Past Event: 2026 NCSBN Scientific Symposium - Nurses4All: A Mail Survey of Nurses for Policy Evaluation of Nurse Regulatory Legislation in Pennsylvania Video Transcript

Event
2026 NCSBN Scientific Symposium

More info: https://www.ncsbn.org/past-event/2026-ncsbn-scientific-symposium

Presenter
K. Jane Muir, PhD, MSHP, RN, FNP-BC, Assistant Professor, Penn Nursing, University of Pennsylvania

- [Jane Muir] Hi, everyone. My name is Jane Muir. I'm an assistant professor at the University of Pennsylvania School of Nursing in the Center for Health Outcomes and Policy Research. I'm also a senior fellow in the Leonard Davis Institute of Health Economics at Penn. Thank you so much for the opportunity to share this work with you today on hospital nurse staffing variation and outcomes to inform patient safety legislation in Pennsylvania.

First, I'd like to acknowledge my authorship team as well as our funders, the National Institute of Nursing Research, the Agency for Healthcare Research and Quality, and the National Council of State Boards of Nursing. The QR code on this screen will take you directly to our full publication in Medical Care, so I really encourage you to scan that QR code and read more about our methodology, the background of our study, and of course, the study findings.

Compelling research generated over two decades, both in the United States and internationally, has found that chronic nurse understaffing in hospitals has negative consequences for patient health outcomes, nurses' retention, and healthcare costs. A landmark study in this field was published in JAMA in 2002 using data from Pennsylvania hospitals. This evidence has prompted California, Oregon, and other jurisdictions internationally to establish required minimum nurse staffing standards in hospitals.

In 2023, Pennsylvania took a significant step forward when the Patient Safety Act passed the House of Representatives with bipartisan support. However, the bill was never called for a vote in the Senate, and since then it has stalled. Much of the opposition centers around two concerns.

Number one, that a staffing mandate would accelerate rural hospital closures. And number two, that compliance would be cost prohibitive for hospitals broadly. This study was designed to speak directly to those concerns. Our objectives were twofold. First, to determine whether variation in nurse staffing

across Pennsylvania hospitals is associated with adverse consequences for patients, nurses, and hospital finances.

And second, to examine what a minimum staffing policy would mean specifically for rural hospitals. We drew on four linked data sources. These included all-payer hospital claims data, Hospital Compare measures of patient satisfaction, and the American Hospital Association data on hospital characteristics, including characteristics like teaching status, technology, urbanicity, hospital size.

The fourth data source was the Penn Nurses for All survey. This was a large survey of registered nurses in Pennsylvania. Nurses were asked to identify their employer and to report on staffing conditions and job outcomes, including burnout and intentions to leave their position within the year. Our final hospital sample included 132 acute care, non-federal hospitals across the state.

The patient sample was comprised of adults aged 18 to 99 who were admitted for any surgical procedure or one of five common medical conditions: acute myocardial infarction, CHF, pneumonia, stroke, and sepsis.

In addition to running descriptive statistics, we used multi-level modeling to account for the fact that patients and nurses are nested within hospitals. Models accounted for both patient and hospital-level covariates. For those interested in the full methodological overview, including how we constructed our models and our covariates, please, we encourage you to scan the QR code below for our publication in Medical Care.

This slide shows the current variation in patient-to-nurse staffing ratios across Pennsylvania hospitals on general medical and surgical units. Each blue bar that you see here represents one of the 132 hospitals. The height of the bar represents how many patients a medical surgical nurse cares for on average in that hospital.

One of the most striking findings is the nearly threefold variation in nurse workloads across hospitals, ranging from three to nine patients per nurse. The statewide average is six patients per nurse. The orange circles represent something equally important. This is the number of patients nurses in each hospital say they can safely care for.

That safe threshold generally falls between four and five patients. As you can see, the vast majority of hospitals are operating at staffing levels well beyond what their own nurses consider to be safe. This gap between actual and safe staffing levels is the core problem legislative action is seeking to address in Pennsylvania.

