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2021 NCSBN Scientific Symposium - Prescriptive Authority and Nurse Practitioner Opioid Prescribing Practices Video Transcript
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Event

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Presenter

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- [Woman] Ulrike Muench is an associate professor in the School of Nursing at the University of California, San Francisco, and a nurse and nurse practitioner by training. Her research examines the evolving roles and practice patterns of health care professionals, especially nurses and nurse practitioners. She uses big data and large surveys with interdisciplinary social science methods to inform local, state, and national policies.

Her research has been published in leading health care journals, including JAMA, New England Journal of Medicine, and Health Affairs.

- [Ulrike] Hello, everyone. My name is Ulrike Muench, and I'm an associate professor in the School of Nursing at UCSF, and affiliated faculty at the Philip R. Lee Institute for Health Policy Studies. Today, I'm sharing with you preliminary results from our study in which we examined opioid prescribing patterns of nurse practitioners and the association with state scope of practice regulations.

I'm grateful for the support from the National Council of State Boards of Nursing, and I would also like to thank my collaborators on this research, Dr. Joanne Spetz, Dr. Jennifer Perloff, and Dr. Cindy Thomas, as well as Matthew Jura. To begin, I would like to give you some background on what motivated the study. My team and I began studying prescribing patterns of nurse practitioners several years ago through a grant from the National Council of State Boards of Nursing.

While a large body of research existed on quality outcomes of NPs and MDs, prescribing patterns were rarely the focus of these studies. This is somewhat surprising since much of the scope of practice policy debates centers around prescriptive authority and controlled substance prescribing of nurse practitioners. In our early research on prescribing patterns, we compared in a national sample of Medicare patients the prescribing patterns of beneficiaries who receive care predominantly from NPs compared to

beneficiaries who receive their care predominantly from MDs, and examined how the volume and types of prescriptions differed in these two groups of patients across the top 20 drug classes in primary care.

We've found that both types of providers prescribe very similarly for these common drug classes. The table shows the number in share prescriptions as well as the average number of prescriptions per beneficiary. You can see that for antihypertensives, for example, both the NP and the primary care physician beneficiary groups received antihypertensives as the most common drug class, with a total share of 9.7% and 10.5%.

For the number of prescriptions per beneficiaries, both groups received, on average, about 10.7 prescriptions. The pattern was very similar for the other drug classes as well. Following these analyses on prescribing patterns across the most common medication classes in primary care, we examined differences in adherence for three chronic medication classes, anti-diabetic medications, renin-angiotensin system antagonists, and statins.

We've found no difference in adherence for two classes. For statins, however, 73.8% of NP patients and 74.8% of MD patients had good adherence. While this finding was statistically significant, it is likely not a clinically meaningful difference. Around the same time when we were working on these analyses, researchers and policymakers had begun to examine the role of clinicians in contributing to the opioid epidemic.

This also brought renewed interest to the policy debate about prescriptive authority for NPs, specifically with regards to the prescribing of controlled substances without physician oversight. The opioid epidemic was at its peak between 2010 and 2012, and you can see that overdose deaths from prescription opioids have not significantly decreased since then.

Overdose deaths involving any opioids remain high as well. There was much interest in understanding the role of clinician's opioid prescribing patterns in the opioid epidemic. Two studies published in 2015 and 2018 using data from 2012, and 2016, and 2017 drew attention to the fact that the majority of opioid prescriptions are written in primary care.

The study on the left counted prescriptions from NPs and PAs together. And the study on the right, the later time period, showed that the share of opioid prescription from NPs and dentists had increased somewhat by 2016-2017. While studies began emerging on opioid prescribing outcomes of physicians for different specialties and conditions, evidence of NP opioid prescribing was still lacking.

Two studies examined the associations of opioids with state scope of practice regulations. Schirle and McCabe found that states that required physician oversight in prescriptive authority had higher average number of opioids per 100 patients. And the study by Ladd and colleagues, which examined aggregated number of opioid prescriptions at the state level, found that for both NPs and MDs, the number of opioids were higher in states that did not require physician oversight in practice and prescribing.

In 2019, my team and I published the first study examining opioid prescribing patterns of patients that were managed by MDs and NPs using Medicare data. We conducted the analysis only in the 14 states that had adopted full practice authority for NPs, including no physician oversight requirements for the prescribing of controlled substances.

We conducted a longitudinal propensity score weighted adjusted analysis using data from two time periods. The outcomes that we measured were any opioid, morphine milligram equivalents of greater 100 milligrams per day, a 7-day opioid prescription overlap of 2 opioids, a 7-day opioid and benzodiazepine overlap, as well as whether beneficiary was an acute user, which was defined as under 3 months of opioid use, or a chronic user, which was defined as greater 3 months of opioid use.

