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Presenter
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- [Shannon] Thank you. So, my name is Shannon Idzik. Thank you so much for being here today. I am a professor at the University of Maryland School of Nursing and the Associate Dean of our Doctor of Nursing Practice Program.

And today I'm going to share with you findings from our study examining the impact of direct patient care clinical hours on nurse practitioner certification pass rates. Most importantly, I want to take a minute to thank the amazing research team that we compiled to do this work, both from the University of Maryland, as well as several other schools across the country. Bo Yang from Towson University, Marcy Ainslie from the University of New Hampshire, Susan Buchholz from Michigan State University, Mary Beth Bigley from the National Organization of Nurse Practitioner Faculties, and my colleague, Bridgitte Gourley, from the University of Maryland, and Kelly Grover, a doctoral student at the University of Maryland and the program coordinator for this project.

Over the next 45 minutes, I'm going to walk you through the background for why this is important, the context for why clinical hour requirements are important in NP education, and why we did this study. We're going to describe our study design, our analytic approach, review our findings, and discuss the implications for NP education.

And while I don't have it in the slide, I would be remiss for not thanking the fellows of the American Association of Nurse Practitioners for funding this study. There are several major frameworks that guide expectations in NP education, and the first one is the National Task Force Standards for NP Education. That document states that there's a minimum of 750 direct patient care clinical hours required for quality NP education programs.

The American Association of Colleges of Nursing also produced the Essentials in 2021, and in that document, it speaks to 500 practice hours required for assessing competency for advanced nursing competencies beyond the baccalaureate level. Those hours could be direct hours or indirect hours, and

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those direct hours might be more like the direct patient care clinical hours that we are thinking about in NP programs.

But the Essentials also emphasize that the hours provide the foundation for advanced, additional specialty, and role competencies. So, they are not the end, the 500 hours are not the end, and that schools may require or programs may require additional clinical time based on those specialty and role requirements.

AACN specifically says that some competencies might overlap. For example, if you were measuring one of those Level 2 competencies, such as ethics, that may be a time where they are in a direct patient care environment, and that you can assess that competency there as well. So, some but not all competencies, you know, might be assessed in that 500 hours. By these recommendations, accreditation and certification bodies have not uniformly adopted the 750-hour benchmark, and as a result, we are seeing increasing variability across the country in what programs are doing to prepare nurse practitioner students.

Nurse practitioners are one of the fastest-growing segments of the healthcare workforce in the U.S. We've all seen it. We're all witnessing it. Over the past decade, the number of NP graduates has increased dramatically. The number of programs has increased dramatically, in part due to the demand for healthcare providers. In 2015, the annual NP graduate rate was around 15,000.

We were preparing about 15,000, 16,000 nurse practitioner graduates. But today, that number is approaching 40,000 per year, representing roughly 2 to 3-fold increase over the past decade. This rapid growth and reliance on nurse practitioners is really due, I think, in part to our success.

We have great outcomes. We have great patient care outcomes and great patient care satisfaction, and so the demand is high. Because of that growth, ensuring that NP graduates are prepared is really critically important.

We do also know that in 27 states, Washington, D.C., and 2 U.S. territories nurse practitioners have full practice authority, so they are able to practice independently. A study recently noticed an increase in malpractice rates across the nurse practitioner profession, which, of course, is concerning to all of us.

It's concerning from those of us who are looking at patient care, concerning to those of us who are paying malpractice dues, and we're seeing also a decrease in first-time pass rates across the majority of certifiers. We have seen recently a slight tick up, but for several years, we were seeing a consistent trend down. We're also seeing a proliferation of nurse practitioner residencies or fellowships, depending on what they're calling them, or onboarding programs, suggesting that there might be perceived gaps in NP readiness, either by employers or by the graduates themselves.

At the same time, we're all seeing challenges in clinical education. The realities of clinical education are pretty complicated. I'm sure many of you are facing clinical education challenges, regardless of the role or the specialty. There are certainly challenges in clinical education.

