

Increased Stimulant Prescribing Following the COVID-19 Pandemic – Rhode Island, 2017–2021

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INTRODUCTION

Stimulants are the most common treatment for attention deficit/hyperactivity disorder (ADHD) and can also be used to treat other conditions, including sleeping disorders and weight management. Between 2017 to 2021, stimulant dispensations in Rhode Island (RI) increased 20.7%.¹ National data show similar increasing trends among commercially insured individuals with rates of ADHD treatment increasing 16% from 2017 to 2021.² Many factors are likely contributing to this increase. In 2020, the federal government waived the Ryan Haight Act, which required an in-person appointment before a practitioner could prescribe controlled substances via telehealth.^{3,4} This waiver provided patients an opportunity to receive controlled substances without face-to-face evaluation from an authorized prescriber. Though telehealth accessibility is dependent on many socioeconomic factors, behavioral telehealth visits increased 32-fold in 2020 compared to 2019 and RI is among the states with the highest use of telehealth in 2020.^{5,6} To reduce administrative burden and maximize insurance access, RI Medicaid no longer required recipients to submit annual recertification paperwork.⁷ Additionally, many residents were affected by relocation, job loss, and social isolation.

To better understand stimulant prescribing changes during the pandemic, we aim to analyze trends in stimulant prescribing in RI at the population level.

METHODS

We utilized data from the RI Prescription Drug Monitoring Program (PDMP) to identify all stimulant prescriptions filled for RI residents between 2017 and 2021. Unique individuals were defined based on first and last name and date of birth on each prescription. When reporting demographics by year, an individual's first stimulant prescription for that year was selected if an individual was dispensed multiple stimulants for the calendar year of interest. Demographic variables reported by the PDMP included age, sex, and insurance type. To calculate rates of prescriptions dispensed per person, we took the number of prescriptions dispensed to RI residents from that year and divided it by the RI population. When reporting diagnosis codes, to prevent bias among available codes, we excluded stimulants filled by pharmacies that had ICD-10 codes missing for more than 80% of their dispensed stimulants.⁸ Roughly 50% of pharmacies

and 11.6% of prescriptions were excluded from the diagnosis code analysis presented in Figure 3.

To examine trends in stimulant prescribing and Medicaid eligibility, we used annual RI population data from the Center for Disease Control and Prevention (CDC) Wonder and RI Medicaid Office's Statewide Medicaid counts.⁹ To account for the Medicaid eligible population, only individuals younger than 65 years old were included in proportion estimates.

RESULTS

The number of stimulants dispensed increased 20.7% from 35.5 prescriptions per 100 RI residents in 2017 (374,919 prescriptions) to 41.3 prescriptions per 100 RI residents in 2021 (452,739 prescriptions; **Table 1**). Out-of-state pharmacies consistently comprised less than 1% of total stimulants dispensed over this timeframe. Dispensed stimulants covered by private insurance decreased 5.8% from 268,026 in 2017 to 252,602 in 2021 while stimulants covered by the military increased 63% from 1,928 in 2017 to 3,143 in 2021. Stimulants covered by Worker's Compensation increased 12,541% from 34 in 2017 to 4,298 in 2021 and stimulants covered by Medicaid increased 108.4% from 66,614 in 2017 to 138,791 in 2021. The percent of the RI population under 65 years old covered by Medicaid increased 3.6% from 33.8% in 2017 to 35.0% in 2021. The median days' supply of stimulants, median prescriptions dispensed per person and the median pill quantity remained unchanged over this timeframe.

The number of RI residents under 18 years old filling stimulants decreased 11.6% from 13,566 in 2019 to 11,999 in 2021. Individuals aged 18–24 filling prescriptions decreased 2.0% while individuals aged 25–34 and 35–44 have increased 19.2% and 32.2%, respectively (**Figure 1**). When analyzed per capita, 6% of the RI population under 65 years old were dispensed a stimulant prescription (**Figure 2**). The percent of RI Medicaid recipients dispensed a stimulant prescription increased 59.4%, from 3.2% in 2017 to 5.1% in 2021.

