2018 NCSBN Scientific Symposium - Practice: Long-term Care Training and Provider Regulations for Optimal Resident Outcomes Video Transcript

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So, the topic I'm going to talk about today, we completed a little while ago, so I will do my best to remember all the details. But it does have a little bit of a statistical bend but hopefully, I won't let that interfere with anyone's discussion of the issues and we can maybe get into some topics if there's time.

I want to first talk about my team, which is wonderful. And in addition to myself doing the work, I have a DNP nurse with many years of DON experience and home-care experience. I have a health services researcher, I have a statistician working with me, and then two other nurse researchers, so it's really wonderful.

As some background to this topic, CNAs are your direct care workers that are doing most of the hands-on-care in nursing homes. So, their training is really important, especially as we're all aging and we either have parents or some of us may someday be needing nursing home care. It really bears some thinking. So, what's required now by the federal government is a minimum of 75 hours of training for a CNA and that's to become initially certified.

So, that's kind of like their total training. Of that, 16 hours must be clinical hours. And many people think that more training is required and what's nice in this circumstance is that states are allowed to, and many have, increase the hours.

So, these are minimums and we've gone beyond that in many places. Now, some of the things that we've looked at and others about how the hours impact CNAs are very interesting. First of all, the ones with more training hours, and that's generally meaning they're in a state where they are required to have certain hours for their training. Those CNAs had lower turnover and higher job satisfaction.

In addition, we found relationship of more training hours to better resident care outcomes. And that's kind of what one would hope. And in addition, I talked about how many states have increased the training requirements, but they're all different. It's really diverse.

There's quite a variety. So, the research problem that we wanted to look at is since states have increased their outcomes and many different… Their training hours and many different requirements are now in place, what is the best number? Is there some way we could figure this out? What is a good number of training hours? And by good, I mean the outcomes would be the best. So, how do you get the best outcomes given the training hours?

So, we looked at total clinical and then clinical versus didactic training hours to see what would show up to be best. So, here's the purpose. I want to estimate how many training hours are needed for the best nursing outcomes and optimal nursing outcomes.

How many total, how many clinical, and then how should we divide them up. So, if you've got this many total training hours, how much should you apportion to a classroom type of basis, which is the didactic portion? Or how much should be clinical hours where you're doing hands-on practice in giving care generally under some supervision? So, here is an overview of the methods. We had a pretty large sample.

We tried to include all Medicare and Medicaid nursing homes in 50 U.S. states and the District of Columbia. So, that was a little over 15,000 and we excluded about 1,600 that didn't have complete outcomes data. Now, the tendency was for those to be the smaller homes and even a little bit higher problems. So, but in general, 13,600 nursing homes is our final, should be a pretty good size to get some estimates.

Now, the data comes from cross-sectional data. We used 2014 information and the data sources for the training hours were the PHI website which summarize them and then we also validated and verified that with dates and some were missing, so we called states and got the regulations and went through verification that the hours were truly correct.

For the nursing home outcomes, we used the nursing home quality indicators, which I'm going to just call QIs on the rest of the study. In general, these are things that you don't want to see. They're not good if they happen, falling with an injury and such. So, the idea is the lower your rates of those things are, the better the place is.

And these come from nursing home compare data. You can download these for free since we've been talking all day about access to data. You can get these. I actually paid for the data we had because I wanted data from the fourth-quarter of 2014. So, if I think about a regulation being in place prior to 2014, these are the hours, etc.

and then we're looking at outcomes at the end of 2014, while it is cross-sectional same year, at least we have the sense that these regulations were in place when these outcomes occurred. Any questions? Okay. The measures for my independent variable, the CNA training hours, as I told you, were divided up.

The total hours are how many hours do they require to become initially certified, then how many clinical hours, and then clinical to didactic ratio;that balance or division between clinical and classroom hours.

So, we took a ratio to see how they were related to outcomes. And for nursing home outcomes as I indicated, low is good and the lower the better is reflective of better care.

We selected... Now, I know there's some controversy about what's nursing-sensitive, what's CNA sensitive, and we look for things that had at least some intersection between the two. We used ADLs, falls with injury, and pain and I have the definitions on here, but the idea was that you don't want something that has no CNA involvement, but… Something like pain, they might be assessing and they might have to interface with a nurse at some kind of medication is needed, but it's uninvolved...

