# The Pharmacist Will See You Now: Pharmacist Prescriptive Authority and Access to Care in Idaho

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**Abstract**

In 2018, Idaho became the first state to grant broad prescriptive authority to pharmacists in the United States for medications related to specific minor conditions. We examine the effects of this reform on access to care for Medicare beneficiaries prescribed albuterol sulfate (used to treat asthmatic symptoms) and pen needles (used to manage diabetes). These are medications for patients for whom delays may inhibit the effectiveness of treatment. We find evidence that three more individuals per pharmacist received time-sensitive care, potentially avoiding detrimental or expensive alternatives.

**Keywords:** HB191, Idaho, pharmacist, prescriptive authority, access to care

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# 1 Introduction

For some health conditions, such as diabetes and asthma, the ability to obtain medications and medical equipment quickly and safely is crucial to preventing complications and increasing the effectiveness of treatment. In late 2018, with House Bill 191, Idaho became the first state to grant pharmacists broad prescriptive authority to prescribe limited drugs and medical devices for minor illnesses and time-sensitive care. The Idaho law permits pharmacists to prescribe medication within the limits set by the Idaho Board of Pharmacy (Broughel et al., 2020). The Board of Pharmacy promulgated new rules that took effect in July 2018 and permitted pharmacists to prescribe twenty drug and device categories (Adams, 2020). While some states had allowed pharmacists to prescribe specific medications such as injection vaccines or birth control (for example, New Mexico in 2003), no previous state allowed pharmacists autonomy over the choice of medications to address medical conditions, which is why researchers and legislators consider the Idaho bill the first broad expansion to prescriptive authority for pharmacists.

Among the approved drugs and devices are insulin pen needles for diabetic patients and albuterol sulfate, a short-acting beta-agonist or rescue medication, for asthma patients with previous prescriptions. When diabetic patients miss insulin doses, it increases the risk of hyperglycemia and ketoacidosis. Similarly, individuals experiencing asthmatic symptoms require short-acting bronchodilators such as albuterol to relax muscles in the airway. Not having quick access to medical interventions may cause difficulty breathing, tightness in the chest, and life-threatening outcomes.

In Idaho, a predominately rural state, there are only twenty-seven endocrinology and ten allergy & immunology specialized care offices, which may have excessively long wait times (see Table 1). For Medicare beneficiaries between visits who have run out of medication or are in an emergency, the 894 pharmacies in the state may now provide preventative and fast-acting medications such as inhalers and insulin pen needles. Pharmacists' effectiveness in getting time-sensitive medications to patients in Idaho has implications for access, quality, and safety for individuals with diabetes and asthma across the United

States.

**Table 1:** Number of Practice Locations and Providers in Idaho

| | Location of providers | | | Number of providers | | |
|---|---|---|---|---|---|---|
| Year | Allergy & Immunology | Endocrinology | Pharmacy | Allergist & Immunologist | Endocrinologist | Pharmacist |
| 2016 | 8 | 17 | 643 | 15 | 25 | 1264 |
| 2017 | 9 | 17 | 686 | 16 | 25 | 1364 |
| 2018 | 10 | 18 | 718 | 17 | 27 | 1431 |
| 2019 | 11 | 19 | 752 | 18 | 30 | 1513 |
| 2020 | 10 | 23 | 809 | 17 | 35 | 1706 |
| 2021 | 10 | 26 | 852 | 17 | 37 | 1842 |
| 2022 | 10 | 27 | 894 | 17 | 35 | 1968 |

*Notes:* We define pharmacist based on the taxonomy from https://npidb.org/taxonomy/183500000X/, allergist/immunologist based on https://npidb.org/taxonomy/207KA0200X/, and endocrinologist based on https://npidb.org/taxonomy/207RE0101X/. Counts are based on the National Plan and Provider Enumeration System.

A growing literature has examined the effects of granting medical professionals prescriptive authority. It has produced little evidence that expansions in the scope of practice for advanced practice nurses have harmed patients (Traczynski and Udalova, 2018). For example, there is no evidence that nurse practitioners prescribe more opioids after being granted independent prescriptive authority (Muench et al., 2019). Yet no descriptive or empirical analysis investigates the effect of prescriptive authority changes on pharmacists' prescribing behavior. In this paper, we examine the impact of Idaho's policy change on access to care for Medicare beneficiaries, specifically asthmatics and diabetes patients.

