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2026 NCSBN Scientific Symposium

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Presenter

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- [Ben McMichael] Hello, my name is Ben McMichael. I'm a professor of law at the University of Alabama School of Law. I'm very excited to talk to you today. I'm going to be talking about ambulatory sensitive conditions and nurse practitioner scope of practice laws.

I've spent, at this point, over 10 years of my career studying nurse practitioner scope of practice laws, so excited to be able to talk to you today about some recent research that I've had the chance to do. So what exactly are we going to talk about? So I'm going to go ahead and spoil the ending for you a little bit here. So my central question, right, what is this paper about?

And it asks, "What happens when we grant nurse practitioners full practice authority? Does that lower admission rates? Does that increase admission rates? How do we measure admission rates? What do we think about?" And so throughout this paper, I'm going to focus on ambulatory sensitive conditions. I wish I were smart enough to have invented this. I didn't. I'm stealing this gratuitously from the existing literature.

And so an ambulatory sensitive condition, or an ASC, is a hospital admission that could have been avoided, potentially, not necessarily all of them, but could have been avoided with the timely receipt of quality outpatient care. So you think about it this way, right? If I have diabetes, you know, I'm having some complications. If I have, you know, ready access to a healthcare provider in my community, I go talk to them, they adjust my medications and I get better, right?

That the complications subside. You know, maybe I'm not perfect, right? I still have diabetes. But I don't have to go to the hospital for, you know, diabetic complications, whereas if I'm that same person suffering from those complications but I don't have ready access to outpatient care, you know, there's... The physicians in my community are all full. My state restricts nurse practitioners, so I don't have a lot of nurse practitioners to go talk to.

My diabetes continues to get worse, and eventually that results in a hospital admission, right? Most people agree that's a bad thing. If we can treat something in an outpatient setting, we want to do that for various reasons. It's lower cost. It's better from the patient's perspective, right? I'm not a practicing clinician, but I know I always feel better in my own bed. I always feel better in my own house, so I would prefer to avoid hospital admissions.

And so that's what I'm going to focus on here today. What happens when we grant nurse practitioners full practice authority? Does that increase access to community-based care? Does that reduce ambulatory sensitive conditions? And which ones does it reduce, right? Does it reduce the ones that we really could have avoided this hospital stay, you know, it's kind of a marginal stay?

There are always going to be some conditions that are ambulatory sensitive but still have to result in a hospitalization, right? Really bad pneumonia, something like that. You're going to have to go to the hospital. So the goal of this paper is to really look at are we peeling off some of those ambulatory sensitive conditions that really don't need to be a hospital stay. So I'm going to answer that question with what I think is really interesting data.

It's multi-state inpatient discharge data from 2010 through 2019. I have spent a lot of my time, a lot of my career, kind of, coding up nurse practitioner scope of practice laws. I have those at the state quarter level, and so I'm going to look at ambulatory sensitive conditions in this hospital discharge data and see what happens with full practice authority. Just again, to spoil the ending for you, I do find that granting nurse practitioners full practice authority reduces admission rates for ASCs and that the strongest reductions happen in diabetes and hypertension, you know, conditions that we think NPs are pretty good at treating.

And it tends to see... or you tend to see the largest effect among Medicaid patients, again, a population that NPs treat disproportionately to their physician colleagues, and that's not just my opinion. I mean, that's relatively well-supported in the existing literature. So I don't know if this slide is really necessary for this audience, but I'm going to put it in here anyway. You know, why do we care about scope of practice laws?

And so we care because it changes fundamentally the nature of being an NP, or at least legally it changes the nature of being an NP. What can you do? What can you not do? And there's different ways to define this. I will be totally honest with you, the American Academy of Nurse Practitioners disagree with me on some of these state laws.

I'm going to maintain my coding. I'm happy to answer questions in the live Q&A session if anybody has any of those questions about why I code certain states the way that I do, but I spend a lot of time thinking about this. So there's basically two ways to regulate NPs under my kind of coding system, which I jointly developed with Sara Markowitz a few years ago. Full practice authority means that NPs can prescribe the same range of medications as physicians, and there is no legally mandated supervision of NP practices by physicians.

