforcement for an individual's achievements, a more protocolised approach was taken with negative sanctions for illicit substance use that included use of opioid and non-opioid substances. Sanctions included limiting takeaway doses and even involuntary discharge if urine samples were found to be "dirty".

These two opposing positions were then challenged by the appearance of the HIV/AIDS epidemic in the early 1980s which jolted the OST sector into a new paradigm. The primary goal of "harm reduction" was to reduce the spread of HIV through recruiting injecting opioid drug users into methadone treatment and retaining them in treatment. This goal justified a more pragmatic approach; allowing a more flexible admission policy and methadone dosing regime, greater acknowledgement of the reality of relapse and other substance use as well as a broader outreach orientation incorporating the introduction of needle exchange programmes in 1987.[7]

Two further developments facilitated a more comprehensive, individualised approach to opioid dependent patients that brought treatment into line with normal medical approaches to other chronic relapsing disorders. The first was the recognition that many patients with opioid dependence had co-occurring psychiatric conditions which required consideration when formulating treatment responses and highlighted the need for specialised training for OST staff. The second was the development of serum methadone concentration technology, which assisted clinicians in optimising the methadone dose for individual patients.

With these developments in the first 20 years of methadone treatment in New Zealand, it was felt that by the mid-1990s the stage had been set for "the coming of age" of methadone treatment in New Zealand.[6]

Has opioid substitution treatment "come of age" in this second 20 years?

What has happened over this second 20 years? Is treatment more readily available? Is treatment more effective now? Is treatment of a higher standard of quality; flexible and responsive to the needs of patients? Is treatment less stigmatised and more accepted as part of normal medical practice? These were the key questions driving three Ministry of Health commissioned reviews of OST undertaken by the National Addiction Centre (NAC) (formerly known as the National Centre for Treatment Development) in 1996, 2001 and 2008 respectively.

Estimated need for treatment and service delivery options

At the end of 1992 there were 1340 people receiving OST in New Zealand[8] and this number nearly tripled over the next 4 years (see Table 1).

Table 1. The number of opioid substitution treatment (OST) patients in New Zealand and percentage in primary care over the past 20 years

Year	OST patient number	% primary care
1992	1340	not known
1995	2500	not known
1996	3774	20
2008	4608	25
2012	5018	29

In the light of growing concerns about the potential numbers of people with opioid dependence seeking treatment, coupled with the need for cost-effective treatment services, the NAC was commissioned to estimate the current and projected need for methadone treatment services for opioid dependence and identify a range of service delivery options.[8]

The number of people using opioids regularly (not necessarily daily or almost daily) in New Zealand was estimated, via an indirect extrapolation of international data, to be possibly as high as 20,000. Only 2500 were receiving methadone treatment at the time and the gap between treatment need and treatment provision was reflected in the presence of waiting lists for the first time.

The cost of treatment for one opioid dependent person for 1 year was estimated to be $4400, comparing favourably with the $50,000+ cost of incarceration in a New Zealand prison at that time, or the $60,000 required to maintain an opioid dependence, almost all by illegal activity.[9]

Five models of service provision were developed and analysed and a preferred option was recommended on the basis of cost, quality, and future sustainability. This model combined general practitioner (GP) and specialist service care in an "integrated model". It was recommended that following stabilisation at a specialist service 80% of opioid dependent patients would receive continuing treatment by GPs in primary care settings and the remaining 20% with more complex needs would be managed by the specialist services.

It was also recommended that an increase of at least 2000 methadone treatment places nationally be funded as soon as possible. However, due to concerns raised by both the primary care and specialist service sectors about the competence and willingness of GPs to take on the proposed continuing care component, the Ministry of Health (MOH) subsequently revised the recommended proportions of 80/20 to an aspirational goal of a 50/50 split between the two sectors.

Interim prescribing

In September 1996 there was an increase to 3774 patients receiving methadone treatment in New Zealand (see Table 1), with numbers being strictly controlled through service contracts. Due to concern about rising waiting lists in most regions throughout New Zealand, particularly in the South Island, the NAC was commissioned by the MOH to examine this problem, focusing on the South Island programmes.[10]

The main finding in this 2001 report was a waiting time of around nine months for most of the methadone treatment programmes in the South Island. It was considered that the official number of people waiting was an underestimate of the true number because the length of the waiting list deterred opioid dependent people from presenting for assessment.

