



Full length article

Patterns of physician prescribing for opioid maintenance treatment in Ontario, Canada in 2014



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ABSTRACT

Background: Despite concerns surrounding high patient volumes in methadone clinics, little is known about the practice patterns of opioid maintenance therapy (OMT) providers in Ontario. We examined the distribution of these services and how physician characteristics differ based on prescribing volume.

Methods: We conducted a cross-sectional study among prescribers of methadone or buprenorphine to Ontario public drug beneficiaries in 2014 by stratifying physicians into low- (lower 50%), moderate- (51–89%) and high-volume (top 10%) prescribers. We summarized the distribution of OMT prescription days dispensed and urine drug screens (UDS) ordered using Lorenz curves and examined physician characteristics using descriptive statistics.

Results: We identified 893 OMT prescribers in 2014. Physicians were mostly male (67.5%; N = 603), and middle-aged (median was 50). High-volume methadone providers (N = 57) prescribed approximately 56% (N = 4,115,322) of the total days of methadone (Gini coefficient = 0.76, 95% CI 0.74–0.79) while high-volume buprenorphine providers (N = 64) prescribed 61% (N = 589,463) of the total days of buprenorphine (Gini coefficient = 0.78, 95% CI 0.75–0.80). On average, each high-volume methadone prescriber treated 435 OMT patients and billed 43 UDS per patient, while each high-volume buprenorphine prescriber treated 64 OMT patients and billed 22 UDS per patient. Daily OMT patient volume was on average 74 for high-volume methadone prescribers and 6 for high-volume buprenorphine prescribers.

Conclusions: OMT services are highly concentrated among a small portion of OMT providers who carry high daily patient volumes. Future research should examine the quality of primary care received by their patients to better elucidate the possible consequences of this highly unequal distribution of services.

1. Introduction

Opioid maintenance treatment (OMT) has been shown to improve patients' physiological, psychological, and social functioning (Bagley et al., 2014; Carrieri et al., 2006) and is currently recommended as the first-line treatment for opioid use disorder in clinical guidelines in North America and various jurisdictions around the world (Handford et al., 2011; National Institute for Health and Care Excellence, 2007; Substance Abuse and Mental Health Services Administration, 2015; The College of Physicians and Surgeons of Ontario, 2011). With continued

daily therapy, OMT also helps patients develop a more stable lifestyle that may lead to improved relationships and the ability to maintain long-term employment (Carrieri et al., 2006; Vavrinková and Binder, 2007). While studies have shown a lower quality of life and potential impairment when driving in people using OMT when compared to healthy controls (Karow et al., 2011; Strand et al., 2013), numerous controlled trials and observational studies have demonstrated OMT's effectiveness relative to no treatment or psychosocial treatment only (Mattick et al., 2003, 2014, 2009; Srivastava et al., 2017). Abstinence-based treatment is an alternative to OMT, however it is often only

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recommended for patients with a high recovery prognosis as it is associated with higher rates of relapse and mortality than OMT (Dunlap and Cifu, 2016; Nielsen et al., 2016; Srivastava et al., 2017). Two of the most common pharmacotherapies for OMT are methadone and buprenorphine. Both medications are synthetic opioid agonists that aid in the prevention of opioid withdrawal, cravings, and can block the euphoric effect of other opioids (The College of Physicians and Surgeons of Ontario, 2011). Methadone and buprenorphine are of comparable effectiveness, but buprenorphine, as a partial opioid agonist, has a far lower risk of overdose than methadone (Mattick et al., 2014; Veilleux et al., 2010).

In Canada, strict requirements are placed on the provision of methadone that result in a limited number of physicians available to provide this service. Licensed physicians who wish to prescribe methadone must acquire an additional federal exemption under the Controlled Drugs and Substances Act. This is provided to physicians who complete specialized clinical and course-based training (Centre for Addiction and Mental Health, 2008). Although the prescription of buprenorphine in Ontario does not require a federal exemption, its use for OMT is much lower in this province when compared to methadone. Buprenorphine was listed as “limited use” on the public drug formulary until 2016, which restricted access to patients who were unable to use methadone for OMT due to pharmacological contraindications or because they resided in areas where a methadone maintenance program was not readily accessible (Mamakwa et al., 2017; Ministry of Health and Long-Term Care, 2016a). In 2016, buprenorphine was listed as a general benefit on the formulary, allowing broad access to this drug. Both methadone and buprenorphine are usually dispensed daily under the supervision of a pharmacist and once urine drug screens (UDS) indicate that the patient has stopped using concurrent opioids, the physician may begin to prescribe take-home doses. However, patients tend to achieve take-home doses much earlier when on buprenorphine due to less stringent prescribing regulations. In Ontario, OMT is available primarily in specialized private and government funded clinics; however, it is also available from individual physicians who acquire the federal exemption and who provide OMT as a part of a general primary care practice (Luce and Strike, 2011).