Among those with known diagnosis codes, 83% of stimulants were dispensed to RI residents with ADHD diagnosis codes and 5% to residents with other childhood and adolescent behavioral/emotional disorders. Stimulants dispensed to RI residents diagnosed with a sleep disorder or were overweight/obese made up of 4.5% and 1.5%, respectively (**Figure 3**).

Table 1. Characteristics of Stimulants Dispensed in RI and their Consumers, PDMP, 2017–2021

	2017	2018	2019	2020	2021
Total Stimulants Dispensed	374,919	404,260	416,891	426,019	452,739
Prescriptions Dispensed Per 100-Persons	35.5	38.2	39.4	38.8	41.3
Percent of RI Population Served by Medicaid (<65 years old)	33.8	33.2	32.0	31.7	35.0
Payment Method					
Private Insurance	268,026	261,457	281,756	282,090	252,602
Medicaid	66,614	98,015	86,824	94,405	138,791
Medicare	18,410	19,718	19,456	18,815	26,879
Military	1,928	1,988	2,305	2,703	3,143
Worker's Compensation	34	447	242	2,736	4,298
Unknown	19,907	22,635	26,408	25,270	27,026
Median Days' Supply [IQR]	30.0 [30.0,30.0]	30.0 [30.0,30.0]	30.0 [30.0,30.0]	30.0 [30.0,30.0]	30.0 [30.0,30.0]
Median Stimulants Dispensed, per person [IQR]	2.0 [1.0,5.0]	3.0 [1.0,5.0]	2.0 [1.0,5.0]	2.0 [1.0,5.0]	3.0 [1.0,5.0]
Median Pill Quantity [IQR]	30.0 [30.0,60.0]	30.0 [30.0,60.0]	30.0 [30.0,60.0]	30.0 [30.0,60.0]	30.0 [30.0,60.0]

Figure 1. Number of RI Residents Receiving Stimulants by Age Category (Years), PDMP, 2017–2021.

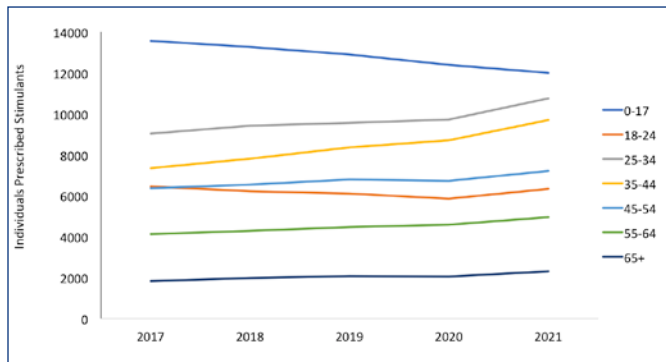


Figure 2. Percent of RI Population Under 65 Years Old Dispensed a Stimulant Prescription, PDMP & RI Medicaid Data, 2017–2021.

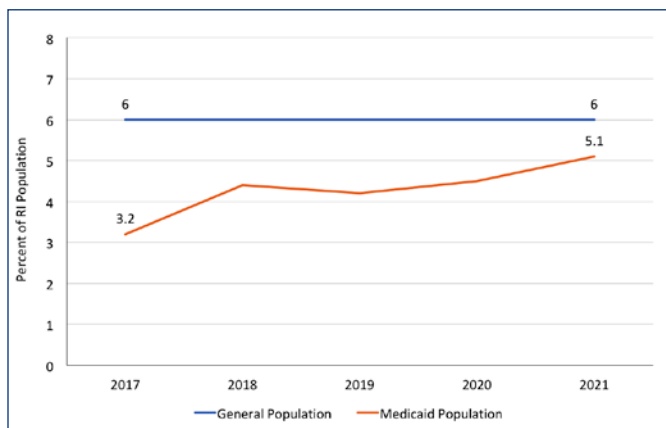
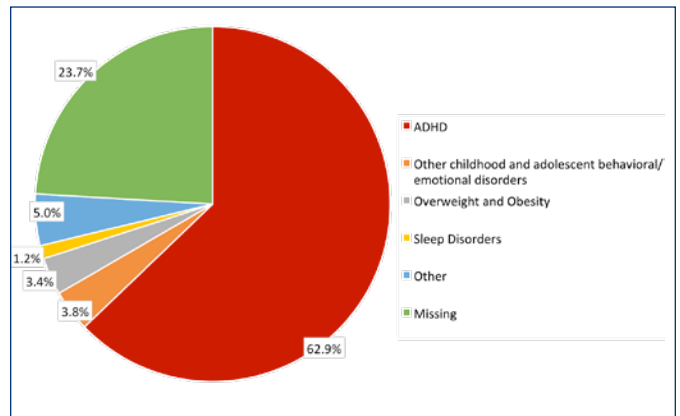


