

# Non-medical prescription opioid use, prescription opioid-related harms and public health in Canada: An update 5 years later

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## ABSTRACT

Five years ago, we highlighted Canada's emerging problem of prescription opioid (PO)-related harms and emphasized the need for targeted surveillance, research and interventions. Overall levels of PO use in the Canadian population have grown by 70% since then, while at the same time levels of non-medical PO use (NMPOU) in general and in key risk populations have continued to be high; furthermore, PO-related harms – specifically morbidity (e.g., treatment admissions) and mortality (e.g., overdose deaths) – have risen substantively. Unfortunately, major knowledge gaps related to systematic monitoring of PO-related harms continue to exist; for example, no national morbidity or mortality statistics are available. Investigator-driven research has generated important insights into the epidemiology and impacts of PO-related harms: high correlations between population-level PO dispensing and/or PO dosing and harms; high rates of co-occurrence of NMPOU and co-morbidities; and distinct NMPOU-related risk dynamics among street drug users. Select policy measures have been implemented only recently at the federal and provincial levels; these interventions remain to be systematically evaluated, especially given preliminary indications of reductions in PO-related harms (e.g., NMPOU) unfolding prior to the interventions. For these purposes, improvements in surveillance tools and research resources devoted to the extensive public health problem of PO-related harms in Canada continue to be urgently needed.

**KEY WORDS:** Prescription opioids; non-medical use; harms; public health; surveillance; policy; Canada

La traduction du résumé se trouve à la fin de l'article.

*Can J Public Health* 2014;105(2):e146-e149.

Five years ago,<sup>1</sup> several authors of the current paper published a commentary in this journal characterizing the emerging problem of non-medical prescription opioid use (NMPOU) and PO-related harms in Canada, and identifying crucial knowledge and intervention gaps, with particular relevance for public health. Half a decade later, it appears opportune to present a brief audit of the state of affairs and key developments since then on three fronts, namely: 1) key problem parameters, 2) key information gaps, and 3) interventions.

Compared with data presented in 2008, the problem of NMPOU has remained extensive; moreover, based on the data available, important harm outcomes in Canada have substantially increased. It ought to be noted, first, that annual PO consumption has almost doubled in Canada, from 16,628 defined daily doses (DDD) in 2004-2006 to 28,731 in 2009-2011, a steeper increase than in the United States, the country with the world's highest level of PO use.<sup>2</sup> In Ontario, 6% of the adult population reported NMPOU (use in the past year) in 2010-2011, more than any illicit drug except cannabis; this rate is considerably higher among high-school students (15%-20%) as assessed by several recent surveys.<sup>3,4</sup> Among street drug users, NMPOU remains highly prevalent,<sup>5</sup> and key marginalized populations (e.g., First Nations or populations in correctional facilities) have demonstrated similarly high levels.<sup>6</sup> PO-related morbidity and mortality outcomes have increased substantially. In Ontario, annual PO-related admissions to publicly funded centres for substance use treatment have doubled, from

10,564 in 2005-2006 to 21,448 in 2011-2012, and in the latter year constituted the third largest admissions category following alcohol, tobacco and cannabis.<sup>7</sup> These numbers do not include admissions for opioid maintenance treatment, which have increased considerably because of problematic PO use.<sup>6</sup> Similarly, opioid-related deaths in Ontario – virtually all of which (i.e., >90%) are PO-related – have almost tripled, from 187 in 2006 to 535 in 2011, accounting for higher death rates than all other illicit drugs combined and representing rates similar to those of motor vehicle accidents.<sup>8,9</sup>

The epidemiology of PO-related harms is mostly limited to Ontario-based indicator data, which are largely absent for the majority of other provinces. We commented in 2008 that key national PO-related problem indicator data would be needed for

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**Acknowledgements:** Benedikt Fischer and Jürgen Rehm acknowledge Canadian Institutes of Health Research (CIHR) grants SAF-94814 and GIR-109852. Benedikt Fischer also acknowledges salary and research support from a CIHR/Public Health Agency of Canada Applied Public Health Research Chair.

