Unidentified Female: Welcome to the VA HSR&D Investigator Insights podcast series. In this episode, VA geriatrician and palliative care physician Jim Rudolph talks about his research into care for older veterans during the COVID-19 pandemic and how looking at a simple measure of body temperature led to national changes for COVID-19 infection detection in nursing homes. In addition to his clinical work, Dr. Rudolph directs the VA HSR&D Center of Innovation for Long-Term Services and Supports.

Interviewer: A year ago in March when COVID was really making inroads, what were your immediate key concerns about the populations that you serve, both veterans and older individuals?

James Rudolph: As we saw cases and news reports coming out of China, those of us in long-term care were very, very concerned. While flu doesn't gain a lot of attention on every cycle, the bulk of flu deaths come in our population. And so we knew that any infectious disease was going to affect the long-term care population first. And there's a couple reasons for that. The first is it's a highly vulnerable population. People don't go to nursing homes unless they have a lot of functional deficits that need to be addressed.

And so the population is incredibly sensitive to any disease, let alone infectious disease and those that have broad systemic effects. So always our population is going to be at risk. The second part is that because of the situation of nursing homes where it's congregate living, and we've been advocating for decades to try and engage people in activities, bring them together, share meals, listen to music, walk together.

All of these, that living environment to make it someone's home really brings them in close contact with one another. And if one person becomes ill, disease can spread very rapidly in that congregate living setting. So the third point is that the workforce who's engaged with our veterans and with anyone in long-term care is doing the most intimate care with that person.

It's hard to bathe someone and not be in the same space as them, breathing the same air. And so a virus that is spread through a respiratory pathway is going to be transmitted from resident to staff member and staff member to residents because that care is so intimate in these nursing facilities. And so we really viewed the early reports as a warning call to not only VA community living centers, but to all of the nursing home industry that this was going to be really, really devastating.

Interviewer: Now that we have, sadly, 15 or so months of retrospective information, what has been the major impact? Other than the isolation, I think that the isolation seems to have been the one thing that has been greatly publicized. If you could discuss from your perspective a little bit more the overall impact, both from the medical care as well as the functional aspects that you discussed earlier, the ability to be together, the ability to congregate.

James Rudolph: Yeah, I think you're right. I think isolation, because it's so profound, that isolation that nursing homes have gone over. Not only are residents isolated from staff members and from one another, they're isolated from their families too. And so that's the visible one that we all feel. Over the next years, we're going to learn the impacts of that isolation on residents. As a healthcare system, we reversed three or four decades of culture change in a matter of weeks. And that's really hard to do. We're in the VA, and we're this large organization that continues to move forward. Imagine we're this large organization that continues to move forward, and we do a complete 180. Things that would have gotten you mandated survey or unannounced survey citations one week, all of a sudden, you're required to do the next week. And that's really profound.

We do these unannounced surveys of nursing homes, both within the VA and in the private sector. And these unannounced surveys were really harsh when there wasn't communal activities. And so in February, you might have gotten a citation for not having enough communal activities. And two weeks later, the criteria changed.

The other part is the impact of COVID on staff. The people who work in nursing homes are generally incredibly dedicated nurses, nursing assistants who provide the bulk of the care for both veterans in our VACLCs and then residents in non-VACLCs. Nursing homes in the medical hierarchy are often at the bottom of the food chain.

Studies have shown that nurses who work in nursing homes are paid less than their hospital counterparts, and nursing assistants who work in nursing homes are paid less than their hospital counterparts. There's more parity in the VA than there is in the private sector. But it's still, in the grand scope of what you do in the world, it is not considered an optimal place to work. And so the people who do that, who go to work there, are really dedicated. During COVID, those workers were unbelievably critical to maintaining the care for these people, who were all of a sudden either incredibly vulnerable or sick with COVID.

And so these workers who went in are putting themselves at risk for developing this disease. And it's just such an unbelievable story of dedication to the population they serve that these workers went in every day and continued to go in and serve both veterans and residents, both in VA and outside of VA.

Interviewer: Do you think that this will have long-term ramifications in elevating the role of caregivers for the elderly as well as the nursing home system in general?

James Rudolph: I hope that it will have positive long-term impacts. But I'm skeptical. And here's why. If you look back at news coverage of COVID and healthcare workers during COVID, hospital workers were celebrated throughout COVID. And in general, nursing homes have been vilified through COVID. How could they do this? They knew their population was at risk? And nursing homes are not hospitals. Let's be very clear. And they're not staffed to be hospitals. They couldn't respond as if they were hospitals. So I'm very skeptical that nursing homes' effort during this time is going to be taken in a positive light.

