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Research paper

# Prevalence of prescription opioid use disorder among chronic opioid therapy patients after health plan opioid dose and risk reduction initiatives

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ABSTRACT

*Background:* No studies have assessed the comparative effectiveness of guideline-recommended interventions to reduce risk of prescription opioid use disorder among chronic opioid therapy (COT) patients. We compared the prevalence of prescription opioid use disorder among COT patients from intervention clinics that had implemented opioid dose and risk reduction initiatives for more than 4 years relative to control clinics that had not.

*Methods:* After a healthcare system in Washington State implemented interventions to reduce opioid dose and risks, we surveyed 1588 adult primary care COT patients to compare the prevalence of prescription opioid use disorder among COT patients from the intervention and control clinics. Intervention clinics managed COT patients at lower COT doses and with more consistent use of risk reduction practices. Control clinics cared for similar COT patients but prescribed higher opioid doses and used COT risk reduction practices inconsistently. Prescription opioid use disorder was assessed with the Psychiatric Research Interview for Substance and Mental Disorders.

*Results:* The prevalence of prescription opioid use disorder was 21.5% (95% CI = 18.9% to 24.4%) among COT patients in the intervention clinics and 23.9% (95% CI = 20.5% to 27.6%) among COT patients in the control clinics. The adjusted relative risk of prescription opioid use disorder was 1.08 (95% CI = 0.89, 1.32) among the control clinic patients relative to the intervention clinic patients.

*Conclusions:* Long-term implementation of opioid dose and risk reduction initiatives was not associated with lower rates of prescription opioid use disorder among prevalent COT patients. Extreme caution should be exercised by clinicians considering COT for patients with chronic non-cancer pain until benefits of this treatment and attendant risks are clarified.



## Introduction

After a decades-long surge in opioid prescriptions for long-term treatment of chronic pain, the United States experienced an epidemic of prescription drug overdose and addiction (Compton and Volkow, 2006; Coben et al., 2010; Okie, 2010). In 2011, the United States' Office of National Drug Control Policy called for action to reduce prescription drug abuse (Office of National Drug Control Policy, 2011), but evidence is lacking to guide efforts to reduce addiction risks among chronic opioid therapy (COT) patients (Chou et al., 2015). Risks of opioid overdose and addiction among chronic opioid therapy (COT) patients increase with opioid dose (Bohnert et al., 2011; Chou et al., 2015; Deyo, Von Korff, & Duhrkoop, 2015; Dunn, Saunders, & Rutter, 2010; Gomes, Mamdani, Dhalla, Paterson, & Juurlink, 2011). Dose reduction and precautions (e.g. assessment of addiction risks, close monitoring, urine drug tests) have been recommended to reduce COT risks (Gourlay, Heit, & Almahrezi, 2005); (Chou et al., 2009; Gourlay et al., 2005), but evidence that these steps reduce

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addiction risks is lacking (Chou et al., 2015). Chou et al. (2015) concluded that: "No study evaluated the effectiveness of risk mitigation strategies on outcomes related to overdose, addiction, abuse, or misuse."

Recent surveys of prescription opioid use disorder (addiction involving use of prescription opioids) using Diagnostic and Statistical Manual Fifth Edition (DSM-5) diagnostic criteria among prevalent COT patients have found rates of 26% (Boscarino, Hoffman, & Han, 2015) and 20% (Degenhardt et al., 2015). There are no studies assessing whether these high rates of prescription opioid use disorder can be lowered by sustained implementation of COT dose or risk reduction initiatives.

We evaluated changes in opioid prescribing in a health care organization intended to reduce risks of opioid addiction and overdose. A Washington State guideline, initially disseminated in 2007 and enacted into state law in 2010, recommended caution in prescribing COT at higher doses, defined as a daily morphine equivalent dose (MED) of 120 milligrams or greater (Franklin, Fulton-Kehoe, Turner, Sullivan, & Wickizer, 2013). Under this guideline, fewer workers' disability compensation recipients received high doses of opioids with a subsequent decline in the number of opioid-related deaths in the Worker's Compensation patient population (Franklin, Mai, & Turner, 2012).