## 2 Method

Prescription data are collected from the Centers for Medicare and Medicaid Services' Medicare Part D Prescribers by Provider and Drug data set. We gather data on prescribing of albuterol sulfate by pharmacists, allergists, and immunologists and on prescribing of insulin pen needles by pharmacists and endocrinologists from 2013 to 2020. We chose allergists, immunologists, and endocrinologists because these specialized physicians have frequent contact to develop treatment and prescription plans for asthmatic and diabetic patients. The sample is limited to practitioners who care for and prescribe medication to

Medicare beneficiaries. We extract individual-level prescriber data on total claim counts, thirty-day fills, and thirty-day supplies of albuterol sulfate and insulin pen needles. We then average each of these variables across the year and prescriber type.

**Table 2:** Summary Statistics

| | Min | Max | Mean | Std dev |
|---|---|---|---|---|
| **Albuterol Sulfate** | | | | |
| Number of Medicare Part D Claims, Including Refills (Claim Counts) | 0.00 | 2.58 | 0.16 | 0.50 |
| Number of Standardized 30-Day Fills, Including Refills (30-day Fills) | 0.00 | 3.00 | 0.18 | 0.56 |
| Number of Day's Supply for All Claims (30-Day Supplies) | 0.00 | 72.79 | 4.12 | 13.42 |
| **Pen Needle, Diabetic** | | | | |
| Number of Medicare Part D Claims, Including Refills (Claim counts) | 0.00 | 3.18 | 0.23 | 0.70 |
| Number of Standardized 30-Day Fills, Including Refills (30-Day Fills) | 0.00 | 8.08 | 0.46 | 1.40 |
| Number of Days' Supply for All Claims (30-Day Supplies) | 0.00 | 242.50 | 13.57 | 41.51 |

*Notes:* Claims, thirty-day fills, and thirty-day supplies are based on the Medicare Part D Prescribers data. The data are limited to Medicare beneficiaries.

Table 2 provides a summary of the variables of interest across our sample period of 2013 to 2020. Claim counts are the number of Medicare Part D claims, including original prescriptions and refills. The thirty-day-fills variable represents the aggregate number of Medicare Part D standardized thirty-day fills; it is derived from the number of days supplied on each Part D claim divided by thirty. The thirty-day-supplies variable represents the aggregate number of days' supply of the dispensed drug or medical device.

To estimate the effect of Idaho's policy change on access to care, we use a standard difference-in-differences framework with the following equation:

$$y = \alpha + \beta treat + \gamma post + \delta treat \times post + \nu_s + \mu_t + \epsilon \tag{1}$$

Here, $y$ represents the average prescribing behavior of pharmacists. *treat* is a binary indicator that takes a value of 1 for Idaho and 0 otherwise. We consider Idaho as a treatment state and all other states as comparison states. *post* is a binary indicator representing 1 beginning in 2019, the first full year that House Bill 191 was in effect and expanded the prescriptive authority of pharmacists and 0 otherwise. The estimated coefficient $\widehat{\alpha}$ provides the average prescribing behavior of pharmacists in the comparison states before 2019. The estimated coefficient $\widehat{\beta}$ compares the average prescribing

behavior of pharmacists in Idaho to the comparison states before 2019. The estimated coefficient $\widehat{\gamma}$ provides insight into the average prescribing behavior of pharmacists within the comparison states that changed their prescribing behavior after 2019.

Under the parallel trends assumption, the estimated coefficient $\widehat{\delta}$ represents a plausibly causal effect of pharmacists' expanded prescribing authority on their prescribing behaviors. The pre-treatment parallel trends assumption here means that pharmacists' prescribing behavior in Idaho (the treatment state) is similar to that in comparison states prior to the bill enactment.