Figure 3. Diagnoses for RI Residents Receiving Stimulants, PDMP, 2017–2021.



DISCUSSION

Despite regulatory changes during the pandemic, the number of stimulants dispensed per year increased but the proportion of the RI population under 65 years old receiving stimulants remained constant. This may be attributed to both an increase in the overall RI population and an increase in stimulants dispensed per person. This is supported by an increase in the number of prescriptions dispensed per person. Historically, children and adolescents have been the primary recipients of stimulants. With the decline in stimulant prescription recipients aged 0–17 years old and an increase in older age groups, the demographics of individuals who are dispensed stimulants appear to be changing. The decline in stimulant dispensing to minors after 2019 may be due to the lack of classroom supervision as teachers are typically among the first to recognize ADHD symptoms in children. During the early stages of the pandemic, children

attended school remotely where their teachers were not able to adequately assess their classroom behavior and performance.¹⁰ In addition, among children presenting ADHD symptoms, stigmatization of childhood mental illness has caused caution among parents when considering medicating their child.^{11,12}

As doctors learn more about how ADHD manifests in adults, more adults are diagnosed with ADHD. Significant life changes caused by the pandemic, such as loss of income and employment, and social isolation, could be contributing to this increase, as stress may trigger ADHD symptoms.^{13,14} The rise of ADHD misinformation shared through social media may also be a factor.¹⁵ About 1 in 8 adults with prior COVID-19 infection develop Long COVID, a symptom of which is brain fog, which shares many symptoms with ADHD and may be misdiagnosed.¹⁶

Along with the general rise in dispensed stimulants was the increase of stimulants paid for by Medicaid. This could be attributed to the rise in proportion of the RI population covered by Medicaid due to the eligibility renewal process pause, and the increased accessibility to healthcare through telehealth regulations. While the number of prescriptions paid by Medicaid increased, the proportion of Medicaid recipients receiving a stimulant prescription remained less than that of the general population. RI Medicaid is beginning to reinstate the annual eligibility applications, and although the Ryan Haight waiver ended in May 2023, the Consolidated Appropriations Act of 2023 has extended telehealth flexibilities through 2024.^{7,17} However, the requirement for an in-person visit prior to prescribing controlled substances has not been waived through the Act.

Considering the potential decrease in Medicaid coverage, it is possible patients unable to fill their prescriptions may turn to obtaining illicit stimulants for treatment, as a similar phenomenon occurs when patients dispensed opioids have a sudden discontinuation of their prescriptions.^{18,19} This is concerning as local drug supply testing has demonstrated multiple “Adderall” pressed samples contained methamphetamine.²⁰ This is consistent with police and news reports of rising methamphetamine contaminated Adderall pill seizures in RI.²¹

Strengths and Limitations

A strength of this study was the use of the RI PDMP data to assess trends in stimulant dispensations within RI. This database provides data on controlled substances dispensed from in-state and out-of-state pharmacies to RI residents. The PDMP does not collect information on patient race or ethnicity, which limits demographic analyses on individuals prescribed stimulants, and prescriptions that were not dispensed. It was also not possible to evaluate whether stimulants were prescribed via a telehealth or an in-person appointment. As RI pharmacists are only required to report ICD-10 codes for opioid prescriptions, nearly a quarter of

stimulants were missing a diagnosis which may impact the ability to extrapolate diagnosis findings.

Since 2017, the number of stimulants dispensed per year in RI has increased but the proportion of the RI population receiving stimulants has remained constant. As changes in Medicaid coverage and telehealth regulations continue, future work should continue to monitor stimulant prescribing and ensure accessibility and sustainability for impacted patients.

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