After Washington State disseminated its COT guideline, a Washington State health care organization implemented initiatives in its group practice clinics to lower COT doses and to implement guideline recommended risk stratification and monitoring. The same health care organization had enrollees cared for by contracted physicians in clinics not owned and operated by the health plan. The contracted physicians did not impement the COT guideline changes. The augmented health care organization initiatives in the group practice (intervention) clinics resulted in large and sustained increases in documentation of COT care plans, increased use of urine drug tests and reduced use of high opioid doses relative to the control clinics (Saunders et al., 2015; Turner et al., 2014; Trescott, Beck, Seelig, & VonKorff, 2011; Von Korff et al., 2016).

We assessed whether sustained implementation of guideline-recommended opioid dose and risk reduction initiatives were associated with a lower prevalence of prescription opioid use disorder among prevalent COT patients in clinics that implemented these initiatives when compared to prevalent COTpatients in clinics that had not implemented opioid dose and risk reduction to the same extent.

## Methods

### Setting

Group Health (GH) is a health care organization in Washington State with group practice and contracted care settings (Saunders, Davis, & Stergachis, 2005). Group practice clinicians deliver care to the health care organizations's enrollees at Group Health facilities. The remaining enrollees receive care from contracted community physicians not employed by Group Health in diverse clinical settings not operated by Group Health (i.e. contracted care).

### COT management

The intervention (group practice) primary care clinics implemented an opioid dose reduction initiative for COT patients starting in 2007 and a multi-faceted risk reduction initiative in the fall of 2010. Dose and risk reduction initiatives were not implemented in the control (contracted care) clinics, although contracted care providers may have been influenced by changes in Washington State COT guidelines. A comprehensive description of the group practice opioid dose and risk reduction initiatives is provided in Appendix A.

### Study design

We conducted a patient survey from September 2014 through January 2016 among prevalent COT patients receiving care in intervention and control clinics. The survey compared the prevalence of prescription opioid use disorder among these patients. The interview was administered by telephone and required about 30–40 min to complete. Eligible COT patients received a $2 pre-incentive with the study invitation letter, and a $10 post-incentive upon completing the telephone interview. This research was approved by the Group Health Institutional Review Board with verbal consent for the telephone interviews.

Group Health enrollees in intervention and control clinics were eligible for the survey if they were at least 18 years of age and had been a Group Health member for at least one year prior to sample selection. Because our focus was on non-cancer chronic pain, we excluded patients who had two or more visits with cancer diagnoses (excluding non-melanoma skin cancer) or who had been admitted to hospice in the prior year.

Using electronic pharmacy data, eligible patients were selected for the survey if they had received: (1) at least 70 days supply of opioids in the 90 days prior to sample selection; (2) at least 70 days supply of opioids in at least one other quarter in the prior year; and, (3) at least 45 days supply of opioids in all four quarters in the prior year. These sample selection criteria identified persons using opioids regularly for at least one year.

### Patient characteristics

Group Health enrolment files and electronic health care data were used to obtain measures of covariates including: patient age, gender, residence in Eastern or Western Washington, and a patient history of diagnoses pertaining to the following conditions: mental disorders, opioid and non-opioid drug use disorders, alcohol use disorders, tobacco use disorders and hepatitis C or cirrhosis. Diagnoses were obtained for up to three years prior to the date of the telephone interview. We also evaluated chronic disease comorbidity using the Romano version of the Charlson comorbidity score (Romano, Roos, & Jollis, 1993) for the year prior to the telephone interview. In addition to patient characteristics obtained from electronic health records data, marital status, educational attainment, and race/ethnicity were ascertained by the survey interview.

### Opioid use characteristics

We measured opioid prescribing for COT patients using electronic pharmacy data available for both intervention and control patients. Using methods and conversion factors described elsewhere (Von Korff et al., 2008), we calculated the average daily MED dispensed for the 90 day period prior to the interview by adding the total morphine equivalents for the prescriptions dispensed and dividing the total by 90. We counted morphine equivalents dispensed prior to the quarter with a run-out date within the quarter, and prescriptions within the quarter with a run-out date after the quarter ended, on a pro-rata basis.

We also determined the percent of COT patients who received more than 20% excess opioid days supplied, defined as 109 or more days supply in any of the 4 quarters in the year prior to the telephone interview. Prior research has shown that receiving excess opioid days supplied is associated with opioid abuse (Palmer et al., 2015; Sullivan et al., 2010).