APRNs’ controlled substance prescribing and readiness following Florida legislative changes

Abstract: Two years after the Florida legislature expanded APRN prescribing to include schedule II-IV drugs in 2017, we studied APRN utilization of this prescriptive authority. Study results reveal that Florida APRNs are meeting the educational requirements to prescribe and apply the use of these drugs in practice, improving patient access to care.

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Controlled substances such as opioids and stimulants have an abundance of valuable clinical uses, but misuse of these substances presents a serious public health issue, with an estimated 18 million Americans misusing prescription substances in the past year. Responsible prescribing necessitates an understanding of the risks and benefits associated with controlled substances, appropriate use of the drugs, and safety parameters for prescribing regulated by the Drug Enforcement Administration (DEA). State regulations vary regarding the amount of physician oversight required for Advanced Practice Registered Nurses (APRNs) to prescribe schedule II-IV substances with 27 states, including Florida, currently requiring a supervisory or collaborative agreement between physicians and APRNs, thereby reducing or restricting practice. This article describes a study examining APRNs’ prescribing readiness and behaviors conducted 2 years after Florida legislative changes expanded prescriptive authority for schedule II-IV substances in 2017.

Background
After more than 20 years of attempts to expand schedule II-IV prescriptive authority to Florida APRNs, House Bill 423 was passed in 2016 and enacted on January 1, 2017, granting APRNs the

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authority to prescribe schedule II-IV substances under existing supervisory protocols. At the time, Florida was still trying to repair its reputation as the “epicenter of prescription drug diversion” in the US. Just 6 years earlier, the DEA had reported that Florida physicians were dispensing five times more oxycodone than the national average, resulting in a massive increase in deaths from opioid misuse. Subsequent increased regulation of pain clinics and standardization of physician prescribing guidelines and monitoring dramatically decreased overdose deaths in the state. However, these regulations necessitated close scrutiny of APRNs during the transition to schedule II-IV prescribing to ensure that APRN prescribers would not repeat the mistakes of the past.

Florida was the last state to grant controlled substance prescriptive authority to APRNs, so Florida’s APRNs looked to other states to proactively prepare for this important transition in practice. Researchers in Washington—one of the earliest states to grant APRNs prescriptive authority for controlled substances—began documenting its transition in 2001, a few months prior to prescriptive authority expansion, and continued to document its transition over a 5-year period after the legislative change took place. No other state’s transition to controlled substance prescribing has been so thoroughly documented, so Florida researchers mirrored this approach in studying Florida’s transition. Of note, the comparison to Washington is not exact, as Washington’s transition added physician joint practice agreements to prescribe controlled substances, whereas supervisory agreements were already in place at the time of the Florida legislative change.

Prior to the passage of House Bill 423, Craig-Rodriguez et al. evaluated barriers to Florida APRNs prescribing schedule II-IV medications, and identified significant knowledge deficits regarding regulatory guidelines, opioid classes and doses, risk assessment, monitoring, and dealing with challenges. They took this as evidence of a need for more education prior to making this transition. Courses were subsequently developed to meet the 3-credit controlled substance prescribing continuing education (CE) requirement set forth by the Board of Nursing as part of initial licensure and with each biennial renewal. Two years following the legislative change, Weissing examined barriers to and impacts of controlled substance prescribing in two Florida NP organizations and found evidence of widespread adoption of controlled substance prescribing: 81.6% of participants held DEA registration (comparable to the 76.9% of Washington NPs at the same interval postlegislation). However, Weissing sampled from a population likely to be highly engaged in NP practice issues, so it is unclear whether this high percentage reflects the broader population of Florida APRNs.

**Knowledge gaps and prescribing preparedness**

Even without the recent legislative changes, the evidence reveals that APRNs (as well as other medical providers) feel the need for additional education in the area of controlled substance prescribing. A study of Washington healthcare providers who managed chronic noncancer pain found that only 28.2% of APRNs rated themselves as very or extremely competent in treating noncancer pain, and Mayo Clinic (Minnesota) researchers found that most of their clinicians (52.9%) did not express confidence in their ability to care for patients with chronic noncancer pain. Providers expressed apprehension about incorporating opioid prescribing into practice, including concerns about adverse drug reactions, managing patients with substance use disorders, and prescribing extended-release opioids. APRNs specifically indicated they felt poorly prepared to prescribe controlled substances in their practice, with one study reporting only 25% of practicing APRNs felt their education prepared them very or extremely well. Given the knowledge gaps identified by research prior to the 2017 legislative change, the aims of this study were to assess Florida APRN utilization of prescriptive authority, examine perceived barriers to prescribing, and evaluate feelings of preparedness to prescribe.