And I don't distinguish between collaboration and supervision. I know they're different terms used in laws, but legally they mean the same thing. It means that an NP can't practice without physician oversight. So if both of those two things are true, then you're a full practice authority state. If one of those two things is not true, then you're a restricted practice state.

So ASCs. You know, I already kind of talked about this, but just to kind of give you an idea of what's going on here, right? Ambulatory sensitive conditions are conditions that hospital admission may have been prevented. And again, I'm not saying they can all be prevented. They can't be. But some of them can be, right? And so if you change something in the community that increases access to care, right, maybe you have more timely primary care intervention, right?

If we pass full practice authority in the state where I'm sitting in right now, Alabama, we don't have that by the way, but if we did, maybe it's easier for me to go see an NP and I can get my problems taken care of in an outpatient setting and avoid an ASC admission, right? If I don't have that access, right, maybe I have delayed care, which means I have to go to the hospital because now, you know, my diabetes has gotten to the point that I have to have hospital level care.

And so throughout this study I'm going to look at seven different ASCs. I'm going to look at angina, asthma, CHF, COPD, convulsions, which includes epilepsy, diabetes, and hypertension. These are not the only ones out there. I chose kind of the most prevalent definition of ASC, ambulatory sensitive condition. There are other ways to think about this.

I'm not claiming this is the only one, but I did specifically choose the most prevalent one because that would provide the most... or maybe not the most but the easiest comparison with the existing research out there. Okay, and so what does this paper add to the literature, right? There is a growing literature, and I think it's fair to call it robust at this point, on what happens when we grant nurse practitioners full practice authority.

A lot of studies have looked at, you know, what happens in different settings. The issue with those studies is they tend to be fairly narrow. We don't have kind of the broad population focused studies that maybe we want when we're talking to state legislatures about whether it's a good idea or a bad idea to pass full practice authority.

And so a lot of these existing studies limit themselves to specific payer populations. Medicare is a popular one. Medicaid is also a popular one. The VA hospital, right, or the VHA population, also a very popular one because the data exists. Sometimes even when they do have, you know, kind of broader range data focused on a very narrow clinical question, so opioid prescribing, that kind of stuff.

And so the goal here is really to broaden out as much as possible. And I'm not claiming that, you know, I have captured the entire healthcare system, right? That's not the case. But I do have all payers in my dataset. I also have more than 20 states over 10 years, so I have a better idea of what's going on with full practice authority than in some of the more narrow studies out there already in the existing literature.

And this is not to say that those studies are bad, right? That you should believe them. The only issue is they tend to be a little bit more narrow. Okay, so where do I get all of this wonderful data? It comes from the healthcare cost and utilization project. It's maintained by the federal government, or not maintained, but kind of spearheaded by the federal government, and I use their state inpatient databases, so I see all adult inpatient discharges.

I have done some pediatric work that's not part of this paper, so we're going to kind of put the pediatric population to the side. And from all of these inpatient discharges, I grab all of the ASCs. And so the way I do that is I look at ICD-10 and ICD-9 codes in the existing literature to define these different ASCs.

And so from that I pull out all the ASC admissions data. I organize that at the county quarter level. And so I grab county population data and just calculate, you know, how many ASCs did we see in this county in this quarter. The population data comes from the SEER program, which is a widely used county level population dataset. I also use the American Community Survey to get Medicaid population, Medicaid rates, Medicare population, those kinds of things.

Unfortunately, that is not available for the entirety of my sample, so the payer specific population results are a little bit more limited. They don't have all the way back to 2010, so I can't show you all of that. But the main results, the ones that are for everybody, those use all states and years available in my dataset. Okay, so here's just a quick overview of what these look like.

There's seven ASCs. They're defined by ICD-9 and ICD-10 codes. This isn't a complete list. This is just to give you an idea of what's going on. And so the main outcome is the ASC admission rate. That's going to tell us, you know, does granting nurse practitioners full practice authority, does that reduce the number or the rate of ASC admissions across the population? With that, I'm going to pair mean length of stay.

And the reason I do this is I want to see, you know, if we are reducing or maybe even increasing ASC admissions, which ones are we changing, right? And so if full practice authority works the way we think it does, which is to say it increases access to quality outpatient care, right? What should happen is we see less.