It was suggested at the time "…that continuing this intolerable situation is analogous to maintaining a nine-month waiting list for acute tuberculosis, a similarly life-threatening, personally and socially damaging and infectious disorder" (pg. 21) and that an immediate goal should be to reduce waiting list times to less than one month.

In the absence of any new funding, recommendations from this review included the option of interim, low intensity methadone treatment for patients on regional waiting lists through their GP on authorisation from the regional specialist drug service together with the development of an interim methadone prescribing protocol. This clinical strategy was in accord with a highly successful randomised controlled trial conducted a decade earlier.[11]

The trial demonstrated that methadone prescribing in a three-month low intensity interim programme significantly decreased intravenous heroin use during this time and also increased retention when patients were transferred to the methadone treatment programme, compared with being on a routine waiting list which included counselling.

In 2003, Dr Alistair Dunn, a Whangarei GP and addiction medicine specialist working on a sessional basis at the Northland regional specialist service conducted a pilot study to assess the feasibility and effectiveness of providing interim methadone by a GP within a primary care setting. This initial pilot comprised prescribing up to 60mg of methadone to eight consenting opioid dependent patients on the Northland specialist service waiting list.

Considerable improvements were found in both drug use and general functioning at three months.[12] At least five further interim methadone pilot projects were undertaken in different localities over the next 2 years; in Whanganui, Palmerston North, Nelson, Christchurch and Dunedin.

The results and experiences of each of these pilots, including the initial Whangarei study, were presented at a one-day conference on interim methadone prescribing in December 2005 in Wellington. No deaths and no critical incidents had occurred and all six presenters were positive about the outcomes observed in each locality. The meeting concluded with a call for interim methadone prescribing to be formally endorsed and standardised in a national protocol. Eighteen months later a formal MOH guideline was published.[13]

This guideline was strengthened by the publication of a second high-quality randomised controlled trial of interim methadone prescribing [14] showing very similar results to the original Yancovitz study. The MOH guideline included a directive that when there is a longer than two-week waiting list, patients with established opioid dependence be given the choice of undertaking an interim methadone-prescribing programme, ideally by the patient's own GP, up to a maximum of 60mg.

Unfortunately, this guideline was not enacted by all district health board specialist services and waiting lists of much longer than 2 weeks for methadone treatment in New Zealand continued in many regions.[15]

Continuing concerns

Continuing concerns about the treatment of opioid dependence led to a third MOH commissioned report from the NAC.[15] The main questions related to the prevalence of opioid dependence (including within prisons) and the numbers being treated with OST (including those in prison and in primary care), continuing waiting lists and potential barriers to people gaining the treatment they want.

A more direct methodology of estimating prevalence was employed compared with that used in 1996. Data were obtained directly from 97 opioid drug users recruited via OST and needle exchange services in Auckland and Christchurch and a smaller provincial city, Tauranga, through interviews conducted by trained and supervised peer research assistants.

The number of people in New Zealand with opioid dependence, which would only include people who are using illicit opioids daily or almost daily (those receiving OST and those not currently in treatment), was estimated as 9953 (95%CI 8,940–10,967).[16]

The number of OST patients was found to be 4608 (Table 1) including 87 in prison. A quarter (25%) were being prescribed by general practitioners, still well below the 50% MOH target.

The estimated waiting time for admission to treatment varied considerably from 2-290 days with a median of 30 days (mean 90.3 days). The waiting time guideline of less than 2 weeks was met in less than a third of programmes and only 46 patients had been treated with interim prescribing in the previous 12 months.

Continuing concerns expressed by a number of services about interim prescribing included that it was less than ideal treatment and providing interim prescribing could mask the need for increased specialist OST resources.