And I'd like to take a moment to suggest that if you have questions during this talk today, there's a question-and-answer feature. You're more than welcome to put some of those questions in there. I'd be happy to answer all of them as we get to the end. We'll have time for Q&A. And I'm sure as I talk about this, I was thinking about you and the challenges that we might all be having on clinical education.

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So we know programs across the country are reporting difficulty, and that's been going on for years. There was a report, a work group with all of the different specialty professions, almost 20 years ago now, that reported that, really, across the board, all of the health professions are facing difficulty in securing clinical placements, and nurse practitioner programs are not immune to that. Competitions for clinical sites.

As you can imagine, over 10 years, we've grown from 15,000 students to 40,000 students. There is a growing competition for clinical sites. And when placements are limited, students end up spending more time in probably suboptimal practices, right? In specialty practices, maybe they're doing more observing than actively participating, and sites that we might not feel like are the best sites for our students.

So, programs, you know, have responded by incorporating a variety of different things, including simulation. And while those strategies can enhance education, we know that they don't fully replicate the true clinical practice environment, and they are excellent for some things that may be better than clinical education in some instances, those high-risk or rare events that we want to make sure our students are prepared for, but as I mentioned, they don't fully replicate real-life patient care.

So, these challenges, together, continue to fuel the debate about the number of clinical hours and what's required in nurse practitioner education. We do know that clinical education plays a central role. We are a practice discipline.

And it's during these experiences that students really learn to assess patients, interpret diagnostics, develop differential diagnosis thinking, diagnostic reasoning, and management plans. This kind of concept of experiential learning is well supported in the literature. There are a variety of theoretical frameworks that speak to the importance of clinical education, including Kolb's experiential learning theories, Bandura's social cognitive theory, thinking about modeling others' behavior, and getting feedback from expert clinicians to help build that competence and that self-efficacy.

I'm sure you can all think to some of those experiences where you've had students in theclinical environment, and mentoring them, and them replicating your behavior. When I have a student the first time, I always say, "First patient, we're going in together regardless of what semester you're in, because this is how I practice, and I want to make sure you can see that and model that." And then, of course, Ericsson, deliberate practice theory, looking at goal-directed practice with feedback, is a very important component.

We know that Patricia Benner talked about novice to expert and the importance of meaningful experience. And then probably more recently, we've talked a lot about Miller's Pyramid as we've talked about competency-based education and how students move and how we get them to show us not only what they know, but what they can do with the information.

And obviously, in order to show us what they can do, it's an active participation. So, super important. And together, these frameworks really guide our thoughts on the importance of practice in NP clinical education. And we know that exposure to role models and authentic patient care complexity is really important and a huge component of clinical education.

So, as I mentioned, there's ongoing debate about whether NP programs should have raised the hours or should we not have raised the hours. Nonetheless, the National Task Force Standards currently state that 750 hours is the standard for quality NP education. What's really kind of striking about that is we do have very limited data, and there are challenges in getting the data.

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At the individual level, there is no data set that links student direct care clinical hours to their certification outcomes and certainly not to patient outcomes. At the program level, there's also an evidence gap. We did not, before this, have any direct data examining whether or not differences in direct patient care hours were associated with certification outcomes. We do know that there are differentiations between degree programs and pass rates.

And we do have some data on the differences in hours between the degree programs. For example, we know that DNP programs typically have more hours than master's-level programs and that, on average, they have higher pass rates. But what we don't necessarily know is if those hours are the factor in the pass rates or is it the degree education?

That was one of our goals here. Those are the gaps that we wanted to begin to address in the study. So, very few studies have examined how differences in clinical education and the requirements impact certification outcomes. And we know that certification outcomes, they're not a perfect measure of competency, but at this point, they are our measure of entry-level competence and our entry into practice. So, the purpose of the study was really to evaluate whether the number of direct patient care clinical hours required by NP programs was associated with certification outcomes.

And again, ideally, the gold standard approach would be to conduct direct individual-level comparisons linking students' clinical hours to their certification outcomes and eventually to patient outcomes. But again, unfortunately, there are multiple structural barriers that make that type of analysis extremely difficult, if not impossible at this point, without doing a very large, very, very expensive study, which, if anybody wants to donate some money for that, we'd be happy to do it for you.