We see fewer ASC admissions, right? We don't have quite as many in the population. It's not going to zero, right? It's probably never going to zero. Like things happen, and we do have to send people to the hospital, but we should see a reduction. But it matters where we see that reduction, right? And so in theory if full practice authority works like it should, the reduction should come from relatively simple ASC admissions, right?

The ones that were marginal, they didn't have to go to the hospital. You know, they got their diabetes medication changed in time. They got their blood pressure medicine adjusted in time. And so those folks shouldn't have been staying in the hospital very long. The people who do end up going to the hospital, though, right, after we grant nurse practitioners full practice authority, they should be the relatively sicker ones.

So that means that if full practice authority works the way it should, we should see fewer ASC admissions. But the ones that we do see, those folks should be staying in the hospital a little bit longer on average because they were sicker, right? So if you think about 100 patients who are admitted to hospitals because they have an ambulatory sensitive condition, we grant full practice authority, maybe the bottom 20, right?

So numbers 1 through 20. The least sick folks, right? We peel them off. They don't have to go to the hospital. But they weren't going to stay very long. That means that of the 80 that did go to the hospital, right, the average length of stay should increase because we have to spend more resources. We have to keep them in the hospital longer because they're on average sicker.

And so that's why I look at mean length of stay. So that's kind of a companion outcome to the ASC admission rate itself. Okay, and so I'm going to just go over this really quickly. I'm happy to answer any questions about this in the Q&A session, or if you want to go ahead and put in your questions, I'm happy to take them later on. I use a two-stage difference-in-differences estimator.

It's been developed in the econometric literature. It's by a guy named Gardner. Basically you estimate a stage one, then you estimate a stage two, and that deals with treatment timing heterogeneity. Again, happy to answer any questions about the specific model that anybody has. But basically, the main treatment definition that I care about is, are you in a county that's located in a state that has already granted nurse practitioners full practice authority?

Okay, because I only have a few states, I don't have all 50 states in my sample, I'm going to use wild cluster bootstrapping. I'm going to cluster at the state level. Again, happy to answer any methodological questions in the Q&A if anybody has them. So before we jump into the regression results, just to give you an idea of what this looks like, what you're seeing are admission rates per 100,000 county residents of different ASC admissions.

So red bars are states that restrict the practices of NPs. Blue bars are states that don't restrict the practice of NPs, have granted NPs full practice authority. And just on the means, right? You see fewer ASC admissions among states that have granted NPs full practice authority. So this is, you know, kind of a high level, yeah, full practice authority might work the way that we think it does.

Now, this is not causal by any stretch of the imagination, right? I'm not claiming causality yet. We're going to get to that with the regression results, but this just gives you an idea of what's going on. It also gives you an idea of which ASCs are most important in terms of prevalence, right? So COPD, right? Pretty popular.

CHF, diabetes, hypertension also relatively common across the sample of states I have from 2010 to 2019. Okay, to give you a little bit more of an idea of the geographic distribution of ASCs, right? So gray states are states that I don't have any data for, red states are states that I do have data for, and the darker the red, the higher the rate of ASCs.

I know this is hard to read, and I'm not trying to convince you of any particular state specific story here. I just want to give you an idea of what this looks like across the population. So jumping into the main results. And so here the results suggest that granting NPs full practice authority reduces ASC admission rates for a few different ASCs.

The biggest ones are diabetes and hypertension. Again, that kind of makes sense, right? We think that NPs are pretty good at treating diabetes, pretty good at treating hypertension. We also see a negative effect on angina. We see less of an effect on the asthma and COPD conditions. Congestive heart failure, right? It might go up, but that confidence interval is pretty wide and obviously crosses zero.

We see a little bit of an effect on epilepsy and convulsions. So big takeaways here are probably the diabetes and the hypertension, right? They're pretty clearly negative. The confidence interval is nowhere close to zero. Pretty good evidence that granting nurse practitioners full practice authority reduces admissions for diabetes and hypertension.

Okay, what does that mean in terms of length of stay, right? And so here, if you look at diabetes and hypertension, you see exactly the opposite of what I just showed you, right? So instead of decreasing, they're increasing. What is this telling you? It's telling you that the people who are still admitted to the hospital stay there longer, right? They're a little bit sicker.