It was also discovered that the size of waiting lists was obscured in some services by a new category of "not ready", meaning not ready to be put on an OST waiting list because of other substance use in addition to opioid drug use, the presence of criminal

charges, or inability or unwillingness of people to meet lengthy or perceived unrealistic assessment requirements. This was despite the foreword to the 2003 Opioid Substitution Treatment Practice Guidelines[17] highlighting that "…opioid substitution treatment will be more successful when services are accessible, entry is prompt…" (pg. III).

The most important finding from this study was the perceived barriers to receiving OST where there was a consensus between the opioid dependent study participants and the specialist service providers.[18] The presence of waiting lists was listed in the top four perceived barriers. The other three were: restricted takeaways; being tied to staying in one place; and having to go to a chemist every/most days. These latter three are components of what has long been referred to by patients as "liquid handcuffs" referring to restrictions on daily life including, for some, gaining or maintaining employment.

Also of concern to many patients were the "judgement and stigma" associated with receiving methadone treatment, negative staff attitudes and an overly restrictive and paternalistic approach. Almost all services reported staffing resource issues and barriers to the transfer of stable patients to primary care which were perceived to be related to costs for patients, unavailability of GPs, GPs unwillingness to provide OST, lack of training and patients not yet ready for transfer.

Key recommendations from this report centred on strategies to increase accessibility and attractiveness of OST to people with opioid dependence; the provision of interim methadone and the subsidising by Pharmac of buprenorphine, a partial mu opioid receptor agonist shown to be an effective OST medication[19] as an alternative opioid substitute medication; active involvement of consumers at all levels of OST, establishment of peer support worker roles; bringing about a culture change in at least some specialist services and a review of staff attitudes and professional development needs.

Subsequent developments

In the subsequent 4 years, waiting lists continued to fluctuate and to be of concern in some regions. The number of patients receiving OST increased to over 5000 and the percentage of patients receiving continuing care in primary care increased by 4% up to 29% (see Table 1), still considerably short of the 50% MOH target. Also during this time two other potential influences emerged.

Firstly, the concept of "recovery" entered the New Zealand OST treatment discourse and policy guidelines[20,21] reflecting overseas trends in the US[22] and the UK.[23,24] Acknowledging the continuing place of harm reduction and the debate about the definition of "recovery", concerns about OST that have emerged in overseas debate are of relevance to the New Zealand setting. These include a narrow focus on substance use and a lack of responsiveness to the broader healthcare needs of patients, particularly those of older patients, and services not taking opportunities to motivate and support patients to develop longer term recovery plans that address well-being and community integration.[24] Such an approach requires more than retention in treatment and the prescribing of a medication. It also requires a shift in patient status from passive recipient of care to active participant, consistent with a chronic care self-management approach.

Secondly, buprenorphine became subsidised by Pharmac in July 2012 and provided an alternative OST medication to methadone. A legitimate concern of specialist services has been the safety profile of methadone and concerns about overdose and diversion. The principal advantages of buprenorphine (administered as a sublingual tablet) over methadone is that as a partial mu agonist (and kappa antagonist) it has a ceiling effect beyond which dose increases prolong its duration of action without further increasing its agonist effect, thereby reducing potential risk of overdose.[19]

To deter injecting and diversion, buprenorphine is combined with naloxone, a narcotic antagonist (Suboxone). While naloxone is poorly absorbed sublingually, it is activated by injection resulting in an unpleasant precipitated withdrawal. Buprenorphine-naloxone has also not been found to be associated with clinically significant QT-interval prolongation.[25]

While a proportion of patients may prefer the less "dense" effect of buprenorphine, others will prefer the full agonist effect of methadone. This alternative medication now offers people with opioid dependence a choice of medications, is less associated with stigma compared to methadone and does not necessarily require daily administration, improving cost-effectiveness and reducing the negative "liquid handcuffs" experience associated with methadone.[26]

The higher safety profile of buprenorphine-naloxone relative to methadone is likely to promote a higher proportion of patients receiving OST treatment within routine primary care settings.[27]

Concluding comments

While gains have been made, the response to the questions: Is treatment more readily available? Is treatment more effective now? Is treatment of a higher standard of quality; flexible and responsive to the needs of patients? Is treatment less stigmatised and more accepted as part of normal medical practice? Is that there is still much more to be achieved? Taking into account the reported change in method of estimating prevalence of opioid dependence we don't consider the actual number of people with opioid dependence has reduced.