**Conflict of Interest:** None to declare.

improved monitoring and surveillance. Unfortunately, little has materially changed or improved on this front. While the Canadian Alcohol and Drug Use Survey started to include PO-related questions in 2008, these items have used varying definitions with limited comparability with other surveys, e.g., the CAMH Monitor or the National Survey on Drug Use and Health in the US, and have not been analyzed regularly; this precludes (for exceptions, see Shield et al.<sup>10</sup>) systematic monitoring.<sup>11-13</sup> Segments of PO-related morbidity or mortality data are sporadically available from other provinces, but national PO-related morbidity or mortality surveillance data – as are routinely accessible in the US and collected in Canada for other public health relevant diseases (e.g., cancer, HIV/AIDS) – are not currently available.<sup>14,15</sup> Consequently, basic counts or trend analyses of the number of PO-related deaths in Canada remain unavailable, and cross-provincial analyses of differences in or possible determinants of PO-related mortality on a population level are impossible.

The issue of PO sourcing for NMPOU constitutes a further key knowledge gap. Although it is well established that sourcing involves a fairly large heterogeneity of pathways, a large proportion occurring by way of “informal sourcing” such as through family or friends, a comprehensive picture of mechanisms for NMPOU sourcing in Canada does not exist.<sup>9,16</sup> Similarly, there are vast knowledge gaps with regard to evidence-based treatment practice for those presenting with PO-dependence. The vast majority of PO-dependent patients are initiated on opioid maintenance treatment, a treatment mainly developed for heroin-dependent patients, as a first line of treatment, despite the fact that these populations may differ considerably in key clinical characteristics and might benefit from other, more appropriate or cost-effective, treatment modes.<sup>17-19</sup> Unfortunately, there are very few data, and close to none generated in Canada, to inform evidence-based treatment for PO-dependent patients. As well, despite the substantive increase in PO-related treatment demand (as evidenced in Ontario for some time), there appears to be only beginning recognition of such increasing needs, and it is not clear how effectively this is being translated into relevant treatment resource planning or allocation.<sup>20,21</sup>

There have been some important, largely investigator-driven, advances in knowledge of the key features and determinants of PO-related problems and harms in Canada. For example, both quantitative (i.e., in DDD) and qualitative (i.e., different PO formulations) PO-dispensing patterns have been found to differ substantively across Canadian provinces.<sup>22</sup> Confirming similar results from several US studies, studies focusing on Ontario and British Columbia have found that PO-dispensing levels are strongly correlated with PO-related harms, i.e., mortality and morbidity (e.g., treatment demand), on a population level.<sup>6,23,24</sup> Specifically in Ontario, oxycodone has been associated with the single-largest proportion of opioid-related mortality by opioid formulation. PO-related deaths, however, are not limited to “non-medical” users but, rather, commonly occur among users holding legitimate prescriptions and frequently co-involve other psychoactive drug use (e.g., sedatives: alcohol or benzodiazepines).<sup>9,25</sup> In addition, PO-related mortality has been observed to be strongly associated with high-dose prescriptions of POs, which have been found to be frequently issued in Ontario.<sup>23,26</sup> Several reviews have established disproportionately high co-morbidity levels of pain and mental health problems (especially depression) in NMPOU (treatment and

non-treatment) populations.<sup>27-29</sup> While NMPOU among street drug users has been purported to be associated with potentially less risk-taking, recent data from Montreal have documented street-involved PO users to be involved in distinct forms of risky injection behaviours, also associated with elevated levels of blood-borne virus transmission.<sup>30,31</sup> Recent examinations of key co-variables have found NMPOU to be notably widespread and universally distributed across the Ontario general adult population and within sex, age and socio-economic subgroups, in marked contrast to socio-demographic patterns commonly found for other forms of substance use problems.<sup>3</sup> Furthermore, substantive reductions in NMPOU levels in general populations (e.g., in Ontario) have been measured starting in 2011;<sup>11</sup> these reductions are notable as they largely commenced *before* recent major policy interventions occurred, and it will be crucial to assess these dynamics and to determine whether the trends are sustained and/or are expanding to other PO-related harms (e.g., morbidity/mortality).

