Past Event: 2026 NCSBN Scientific Symposium - Effect of APRN Full Scope of Practice on Patient Care in Pregnancy Episodes Video Transcript

Event
2026 NCSBN Scientific Symposium

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Presenter
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- [Danny Hughes] Hello, I'm Danny Hughes, a health economist and professor at Arizona State University. And today we're going to talk about full practice authority and patient access to maternal health. But first, I'd like to thank my funders, the National Council of State Boards of Nursing and the Harvey L.

Neiman Health Policy Institute. And of course, I have to thank the tireless efforts of my co-authors Dr. Moiz Bhai and Dr. Mary Motolenich. So, what motivates this study? Well, pregnancy-related mortality is increasing, and some would say at an ever-increasing rate in the United States. And many of these are attributed as preventable deaths.

What are preventable deaths? Well, these are going to be those attributed to lack of access to care, missed or delayed diagnoses, or missed warning signs experienced by patients in visits, all the sort of activities that potentially could have been prevented and caused these deaths to be avoided. Now, we're not going to talk about all of these today because it's a very complex issue, but we're going to narrow in on potentially ways to address access to care.

So, inadequate access to care is a well-known problem, particularly for primary care in the United States. One proposed solution to try to increase access to care, and particularly for pregnant populations, is to grant full practice authority to advanced practice registered nurses.

What is full practice authority? Well, every individual state defines what an advanced practice registered nurse can do in that state, what they can practice, whether they can prescribe. All of that is captured under the term the scope of practice within a state. What full practice authority is, is that it means that an advanced practice registered nurse could have full independent practice and the ability to write and prescribe prescriptions for medications with that authority within those states to the fullest extent of their training.

Currently, there are two different types of APRNs routinely engaged in pregnancy care. That's going to be nurse practitioners and certified nurse midwives. So what we're fundamentally looking at is one

solution is to allow every state to allow NPs and CNMs to be able to fully practice and see patients within a primary care environment and provide necessary medications when required.

So as you can see on this map, and this map is covering what happens with certified nurse practice scope of practice at the state level between 2004 and 2014. And you can find in this world that roughly 50% of the states do not allow full practice authority, meaning that these practitioners have to work under some sort of licensing agreement or have other restrictions under the care they can provide.

Within that, roughly I want to say nine states have actually allowed full practice authority, and then we've got... I mean, nine have switched, and then the remainder already allow that. Looking at the nurse practitioner side, we find it's a little bit better. Roughly 24 states...excuse me, 24% of states do not allow full scope of practice, with the remainder either allowing it or having switched to it within the period of the study.

So let's talk about what the objective of this talk really is. So we're going to examine the role of NPs and CNMs in pregnancy episodes, and we're going to start by looking at intertemporal trends with variation and stratification between full practice authority and states that do not allow full practice authority.

And we're going to examine this by looking at the effect of certified nurse midwife full practice authority on prenatal care visits. The medical nomenclature would be evaluation and management visits, which is basically any visit when you're going to a physician with an initial complaint or a follow-up visit or just a traditional checkup. These are not visits where you're having a dedicated procedure performed, but these comprise the vast majority of medical visits that patients actually have.

So let's talk about what we're going to do in context of previous studies. So current empirical studies are what we call "black-box" models. What do we mean by that? Well, it means that they're doing one of two things and often both. The first one is that they're usually looking at aggregate outcomes.

So instead of what happens at an individual or patient level, we're examining what happens at a hospital, county, or state level aggregate. You know, maybe the percentage of women that had a cesarean or the percentage of women that had a miscarriage or had a certain kind of care. And often, they're not just aggregate outcomes, but they're focusing on endpoints.

So for example, "Oh, we have individual data from a birth certificate, but we can see what happened at the end of the episode." For example, was it a preterm birth, yes or no? And the way that these current studies work is that they'll say, "Well, we have studies that examine scope of practice. We see variation in scope of practice, and we look at the correlation between that with this very endpoint outcome, such as a preterm birth."

The problem is, is that it's missing a mechanism. Just because you have full practice authority versus states that do not have full practice authority, what exactly is that doing in patient care? What are the touch points? Exactly how are APRNs interacting in that care of that pregnancy episode to change that end-level outcome? That's something that's been missing, and that's what… You know, we think about this as the mechanism.

What is driving that end result? And we want to know more about that. Currently with the previous studies, these "black-box" models looking at aggregates or endpoint outcomes, we find very mixed results with full practice authority. You've seen some say more, some say not statistically more CNM

involvement. Most find that cesarean utilization falls, but there's very mixed results for preterm births as well.