A review of the past 40 years of OST in New Zealand shows an initial rapid rise in OST with a far more modest increase over the past 10–15 years, despite significant levels of unmet need. Unmet need is reflected in the number of people waiting for treatment, those deemed "not ready" for treatment, those who don't seek or engage in treatment because of the associated stigma and those who perceive OST to be too restrictive to be an attractive or viable treatment option.

It is important to emphasise that New Zealand studies have quantified the significant community cost of untreated opioid dependence[9] and demonstrated that cost-effectiveness of OST and treatment for hepatitis C could be improved by reducing barriers to entry to OST and engaging opioid dependent individuals in treatment at an earlier age.[28]

Improving the quality of OST requires a continuing harm reduction approach as well as the promotion of a broader person-centred recovery and wellbeing approach. This direction is reflected in the revised 2014 OST Practice Guidelines[-21] and is supported by the National Association of Opioid Treatment Providers.

There has been some progress toward an integrated specialist service and primary care model proposed over 16 years ago but the proportion of patients receiving continuing treatment in primary care settings remains substantially short of the MOH target of 50%. There is also still some way to go towards achieving a greater willingness by GPs to provide continuing OST, considered in part to be influenced by stigma, risk concerns and misperceptions associated with methadone treatment and the patient group. These factors all point to the need for renewed efforts to achieve a paradigm shift in OST delivery in New Zealand and a true "coming of age" of the treatment.

The availability of the alternative combined buprenorphine-naloxone medication in conjunction with a broader recovery and wellbeing treatment orientation has the potential to catalyse a new era in OST provision. This new era would be characterised by reduced stigma, increased accessibility and treatment responsiveness, choice of medication, adjunctive interventions, greater treatment integration with mainstream health services and a focus on patient self-management and community integration consistent with treatment for other chronic health conditions.

Such change will require a concerted and sustained effort to advance the quality of OST provision in New Zealand.

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References:

1. Dole VP, Nyswander ME. Heroin addiction – a metabolic disease. Arch Intern Med. 1967;120:19-24.
2. Ward J, Hall W, Mattick RP. Role of maintenance treatment in opioid dependence [seminar]. Lancet 1999;353:221-6.
3. Joseph H, Stancliff S, Langrod J. Methadone maintenance treatment (MMT): A review of historical and clinical issues. Mt Sinai J Med. 2000;67:347-64.
4. Ball JC, Ross A. The effectiveness of methadone maintenance treatment: patients, programmes, services, and outcomes, Springer-Verlag, New York; 1991.
5. Drugs Advisory Committee. National protocol for methadone programmes in New Zealand. Department of Health, New Zealand; 1992.
6. Sellman D, Deering D, Robinson G. Methadone maintenance treatment: coming of age in New Zealand. N Z Med J.1995;108:128-130.
7. Kemp R, Aitken C. The development of New Zealand's needle and syringe exchange programme. International Journal of Drug Policy. 2004;15:202-206.
8. Sellman JD, Hannifin J, Deering D, Borren P. Delivery of treatment for people with opioid dependence in New Zealand: Options and recommendations. A commissioned paper for the Ministry of Health, New Zealand; 1996.