It's a CAN-involved function, not necessarily to fully assess it and treat it, but to identify Mr. So-and-so is distressed or whatever the basic characteristics are. So, we felt that these would be a good reflection of quality. Now, for the nursing home control variables, these are things that can affect the relationships that I'm studying, the training hours and the outcomes.

These are things that have been shown to affect outcomes by themselves and potentially, could be related… could impact training. These are ownership, facility size, which is usually done as bed size and case mix. So, if you have a much sicker population, you might have some more of the outcomes and the idea is to smooth these all out so we don't have to say, "Well those nursing homes, you know, were having very, very difficult kinds of populations and this way, we kind of, can say we took care of those things in the models."

So, here's some sample data. The total hours, I talked about how they were very diverse across the groups. The total hours ranged from 75 to 180. So, 75, again, is that minimum. And states have increased it, you know, over twice. The average was 100 hours for the initial training.

The clinical hours were averaged 40 hours. So, even though 16 is required, I think what has happened is many states have recognized that just more is needed, especially if you think about nursing homes having sicker and sicker people that they're taking care of in many instances. While I'm looking at the long-term care population with significant nursing needs, in many cases, they've gotten more ill over time and there's more complexity and comorbidities than there used to be.

Now, I'm not talking about the short-stay people that might have, say, heart surgery and come into a nursing home, it's still that long-term care population, but they have shifted. They're also older on average than they used to be as well. So, the second chunk I have here is talking about how the nursing homes fell in terms of the regulations. So, one-third of the nursing homes were in states that had minimum training hours and that 19 states were the minimum for either the clinical or total.

I think 15 states now have the minimum for total. And then the ratio is interesting, too. If I think about it, most of it set up and for the minimum didactic hours in the classroom are going to be more than your clinical hours. And that's the case in 36 states. Whereas having more clinical hours than didactic is only in 15 states and it doesn't line up that well with nursing homes because of the differing sizes of the states.

So, a quarter of the nursing homes fall into that category where their CNAs have more clinical training than didactic. This table comes from a paper, and I apologize for sticking it in there. I'm not sure how well you can…. It's not too bad. The basic idea is I have a total with the top bullet and the clinical, so if

we just look at the total and the first number of 15.15 under the federal minimum, that's the rate for the ADL quality indicator for the state's group that had the federal minimum.

For states with more hours than 75, it was 14.68. And the P value there of less than 0.001 one says there's a significant difference and so what's different is the states with the federal minimum have higher QIs, so not as good. And that's the pattern that we see across all three of those; the activities of daily living, the falls with injuries and pain were all significantly higher in the states that only had the minimum hours and then the same thing we saw in the clinical hours.

So, states with just the 16-hour minimum had higher quality indicator levels for all of those. Now, in terms of the analysis, it was a little bit hard for us to think of how we're going to look for the optimal training hours. So, what we settled on, first of all, we had this first type of multivariate polynomial regression and generalized estimating equations.

Those are going to help us figure out how things may be clustered within nursing homes and within states, so they're not going to all be like independent measures. So, that's one consideration. The squared and cubic terms we've put in the model to try to test… We didn't think this is going to be a linear relationship, literally as I have X more training hours, I have this much more outcome.

So, that was one other issue as well. In terms of the models, we had three models. We're going to make a separate one for each, for the total, the clinical, and the training hours. And the variables we entered as follows. The QIs were put in together as what's called polygamous outcomes so we could kind of break up the variation across them and see what's going on, whether it would make them more stable estimate because these things are still relatively rare.

In addition, we adjusted for size, ownership and case mix as I indicated before. Okay, so, I'm going to show you like our graphs, which are really like pictures or lines. And in general, the lower quality indicator will reflect better quality with a minimum point is going to be the best and the maximum is going to be the lowest.

The optimal point, essentially, is going to be where the lowest meets the training hours. But to obtain the optimal estimates, we had to convert our estimated standardized Z scores into training hours. So, here's the first picture. And if you look at the picture, the point that I have on there that's a little dot, there comes where we use the derivative, which is the area under the curve of the regression function.

It tells us the point in hours where the slope of the regression is zero and that's kind of like our low point for best quality. So, if you see on this graph, I have the quality indicators on the Y-axis going up and then going on to the right is the hours. And the point where that occurs is 151.6 training hours. So, that's going to be our estimate of the best training hours.