There is no nationally available repository of NP education program characteristics. Boards of Nursing typically do not collect detailed education pathway information on licensees. For example, we can't determine whether someone graduated with a post-baccalaureate certificate to become an NP and then got a master's later, and then eventually completed a DNP, or if that nurse practitioner had a DNP as their original entry into the nurse practitioner role.

Secondly, even if we could get that detailed education history and know that information, there's no national database that links those certification outcomes to that individual's education pathway. And finally, of course, as I mentioned, the gold standard would be linking the training programs to patient outcomes.

And that would require a data set that linked education history, certification outcomes, NPI identifiers to patient outcome data. And at this point, there's no data set that contains that information. So, really, because of these limitations, our study took a program-level approach, examining whether program characteristics impacted certification outcomes across schools.

So, again, program-level design. Rather than examining individual students, we examine program characteristics and program pass rates. So, we collected data from the largest population foci of nurse practitioner programs population foci. So, we surveyed all U.S.

FNP and AGNP, PCNP programs, adult gero primary care NP programs. We did that through a variety of different sources. I jokingly told someone, you know, that the grant was funded through the fellows of the American Association of Nurse Practitioners, and we spent all of the money, plus some, trying to figure out who actually ran nurse practitioner programs in this country, and to try to reach out to them.

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But we did end up finding everyone, and we emailed all of them with our request. So, we collected all degrees, and we collected certification reports beginning in 2019 through 2023, and we asked them for both their ANCC and their AANP Certification Board results. So, many of you have seen these slides.

We gave program leaders a school code and asked them to de-identify their reports and upload them into our study portal. We asked them for, again, both AANP and their ANCC results, and they look both, you know, like these. You guys have probably seen those. We did use an automated document parser to avoid data entry errors. So, we created a way for these reports to be put into that document parser, pull the data out of it, put it into our spreadsheet, and then we did, obviously, do a human validation to make sure that the machines that we have working for us hadn't made any errors.

So, we did ask also for them to complete a survey. So, when they uploaded those reports, we then asked them for key program characteristics. We asked them about degree type, required direct patient care hours, simulation hours, faculty-to-student ratio, and we asked about telemedicine hours and their policies, whether they allowed them or limited them, etc.

Our approach was several steps. We did obviously descriptive analysis, looking at stratified by certifier population focus, degree type. We then did a regression analysis to estimate the association between clinical hours and certification pass rates, and then we did a correlation between direct patient care clinical hours and certification pass rates.

So, what are our results? We ended up with 71 unique schools reporting ANCC outcomes, and we ended up with 80 schools reporting AANP Certification Board outcomes. Across both of those certification bodies and population foci, we ended up with a total of 769 program reports.

So, those were individual certification reports and data, the survey data associated with them. So, nearly 800 years of certification data across the different tracks, which is super exciting to me. Overall, the pass rates in our sample were slightly higher than national average. We did see, I would say not substantially, we did identify mean direct patient care hours in the high 600s.

The simulation hours that we identified were in the mid to high 40s per program, per track, per specialty, and regardless of degree. And then our mean faculty-to-student ratio for clinical supervision was clustered right at 7. When we looked at hours by track, the DNP programs generally required the highest number of direct patient care hours, which is not surprising, over 800 across the populations and the certifier reports, master's around 600, and postgraduate certificate in the 600s.

There was a little bit more variability in the postgraduate certificates and in the master's programs. We did try to look at the domain scores. We had hoped really to look closely at them, to look for differences in particular areas, and whether or not, for example, planning and evaluation was proof scores in higher hours.

The domain scores were very inconsistent across certifiers, across population foci. In some cases, they changed within certifiers over time. Reporting formats were different. Percents, threshold scores, scaled scores were all different, which really just limited our ability to do anything with that data other to make the statement, which we'll talk about.