And so part of that, again, when you aggregate things up, you lose a lot of the granularity that's happening at the patient level where the care actually happens. So this is the contribution of what I'm going to talk about today. We're going to unpack that "black-box." We're going to exploit large-scale, detailed patient-level medical claims data with rich patient-level covariates, lots of demographics, age, gender, race, ethnicity.

We can actually take their claims and define whether they were high or low-risk pregnancies, and we're actually able to examine what APRNs are doing at the point of care because we can see the individual pregnancy episodes and every individual constituent procedure, event, and visit that occurred in that pregnancy.

Moreover, I can see exactly which providers attended that visit. Was it an OB-GYN? Was it an MD? Was it an APRN? And so with this, we're able to be the very first study that actually examined the intensity of care within a pregnancy care team.

What do I mean by this? Exactly what percentage of visits are performed by physicians, are performed by APRNs? And if by APRNs directly, were they certified nurse midwives or were they nurse practitioners? So we can actually examine as you expand scope of practice and allow full practice authority, do we actually see an increase in the care that these providers provide?

Because that is how you'll actually see a change in the overall endpoints. So what actually makes this possible? Well, we're going to use something known as Optum's de-identified Clinformatics Data Mart. What is this? This is the insurance for the enrollees of large commercial and Medicare Advantage plans from the largest health insurer in the United States and also includes all of the data for very large corporations that are self-insured, but they manage the plans.

It covers roughly 55 million unique patients or almost 20% of the American population and from 2007 to the third quarter of 2015 in all 50 states. And again, with this scale, clearly you've got a very robust population. And again, I can see every single individual healthcare interaction that was submitted to insurance for payment.

Every visit, every procedure, every test. So this really lets us unpack and understand what's happening at a very granular level. Let's take a look at some descriptive statistics. You'll find that if we're looking at states that are never treated or simply never allow full practice authority versus states that change from not allowing full practice authority to allowing it, these are the treated in sample, or always treated, meaning those that within this timeframe always allowed full practice authority to APRNs, you'll find the demographics are very similar across these states, so that's not driving any change.

You look at the age, you can look at race, you can look at health status. You don't really... Or, even the birth outcome, such as cesareans or preterms. You don't find a lot of variation between these states. So we don't really have the selection and the treatment effect that you might worry about with this kind of study. So what are the first things we're going to do?

I'm going to examine trends in APRN participation in pregnancy care. We're going to construct pregnancy episodes. Again, examine the involvement of APRNs in these episodes separately for NPs and certified nurse midwives. And I'm defining this involvement as just a percentage of episodes in

which they participated at all. If there's a single claim in an episode that had an NP or CNM involved, then we'll indicate that that occurred, and then we'll look at the percentage of all of the pregnancy episodes where there was an involvement.

And then finally, the newest innovation we have is this intensity of involvement. Conditional on being in an episode at all, what is the share of visits that were actually performed by the APRN, and does that change over time? And we'll compare the FPA states from the non-full practice authority states. So first, just at a very aggregate level, you can see involvement has increased dramatically.

Yes, at a pretty low base, just over 1% of episodes for both NPs and CNMs, but you'll find they're increasing for NPs to almost 5% of episodes just into 2014, and recognizing that was some time ago. It's been a more measured climb but a climb nonetheless for certified nurse midwives.

So again, it's a huge percentage increase in the involvement of these specialties over time. However, the interesting thing is that over intensity, APRNs might be participating in more pregnancies. But once they're participating in a pregnancy, they're not really doing more work. And you'll find that for certified nurse midwives, they're doing about 70% plus or minus percentage point of all the routine visits in a pregnancy.

And nurse practitioners, if they are involved in a pregnancy, are doing again around 65% plus or minus 1% of all of the standard visits, and that doesn't seem to change. So let's see this in greater detail. At the top part of this on panel A, we're looking at both the involvement and the intensity for states that allow full practice authority.

And again, you'll find this real sharp increase with NPs. When we stratify, they're going from just around 2% of pregnancies up to 7%. Again, that seems like a small number in absolute terms. That's a huge percentage change in their use. And you see this, again, this very steady slow climb for certified nurse midwives as well.

But once again, looking in the scale, plus or minus 1 or 2 percentage points, the intensity of work they're doing is not changing. So some fears that the physician community will have is, well, if we're allowing full practice authority in every state, then we might have APRNs cannibalizing work that physicians are doing. But honestly, the amount of work, the types of work are not changing according to the intensity metric.