Turning to nurses' outcomes. Fifty-five percent of hospital nurses in Pennsylvania report high burnout. Each additional patient in a nurse's workload is associated with a 33 percentage point increase in the odds of nurse burnout. One in five nurses plan to leave their employer within the year, and each additional patient is associated with a 27 percentage point increase in the odds of nurse intent to leave.

One in three nurses reports job dissatisfaction, and three in four nurses say that their workloads are unsafe for patient care. The patient outcomes tell a consistent story. Each additional patient per nurse is associated with higher odds of in-hospital death, readmission, and longer length of stay, even after adjustment for patient and hospital characteristics and multilevel regression models.

The magnitudes are clinically meaningful. An eight percent increase in the odds of patient mortality per additional patient in a nurse's workload translate at scale to thousands of preventable deaths annually. The associations with readmissions and prolonged patient stays in the hospital follow the same direction, with longer hospitalizations per additional patient that a nurse cares for and higher odds of hospital readmissions per additional patient that a nurse cares for.

We also found that each additional patient per nurse was also associated with lower odds of hospitals improving their HCAHPS ratings. So these are publicly reported patient satisfaction scores that Medicare hospitals report online on CMS Compare.

So each additional patient per nurse was associated with lower odds of these hospitals gaining an HCAHPS star rating or gaining a more favorable patient satisfaction score. For hospital administrators, this represents a financial and reputational risk, not just a clinical one. Using the adjusted effects from our models, we estimate the number of deaths, readmissions, and extra hospital stays that could be avoided if hospitals across the state of Pennsylvania staffed at a 4 to 1 ratio compared to current levels.

The projected benefits are substantial. At a 4 to 1 ratio, Pennsylvania hospitals would avoid more than 3,000 deaths, over 2,000 readmissions, and more than 77,000 inpatient days every year. Even the more modest 5 to 1 ratio is projected to prevent nearly 1,600 deaths annually. So what we're talking about here is really bridging that gap between the number of patients that nurses are caring for versus the number of patients that nurses could safely provide care to.

If that gap were bridged or if that discrepancy were reduced, thousands of lives could be saved annually. We could reduce hospital stays, and readmissions would be avoided. Now, let's consider the cost implications, starting with nurse turnover. The average cost of replacing one nurse is approximately $61,000. This accounts for recruitment, onboarding, training, overtime during vacancies, and agency or travel nurse staffing fees.

At a 4 to 1 ratio, we estimate that Pennsylvania hospitals would avoid more than 1,000 medical surgical nurse departures per year, representing over $66 million in annual cost savings from turnover costs alone. Even at a 5 to 1 ratio, the projected savings exceed $34 million per year. These are cost savings that can offset the cost of hiring the additional nurses needed to meet the standard.

This is important because a common concern expressed by hospital administrators is, while labor is a significant cost for hospitals, we're not able to financially meet that ratio. Our findings suggest that if hospitals are staffed at a safe patient-to-nurse staffing ratio, we can see reductions in these avoidable and costly outcomes that can then be reinvested into hospitals to offset these costs of hiring more nurses.

Shorter hospital lengths of stay represent another significant opportunity for cost savings for hospitals. Assuming about $3,000 per inpatient day in Pennsylvania, and this is derived from the Kaiser Family Foundation Hospital Inpatient Day Expenses report, we found that reducing length of stay by 77,591 days generates $239 million annually in cost savings.

Adding nurse turnover savings, the combined estimate is well over $300 million per year. Again, these savings can be thought of as cost offsets to pay for the employment of additional nurses. I want to turn now to the rural hospital question because it's a legitimate policy concern, and our data address it directly.

We found that rural hospitals in Pennsylvania are actually staffed as well as, and in some cases better than, urban and suburban hospitals. Fifty percent of rural nurses report safe workloads as compared to 40% of nurses in urban hospitals. Rural nurses also report better outcomes than their peers, safer workloads, greater intentions to stay in their job, and better tenure.

As you see here, 90% of our rural nurses intend to stay in their job as compared to 82% in urban settings. And 52%, well over half of rural nurses, have worked over 10 years at their hospital compared to nurses in urban settings. This is really crucial when we think about institutional knowledge, experience with patient care protocols, procedures, pathophysiology, training the future workforce.