**Methods**

**Design**

This descriptive study employed a cross-sectional design with a self-selected, nonprobability sample of
actively licensed Florida APRNs. The study was approved by the Institutional Review Board at Florida State University.

**Sample selection**

We recruited a sample of actively licensed Florida APRNs with prescriptive authority, including certified NPs, certified registered nurse anesthetists, and certified nurse midwives (we excluded clinical nurse specialists, who do not have prescriptive authority in Florida). Inclusion criteria were as follows: Participants had to (a) be an actively licensed APRN with prescriptive authority practicing in Florida, (b) be 18 or older, (c) be able to read and write English, (d) have a valid email address in the data portal, (e) be able to complete the online informed consent, and (f) not have partaken in Weissing’s prior study of Florida APRN prescribing.13 We accessed providers’ contact information via the Florida Health Care Public Data Portal (June 14, 2019).20 The database included 32,374 Florida APRNs with clear and active licenses, and email invitations were sent to 25,548 APRNs with valid email addresses. Of these, 2,487 participants started the survey (9.7% response rate), indicating implied consent to participate, and 1,850 completed the survey and met inclusion criteria.

**Data collection tool and deployment**

The 41-question survey employed for data collection was adapted from a survey instrument utilized in Washington state, modified to meet Florida’s practice regulations (survey available at osf.io/7qhf5).7 Survey validation has come through replication within the same population group over time.8,11,17 Survey domains included current practice setting(s), prescribing practices, and demographic information, and the survey took most participants approximately 11 minutes to complete (median [interquartile range] = 11:18 [8:43, 16:46]). The email to participants included an introduction and an anonymous Qualtrics survey link. Sampling ran from July 22 to September 30, 2019, with reminder emails 2 and 4 weeks after initial contact.

**Data analysis**

We analyzed data using descriptive and nonparametric inferential statistics in SPSS Version 23. We used Kendall’s tau coefficients (τ) for associations between ordinal variables or an ordinal and a dichotomous variable (see osf.io/7qhf5 for a codebook documenting survey question levels of measurement). This coefficient is comparable to the Pearson correlation (r), measuring the strength of association between two variables from -1 to 1, with zero representing no association. Significance levels for all inferential tests were set at α = .05. We used pairwise deletion for missing data in analyses, and all percentages reported are percentages of valid responses to the item (no variable was missing more than 1.7% of responses).

**Results**

**Demographics**

The 1,850 respondents (mean age 49.76, standard deviation [SD] 11.67) averaged 11.7 years of experience as an APRN (SD 10.1), were predominantly female (88.3%), and generally planned to work for over...
10 more years (57.4%). Most worked full time (32+ hours per week, 76.9%), had a master’s degree (78.5%), worked in urban areas (77.0%), and saw a median of 46-60 patients per week. When asked how often a physician was on site to discuss patient problems, 43.2% of APRNs reported nearly always (76% to 100% of the time; see Summary of participants’ individual characteristics and Summary of participants’ practice characteristics).

Prescribing patterns
Two years after legislative changes, 55.3% of respondents had DEA registration to prescribe schedule II-IV substances (n = 1,021), and 59.3% of participants prescribed controlled substances (n = 1,093), while 40.7% (n = 749) indicated they did not. When examining practice characteristics, APRNs who chose to prescribe controlled substances were more likely to describe the relationship with their supervisory provider as equal, without any hierarchy (τ = .123, P < .001). There was no association between APRNs’ choice to prescribe when he or she was practicing in other supervisory provider relationships.

The most commonly selected reasons for not prescribing were a lack of desire (33.9%), having an MD on site who wrote schedule II-IV prescriptions (30.3%), and not being permitted by one’s practice setting (30.3%). Of particular note, only 13.0% of respondents cited unwillingness to pay for a DEA number as a reason they do not prescribe controlled substances. Of those with DEA registration, 41% (n = 417) paid for the registration themselves whereas 59% (n = 601) had their facility or practice pay the fee (see APRNs without schedule II-IV authority).

Perceived readiness to prescribe
We evaluated APRNs’ perceived readiness for prescribing schedule II-IV substances using five variables: graduate education preparedness, number of CE hours, CE preparedness, global preparedness, and global comfort with prescribing.