Our results showed that NP-managed beneficiaries were less likely to receive any opioid, were more likely to receive a high dose of morphine milligram equivalent of greater 100 milligrams per day, were less likely to have an opioid and benzodiazepine prescription overlap, and were less likely to be acute users. Our other outcomes were not statistically significant.

We interpret these findings to mean that although NP patients receive fewer opioids, when they do receive opioids and when patients need continued pain management, they are slightly more likely to receive too high of a dose compared to MD-managed beneficiaries. The analysis could not determine, however, the degree to which differences in prescribing patterns were due to provider differences or different pathways of care among patients with opioid prescriptions.

For example, one explanation for our findings could be that NPs are more likely to work in pain management clinics or are more often receiving referrals of patients who have chronic pain conditions. We concluded that to better understand opioid prescribing patterns of NPs, it is important to focus on subpopulations of patients, for example, opioid-naive patients, to better understand how NPs, and MDs, and primary care are managing pain in a group patients who do not have a prior history of opioid use, or how NPs and MDs prescribe opioids for patients who do have a chronic pain history.

This brings us to the design of our current study. We set out with the aim to focus on opioid initiations rather than all beneficiaries who received opioids. For this study, we were able to use data on the entire Medicare population. This meant that we could observe every NP and any other clinician who had their own National Provider Identification number and all their opioid prescriptions.

We identified opioid-naive beneficiaries by scanning all beneficiary prescriptions in 2017 for an opioid, and if we did not find an opioid prescription for them, they were opioid-naive. We then look in 2018 for beneficiaries that were started on an opioid. We excluded patients who were under 65 years old, had a cancer diagnosis or end-stage renal disease, and if they had a hospice claim, since pain management typically looks very different for these diagnoses and settings compared to pain management in primary care.

Our measures were guided by the CDC guidelines on the prescribing of opioids for chronic pain, which were released in 2016. The guidelines included 12 recommendations, of which number 4, 5, and 6 pertain to the dose and type of opioid. We use these recommendations to specify our outcome variable of interest.

For example, the guidelines recommend starting therapy with a short-acting opioid, and we identified short and long-acting opioids in our data with the goal of measuring the number and share of patients that are started on these medications. Using the lowest effective dose and rarely increasing individuals to greater than 50 milligrams per day was another recommendation.

For acute pain, the guidelines suggest that three-day supply will often be sufficient. And that more than seven-day supply will rarely be needed. Of note, in response to the guidelines, 15 states have passed laws limiting first-time opioid prescription to seven days or less. We began by calculating the number of opioid initiations in 2018 for individuals who were opioid-naive in 2017 by provider specialty.

We saw a total of approximately 2 million opioid initiations in 2018. Of those, 17 were prescribed by providers in general surgery. Giving us an indication that these first opioid prescriptions are likely associated with a surgical event. After general surgery, we see the physician primary care specialties of internal medicine and family medicine, followed by PAs, emergency medicine, and then NPs.

If we go back to one of our slides from earlier that showed the total number of opioid prescriptions in our studies, we can see that when we focus on the initiations only, NPs no longer represent the third-largest share.

Next, we excluded individuals for whom we were able to identify that they had a surgery to help us better understand what is happening with initiations in primary care. And we see that the percent of initiations from general surgery providers drops significantly, with larger shares going now to primary care specialties.

And when we focus on primary care alone, we see that both PAs and NPs contribute to initiations less than physicians, which in itself isn't surprising because there are fewer NPs and PAs than primary care physicians. Next, we take a deeper dive into the different specialties just within NPs, as well as begin looking at our prescribing measures of interests.

We are able to identify these specialties by using the taxonomy code for the provider that is based on the National Provider Identification number or NPI. We can obtain the NPI from the prescriber characteristics file. The first two columns show us the distributions of opioid initiations among NP specialties.

Similar to when we looked at all providers, the largest shares of initiations are occurring in primary care specialties. The third column shows the average day supply on the initiations. If you remember from the guidelines, initiations are recommended to be three days in length or rarely greater than seven days.

The average day supply in our data is almost nine days in length, with some of the largest days' supply coming from psych/mental health NPs with 11.8 days' supply. The next three columns show the frequency column and row percentages for the share of first opioid prescriptions that were greater than seven-day supply.

52.7% are occurring in family, which is not surprising given that it is the largest NP specialty. The row percentage tells us the within specialty percentage. For example, for all opioid initiations within family NPs, 35% of the beneficiaries received the greater than seven-day prescription, compared to gerontology where almost half of all initiations were greater seven-day supply.

Next up is our morphine milligram equivalency measure, which indicates the daily morphine dose. Generally speaking, the share of beneficiaries who received MME of greater 50 milligrams from NPs was small, on average, 8.2%, with the largest percentage of 13% occurring in acute care.