Despite the magnitude of PO-related harms for public health, designated policy measures in response have been absent until very recently. In early 2012, the Ontario government launched a policy intervention package entitled *The Way Forward: Stewardship for Prescription Narcotics in Ontario*,<sup>32</sup> which included the introduction of an electronic prescription monitoring program (PMP) as well as delisting of oxycodone formulations from the Ontario Drug Benefit Formulary. While most of the other Canadian provinces already operate some form of PMP, most of them replicated the delisting of oxycodone, a move that, oddly, was followed by the federal government approving the licensing of generic oxycodone products shortly thereafter.<sup>33</sup> The effects of these provincial measures remain to be evaluated. There are some data suggesting that some PO-related problem indicators (e.g., NMPOU) may have decreased, although there may have been “substitution effects” for others (e.g., increases in non-oxycodone-related PO deaths).<sup>11</sup> Earlier in 2013, a national prescription drug strategy (*First Do No Harm: Responding to Canada’s Prescription Drug Crisis*) was presented by the Canadian Centre on Substance Abuse; however, it did not seem to be formally endorsed by the federal government, and hence its concrete role and status for governmental policy-making appear unclear.<sup>34-36</sup> The strategy included several dozen recommendations across many areas, many of which are complex and/or vague, and successful implementation of which is complicated by the need for cooperation of multiple other jurisdictions (e.g., provinces) or sectors. In addition, the strategy did not address well-documented key drivers at the population level (e.g., PO use levels) for PO-related harms, and so both its effective implementation and the impact remain to be assessed.

In summary, five years after our original assessment and “urgent call for research and interventions development”, we conclude that, unfortunately, the extent of PO-related harms in Canada has further increased. We crudely estimate that, since then, some 5,000-10,000 Canadians have died prematurely as a result of PO-related overdose. With major data gaps currently making systematic assessment impossible, the PO-attributable burden of disease (as related to the weighted impact of morbidity and mortality), based mainly on Ontario data, can be estimated to be second only to alcohol and tobacco, and higher than for all other illicit drugs

(including cannabis); however, it would be crucial to have the necessary data to empirically compute this health impact as has been done for the other psychoactive drug categories.<sup>37</sup> Key data and knowledge gaps, specifically concerning essential surveillance indicators on a national level, persist, and render detailed and comparative problem analyses highly difficult. These analyses would be especially important given the extent of harms, yet also given recent preliminary evidence of reductions in problems like NMPOU, the causes of which ought to be empirically understood. While some policy measures have occurred at different jurisdictional levels, the full impact of these remains to be monitored and evaluated. National monitoring systems for key PO-related indicators urgently need to be put into place and interventions implemented to effectively reduce the extensive amount of PO-related harms in Canada.

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Received: July 11, 2013

Accepted: February 9, 2014

## RÉSUMÉ

Il y a cinq ans, nous avons souligné l'émergence de méfaits liés aux opioïdes sur ordonnance (OSO) au Canada et le besoin de mener des études et des interventions de surveillance ciblées. Depuis, les niveaux globaux de consommation d'OSO ont augmenté de 70 %, selon des données (provinciales) limitées, tandis que simultanément, les niveaux de consommation d'OSO à des fins non médicales (COSONM) en général et dans les principales populations à risque ont continué d'être élevés, et les méfaits liés aux OSO – spécifiquement la morbidité (les admissions pour traitement) et la mortalité (les décès par surdose) – ont considérablement

augmenté. Malheureusement, il existe encore des lacunes majeures dans la surveillance systématique des méfaits liés aux OSO; à titre d'exemple, les statistiques nationales de morbidité ou de mortalité n'existent pas. La recherche menée à l'initiative des chercheurs eux-mêmes a apporté un éclairage utile sur l'épidémiologie et l'impact des méfaits liés aux OSO : corrélations élevées entre la délivrance et/ou le dosage des OSO et leurs méfaits dans la population; taux élevés de concomitance entre la COSONM et les comorbidités; et dynamique du risque distincte liée à la COSONM chez les utilisateurs de drogues de rue. Certaines mesures n'ont été appliquées que récemment aux paliers fédéral et provincial; ces interventions ne sont pas encore systématiquement évaluées mais devraient l'être, surtout que selon les indications préliminaires, la réduction des méfaits liés aux OSO (dont la COSONM) a commencé avant les interventions. Il existe donc toujours un besoin urgent d'améliorer les outils de surveillance et les ressources de recherche consacrés au vaste problème de santé publique des méfaits liés aux OSO au Canada.

**MOTS CLÉS :** opioïdes sur ordonnance; usage non médical; méfaits; santé publique; surveillance; politique; Canada