That retention is higher in these rural hospitals as compared to the urban settings. The evidence on rural hospital closures actually points consistently to demographic and economic factors as the primary drivers of closures, not nurse staffing requirements. So we're thinking more of things like population decline, reduced inpatient volume, residents traveling further for care, not so much these nurse staffing costs.

A second common objection is that Pennsylvania simply doesn't have enough nurses to staff at safer ratios. Here, too, the data tell a different story. Bureau of Labor Statistics data show that Pennsylvania has more registered nurses per capita than California or Oregon.

These are two states that have already successfully implemented minimum nurse staffing laws. Pennsylvania also recently joined the Nurse Licensure Compact, which expands the available workforce further. We also know that over 200,000 new nurses graduate nationally every year, so they enter the pool of nursing, the nursing workforce, and increase our supply. In the past decade, we saw growth in nursing more than in the prior three decades combined.

There's even evidence to suggest that nurse supply in the U.S. had a substantial bounce back after the COVID-19 pandemic. So all this information really supports that we have a foundation to adequately staff nurses in hospitals. The study has strengths and limitations worth mentioning.

The cross-sectional design means that we can't claim causation, but the consistent direction of findings across outcomes, combined with 20-plus years of converging evidence from multiple study designs and settings, makes a compelling case for the direction of our relationships in this study. Turnover projections in our study were based on intentions to leave, not actual nurse departures from their workplace.

Additionally, cost savings are likely conservative because we did not account for the indirect costs of poor nurse staffing. Despite these limitations, this is a large-scale study providing real-time local data to inform a state policy debate. The study hospitals included over 85% of Pennsylvania acute care hospitals, so it's rather representative of Pennsylvania hospitals.

And our approach for measuring nurse staffing produces a validated and reliable measure that you can read more about in our study. The study's major conclusions are threefold. First, the evidence supports minimum nurse staffing legislation in Pennsylvania. There's a high degree of variation in nurse staffing across hospitals associated with negative health outcomes for patients, high nurse turnover, and avoidable costs for hospitals.

Second, the three common objections, nurse shortages, rural hospital closures, and costs, are each addressed and refuted by the data. Third, it's worth remembering that Pennsylvania's own hospitals generated landmark evidence in 2002 that prompted policy action in other states.

So it's evidence from this state that helped legislators pass policy that ensures safe patient and nurse staffing ratios in other states, including California, Oregon, and other jurisdictions internationally like Australia and Canada. Pennsylvania has yet to act on its own data, and our evidence suggests it's time for Pennsylvania to apply that evidence to itself.

Thank you so much for the time that you've taken to hear this presentation, and I'm really excited to hear any questions or comments that you have on the study. Be sure to read our paper using the QR code that I cited earlier, and please feel free to reach out with any questions that you have through my email linked below. Thank you so much.

- [Jason Schwartz] Jane, thank you so much for the presentation. What can you tell us about the current status of the Patient Safety Act in Pennsylvania?

- Thanks, Jason, and I wanted to start by thanking the National Council of State Boards of Nursing for the opportunity to do this work through funding and also to present to the audience today. And thanks for all who listened to the talk. The policy, as I mentioned in the presentation, that's being considered as a minimum nurse staffing requirement, the Patient Safety Act, in the past, has had a lot of success, but historically stalled at certain aspects of the Pennsylvania legislature and the General Assembly.

So in 2023, we had sort of a historic landmark event where the legislation passed through our House, thanks to our representatives who, many of which were actually nurses who are legislators and are also supporting the legislation.

But unfortunately, it stalled in the Senate and has to be reintroduced through our legislature. So we are researchers, obviously, at Penn in the School of Nursing, but a really incredible aspect of our job is that we get to translate the findings into the policy arena. And so right now we're working with legislators to try to see if we can get that legislation reintroduced through the House and happy to talk about the avenues in which we're pursuing that.

- Thank you, Jane. This next question came in just as you shifted to talking about nursing supply, so it may be that you've partly answered it already. But the attendee asked, "To meet the 1 to 4 ratio in Pennsylvania, do you know about how many nurses you would need and whether there are even that many available?"