$\widehat{\alpha}$, $\widehat{\beta}$, and $\widehat{\gamma}$ would be 0, as Idaho is the first to expand prescribing authority to pharmacists. Pharmacists in comparison states cannot prescribe albuterol sulfate and insulin pen needles, and pharmacists in Idaho before 2019 could not either. To address nuances in the data and potentially confounding state policies, we allow for additional group comparisons using a triple difference-in-differences framework to examine the change in pharmacist prescribing behavior relative to different, but relevant, provider groups such as allergists and immunologists for asthmatic care and endocrinologists for diabetic care:

$$\begin{aligned} y =& \rho_0 + \rho_1 treat + \rho_2 post + \rho_3 group + \\ & \rho_4(treat \times post) + \rho_5(post \times group) + \rho_7(treat \times group) + \\ & \lambda(treat \times post \times group) + \epsilon \end{aligned} \tag{2}$$

*group* is a binary indicator differentiating pharmacists from the other relevant practitioners who prescribe albuterol sulfate or insulin pen needles and are plausibly unaffected by Idaho's policy change. The triple difference-in-differences estimator, $\widehat{\lambda}$, is given by the following equation:

$$\begin{aligned} \widehat{\lambda} = & \left\{ (\overline{y}_{treat=1,group=1,post=1} - \overline{y}_{treat=1,group=1,post=0}) - (\overline{y}_{treat=1,group=0,post=1} - \overline{y}_{treat=1,group=0,post=0}) \right\} \\ & - \left\{ (\overline{y}_{treat=0,group=1,post=1} - \overline{y}_{treat=0,group=1,post=0}) - (\overline{y}_{treat=0,group=0,post=1} - \overline{y}_{treat=0,group=0,post=0}) \right\} \end{aligned}$$

$\widehat{\lambda}$ represents the difference between the prescribing behavior of Idaho pharmacists before and after the policy change relative to the same difference for allergists and immunologists, for albuterol sulfate, or endocrinologists, for diabetic pen needles, from the comparison states. If we observe an increase in prescriptions from the pharmacists for time-sensitive diabetic and asthmatic interventions, compared with the trends of other practitioners who prescribe the same medications and medical devices, this may indicate increased access to care.

# 3 Results

**Table 3:** Prescribing Behavior of Pharmacists, 2013–20

| | Prescribing Behavior of Pharmacists | | | | | |
|---|---|---|---|---|---|---|
| | Albuterol Sulfate | | | Pen Needle, Diabetic | | |
| | Claim Counts | 30-Day Fills | 30-Day Supplies | Claim Counts | 30-Day Fills | 30-Day Supplies |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *treat* | −0.133 | −0.147 | −3.211 | −0.116 | −0.227 | −6.705 |
| | (0.060) | (0.067) | (1.433) | (0.049) | (0.095) | (2.816) |
| *post* | 0.057 | 0.063 | 2.157 | 0.287 | 0.592 | 17.554 |
| | (0.026) | (0.030) | (0.839) | (0.087) | (0.190) | (5.661) |
| *treat* × *post* | 0.912 | 1.017 | 21.606 | 1.622 | 2.061 | 55.507 |
| | (0.026) | (0.030) | (0.839) | (0.087) | (0.190) | (5.661) |
| *Constant* | 0.133 | 0.147 | 3.211 | 0.116 | 0.227 | 6.705 |
| | (0.060) | (0.067) | (1.433) | (0.049) | (0.095) | (2.816) |
| Observations | 400 | 400 | 400 | 400 | 400 | 400 |
| $R^2$ | 0.024 | 0.024 | 0.023 | 0.084 | 0.061 | 0.058 |
| Adjusted $R^2$ | 0.017 | 0.017 | 0.016 | 0.077 | 0.054 | 0.051 |

*Notes:* Standard errors are heteroskedasticity robust and clustered at the state level. The sample is limited to practitioners serving Medicare beneficiaries.

Table 3 depicts the behavior of pharmacists serving Medicare beneficiaries after Idaho's prescriptive authority changes were implemented. While the estimates are unsurprising given the nature of the policy change, the magnitude of the results is useful for understanding the implications of changes in access to time-sensitive medication for diabetic and asthmatic patients. After the policy change, each pharmacist prescribed, on average, one additional albuterol sulfate prescription and two insulin pen needle prescriptions to

Medicare beneficiaries, as shown by $treat \times post$. This means three more individuals per pharmacist received immediate care without booking additional appointments with their specialists or going to the emergency room. Since this analysis is limited to Medicare beneficiaries, this likely underestimates the effect on the total population. Meeting with pharmacists to receive these medications allows patients to avoid expensive hospital bills and avoid delays in care that would reduce the effectiveness of their long-term disease management.