They're seeing the same amount of visits. What is changing is the amount of visits they're actually involved in, in terms of episodes. Now let's go to the non-full practice authority states. Here's what's interesting. We actually see the same results. So we find that involvement is increasing faster in full practice authority states. It goes up to 7% of episodes, while in non-full practice authority, it only increases up to 5% of episodes.

But the intensity is stable in both of these. So again, in states that are allowing full practice authority, you see a faster increase in involvement in pregnancy episodes, but it's increasing across the board. And this is something me and my co-authors like to call "de facto" scope of practice, meaning that when you start to see fast increases in states that allow full practice authority, but again, they're not really changing the intensity of practice, they're just allowing them to do more work.

Then physicians, you know, they share information at conferences. Practice teams share information within different multi-state practices and healthcare systems. They realize the value of that increased

team-based care, and so you actually start to find APRNs being used in non-full practice authority states in similar ways, in similar pregnancies than they are in full practice, just at a slower rate because they don't have full independent practice.

So de facto, it almost seems as if they're learning from best practices, and team-based care just continues to dominate and grow within this space. So let's actually look more closely at whether that story holds water from these broad trends. We're going to do this by doing a detailed econometric analysis on the effect of certified nurse midwife scope of practice on prenatal care.

We're going to construct pregnancy episodes, estimate a two-way fixed effect model. We will segregate between low-risk and high-risk patients because we expect the trends to be different. And we're going to look at three different outcome variables. We're going to look at E&M visits whether they're involved in all, the number, and the proportion of these E&M standard visits.

So first, under low risk, again, I've got a lot of estimators across the top. You'll see the panel stratified between different provider types. If we go down to panel D where nurse practitioners are, we can see for low-risk patients across the board a highly significant and economically meaningful increase in any claims, meaning are they involved in the pregnancy episode at all?

And the answer is overwhelmingly yes. Now, if we actually carry that back to what the OB-GYNs are doing, we'll see that the proportion of claims that OB-GYNs are doing across the board are starting to fall, again, economically meaningfully and highly statistically significantly.

So this reinforces the story. The intensity care is not changing, but for an NP to be involved in more episodes, OB-GYNs have to be doing less work because they're going from doing 100% of the work to less than 100% of the work. So the medical doctors are doing less claims, a lower proportion of claims by allowing NPs to actually do more claims when they're allowed full practice authority.

And we can see it has a nice spillover because the total number of claims that the OB-GYNs are doing are also increasing. So in theory, this could be interpreted as increases in overall access to care, because that's under any claims, whether they're having any claim in which they're engaged in.

So what's happening from this reinforces the previous trends and says, okay, if you expand scope of practice to allow full practice authority, then the NPs will start doing more work. They'll increase the claims they're doing. We can see the proportion of claims they do hasn't changed at all. So they do the same amount of work, it's just whether they're engaged or not, and as soon as they're engaged in an episode, then the OB-GYNs can do fewer claims per episode and use that time to actually see more pregnant patients.

Let's go over to high risk. Now, in high risk we see not quite… We do see them seeing more patients again, but we don't actually see a significant change in what the NPs are actually doing. In theory, this is going to be a spillover. The more work that NPs are doing on low-risk patients allow the OB-GYNs to see more low-risk patients and take more appointments for high-risk patients.

Everything else seems to be a null. Doesn't seem to have a big effect on certified nurse midwives. And again, you can see the same thing with the proportion of claims. Doesn't really change except… And where you do find a significant finding with the NPs, you find they're actually doing a smaller share of claims because these high-risk patients are able to get more OB-GYN time since they're taking some of the workload off the OB-GYNs in the low-risk patients that we saw on the previous slide.

So the final conclusions here, NP and CNM involvement in pregnancy episodes is increasing, and it's increasing dramatically over time in both FPA and non-FPA states through what I think of as "ad hoc" scope. But when we find that the intensity of care is stable, so it's not really that any work is being cannibalized, it's just being a great increase in team-based care.

But as we show the detailed regressions, this team-based care makes a big difference at the touchpoints with patients. You see strong increases in nurse practitioner participation in standard E&M visits, which actually allows OB-GYNs to see more patients of both risk types but even stronger within low-risk pregnancies.

So ultimately, it just frees up... It's good for everyone. You know, we get greater access to care. You have maximally using the efforts of APRNs where they're fully trained and able to work but also frees up the physician OB-GYN time to see high-risk patients and low-risk patients across the board. And with that, I'd like to thank you for attending this presentation.