We will see what develops out of this. In the long run, we need nursing homes. As much as we develop programs and try and keep people in their home environment, there is some nursing home care that's inevitable. And it's just one of those realities that we face. That care, that nursing home care, is expensive. When people can't take a bath and can't shower and can't feed themselves, we need people to do that. And people who do that are incredibly dedicated but also need to be paid. And so that care for people in nursing homes is always going to be expensive. And that's going to be a big driver in this discussion.

Interviewer: So your HSR&D work focused on temperature. And one might think, oh gosh, temperature, that's kind of a basic measure of health. What did temperature and what does temperature tell us about COVID?

James Rudolph: Temperature is one of our most basic measurements. I mean, we've had it around for centuries. And we know that temperature rises in people who have infections. And so we were a little risky to go after something that's been around for so long. And no one really believes that something that's been around for so long could have anything more discovered about it. Those of us who have worked around older people know, though, that a lot of older people who are infected don't spike temperatures.

Their body can't mount that kind of immune response. And so for the first time ever, we had reliable measurement of temperature combined with laboratory diagnosed infections. So we had this really sophisticated mechanism of determining whether someone was infected. And we had the temperature. What was amazing to us is well, only 24% of veterans who had COVID actually met the fever threshold that the CDC had laid out. That means 75% of people who were nursing home residents with COVID didn't meet that temperature threshold.

When we proposed this, that was in the face of the early reports of COVID where 98% or 99% of people with COVID had temperatures. But for us who have been around older people, really anticipated that. The second really interesting thing that we discovered is that while there was no elevation of temperature to fever threshold, there was an elevation of temperature in most people. It didn't meet that CDC defined fever threshold. More importantly, that fever elevation started probably a week before we were able to diagnose COVID. And that's very unique to COVID as an infectious disease.

People who develop influenza have a two or three day window where their temperature rises. COVID's a week before and two weeks after diagnosis, it still had not returned to their baseline. The third thing that came up is that because there's the deviations, there's really just a strict cutoff of temperature saying a fever is 101 degrees or 38 degrees Celsius, just doesn't work in a nursing home population.

What we need to look at is the person's baseline measurement of temperature. And this applies not only to nursing home residents, but it applies to all patients. We all have our own unique temperature signature. And our temperatures, our body temperatures follow various rhythms throughout the day. And so they're generally a little warmer in the morning and then we cool off in the afternoon. Nursing home residents go through that too.

But the idea of taking a temperature in isolation without looking at a baseline, not a great way to capture people who have disease. We've all been through airports and buildings where they were monitoring our temperature as we come into the building, doesn't take into account my baseline temperature. So I remember walking into a building one day and it was cold outside, it was a March day.

And I walked in and they said, hold it, you have to stand here and wait. And it was cold outside, so the surface of my skin was cold and they couldn't register my temperature on their thermometer device. What's to prevent someone who's infected from getting in? I mean, shouldn't we be then saying anyone who is registering might have actual COVID, but still don't meet that fever threshold. And that's taken our research in a lot of very unique ways that I could never have predicted even before the start of COVID. With our temperature findings, we were able to influence CDC to lower their thresholds for nursing home patients.

That's a health services researcher's dream, is to influence policy so quickly and rapidly with your discovery. And so that was pretty amazing. We're also taking what we call this temperature signature of COVID and saying, wait a second, we might actually be able to pick up infectious diseases earlier in nursing homes if we're doing some more routine monitoring of temperature. And with all of the technology that's available today, we don't need to be sticking mercury thermometers in people's mouths. We can actually get them to have a wearable or something like that and then aggregate it amongst a facility. We might be actually able to tell if a facility is heating up and having an infection control challenge.

Interviewer: That's a really, really fascinating concept is to be able to look holistically at a facility level as opposed to the individual level. You wonder if this is extendable to other basic measures of health. One can easily see temperature as a measure in the private sector as well as VA for so many other things. As a geriatrician, informing the general public and informing VA in a wider capacity, this is a different population. They may not respond the way that you as a primary care physician or as a specialist have been trained to think.

James Rudolph: And I would cycle back to what I said initially. COVID was a unique experience for all of us and hopefully it's a once in a century phenomenon. But those of us who work in nursing homes, we deal with infectious disease every winter. Influenza is always an issue. Norovirus, always an issue. And so our work doesn't just pertain to the next pandemic. It pertains to the coming winter season. Regardless of whether there's another spike in COVID or not, we're going to be faced with another infection control challenge in the nursing home world. And if we have learned well enough, hopefully we can mitigate some of the morbidity and mortality associated with that.

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