Moving to our short and long-acting opioid measures, the good news is that very few initiations were with long-acting opioids, only 633 prescriptions in total. So conversely, the majority of initiations were with short-acting opioids. And this was the case consistently across all NP specialties.

Next, we asked what picture emerges when we examine whether these prescribing patterns look differently in full practice authority states, versus states that do not allow NPs to practice and prescribe without physician oversight? Let's begin by looking at average day supply. The blue bars represent opioid initiations from full practice authority states, and the green bars from non-full practice authority states.

The top two bars are overall differences for NPs. And after that, we break it out again by NP specialty. At the bottom, I plotted the average day supply for MDs so you can see that as a comparison. This graph illustrates that, overall, there is a very small difference of slightly longer days' supply in non-full practice authority states, and that this holds true for the larger specialty family as well as the majority of other specialties.

We can also see that NPs, in general, prescribe slightly higher days' supply on the first prescription. It was about 8.9 days, regardless of full practice authority status, compared to MDs who have, on average, 8.5 days' supply when they initiate an opioid. When we take a look at the average day supply of prescriptions that were longer than seven days, this pattern becomes even more pronounced.

The longer days' supply are occurring now in almost every specialty in no FPA states. And NPs are prescribing almost one additional day on these greater seven-day supply prescriptions. The next graph shows the shares of beneficiary by within specialty who had greater than seven-day supply.

Overall, between 34% to 35% of all NP beneficiaries have a greater than seven-day supply. And the majority of specialties are seeing a slightly higher percentage in FPA states. We now take a look at the association between full practice authority and MME greater than 50 milligrams.

And we see that the pattern is similar and that we see greater shares of initiations pretty consistently coming from full practice authority states, which are the blue bars. We are currently conducting several multivariable analyses to assess if the relationship with the primary care provider predicts an opioid initiation for beneficiaries who did not have a surgical event.

These regressions control for beneficiary and county-level characteristics. Our preliminary analyses suggest that in beneficiaries who receive their care predominantly from an NP compared to a physician, that they're more likely to have an opioid initiation. The effect size is very small, with the odds being 1.027.

This effect stays quantitatively the same when we look at the full practice authority states versus non-full practice authority states. NPs in both types of states are slightly more likely to initiate an opioid compared to MDs. We interpret our analyses to date to mean that, for several measures, including

average day supply, the likelihood of experiencing a prescription of greater seven-day supply or a prescription of greater than 50 milligrams of MME are slightly less favorable for NPs compared to physicians.

Descriptive results so far indicate a possible association with scope of practice. Counterintuitively, non-full practice authority states were more likely to see longer average day supply from NPs, while full practice authority states were more often observing initiations of MME of greater 50 milligrams per day.

Our preliminary regression results show that increased likelihood for an NP-managed beneficiary to experience an opioid initiation. And we observed this effect in both full practice authority states and non-full practice authority states, suggesting that full practice authority status does not play a substantial role when we examine opioid prescribing patterns of NPs.

While the association with the NP provider type was small, it will be important to better understand in future analyses what drive these prescribing patterns and what we can do from a policy and nursing education perspective to support NP clinicians but, of course, also other clinicians to make changes to their prescribing patterns.

This is important also from a rural/urban perspective, where NPs are more likely to be the sole provider to their patients. Our next steps are to conduct careful robustness analyses to verify these initial results are stable across multiple regression specifications. Thank you very much for your interest. An additional component that we are currently examining in our analyses is to understand what diagnoses are occurring on these first initial prescriptions to tease out better what is sort of an acute diagnosis versus, like, a chronic pain diagnosis.

Okay, I'm seeing a question now from Michelle Bach [SP]. That is a really great question. The question is about whether there are any data on opioid renewals by NPs. And not that I'm aware of, but it is something that we will also be looking at as part of our analyses going forward.

We are very interested in understanding how that changes by type of provider. Lee Hubbard [SP] is asking a question about the number of years in practice evaluated when we did these analyses. No, we have not done that yet.

However, there is some data that we could use to look into the length of time since someone obtained their DEA number, which would allow us to get a sense of for how long an NP has been in practice. And that is also something that we would like to do going forward.

I'm seeing another question here from Laura, on behalf of Lucene Pargossiene [SP] and this is a really excellent question, to what extent the variation by practices and so not just states or scope of practice is affecting these prescribing patterns.

And this is also something that we are very keen to look into and that we have on our to-do list going forward, to sort of get a sense of whether it is the prescribing so with your colleagues and there are specific patterns that might happen based on who you are working with in the office. And that might have a big effect on how you're prescribing rather than our state scope of practice variations, for example.

These are really excellent questions. Well, I'm not seeing any additional questions coming in. Thank you again for your interest. And have a good rest of your symposium. Thank you.