- I can't cite for you an exact number. That's something that I'm happy to follow up on email and provide for the state. We have estimates that are specific to the number of nurses. So we didn't... Not all nurses in the state responded to our survey, and so it would sort of be like a probabilistic estimate if we were to provide that number.

But happy to think about that further over email. I think the important note... What we do know about Pennsylvania is that we have more nurses per capita in our state compared to most other states in the U.S., which is really important when we think about if this is a jurisdiction that could successfully meet that legislation.

And furthermore, I think what's compelling about our research is that even at the 4 to 1 ratio, we estimate that based on the per capita rates in the state, Pennsylvania could meet this minimum threshold. And a lot of states are sort of uncomfortable with that 4 to 1 ratio, and that's why we wanted to consider the 1 to 5 ratio as well.

And when you look at our graph where we showed the sort of discordance in how many patients nurses are caring for at a time versus what they actually say they could safely care for, it's hovering around that four to five range. And so the important finding from our study is that we have enough nurses given the per capita rate in our state.

There's a lot of narrative around minimum nurse staffing requirements and concern that there's a shortage of nurses in the U.S., and I think I talked about this a little bit in the presentation. We know from NCLEX pass rates that we're generating new nurses into the workforce in the U.S., and definitely that is the case in Pennsylvania. We also know that in the past decade, we have expanded the nursing workforce from a supply perspective more than in the prior two decades.

And so there is a lot of growth that we've seen in the nursing profession in the past 30 years, which is really promising. And so rather than the framing of it being a supply problem, I think the issue is we have a shortage of nurses who are willing to work under the current conditions. And the conditions, the work environment and the staffing, these are modifiable aspects that if hospital employers were to invest resources in changing them to make the care safer for nurses, this could lead to stronger retention.

And so your question is about the specific number of supply. And so I think the important take-home message is that from a supply perspective, we have enough nurses. It's more about what are strategies that hospitals can employ to keep nurses in these positions, given the sort of growing constraints that nurses have and primarily the short staffing. That continues to rise to the top in terms of the top factors that are driving nurses out of hospital jobs.

- Jane, thank you for that. Are you able to talk about any possible differences in pay between urban and rural hospital settings?

- That's a good question. I think that certainly wage can change across regions of a state. And although I can't cite the wage differences precisely in the state of Pennsylvania, I will say that when we have studied wage as a factor of retaining nurses in hospitals, we've looked at wage, the work environment, staffing, and what we found is that wage matters but the work environment and workloads matter more.

So wage is associated with nurses' retention, so is the work environment, so are safe staffing ratios. When we put all those factors together in a model, the wage effect actually goes away, and the pervasive factor that remains most predictive of nurses staying in their jobs is work environment and staffing.

And so I do think to an extent... I think wage matters but it's only to an extent. And sort of when we say that, there's sort of this like argument of, "Well, what about travel nurses?" Like, travel nurses will work for a higher wage. And yes, that is the case, but the... You know, the sort of like asterisk to that is that they're choosing not to stay in those jobs. So that's a sort of...

It's not an apples to apples comparison. If we're talking about our main goal here, which is to retain nurses long term in healthcare jobs, we want to be looking at investing in high-quality work environments. And wage also comes up in the topic of rural like how to draw people into rural areas.

And actually, what we found in our study was that nurses in rural hospitals compared to urban settings were having more favorable job outcomes, like higher job satisfaction, and they were more tenured.

Which, when I speak to colleagues in community health or in more rural settings, that doesn't surprise them because, you know, these are nurses who have been a part of that community, are from those communities, and they're very interested and invested in staying in rural areas. And so I just wanted to further contextualize. I think, yes, wage matters, but the work environment matters more, and there are ample opportunities for hospital employers to invest resources in improving those working conditions.

That's why we wanted to show this sort of cost analysis of how the investment in safer staffing can allocate more resources for hospitals to invest that money in more staffing. In other words, if you save on patient length of stay, that's one of the highest costs for hospitals. So if you invest in safer workloads for nurses, reduce patient length of stay, those resources that are saved can be reinvested into hiring and drawing in more nurses.