Any questions? All right, now this one, when we graphed the clinical training hours, this had an inverse shape. Instead of estimating a minimum point, we estimate the point where improved scores consistently were related to increase in clinical hours.

And what happens is the QIs drop off sharply after that dot. So, that's why we use that point. So, once you get to 69 hours of clinical and up, you had consistently improving quality. Now, this third one is our graph of the clinical to the didactic hours.

And what this one showed is the same kind of shape that I had in the first graph. And the point there is what's called the ratio of 1.93. So, how do I interpret that? Well, think of it as 1.93 to 1. And 1.9 is almost 2. So, what it's saying is almost a 2 to1 ratio of clinical to didactic is the best situation.

Now, you might remember I said most dates, three-quarters of the nursing homes had the opposite where the didactic was the thing that was most prominent. So, just something to think about. Okay. So, here to summarize the estimates that we got, we started out with the estimate of the total training hours, it was about 152, which is, you know, if we think of the average being 100 in nursing homes, it's not completely out of range, but I'll talk about that in a minute.

The clinical training hours of 69 and then the clinical to didactic ratio of 1.93, as I said, almost like 2 to 1. Think of it that way. So then when I plug that in, I get for the optimal training, having that 152 hours of 69 clinical at that ratio, that gives me 100 clinical hours and 51.6 didactic hours. So, that's kind of…that would be in that ratio, think of 100 clinical hours.

And so, what does that translate into sort of a reality? It sounds like a lot more than what's required, but well, four weeks of training is essentially what I'm talking about at a full-time basis and two to two and a half weeks would be clinical to yield the best outcomes based on using ADLs falls and pain as our quality indicators.

So, evidently, there are other outcomes we could look at, but this is saying that we should have some more training. And the other thing is that we should have about two times as much clinical training as didactic. So, if you think about it…one second. I looked at that sign and I thought I had more time.

Okay. Anyway. So, the one other thing I wanted to say in terms of… Oh yeah, here I am. The discussion. The optimal ratio of clinical to didactic. If you think about Pat Benner and her stages of competence, you really have to be doing this work to get the competence.

And I think of it analogous to driving. Icould spend a lot of time in a classroom thinking about driving a car, but there's just no substitute for when we get in the car and actually take the wheel in terms of our learning and our ability to do the task. So, similarly, I think that's what that shows. Now, I do have to point out some limitations. We did have the cross-sectional data and in terms of the higher our that we're showing, relatively fewer states actually have those numbers so they're not as stable as some of the estimates lower down on the pictures.

The source for my tables and graphs was the article that we published in the Journal of Nursing Regulation and the references that I cited, you can't see that here, but if you have the… when you get the slides, you can find all the references. Thank you very much. Any questions?

Good. - [Woman 1] When you look at education outside the…- You mean like continuing education kinds of things, or...?

- Oh, no. I'm speaking about technical place and technical programs that offer a…Because I know you were looking at it from key indicators for nursing homes. So, that may be outside of what you were looking at. In Vermont, we have a lot technical high schools that offer any student with a program which is a year-long at senior...

- Oh yeah. We actually are inclusive of all those. We're not… Yeah, I'm sorry. I should clarify. The education can be obtained in a multitude of ways. It might be community college. Some nursing homes are also allowed to operate training programs.

Usually, they're a little bit better because if you are getting some bad scores, you usually don't get the privilege of offering that training, so it's very diverse and, again, varies from state to state who's allowed to offer this training and where it's located really varies a lot, so thank you. Sorry, I should have clarified. Yeah. Hi. -

[Woman 2] [inaudible].

- Oh, lovely.

- [Inaudible].

- Yeah, they do have to pass the certifying exam. And in the home, there's oftentimes when they come in new, there's some kinds of requirements in terms of experience and being supervised, but that really varies a lot.

I see some people may know more about that angle of it than me. Please jump in if you…- [Woman 3] When the issues comes in, you have to have older task and demonstrate a lot of clinical competence and so it's both. [Inaudible]

- No, but that's a really good idea. That's interesting. I haven't done that. And I think I should. Thank you. Anything else? Yeah.

Hi. - [Susan] Yeah, I'm Susan Chapman, UCSF, thanks for this. We actually do some more within the home care workers, not the CNAs, but the people who aid [inaudible] in the home, and a lot of them are having heavy training requirements which border on these.

