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State variation in opioid and benzodiazepine prescriptions between independent and nonindependent advanced practice registered nurse prescribing states

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ABSTRACT

Background: Many people lack access to primary care services in the United States. One possible solution is to increase utilization of advanced practice registered nurses (APRNs). A common patient safety concern about independent prescribing by APRNs is that prescribers will increase prescriptions for medications with abuse/dependence potential, such as opioids or benzodiazepines.

Purpose: The purpose was to investigate the relationship in opioid- and benzodiazepine-prescribing rates between independent vs. nonindependent APRN prescribing states.

Methods: Tertiary analysis of a Centers for Disease Control and Prevention study reporting state variation in prescribing rates of opioids and benzodiazepines using 2012 Intercontinental Marketing Services Health retail prescription data representing 259,000,000 prescriptions. Analyses were performed using different definitions for independent states: (a) states allowing at least one APRN type independent prescribing and (b) states allowing all APRN types independent prescribing. ANOVA tests were used to test for differences in mean number of opioid- and benzodiazepine-prescribing rates per 100 residents. Analysis of Covariance tests were employed controlling for state characteristics previously determined to affect controlled substance–prescribing rates (e.g., Medicare rates, race, socioeconomic status, number of physicians/capita).

Results/Discussion: There were significantly higher opioid and benzodiazepine prescriptions in states with nonindependent APRN prescribing laws than those in states with independent APRN prescribing laws and no significant differences in long-acting opioids or high-dose opioids. This study found no evidence to support the argument that independent prescribing increases prescriptions with abuse potential.

Conclusion: Independent prescriptive authority, only one piece of APRN practice, has been one of the most controversial issues but one with great potential to help ease access to U.S. health care problems. Empirical evidence demonstrating the safety of this practice can help promote this potential.

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Introduction

The United States has an access to health care problem, particularly in primary care (Davis, Stremikis, Shoen, & Squires, 2014). Patients in the United States are more likely to have difficulties obtaining a primary care appointment than patients in other industrialized countries. These difficulties are expected to worsen due to population growth, an increasing number of insured patients under the Affordable Care Act, an aging population, and a shortage of primary care physicians (Health Resources and Services Administration [HRSA], 2013). One possible solution is to increase utilization of advanced practice registered nurses (APRN); however, many barriers prevent implementation of this solution (Auberbach et al., 2013; Institute of Medicine [IOM], 2011; National Governors' Association [NGA], 2012).

State-based regulations restricting practice, specifically for prescribing medication, are one of the most frequently cited barriers to full utilization of APRNs in primary care (IOM, 2011; National Council of State Boards of Nursing [NCSBN], 2012; Safriet, 2011). Great variation exists in APRN prescriptive authority across states, with 16 states allowing fully independent APRN prescribing for all four APRN types: certified nurse midwives, certified nurse practitioners, clinical nurse specialists, and certified registered nurse anesthetists (NCSBN, 2015). Others restrict what type of medications may be prescribed or impose physician supervision or collaboration requirements on prescribing authority on one or all of the APRN types. Many states are taking measures to reduce these barriers, with a record number of bills introduced in 2014 to reduce APRN practice restrictions (NCSBN, 2015). Common arguments against independent APRN prescribing involve the differences in education length between physicians and APRNs and concerns about patient safety (Nuzzo, 1998; Phillips, Harper, Wakefield, Green, & Fryer, 2002).

One commonly expressed patient safety concern is that independent APRN prescribing practices will increase the number of prescriptions for medications with abuse/dependence potential, such as opioids or benzodiazepines. One possibility is that increased prescriptions for opioids or benzodiazepines will exacerbate problems, such as increased overdoses or the resurgence of *pill mills* (Florida Medical Association [FMA], 2014). Deaths from drug overdoses are a leading cause of death in the United States (Centers for Disease Control and Prevention [CDC], 2015), and prescription medications, mostly opioids, are a major source of these deaths. Pill mills, or medical facilities that unlawfully prescribe and dispense controlled substances outside sanctioned medical practices, have been implicated as a significant source of abused opioids (CDC, 2011). States have been aggressively undertaking actions to restrict these facilities. Reductions in the numbers of these facilities have resulted from implementing Prescription Drug Monitoring Programs along with other policy changes. Although abuse of prescription medication is a serious problem, there is no empirical evidence that links independent APRN prescribing with higher rates of opioid or benzodiazepine prescriptions.

The purpose of the present study was to investigate the relationship between APRN prescribing status (nonindependent vs. independent) and opioid- and benzodiazepine-prescribing rates in the United States. Specifically, we examined whether state-based regulations allowing for independent APRN controlled substance prescribing increase the amount of opioid and benzodiazepine prescriptions written in that state. Follow-up analyses were planned to examine if any differences remained after controlling for characteristics of states that might be related to prescribing rates, for example, the number of practicing physicians in a geographic area (Paulozzi, Mack, & Hockenberry, 2014), ethnicity (McDonald, Carlson, & Izrael, 2012; Olsen, Daumit, & Ford, 2006), Medicaid and Medicare rates (Luo, Pietrobon, & Hey, 2004; Olsen et al., 2006), and socioeconomic status (Luo et al., 2004; McDonald et al., 2012).

Methods

Prescription Rate

The number of prescriptions per 100 people in 50 U.S. states and the District of Columbia (D.C.) was described in a recent CDC study (Paulozzi et al., 2014), using the IMS Health Incorporated's National Prescription Audit. (IMS Health is recognized as the world's largest health care data source; IMS Health, 2015). Data represent 258.9 million prescriptions written in 2012 (the most recent data available) from 57,000 retail pharmacies (Paulozzi et al., 2014). Retail pharmacies account for about 90% of all opioids dispensed (McDonald et al., 2012). The following four categories were used: total opioids, long-acting opioids, benzodiazepines, and high-dose opioids (HDOs). Long-acting (or extended release) opioids are those that should be taken only 2–3 times a day, such as methadone, OxyContin, and Opana ER. HDOs are defined as the highest formulations available (e.g., total daily dosage of $\geq$100 morphine milligram equivalents when taken at the usual frequency of 4-6 hours; Paulozzi et al., 2014).

Scope of Prescriptive Practice

A state is defined as independent if no restrictions are placed on prescribing ability outside length of time from APRN-licensed status to granting of prescribing authority (i.e., some states require a specified number of practice hours before an APRN can apply for