Wage could be one of those things that draws nurses in, but I would urge employers to think about how the contextual environment, like workloads, are most important to advancing that retention.

- Jane, thank you for that.

- Thanks for the question, by the way.

- Oh, my pleasure. My pleasure. So this next one reminds me of a phrase I hear a lot at NCSBN, which is "evidence into action." So how can evidence, like what's in your study, be translated into policy? And what's your role as a researcher in potentially helping make that happen?

- I completely agree with that statement. "Evidence into action." I love that. I think there are ways that people like myself are in research positions where maybe we have more access to outlets to disseminate our findings. So I'll talk briefly about that and then speak to how frontline nurses can get engaged with this work.

So what we're doing from a research perspective at a school of nursing, higher education, we really lean into our contacts within the state and actually, you know, this is open to anyone in the public. You can reach out to the representatives in your district and email them a paper that you read and attach that to a message saying, "I want this is the kind of thing I want to see happen in my state or in my district or in the local hospitals."

I say local hospitals because we don't need a state law to regulate nurse staffing ratios. Hospitals could, out of their own volition, choose to staff safely. And there's also opportunities where, like, a governor mandate could institute a sort of regulation like this.

So there's creative ways that policy can be advanced. That doesn't mean a minimum nurse staffing requirement is the number one way to do that. So from my seat as a researcher, we will publish a study like this and then send it to representatives in the state who we have contacted before and asked to meet with them and really try to convey, as nurses, what this looks like on the ground and also what we found from our research.

We talk about collaborations like with NCSBN and how we've been able to generate large surveys from nurses' perspectives. And we also work really closely with the hospitals that we've recruited nurses from

to show them the evidence and talk about it and ask what are the barriers and facilitators to advancing safe staffing in hospitals. I would say from someone who maybe isn't in my seat, but has different levers given their circumstances, I have been really impressed with how social media can reach people in positions of power.

So I think about nursing organizations, state nurse organizations that have done a great job of highlighting studies that we've led that are published by NCSBN and, you know, making little reels on Instagram or little profiles on LinkedIn that tend to reach a wide audience because they're able to take that evidence and put it into action and circulate it among frontline nurses who are, like, at work saying, "This is what I'm experiencing today."

And then we'll get emailed by legislators who will see something that a nurse highlighted. And so I really encourage people, regardless of if they're in research or policy or frontline nursing care, to elevate your voice and see if you can attach it to something with data like our studies. So if you get the QR code and scan it and see our study and happy to send anyone an email if they want the study—sending that to your legislators, conveying it through the channels that you can.

Anything that we can do to attach evidence to the experience of nurses is very important because sharing our stories as nurses is important, but attaching it to tangible things like data and numbers around cost and finances is really impactful to move our message forward and to really advance the nursing profession and patient safety.

- Well, thank you, Jane. So we've just got about a minute and a half, but I think I can sneak in this question. We know we have researchers in the audience when someone asks, is there evidence of outcomes from staffing legislation of various types?

- That's a great question. The answer is yes. So California is the... I've got a minute, so I love a... I'm an ER nurse, so I love a timestamp. California is the longest standing state to implement minimum nurse staffing requirements. They passed a law in 1999, and it was implemented in '04.

And we studied patients that received care in California compared to non-California states. So California patients who are receiving care in hospitals that have minimum nurse staffing requirements receive on average two hours more of direct care from nurses compared to patients in other hospitals that don't have that legislation.

Furthermore, nurses in California compared to non-California states have better outcomes like burnout, intent to stay, and job satisfaction. So we definitely have evidence behind policies that are making staffing safer.

- Jane, thank you for the presentation. Thank you for your graciousness answering all those questions. A few more have come in. I'm going to do my best to route those to you offline so you can get back to folks that I didn't have time for. I don't want to stand between anybody and lunch. So at this point, I will declare it lunchtime, but we will reconvene at 12:30 Central Time.

And by now, you know the familiar drill of heading to the lobby and choosing at 12:30 which of two concurrent sessions you'd like to join. So again, thank you very much. Enjoy lunch, everyone, and we'll see you again in about an hour.