9. Adamson SJ, Sellman JD. The pattern of intravenous drug use and associated criminal activity in patients on a methadone treatment waiting list. Drug and Alcohol Review. 1998;17:159-166.
10. Sellman JD, Harvey M, Deering DE. South Island methadone project report. National Centre for Treatment Development (Alcohol, Drugs & Addiction), New Zealand; 2001. http://www.addiction.org.nz/
11. Yancovitz SR, Des Jarlais DC, Peyser NP, et al. A randomized trial of an interim methadone maintenance clinic. Am J Public Health.1991;81:1185-1191.
12. Dunn A. Minimal methadone treatment. In Adamson SL & Sellman JD (eds). New Zealand Treatment Research Monograph, Alcohol, Drugs and Addiction. Research Proceedings from the Cutting Edge Conference, September; 2003: 19-22. http://www.addiction.org.nz
13. Ministry of Health. National Guidelines: Interim methadone prescribing. Ministry of Health, New Zealand; 2007. http://www.moh.govt.nz/notebook/nbbooks.nsf/0/e0a6451c94e761fdcc257321006bde52/$FILE/national-guidelines-interim-methadone-prescribing.pdf
14. Schwartz RP, Highfield DA, Jaffe JH, et al. A randomized controlled trial of interim methadone maintenance. Arch Gen Psychiatry. 2006;63:102-09.
15. Deering D, Sellman D, Adamson S, Campbell S, et al. Intravenous opioid dependence in New Zealand. A report for the Ministry of Health. National Addiction Centre, University of Otago, Christchurch; 2008. URL: http://www.addiction.org.nz/
16. Adamson SJ, Deering DEA, Sellman JD, et al. An estimation of the prevalence of opioid dependence in New Zealand. International Journal of Drug Policy. 2012;23(1):87-89.
17. Ministry of Health. Opioid substitution treatment: New Zealand practice guidelines. Wellington: Ministry of Health, New Zealand; 2003.
18. Deering DEA, Sheridan J, Sellman JD, et al. Consumer and treatment provider perspectives on reducing barriers to opioid contribution substitution treatment and improving treatment attractiveness. Addict Behav. 2011;36:636-642.
19. Mattick RP, Kimber J, Breen C, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. Cochrane Database of Systematic Reviews 2008, Issue 2. Art.No.: CD002207. DOI: 10.1002/14651858.CD002207.pub3. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002207.pub3/abstract;jsessionid=BD30BE3EE554D74AD8689B02209DB880.f01t03
20. Ministry of Health. Practice guidelines for opioid substitution treatment in New Zealand. Ministry of Health, New Zealand; 2008. http://www.moh.govt.nz/notebook/nbbooks.nsf/0/8CCCFFAE0483A1ABCC257543006FEF58/$file/opioid-guidelines-dec08.pdf
21. Ministry of Health. Practice guidelines for opioid substitution treatment in New Zealand. Ministry of Health, New Zealand; 2014. http://www.health.govt.nz/system/files/documents/publications/nz-practice-guidelines-opioid-substitution-treatment-apr14.pdf
22. White W, Torres L. Recovery-oriented methadone maintenance. Chicago, IL: Great Lakes Addiction Technology Transfer Center, Philadelphia Department of Behavioral Health and Mental Retardation Services and Northeast Addiction Technology Transfer Center; 2010. http://www.atforum.com/addiction-resources/documents/Recovery.pdf
23. Duke K, Herring R, Thickett A, Thom B. Substitution treatment in the era of "recovery": An analysis of stakeholder roles and policy windows in Britain. Subst Use Misuse. 2013;48:966-976.
24. National Treatment Agency for Substance Misuse. Medications in recovery. Re-orientating drug dependence treatment. National Treatment Agency for Substance Misuse; 2012. http://www.nta.nhs.uk/uploads/medications-in-recovery-main-report3.pdf
25. Wedam EF, Bigelow EG, Johnson RE, et al. QT-interval effects of methadone, levomethadyl, and buprenorphine in a randomized trial. Arch Intern Med. 2007 Dec10;167(22):2469-75.

26. Bell J, Shanahan M, Mutch C, et al. A randomised trial of effectiveness and cost-effectiveness of observed versus unobserved administration of buprenorphine-naloxone for heroin dependence. Addiction 2007 Dec; 102(12):1899-907.
27. Mintzer IL, Eisenberg M, Terra M, et al. Treating opioid addiction with buprenorphine-naloxone in community-based primary care settings. Ann Fam Med. 2007;Mar-April,5(2):146-50.
28. Sheerin IG, Green F T, Sellman JD. What is the cost-effectiveness of hepatitis C treatment for injecting drug users on methadone maintenance in New Zealand? Drug Alcohol Rev. 2004;23:261-272.