And so that makes sense. What this is telling us is that when you grant nurse practitioners full practice authority, you peel off the least sick people and still send the really sick people to the hospital, right? So

we're avoiding unnecessary hospital care to some extent. Now, I can't claim that specifically, but that's what the results are most consistent with. Here are the Medicaid results, right?

So you see similar story, although you do see a larger decrease in a lot of the different ASCs, right? You see angina is still negative. Now asthma is pretty negative. Diabetes is still negative. Hypertension is still negative. You see kind of the same story when it comes to the length of stay, but it's not quite as clean. But you do see a very large reduction among the Medicaid population.

Medicare results here are basically the same as what I showed you initially, right? So you see the big effect on diabetes and hypertension when you go to a synthesis of the entire paper, right? This is what you're seeing. So, I'm happy to answer any questions.

I don't want to go through this. I just want to put this up there because I have a feeling we're going to come back to this as we talk about it. But what this is summarizing is, you know, how different ASCs are moving with respect to admission rates, with respect to length of stay across the entire population, right? So that's all adults across the Medicaid population, across the Medicare population. And the different arrows tell you what's moving in what direction, and the individual stars tell you whether or not it's statistically significant.

So I'm just going to leave this here. But I do want to emphasize the main takeaway here is that at least for certain ASCs, diabetes and hypertension in particular, right, what looks like is happening is we grant nurse practitioners full practice authority. That increases care in the outpatient care community, in the outpatient care world. Patients are better able to access that care, maybe from an NP or maybe from a physician because now an NP is treating some more patients and kind of increases the capacity of physicians because they don't have quite as many patients.

And as that happens, right, people are better able to access care in their communities. And as they're able to do that, they don't have to go to the hospital as much. And so we're caring for people in an outpatient setting, which both saves money, makes patients happier, and we potentially avoid situations where patients are becoming sufficiently severe that they end up having to go to the hospital.

So I very much look forward to all of your questions. Thank you very much for letting me present to you today. Happy to take your questions now.

- [Jen Kohl] Good afternoon, Ben. Thank you for your presentation.

Thank you for joining us this afternoon. To kick things off, it has been a full day of presentations, and so if you could just walk us through your main takeaway in practical terms, I would very much appreciate it.

- Yeah, absolutely, and I certainly feel your pain on the full day of presentations. I hope mine wasn't too boring. But basically, the idea is once you grant nurse practitioners full practice authority, it looks like we keep a few more people out of the hospital. Is this a magic silver bullet that's going to make hospitals obsolete? Of course not.

But there are some people who go to hospitals that maybe we could have treated in the community, and the results are consistent with once you grant full practice authority, we see more of those folks being treated in the community and avoiding some hospital stays.

- And so for those nurses who may not work directly with policy or ambulatory sensitive condition data, how would you summarize what these findings suggest about full practice authority and patient care?

- Yeah, so it contradicts the main narrative out there that, you know, are nurse practitioners, once you take away physician supervision, you know, they're going to kill a bunch of people, right? That's probably not going to happen. In fact, there's no evidence that that's going to happen. It looks like once you take away these restrictions, what happens is we actually increase access to care, and it's not just an increase in access to care kind of in the ether, right?

It really does make a difference. Now, I can measure ambulatory sensitive conditions. It's hard to measure a lot of the things that NPs do out there, right? That makes my job really, really hard, and it means I can't tell you the full story. But I strongly suspect that all of the practicing NPs out there, you know, they can walk you through how if they had full practice authority or maybe they didn't have it and now they do, I'm sure they can tell you stories about how they've kept people, you know, away from more invasive, more intensive, more expensive treatments just by virtue of being there and able to treat patients without all of the administrative overhead.

- And so your study results seemed especially strong for conditions like diabetes and hypertension. Do you have any insights, or do you think that there's any reason that the admission rates afterwards full practice authority might have been granted? Sorry.

- Yeah, so I think the literature out there is pretty strong that NPs are quite good at treating diabetes, right? There are certain things that I'm sure that NPs as a group are better at treating and some things that they are not quite as good at treating. And I think diabetes has been well documented, so it's not surprising at all to see that decreased in terms of ambulatory sensitive conditions.

It's also something that you think about, you know, more marginalized communities having a heavier disease burden, right? And to the extent that NPs increase access to those communities, right, that's where we would expect to see things. Again, I don't claim that I have the full story. I want to emphasize, you know, if we had perfect data on everything, we would probably find a lot of other stuff.