It would be great if they were the same. And I think it is important to think about our profession. They really should be the same. It's the same role. They're just being tested by a different company. So, we weren't able to do a lot with the domain scores. For the regression models, due to the numbers, we did

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have to focus on family nurse practitioner programs, which really had the largest and most complete data set.

We used general estimating equations to account for clustering by school. Because of this new data with many school certification reports showing 100% pass rates, we did dichotomize the outcome into 2 buckets: perfect pass rate, which are 100%, and then 80% pass rate and up. We ran it again with 80% pass rate and up. We did that 80% and up because one, although I always feel like at my school, and I'm sure most of you feel like it at your school, I really want every single student to pass the exam.

I think holding schools to that standard is probably a little high. So, we looked at 80% and up. We picked that number because that is the number required for accreditation for most instances. So, when clinical hours were modeled as a continuous variable every hour, both certifying bodies, each additional hour of clinical training was associated with about a 1% increase in the odds of achieving both a perfect pass rate and an 80% pass rate.

And, you know, the effect size is obviously very small. When you think about it, it really could mean that for an extra 100 hours, it would double their odds of achieving a perfect pass rate, which is substantial, again, although, you know, a small effect size. So, we looked at it in a different way.

And we conducted the analysis examining whether programs with a dichotomous 750 or more or less than 750 demonstrated differences in certification outcomes compared to programs with fewer hours. In the ANCC data set, programs requiring more than 750 hours had higher odds of achieving a perfect pass rate.

However, it did not reach statistical significance in the 80% data set. In the AANP data set, the relationship was much stronger for that dichotomous number. And programs requiring 750 clinical hours had roughly 8 times the odds of having a perfect pass rate and about 4 to 5 times the odds of achieving an 80% pass rate.

Overall, requiring more than 750 hours strongly increased the pass rates for the school. And we adjusted those models by year, by faculty-to-student ratio, and for simulation hours. Since we were not able to use the AGNP data in that regression model due to the numbers, we did examine correlations between clinical hours and certification pass rates.

And when looking at those correlations across both certifiers and both populations, we consistently saw positive relationships between clinical hours and certification pass rates. So, across both population foci, both certifiers, there were positive correlations between direct patient care clinical hours and pass rates.

And you can see here, just in a graph model, that positive trend between pass rates and hours that were reported. Again, between both adult gero and AGPCNP, both certifiers. It's also important to note that neither the faculty-to-student ratio nor simulation hours were significantly associated with certification outcomes in both of the models.

There was some impact of simulation, but not statistically significant and really only a minimal effect. So, let's go into the discussion about this. What do these findings mean? How can we interpret these findings and their meaning really for NP education? So, we know that direct patient care clinical hours now are correlated with improved FNP and adult gero primary care certification performance.

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We know that direct patient care clinical hours are a statistically significant predictor of school FNP certification performance. We know that these results then reinforce the importance of meaningful clinical exposure in developing competence. And when I say competence, I mean the measure that we are currently using as entry into a profession.

I know that certainly, passing a certification exam does not, by any means, mean you're competent nor incompetent for that matter, but it is the current measure that we're using to gain entry for licensure in the majority of the states in the United States at this point. Direct patient care hours were correlated and statistically significant predictor of FNP certification pass rates.

We also saw that simulation was a valuable adjunct, but it was not a substitute for direct patient care clinical hours. Like all studies, this work has limitations. As with any study, there are important things that we need to keep in mind when we interpret these findings and apply them in broad strokes. First, many of the program characteristics were self-reported by schools, and that includes variables like direct patient care hours, simulation hours, telemedicine policies and hours, faculty-to-student ratios.

And although the data was provided by the program directors, and we piloted the survey to make sure that the questions were clear, there may still be some variability in how schools interpreted the survey questions. There also may be issues with historical knowledge. We know there's a pretty significant turnover in program directors and NP programs across the country, and we did ask for data across five years.

There may be some historical knowledge gaps or maybe challenges in how the data were actually collected internally. So, with that, there may be some degree of reporting variability possible with the survey questions. Second, the pass rates in our sample were somewhat higher than the national averages, and that raises the possibility that lower-performing schools may have been less likely to participate in the study than the higher-performing schools.