**Table 4:** Prescribing Behavior of Pharmacists Relative to Specialists, 2013–20

| | Prescribing Behavior of Pharmacists | | | | | |
|---|---|---|---|---|---|---|
| | vs. Allergist/Immunologist Prescribing Albuterol Sulfate | | | vs. Endocrinologist Prescribing Pen Needle, Diabetic | | |
| | Claim Counts | 30-Day Fills | 30-Day Supplies | Claim Counts | 30-Day Fills | 30-Day Supplies |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *treat* | 0.106 | 0.048 | −2.209 | −0.064 | −0.306 | −9.597 |
| | (0.037) | (0.044) | (0.959) | (0.017) | (0.032) | (0.993) |
| *post* | −0.071 | −0.067 | 5.694 | 0.864 | 2.207 | 65.793 |
| | (0.017) | (0.022) | (0.744) | (0.032) | (0.055) | (1.637) |
| *group* | −1.741 | −2.001 | −39.440 | −1.517 | −2.971 | −87.357 |
| | (0.071) | (0.078) | (1.712) | (0.050) | (0.104) | (3.097) |
| $treat \times post$ | 0.206 | 0.308 | 7.837 | −0.144 | −0.286 | −8.588 |
| | (0.017) | (0.022) | (0.744) | (0.032) | (0.055) | (1.637) |
| $treat \times group$ | −0.239 | −0.194 | −1.002 | −0.053 | 0.079 | 2.892 |
| | (0.071) | (0.078) | (1.712) | (0.050) | (0.104) | (3.097) |
| $post \times group$ | 0.128 | 0.130 | −3.537 | −0.577 | −1.615 | −48.240 |
| | (0.032) | (0.039) | (1.161) | (0.090) | (0.191) | (5.694) |
| $treat \times post \times group$ | 0.706 | 0.709 | 13.768 | 1.767 | 2.347 | 64.095 |
| | (0.032) | (0.039) | (1.161) | (0.090) | (0.191) | (5.694) |
| Constant | 1.873 | 2.148 | 42.652 | 1.633 | 3.199 | 94.062 |
| | (0.037) | (0.044) | (0.959) | (0.017) | (0.032) | (0.993) |
| Observations | 800 | 800 | 800 | 800 | 800 | 800 |
| $R^2$ | 0.152 | 0.163 | 0.140 | 0.511 | 0.544 | 0.544 |
| Adjusted $R^2$ | 0.145 | 0.156 | 0.132 | 0.507 | 0.540 | 0.540 |

*Notes:* Standard errors are heteroskedasticity robust and clustered at the state level. The sample is limited to practitioners serving Medicare beneficiaries.

Table 4 extends the analysis by comparing the prescriptive behavior of pharmacists to that of specialized physicians serving similar patient populations: endocrinologists for diabetic care and allergists and immunologists for asthma care. These specialized care professionals experienced little to no change in claim rates, thirty-day fills, or thirty-day

supplies before the policy change. To determine whether the increase in prescribing by pharmacists represents increased access to immediate care or merely reflects a trend of increased prescriptive needs, we use a triple difference-in-differences model to aggregate and compare changes in the rate of prescriptions of pharmacists relative to specialized physicians. The magnitude of $treat \times post \times group$, indicates similar level changes to our difference-in-difference framework: approximately three additional Medicare beneficiaries per pharmacist received time-sensitive medication. This suggests that our observation does not reflect individuals' switching from specialized care to pharmacist care but instead provision of additional care.

## 4 Conclusion

Lack of access to specialized care—for example, in rural areas—causes delays in necessary, time-sensitive treatment for those with conditions such as asthma or diabetes, which may lead to worsening symptoms and endanger patient safety (Hughes et al., 2021). Recognizing this, Idaho, a primarily rural state with limited specialized health care access, was the first state to expand the prescriptive authority of pharmacists in 2018. This expansion allows pharmacists to prescribe a limited set of medications for minor or time-sensitive conditions, such as albuterol sulfate for asthma or insulin pen needles for patients with diabetes.

Using prescriber data from the Medicare Part D files, we found that approximately one additional Medicare beneficiary per pharmacist received albuterol sulfate and two received insulin pen needles annually after the expansion of prescriptive authority for pharmacists. In aggregate, this represents hundreds of patients that can access time-sensitive care from pharmacies, which are much more common in rural and underserved areas than are specialized physicians. This increase in prescriptions does not represent a shift away from specialized physicians. Idaho House Bill 191 should be further researched, as it creates a potential pathway for diabetic and asthmatic patient care that avoids

potential life-threatening outcomes of delayed care.

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