OMT prescribing regulations in the United States of America, Australia, Italy, and Germany are very similar to that in Ontario. All providers of methadone must be specially trained and certified by local regulating bodies and buprenorphine prescribing tends to be subject to less stringent guidelines (Bourkaib et al., 2014; Carrieri et al., 2006; Korhuis et al., 2017). In contrast, OMT provision in France is much less regulated since all licensed physicians may prescribe OMT as a part of their general practice without supplementary training (Carrieri et al., 2006; Fatseas and Auriacombe, 2007). Furthermore, while most jurisdictions around the world have primarily used methadone in OMT, buprenorphine has been the first-line therapy in France since the early 1990's (Fatseas and Auriacombe, 2007).

Due to an increase in the prevalence of opioid use disorder and the subsequent demand for OMT, the government of Ontario introduced financial incentives in 2011 for physicians to provide OMT (Fischer et al., 2016). In response, family physicians set up clinics that solely provide OMT (Luce and Strike, 2011). In these clinics, patients are provided with physician assessments, UDS testing, addictions counseling and daily doses of methadone or buprenorphine. While these clinics have helped thousands of people who use opioids, they have also generated controversy regarding their high patient volumes and frequent UDS billings, which has called into question the quality of care provided to this vulnerable population of patients. A government task force noted in 2007 that frequent UDS and office visits can interfere with patients' work and family responsibilities (Hart, 2007), and thus decreases the patients' quality of life. Regular UDS testing is not a requirement in the French model of OMT provision (Carrieri et al., 2006; Fatseas and Auriacombe, 2007), further suggesting that frequent UDS billings may not be necessary for all patients. In 2015, the Ontario

Ministry of Health reduced the fee paid to physicians for performing urine drug screens (Cressy, 2016), an action that prompted some OMT physicians to close their clinics (Church, 2015). This likely placed patients at risk for relapse and overdose if they were unable to find another provider of OMT within an already limited pool of physicians who prescribe methadone or buprenorphine.

Currently, little is known about Ontario's OMT prescribers and their practice patterns despite these controversies. Due to the growing population of patients with opioid use disorder in Ontario and the restrictions placed on OMT prescribing, we hypothesized that OMT services are provided primarily by a small group of physicians in Ontario who care for a high daily volume of patients and order frequent UDS. We undertook a study to examine concentration of OMT services, the characteristics of physicians prescribing OMT, and to determine the frequency of patient visits and urine drug screens.

2. Materials and methods

2.1. Setting

We conducted a population-based, cross-sectional study among physicians who prescribed methadone or buprenorphine to Ontario residents eligible for public drug coverage between January 1, 2014 and December 31, 2014. These patients have universal access to hospital services, physician care, and prescription drug coverage. Eligibility criteria for public drug coverage includes receipt of social assistance, residence in a long-term care home, receipt of home care services, high drug costs relative to net household income, or being aged ≥ 65 years. This project was approved by the Research Ethics Board of Sunnybrook Health Sciences Centre, Toronto, Ontario.

2.2. Data sources

We used administrative healthcare databases housed at the Institute for Clinical Evaluative Sciences (ICES) in Toronto, Ontario to carry out this study. We identified methadone and buprenorphine prescriptions using the Ontario Drug Benefit (ODB) claims database, which captures all medications dispensed to ODB-eligible patients with an error rate of $< 1\%$ (Levy et al., 2003). We used the Ontario Health Insurance Plan (OHIP) claims database to identify records of physician services billed over the study period, and the ICES Physician Database to determine physician demographics. These datasets were linked using unique, encoded identifiers, and are routinely used for studies examining healthcare services utilization (Dhalla et al., 2011; Durbin et al., 2015; Kiran et al., 2014).

2.3. Identification of the cohort

We established a cohort of all Ontario physicians who prescribed methadone or buprenorphine for OMT to ODB-eligible patients in 2014. Those who prescribed a total of less than seven days' supply of methadone or buprenorphine to only one patient throughout the year were excluded, as these physicians are one-time providers and do not represent regular providers of OMT.

2.4. Distribution of OMT and urine drug screens (UDS) among physicians in Ontario

Our primary outcome of interest was the total days' supply of methadone and buprenorphine dispensed over the one-year study period by eligible physicians. Since methadone dispensing is recorded daily in the ODB claims database, the number of days of methadone dispensed was calculated as the sum of all methadone claims made over the study period. In contrast, several days' supply of buprenorphine may be dispensed at one time therefore the total days of buprenorphine prescribed was calculated as the sum of the days' supply of all buprenorphine

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