They may be unwilling to submit their reports. And if that's the case, our sample might not fully represent the full range of nurse practitioner programs nationally, particularly those with weaker outcomes. Third, when we included both FNP and adult gero primary care in the descriptive and correlational analysis, while we were able to include them there, the AG primary care sample was too small for a stable regression analysis.

Because of that, the regression analysis were focused only on FNP programs where the data set was larger and structurally cleaner. And that means the strongest findings really apply mainly to family nurse practitioner programs. Overall, I don't think these limitations negate the findings, but they do help define the boundaries in which we can make conclusions from this study.

So, thinking about future research, you know, we really need to look at larger multifocus samples, longitudinal program data, thinking about school variation. I think we all know that if you've seen...I do accreditation site visits, and I can tell you if you've seen a school, you've seen a school, and that is it.

That's actually not a bad thing. That's really a good thing because that's where we develop innovation and ideas and learn. You know, people do things differently. But we do need to look and figure out what are those characteristics across time that improve pass rates and improve competence.

Looking at standardized clinical log data would improve measurement of...would help us evaluate measurement of clinical performance. For example, what types of case mix are the students seeing?

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What types of hours are they doing? Are students who do more time...if they're a family nurse practitioner student, for example, and they do more time in a primary care practice, as opposed to, for example, urgent care or a specialty practice or women's health, are they more likely to be successful, and what are then their long-term outcomes?

I also think we need to look at thresholds beyond 750 and try to determine, is there a point in which more hours don't really make sense? Right? So, is that number 750? Is it 1,000? Is it 1,500? At what point do doing extra hours...? Are you just putting in time and not really becoming more competent or, you know, developing a significant skill set?

I think we all know that over time, you know, with our own practice experience, that you see more things and more things come to mind, but at what point in school does the cost of doing the hours outweigh the benefit that we get out of it? Another important question is really the clinical site quality and the preceptor preparation as kind of moderators for clinical education.

And we all know those sites. I mean, I'm sure you all out there could list those sites where we only send our best students, because you know they can't manage the not-best student, or the sites where we send students because we know that student needs a really highly skilled preceptor. And, you know, we preserve those people for those students.

We also have sites, you know, where we only send students when we have to, when the going gets tough at the clinical placement time, and we're like, "Listen, we're going to have to resort to, you know, this specialty practice that's probably not ideal, but at least it's clinical experience in clinical hours." And so how do the quality of those sites impact pass rates and impact competence?

So, obviously, 1,000 hours at the only-if-I-have-to sites may not improve pass rates as much as maybe 500 at the really amazing educator site. So, those are things that we need to know. We do know, based on the study now, increased hours increases program pass rate, but what we don't know is if there's any impact on the quality of those hours.

So, you know, from a policy perspective and thinking about implications for this, I think this provides empirical evidence that the 750 direct patient care standard recommended by the National Task Force on Quality NP Education Standards is there and is there for a reason. One important implication for this is that, obviously, programs are expected to sustain 750 hours.

Many schools are going to need stronger and more intentional clinical practice partnerships or innovative ways to get students into those 750 hours. It likely means moving beyond some of the traditional placement models and thinking creatively about preceptor development.

How do we develop preceptors, and partnership agreements, and innovative approaches to clinical supervision? We may need to study that as well. Does all clinical education need to be in a one-on-one capacity, or do students learn just as much from dyads or triads in clinical education? Unfortunately, as well, the burden of adjustment to this number is not going to be felt the same equally. We know that DNP tracks predominantly already have 750 hours.

So, the largest changes are going to fall on the master's programs that have historically operated at closer to the 500 benchmark. And, you know, another challenge that we're seeing and implications is that because this 750-hour standard hasn't been adopted across the country and across the licensure

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accreditation certification education system, it's perpetuating some, you know, variation in how graduates are prepared.

And when expectations differ across those four pillars, again, licensure, education, accreditation, and certification, you know, programs receive mixed signals, employers receive mixed signals about what level of clinical preparation is really required and necessary for competence.