APRN’s perceptions of how well their graduate education prepared them to prescribe controlled substances varied substantially: although 30.5% indicated that their graduate education had prepared them very well or extremely well, a substantial minority (26.7%) felt their graduate education had prepared them poorly. Most participants exceeded the minimum number of required controlled substance CE hours: 26.3% of the respondents took the minimum 3 hours, 24.2% took 4 to 7 hours, and 35.7% took 8 or more hours of CE. Perceptions of CE effectiveness varied substantially: when asked to rate how well CE hours prepared them to prescribe controlled substances, 19.8% selected little or not at all and 28.1% reported feeling very or extremely well prepared by their CE. However, APRNs generally felt prepared to prescribe controlled substances and comfortable with doing so. For global reports of preparedness, most APRNs (51.3%) indicated that they felt very or extremely prepared to prescribe (and another 21.5% felt moderately prepared), whereas only 11.9% reported feeling a little or not at all prepared. Reports of comfort were similarly distributed, with 45.7% reporting feeling very or extremely comfortable prescribing (and another 24.2% felt moderately comfortable), whereas only 14.0% reported feeling a little or not at all comfortable.
Finally, to explore feelings of readiness to prescribe, we examined associations between various education variables and feelings of preparedness to prescribe and comfort with prescribing. Feelings of preparedness and comfort were highly correlated (τ = .703, P < .001), and were higher among APRNs who ranked their graduate preparation more highly (preparedness: τ = .320, P < .001; comfort: τ = .282, P < .001), who completed more CE hours (preparedness: τ = .302, P < .001; comfort: τ = .324, P < .001), and who rated those CE hours more highly (preparedness: τ = .367, P < .001; comfort: τ = .390, P < .001).

Discussion
In a large survey conducted 2 years after receiving controlled substance prescriptive authority, a majority of Florida APRNs reported prescribing controlled substances, and APRNs generally felt prepared to prescribe and comfortable doing so.

Prescribing rates and barriers to prescribing
While the Florida DEA registration rate of respondents (55.3%) is encouraging 2 years after the legislation changed, this is substantially lower than the same rate in Washington 2 years into prescriptive authority (76.9%), despite the increased utilization of these drugs in clinical care in the intervening 16 years.1,8 One might wonder if this reflects external barriers, such as supervisory agreements preventing APRNs from exercising prescriptive authority. Indeed, more than one in four respondents reported their practice setting did not allow prescribing controlled substances. However, a separate sample of Florida APRNs from two professional APRN organizations (N = 272) indicated that more than 80% held DEA registration and were prescribing controlled substances, perhaps suggesting that practice setting restrictions of controlled substance prescribing are not as significant of a barrier as the present study suggests.13

The other most commonly cited reasons for not prescribing controlled substances were that participants did not desire to prescribe them or that an MD prescribed them in their practice setting. These reported reasons echo results from Washington’s transition.8 As in our results, Washington APRNs primarily cited a lack of desire to write schedule II-IV drugs and the presence of a physician colleague who wrote prescriptions for schedule II-IV drugs.8

<table>
<thead>
<tr>
<th>APRNs without schedule II-IV authority*</th>
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<tbody>
<tr>
<td>Reason</td>
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<tr>
<td>Do not want to prescribe any controlled substances</td>
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<tr>
<td>MD writes prescription for schedule II-IV drugs</td>
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<tr>
<td>Practice setting does not allow prescribing controlled substances</td>
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<tr>
<td>Developed a practice that does not include schedule II-IV drugs</td>
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<tr>
<td>Unwilling to pay for a DEA number</td>
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<tr>
<td>Employer created barriers to prescribing schedule II-IV drugs</td>
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<tr>
<td>Ambivalent about prescribing controlled substances</td>
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<tr>
<td>Lack the expertise to prescribe controlled substances</td>
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<tr>
<td>Concerned about potential disciplinary action by state/federal agency</td>
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<tr>
<td>Concerned about my skills for dealing with drug-seeking behavior</td>
</tr>
<tr>
<td>Another APRN writes prescription for schedule II-IV drugs</td>
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</tbody>
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Note. Respondents could select multiple response options.
*Among 749 APRNs without schedule II-IV authority.

One positive finding from this study was that 59% of the respondents reported that their facility or clinic was covering costs of DEA registration. The DEA registration fee is currently $731 for a 3-year period, and this expense may have been a potential barrier to APRNs embracing prescriptive authority, especially since many APRNs already pay for their supervisory agreement.21 However, only 13.0% of nonprescribing APRNs cited DEA registration cost as a reason for not prescribing, suggesting that this barrier is minor compared with lack of desire or practice setting restrictions. Additionally, it was encouraging to note that only 5.9% of respondents not prescribing controlled substances felt they lacked the expertise to prescribe. The previously encountered knowledge barriers prior to the Florida legislative change appear to be minimal from this report.6 This may be due in part to the state-mandated controlled substance CE for licensure.

