Manuscript Draft:
Exploring Effects of the Comprehensive Addiction Recovery Act on Buprenorphine Prescribing Practices Using Open Medicare Part D Data

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Abstract

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Keywords: pharmacoepidemiology, pharmacoeconomics, buprenorphine, opioid use disorder, Medicare

1. Introduction

This section may be shortened to meet an expected word count cap of 2500 words, and/or changed according to the literature review.

Opioids are medications are medications which act as agonists at opoid receptors in the central nervous system, producing a depressant effect, analgesia, and sometimes euphoria. Opioids are commonly used to treat pain, but are also used recreationally. Opioid use disorder (OUD) is a chronic, relapsing condition characterized by the compulsive use of opioids despite adverse consequences. OUD is a major public health concern in the United States, with an estimated 2.1 million people suffering from OUD in 2018. [1] OUD is associated with a number of adverse outcomes, including increased risk of overdose and death, increased risk of infectious disease, and increased risk of incarceration. OUD is also associated with increased risk of fracture and motor-vehicle accidents. [2]

Medications for treatment of OUD in the United States includes methadone, buprenorphine, and naltrexone; naltrexone is an opioid antagonist, whereas buprenorphine is a partial opioid agonist, and methadone is a full opioid agonist. Guidelines from the American Society of Addiction Medicine (ASAM) recommend that all patients with OUD be offered medication for treatment of OUD. [3]; [4] However the legislative framework within the United States has historically been a barrier to providing this treatment. Methadone may only be prescribed and dispensed for OUD treatment within the context of a licensed opoid treatment program. In 2000, the Drug Addiction Treatment Act (DATA) was passed, which allowed physicians to prescribe buprenorphine for treatment of OUD in an office-based setting. However, DATA limited the number of patients that a physician could treat with buprenorphine to 30 patients in the first year, and 100 patients thereafter. In 2016, the Comprehensive Addiction Recovery Act (CARA) was passed, which allowed nurse practitioners (NPs) and physician assistants (PAs) to prescribe buprenorphine for treatment

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of OUD. Recent legislation has further expanded the number of patients that a physician, NP, or PA can treat with buprenorphine to 275 patients.

However, the impact of CARA on buprenorphine prescribing practices has not been well characterized within the elderly population. This population is of particular interest because this growing population have a unique range of risk factors including the greater prevalence of chronic pain, and may be at greater risk of complications of OUD such as fracture and motor-vehicle accident. Future legislative and regulatory efforts could potentially be informed by an examination of the impact of CARA on buprenorphine prescribing practices within this population. This compiled report seeks to adhere to the STROBE guidelines for observational studies, [5] as well as the CHEERS guidelines for economic evaluations. [6]

2. Methods

2.1. Study Design & Setting

2.2. Exposure

2.3. Outcome

2.4. Covariates

2.5. Statistical Analysis

XGBoost paper [7]

3. Results

This section to be expanded as results accrue.

3.1. Provider Characteristics

Text to supplement Table 1.

3.2. Outcome: Prescribing Volume

3.3. Secondary Analyses

4. Discussion

5. Conclusion

References

6. Figures & Tables

6.1. Table 1

Table 1: Provider Characteristics

Characteristic	**2015**, N = 8,094	**2016**, N = 8,958	**2017**, N = 10,246	**2018**, N = 12,296
Bup Prescribers	8,094	8,958	10,246	12,296
Patient-years	39,520	45,083	53,923	65,141
Rural Providers	972 (12)%	1,094 (12)%	1,304 (13)%	1,691 (14)%
Provider Type:				
General Practice	3,934 (49%)	4,405 (49%)	4,929 (48%)	5,402 (44%)
NP/PA	85 (1.1%)	98 (1.1%)	595 (5.8%)	1,979 (16%)
Other	4,075 (50%)	4,455 (50%)	4,722 (46%)	4,915 (40%)

Consider adding a row for total Medicare population by year?

6.2. Other Figures

Consider using a flow chart explicitly showing how the providers became part of the study dataset; I can also consider including some of the choropleth maps of the prescriber patterns, if they are illustrative of results.

7. Supplementary Material

A full code appendix can be found at https://github.com/matthew-hoctor/Buprenorphine_Rx; and the quarto used to generate this manuscript can be found at https://github.com/matthew-hoctor/Buprenorphine_Rx/blob/main/manuscript.qmd

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