We're also beginning to see the issue move into the regulatory space with some states starting to require that direct patient care, our expectations in their licensure rules, and in their program approval rules, which makes alignment even more important. Because schools are not just having to respond to education standards, accreditation, and certification, they might also be responding to state requirements.

So stronger alignment across licensure, accreditation, certification, and education is really critical. And it's really important for the nurse practitioner graduates of our profession and those who will be employed for years to come. If they graduated from a program after a certain date that did not require 750, they may have limitations to their portability, you know, to different states, which we know is always a challenge.

It's a challenge even now without these barriers being put into place with various state requirements. But our requirement may have a substantial impact. So truly, without this alignment, variability is likely to continue. And ultimately, our goal is not simply increasing hours, but making sure that people are getting high-quality clinical experiences that promote competency, as well as promote high-quality patient care, most importantly.

So when we think about some of the big, huge, in my mind, take-home messages from this work, as well as from other recent studies we've done on DNP outcomes and other research on outcomes, what's the most limiting is the data limitation factors.

The data is really challenging to get. Unfortunately, it's really just not an inconvenience, but it's really a barrier, I think, to improving NP education quality. It's not just a research barrier, but it's a barrier to us making changes to quality and refined changes to quality.

Unfortunately, without the data, sometimes we have to take the hammer or the broad swath approach as opposed to being able to make refined decisions about what the most impactful things are to education and making those, and decreasing the burden on schools. Right now, we're just trying to answer these major questions about clinical preparation, certification outcomes, graduate readiness.

And we're trying to do that without any data infrastructure that would allow us to do that. So that results sometimes, again, in decisions that are not necessarily supported in evidence, but doing the best we can with the data that is available. We do not have any national reportable data that links schools, education pathways, clinical hours, and examining outcomes.

And that truly is critical. As a result, it is difficult to move beyond kind of broad program level associations and answer those more precise questions about the education factors that truly drive better outcomes. Is it in-person learning? Is it online learning? Is it clinical hours?

Is it the degree? Is it the time with faculty in a clinical environment? We really don't have the data to answer those questions. Those data are really imperative to us refining NP education, and particularly in our resource-lean environment. A strong data system. You know, I think often about our medical

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colleagues who have a data set on providers. A data set like that would allow us to not only examine whether hours matter in individuals.

Obviously, they matter in programs we'veseen, but also how other features such as degree pathway, the clinical training model, you know, whether it's groups, individuals, faculty-led, various types of simulation use. Does mannequin simulation or standardized patient simulation have more of an impact?

Telemedicine exposure. I didn't talk a lot about that, and that is in part because we had very limited reply about schools using telemedicine, and the numbers just didn't allow us to do much of that evaluation. But what I can tell you is those that did permit and had telemedicine hours within their program did often report larger amounts of clinical hours.

So people are using telemedicine hours and allowing students to use telemedicine hours. But is there an amount that's too much? Right? Is there a time when doing telemedicine doesn't really do what we need it to do? Having some kind of data would make it possible to compare outcomes more consistently across school certifiers and across time.

This really points to this need for some kind of data set. They used to call it the master file, and I think we really need...it is time in our profession, we've moved beyond Excel spreadsheets and hiding data to really develop transparent, standardized outcome, mandatory outcome data that ties not only across education and certification, but also ties to clinical outcomes.

If programs and certifying bodies reported poor outcomes in a more consistent way, we'd have much stronger evidence that would guide policy and program improvements. It could also help us in directing investments. It could help the government, for example, HRSA as an example, dedicate investments, particularly maybe in clinical training, in preceptor development, in stronger academic practice partnerships, if we could provide the data that improved outcome.

And, you know, I bring that up because I do think it is impactful. And I have used it as an example in the state of Maryland, thinking about a clinical program who was trying to gain entry into our state with poor outcomes. There were NCLEX outcomes in surrounding states.