Unsurprisingly, participants who described their relationship with their supervisory provider as equal without hierarchy had a higher likelihood of currently prescribing controlled substances in their practice.
This result is consistent with evidence supporting fewer scope of practice restrictions for APRNs, particularly with prescriptive authority, in order to fully utilize their training and education to provide comprehensive patient care. While future research can further investigate the impact of supervisory agreements on controlled substance prescribing, this initial finding can provide support for a transition to full-practice authority for Florida APRNs.

Of note, the discrepancy between participants with DEA numbers and participants who report prescribing controlled substances likely reflects the reality that while APRNs may be actively involved in making daily prescribing recommendations to their collaborating physicians regarding schedule II-IV medications for their patients, they may not be permitted in the practice to actually sign the prescription itself, necessitating the signature to come from the collaborating/supervising physician.

**Perceived readiness to prescribe**

Though prior work identified key knowledge gaps, results from this study suggest Florida APRNs are utilizing controlled substance prescriptive authority with comfort and confidence. Florida APRNs appear to have proactively bridged this knowledge gap, as nearly 60% of survey respondents exceeded the state-mandated minimum CE hours. Florida APRNs may have been proactive about controlled substance prescribing preparation due to concerns about Florida’s tarnished reputation with opioid prescribing. Moreover, having completed more CE hours resulted in APRNs expressing increased feelings of preparedness to prescribe and comfort with prescribing.

Indeed, comparison of our results with prior work in Washington suggests that Florida APRNs may in fact be more prepared to prescribe controlled substances than Washington APRNs were at the same point in their transition. A substantial minority of APRNs felt their graduate training poorly prepared them to prescribe controlled substances (26.7%), but 30.5% felt very or extremely well prepared. These responses are comparable to responses from Washington APRNs (22% and 25%, respectively), despite the Florida changes having 3 fewer years to go into effect (2 years postchange, versus Washington’s 5 years). This might suggest that guidelines for controlled substance prescribing education, including those made by state-focused interagency work as in Washington state, have accelerated the readiness of APRNs. It is also important to note that those who rated their graduate educational program preparation more highly were also more likely to have improved feelings of perceived preparedness and confidence with prescribing. Together, the preparedness findings suggest that APRN graduate education is performing an acceptable job of preparing NPs to prescribe controlled substances, but that ongoing CE courses can augment and increase confidence and preparedness among APRNs with prescribing in their own right.

**Limitations**

Our study is primarily limited by self-selection, low response rates, and reliance on self-report data. Although we sampled broadly by sending our survey to nearly 80% of actively licensed APRNs in the state, participants self-selected into the sample, likely introducing bias and limiting the representativeness of the sample. The study was limited by a response rate of 9.7%, which also calls into question the representativeness of the sample. The most prominent limitation of our study is our reliance on self-reported retrospective data as to how prescriptive authority has changed APRNs’ practice, which is subject to a variety of memory and perceptual biases.

**Recommendations**

The present work has implications for APRN practice and education, as well as future research on the utilization of controlled substances in practice. This study found that APRNs are utilizing the ability to prescribe controlled substances in practice, increasing the comprehensiveness of the care available to patients, but recommendations moving forward also involve investigating whether APRN DEA registration continues to evolve as Florida practice authority expands. The current work suggests that education regarding controlled substance prescribing has increased APRNs’ perceptions of comfort and preparedness, and while ongoing CE plays a valuable role, graduate education can make improvements to help more APRNs feel prepared upon entrance to practice. Preparing APRN students with essential controlled substance prescribing education, such as different treatment modalities for patients who struggle with chronic pain, substance use disorders, and those who have acute pain with a history of addiction, can ensure that new APRNs are able to properly treat patients with these needs. Further research is needed to evaluate educational program implementation of controlled substance curriculum into nursing graduate programs as Florida APRN prescribing of...
these substances continues to develop. Finally, to counter known issues with self-report data, future research on APRN practice trends should include more objective measures (for example, chart reviews and insurance billing logs).

**Conclusions**

Two years after legislative expansion to prescribe schedule II-IV substances, Florida APRNs reported that they are prescribing controlled substances to their patients and are exceeding minimum educational requirements. Moreover, APRNs who prescribe controlled substances in their practice report feeling prepared and comfortable in doing so. At the time of this writing, Florida APRN full-practice authority is available only to advanced practice nurses working in primary care who meet a specified criterion; additional legislative initiatives are underway, however, to expand APRN autonomous practice to all practice settings. As new APRNs enter the workforce and current providers become more comfortable with these legislative changes, it is our hope that more Florida APRNs will continue to embrace this prescriptive autonomy and serve as leaders for future legislative transitions toward full-practice authority.

**REFERENCES**

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