Hopefully you found it very valuable, and I look forward to following up with questions.

- [Jen Kohl] Hi, Danny. Good afternoon.

Thank you for your presentation and for joining us for this live Q&A. To start things off, I want to ask why do you think the NP results are more pronounced than those for the CNMs?

- That's a very interesting question. I think there's really two different dynamics there, because when we were looking at this work we were a little surprised not to see a stronger result with CNMs. But then I think part of the explanation behind that also shows up in the growth rates that we saw. So when you look at the total sample of CNMs versus the total number of available NPs in the country, there's just a much smaller number of CNMs out there.

And so you've got fewer opportunities for scope to actually influence care depending on how many CNMs are distributed between those two states. But also, that one part's just going to be an artifact of the data. There's not a lot of them, so you don't have as many distributed in skilled states. You don't see such strong results. Most of them, they're not negative, they're just not statistically significant.

But there's another factor as well that I think is relevant and might be why we don't see as much growth with the descriptive trends that we showed at the early part of the presentation. And that's just that whether you're working with a full practice authority state or not. When a CNM is engaged in an episode, a certified nurse midwife, they're almost always low-risk patients, and they're almost always fully engaged in that episode with very little physician oversight or care as a whole.

It's a different type of pregnancy. And so expanding full scope of practice isn't really changing the dynamics for how those providers are interacting in the pregnancies and in their relationship with physician practices in that pregnancy. However, NPs always working with a physician within a pregnancy episode. They can't deliver babies.

So even in the most low-risk pregnancy, scope's going to make a bigger offering. Full practice authority is going to offer more opportunities to get them engaged in care and into episodes where otherwise they would not have been engaged. And I think that's why we see these very large results from them. And again, the real crux of it is you can expand scope of practice, but certified nurse midwives are fundamentally managing low-risk pregnancies in both states of the world.

And so expanding their scope doesn't really change how they're interacting in that care.

- Thank you for that. During your presentation, you mentioned "de facto" scope. Could you expand on that terminology for us?

- Yeah, so it's a little bit of a tricky thing. So when you think about things in a world of law, there's something known as "de jure," which means it's actually set by law, and something that's "de facto," which means it's in essence in place even though the law has not been passed. And we use that to describe this phenomenon that as you find full practice authority and scope expansions leading to large rapid increases in the participation of NPs, and to a more modest level, participation of CNMs and episodes, you see an effect that's spilling over into non-scope states as well.

And so a follow-on work for this would actually be to directly test those dynamics. Is it truly a leading lagging effect where you see initial jumps in a full practice authority state followed by increasing jumps in non-full practice as the technology, the gains from that team-based care spreads? And if, you know, we see that with associations and anecdotally as our story looking at this data.

But the formal test for that would indicate something that would be, in essence, "de facto" scope, meaning that if you're actually having rapid changes in how NPs are used in non-full practice authority states based upon what providers are seeing and the gains in team-based care and outcomes that they find in full practice authority states, it turns out the effect of passing laws for the remaining non-full practice states, if they were to expand scope, you would expect to find a very small effect, statistically at least, because they're already doing that even though the law wasn't passed.

And that's what we mean by "de facto." They're basically doing it anyway over time based on what they've learned from the full practice authority states. And that would be a very fascinating construct. I've spoken with some co-authors about possibly crafting that story to see if that's what's really happening. And I also think across the whole literature, which I discussed, you have a lot of aggregate studies, a lot of endpoint studies.

The results are mixed, but more often than not the results are that there's no significant difference, meaning that expanding scope caused no harms, but it maybe generated no gains. Part of the explanation for why researchers may be finding that could be because over time in their studies, "de facto" scope is occurring, and that's mitigating the effect. So the gains are real, they're just obscured because the non-scope states are playing catch up with the scope states and actually expanding how they use APRNs anyway based on the successes they learn from their friends and neighbors in full practice authority states.

- Thank you, Danny. This will conclude the Q&A session for your presentation, as well as the 2026 Scientific Symposium. Thank you again to all of our presenters, all of our staff working behind the scenes to make this an amazing meeting.

Videos from these sessions will be available to registrants for the next 30 days, so if you missed anything or would like to go back, you're more than welcome to. They'll also be posted on ncsbn.org for our membership within the next month or so. Please feel free to come back and watch anything that you missed and thank you so much for joining us today.