And, you know, we all know that clinical sites and clinical resources are poor. And if we have a program that can prepare students using 10 clinical sites and have 100% outcome, and we have programs that are preparing students and have a 60% outcome, we should really be thinking about how we're using our clinical resources when they are so scarce for programs that have poor outcome measures.

So, again, this data is not just important to have, but it's important for clinical infrastructure and about the health of our nation. So, just kind of a take-home, final points here. While additional research is needed, I do think these findings really contribute to the evidence about hours and NP clinical education.

The central finding that we found in this study is that higher direct patient care clinical outcomes are consistently associated with stronger certification performance in nurse practitioner programs, FNP, and adult gero primary care. It wasn't isolated to one mode or one data source. We saw it across the broader analyses, which increases our confidence that this is really a meaningful signal.

When we looked specifically at 750, the threshold, the strongest effects appeared in the American Academy of Nurse Practitioners Certification Board, where programs that had more than 750 hours had substantially higher odds of stronger pass rate outcomes. And the ANCC models, as we mentioned, the

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direction of the relationship was similar, which is important because it suggests it's not a pattern unique to one certifying body, even though those results were not quite as strong.

We also examined whether other program characteristics might explain the results, and we found that those simulation hours and faculty-to-student ratios did not independently predict the factors or did not independently predict certification outcomes. That does not mean that those are not important.

And I think we can all speak to the significant benefits of simulation and NP education. And again, in particular, simulations use and those high-risk scenarios or low-frequency scenarios or really important scenarios that we want students to have expertise in before they enter the clinical environment and become a burden on our preceptors. So it does not mean that they're not important.

We also know that faculty-to-student ratio is important. Our NP students need clinical supervision. We need people reaching out to those preceptors and helping them learn how to be good preceptors, doing evaluation of the clinical sites, but they did not account for differences in pass rate performance the way the direct patient care clinical hours did. So taken together, these results suggest that direct patient care hours are important program requirement. They appear to function as an indicator of program quality and clinical preparation.

And for that reason, we believe direct patient care clinical hours should be treated as a core quality metric for evaluation of nurse practitioner programs. I thank you so much for taking a few minutes to listen to me today, and I would love to open it up to any questions that you might have.

- [Emily] Hi, welcome, Shannon. It's great to see you. Thank you for sharing all of this really great information from your study.

- Thanks, Emily.

- We have our... Yes, we have our first question from one of our audience members that is talking about the requirements for clinicals. So some NP programs do have certain requirements for a certain amount of patient visits for their clinical training. Is there any data that you know of that you can share that would help feed these requirements on either the number of patients or site visits, not site visits, but patients, and types of scenarios, what they would be seeing, for their clinical competence, and how this kind of plays into their clinical competence as well?

- That is a great question. And I'll be honest with you, we don't have that data. And truly, if there was a take-home message I could share with everybody to think about for this study is how do we collect better data about NP education? So we asked these schools to give us their hours, their total hours, but we did not ask them to give specifics.

And to be honest with you, even if we did ask them specifics, it would be kind of broad school specifics, like they might say their FNP program on average had students do 100 PEDS hours or 100 women's health hours, or they allow a certain amount of specialty hours as example. So we did not ask that question, but I think that is further research that we really do need.

How many is enough? And it kind of goes back to the question of the 750. Is it 750 or is it 1,000 or is it 800? What's the sweet spot? Right? Or when, as my longtime colleague used to say, is the juice worth the squeeze? Going to 1,000 or 1,200, is it really worth it, or do we kind of get to the other end of the bell curve, where it's just not really helpful?

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So we don't have the data. I think that data is really important, and I do think we need to begin to collect it and think about those things for... Again, what's the amount? And I think it's really critical as we look at those resource-lien areas, you know, again, for example, PEDS, as you know. You know, PEDS is a really tough area to provide clinical placement for. So how much is enough?

Right? Is 100 enough? Is 50 enough, or is it really 400? So, yeah.

- Excellent. So, sort of along those same lines, when you're looking at the comparison of master's programs and DNP programs, some of those direct patient care hours, would those be not inclusive of project hours? And if so, when you're looking at your own study, how are those hours taken into consideration or calculated as far as direct patient care versus project hours?