But I think NPs are just particularly good, one, at treating diabetes once they have the patients, and two, that's one of the communities they expand access to first and maybe more quickly than other communities. And so maybe that's why, you know, we're seeing this and hypertension have bigger effects than other areas.

- So are there particular restrictions that once removed, make a dramatic difference? This is especially in regards to states that are taking an incremental approach to full practice authority. And how may they best leverage policy change?

- Yeah, so I would not call myself an incrementalist. When you move the needle incrementally, eventually you will get to full practice authority, assuming that it really is incremental all the way to the end, you don't stop halfway through. That's not going to show up in the data very well because just, again, we don't have perfect data. We have to have sufficient sample size, all that good stuff.

And yes, it will probably work. It's not going to work very quickly, right? Because I think a lot of what's going on here is that once you get rid of these administrative burdens, once you get rid of the fact that NPs have to write a check to a physician, you know, every month, and I'm sure the audience knows this much better than I do, right, for \$500, \$5,000, however much you pay your supervising physician.

Once you get that money back to invest in your practice to treat more patients, right, incrementally doesn't really help that, right? You really have to get almost all the way to full practice authority, if not all the way to full practice authority, before a lot of those administrative burdens kind of disappear. And I'm not saying that's the entire mechanism of effect, but that's certainly the story I've heard from most NPs that I've talked to.

- So in that same vein, the Board of Medicine is oftentimes a barrier for policy change and legislation. Did you find any of that issue in your study? Did you have any problems with the Board of Medicine particularly?

- No, and I think there's... I certainly agree the Board of Medicine can be a particular hindrance. Technically, what I'm looking at, it has to come from the legislature. So scope of practice, right, is a big legal area, right? When people say the words "scope of practice," depending on who's talking about it and depending on what context they're talking about it in, they may mean very different things.

So for my study, I focused on statutes and regulations passed, or the statutes are passed by the state legislature and then regulations not typically implemented by the Board of Medicine. I think in a few instances we did end up relying on that. I think the better characterization is the Board of Medicine is certainly an impediment. I don't think they're the main impediment because if you can convince your state legislature, right, take this authority away from the Board of Medicine.

The Board of Medicine does not have inherent constitutional authority in our system, right? There's two sovereigns in the United States that have authority to pass laws. It's the federal government and the state governments. Now, they can give that law, delegate that lawmaking authority to other bodies, and the Board of Medicine derives its authority from the state government, the legislature. And so, yes, they're an impediment.

I think that the better approach is to go straight to the state legislature, right? Because if you remove the Board of Medicine's authority, they're not an impediment anymore. Obviously, that's easier said than done. I'm not claiming this is something that we can do with the wave of a magic wand. A lot of times the health subcommittee that these bills have to pass out of, either a physician chairs it or there's a physician on it.

Physicians have a lot of money in the legislature, so this is not something that's easy to do. But I do think it's probably better to talk about this in terms of the legislature than the Board of Medicine per se, even though, and I'm sure as a practicing NP, right, you deal with the Board of Medicine much more often than you do the legislature.

- So then we do have time for one more question. An audience member is asking where they could find the results from your study and if they're published.

- Yeah, so this is in the Journal of Nursing Regulation. Shout out to NCSBN for funding the study, right? So the data I used cost about \$150,000. So your dues to the NCSBN paid for that. There are two related studies out there. One is in the Journal of Health Economics and another in Medical Care Research and Review.

So this is a series of three different studies. There are a lot of results that I could not fit all into one study, but this particular study that I presented on today is in the Journal of Nursing Regulation. And if you can't find them, shoot me an email. I'm happy to send them to you. I suspect that some of you don't

have access to all the paywalls because, you know, we are so great in the United States that we put funded research behind paywalls.

I'm not talking about the Journal of Nursing Regulation, I'm talking about the Journal of Health Economics and some other folks. But if you can't access them, feel free to shoot me an email. I'm happy to send them to you.

- Well, thank you so very much for your time, Ben, and for your presentation. That concludes this Q&A session. For those joining us virtually, we have two presentations left today, and then we'll be on a wrap. Please return to the lobby and select the final presentation that you would like to attend. Thank you.