Sometimes, you know, [inaudible] etc. So, the differentiation issue comes up if you're going to go from home care to CNA [inaudible]. The hours don't make any sense. What do you think it takes...so this is a policy question. What does it take to kind of push those 75 hours up into the realm of

[inaudible] clinical? So, I mean, is this CNS, that got [inaudible], or...?

- Well, it's interesting. Since this is something that states are allowed to do on their own and uniquely have, and we… I don't know if I skipped over it, but we looked at in 2010… I don't know if I can go back, but... Oh yeah, 2010, more states have increased their total hours and no state with a prior increase has reduced it.

So, I think I did see one that was 85 and went back to 80, but that was not so recent. So, it seems like there is an impetus to increase it. Yes. - [Woman 4] I'm not sure. The question you're asking is how do you do it and generally it's through the rules process.

- Yeah. Well, kind of I mean there's a [inaudible] this 75, which sometimes it's a little…- Yeah. I don't see that changing very soon. - [Crosstalk]

- Yeah. That over 87, it's been there, well, since '87, so.

- Is that so? How do you make that happen, I guess, is my question. - [Crosstalk]

- It's mostly going on at the state level, I think. Yeah, but that's not to say, it shouldn't.

- On the federal level, what...the requirement is, the 20% of the 75 hours?

- Yeah, it is. The requirement is a 75, at least. They're both minimums and 16 must be clinical. And then there's some competencies that go along with it. There's a set of things you have to cover and there is a curriculum.

- So, when that was instituted, it was in the '80s, you said? Nineteen-eighty-seven.

- Nineteen-eighty-seven.

- Nineteen-eighty-seven. I was thinking on the federal level, somebody should look at that patient that went into a nursing home in '87and the complexity of that patient compared to the complexity of the patients...

- Right. Yeah, I mean I've continued… I've continuously advocated for that.

- It's a lot different.

- It is.

- No one even looks at that or cares about that?

- Oh, I think people do and I don't think I've ever written anything without continuously advocating for that and in person as well. But the way I look at it is, from what I understand, it's not something that's going to be changing soon at that level, but I feel like by putting it out there, a lot of states have that…that I have talked to people that really want to do this and it helps that chances are their neighbor has.

You know, it's far enough along now. So...

- Those are… That's for programs that receive federal funding only. Those are the minimums that I understand.

- Medicare and [inaudible].

- Right. But… [Crosstalk]

- Most of the programs that we have in Washington are not nursing home. They're private. So, we can do that through rules.

- So, for Illinois, a CNA must have 40 clinical hours and 80 didactic hours. In order to be on the CNA register.

- So, that would be, you know, one of the higher. That's 120, so that's considered one of the higher ones.

- Yeah, it's not enough.

- Yeah. Well, everybody feels like it isn't enough. Many do see the European examples and they're way higher, so...

- I was just wondering if we had thought about using the current [inaudible].

- We did, but I have used the high-risk pressure ulcers in a number of hospital studies. It doesn't seem to work as well for us in the nursing home. I'm not exactly sure why. It doesn't always show a clear-cut relationship, but obviously, those are dreadful things to occur.

I'm not sure why, I don't know if anyone.

- It is more infrequent.

- It isn't it? Well, they have the high-risk category. It isn't the frequency... There's just something about it does not always relate as one would think it. I've had some studies where those have been higher with less care. So, they're kind of paradoxical. I'm not really sure what it is with that particular indicator, but that's why.

And I have used it in some of the hospital data, though, and we just basically didn't find support for the hypothesis. They're included in the data and the table, but they don't seem to ever go that way. So, interesting. Now, the other thing that comes up with pressure ulcers as an outcome in nursing homes, is a lot of times people come to the nursing homes with it or because they have it and it's not healing.

So, you get these issues of, well if they came in with it, sort of like the present on admission and then, you know, you're not really…it's not really an outcome of the care so that to me, is my sense of why it is all muddled. But I don't know for sure. It's just a guess. -

[Man] I think I have [inaudible] question about your issue. Do you think that that's driven primarily by [inaudible], like, positive association increase in clinical hours? Or are you even curious to why that is?

- It could be, but I think there were enough places that have that, the clinical preponderance and that allowed us to test it, I think. You know, we… As you can imagine, you spend a lot of time looking at

something that, you know, looks a little different, but I think that's what I came down to. Is that it really is...there's enough already that have the preponderance of clinical that I think that they can show that.

That's my guess. Anything else? All right. Thank you.

- Thank you.