- That's a great question. And we did define direct patient care as in-person, like providing care to patients for the study and the participants. So these hours are truly direct patient care in a clinical environment, providing care to a real patient. They're not project hours or leadership hours or informatics hours or any other type of hours.

These are truly direct patient care hours for this particular study.

- So in that same vein, no pun intended, did your study examine if the program specified the minimal amount of hours required for pediatrics versus adult versus geriatrics? I know you said there's what's the sweet spot? Did you take any of that into consideration or try to see the differences?

- We did not. No, we did not. And I do think those things are really needed. We really need to find out that information. What's the right amount of hours for each of those? I don't think we know. But I do think it's important, again, particularly for those sites that are resource-lean, like pediatrics, as an example, or women's health.

How much women's health? How many GYN exams. And I think our nurse anesthesia colleagues have gone down that space and have moved much more toward competency-based education, where they look at the number of cases, right? And I think eventually my hope is that it'll be probably a while, maybe post-retirement, that we get to that place where we're really looking at cases as opposed to hours, right?

How many patients with hypertension does it take to see before you're really competent in hypertension, or you're competent in COPD, or you're competent in adolescent health versus geriatric health? It would be ideal to do that.

And that, I think, would, again, help us in those resource-lean environments. But also, we all know hours are not hours as well. So, you know, you can spend...and I'll use my clinical practice as an example. You know, we see a low number of patients who are highly complicated. They're all post-discharge.

They're very complicated. Lots of social determinants of health issues. And so does a student gain more from that experience or less from that experience with me? Because we see fewer patients. You know, those are the things that we really ideally would study into the future. We're going to have to get better data, though, because at this point, that would be like a billion-dollar study. I'm not sure where we would get the information.

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- We just need a billion dollars. So how did you...

- We all need a billion dollars [crosstalk 00:45:20.854].

- Yes, absolutely. One of our audience members asked, how did you account for education program clustering in your analysis?

- That's a great question. So, one of the things that was really interesting is we did find, you know, as we did this data, and I'll kind of send a shout out to Bo Yang, who did the analysis for this, but we did find that the same school across years were very correlated.

And so we used generalized estimating equations as the model for this to really help account for that within school clustering.

- Thank you, Shannon. Another question that came through is, how did you account for schools that integrate that test prep into their curriculum, and what impact that has on passing their certification?

- That's a great question. Did not account for that at all, but I do think it's impactful, right, having students prior to the exam do test prep. But that is not something we accounted for within this particular study.

- We have time for one more question. Along those same lines, if you were to repeat this particular study that you did, what else would you like to learn from NP programs besides all the various data points that we just discussed?

- So I do think case counts in particular would be really helpful to understand, and other school factors. Clearly, it's not all hours, right? It's not all hours. So there are other things that are going on within schools, whether it's in the clinical environment or whether it's in the didactic environment.

It would be really great to get tons of school characteristics, right? Is it online? Is the program online? I would really like to know if the school found the site. That's one of the things that I really think is important, and really it's been a huge challenge in NP education over many years, where many schools put the burden and the responsibility on finding the clinical placement on the student.

It's very different than we do in any other educational environment. And I think that would be really helpful to know. Is this a student-selected site or is this a school-placed site? But again, many school characteristics, I think, would be really helpful. But I do think online or in-person education, school-found site versus student-identified clinical site, I think would be really, really important.

But there are, again, so many factors. The biggest thing I would love out of this is for it to be a call to action for national educational, certification, accreditation, licensure data that ties to NPI number. Because I think in the end, it's not just about passing the certification exam. It's about are they passing it and providing quality patient care, which I think, particularly here at the National Council of State Boards of Nursing, is really the thing that we really care about the most.

It's great to pass an exam, but if you're providing poor care, then it's a different story.

- Absolutely. Well, thank you, Shannon, so much for your time. Really appreciate you, your presentation, sharing all of your research findings with us. We will now move on to our next topic, which is "The Role of RN Experience Within a Peer Education Program Entry. Thank you.

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