

Per Ostmo:

Hello, and thank you for joining us. Today's webinar is titled "Availability of Post-acute Care and Long-term Care Services in Rural Areas," and features Dr. Hari Sharma from the Rural Policy Research Institute, which is also known as RUPRI. Today's webinar is brought to you by the Rural Health Research Gateway, funded by the Federal Office of Rural Health Policy. Please note that all attendees have been muted, but you may submit questions for our speaker using the chat function. Today's session will be recorded and posted to the Gateway website for later viewing, and a brief Q and A will follow today's presentation. Next slide please.

My name is Per Ostmo and I am the program director for the Rural Health Research Gateway. My contact email is Per.ostmo@und.edu. I will post that contact information in the chat box, so please reach out if you have any questions regarding Gateway. Next slide.

So what does Gateway do? We provide easy and timely access to research conducted by the Rural Health Research Centers funded by the Federal Office of Rural Health Policy. Gateway efficiently puts new findings and information in the hands of our subscribers, which include policymakers, educators, public health employees, hospital staff, and many more. Gateway is timely, relevant, and free. Following today's presentation, I'm going to provide a brief rundown of how to access research on the Gateway website and how to stay up to date on the latest rural health research. Next slide please.

And now I would like to introduce Dr. Hari Sharma.

Hari Sharma:

Thanks Per, and thank you for joining in today. Today we'll be talking about availability of post-acute care and long-term care services in rural areas. It's not exhaustive examination of the issue, but we get into it for the most part. Okay. I am Hari Sharma. I'm a faculty here at University of Iowa in the Department of Health Management and Policy. Most of my work is around nursing home care.

Before we start, just a few items to go through here. This project was funded by the Federal Office of Rural Health Policy. But then all the conclusions, information, results, findings, they are of the authors and not of the agencies. Some of the results that we're going to present today, it's work in progress but it will be published fairly soon in the form of a chart book, so watch out for those. Then there were a bunch of co-authors that are part of these projects. I would like to just acknowledge them. Redwan, Lili, Fred, Clint, and then Keith. Okay.

So today we would have two different projects that we're going to talk about. The first one is looking at the trends in dually certified or Medicaid certified nursing home closures. We're looking at how many facilities close over time. Looking at the county level. We also look at counties that don't have nursing homes at all. Then we'll also examine some of the characteristics of the nursing homes that close, and then compare them to the facilities that are open.

One note I want to mention here is I refer to both skilled nursing facilities and nursing facilities as nursing homes. But when there's a need to distinguish between the two, I'll try to do so. Over time, we've seen most of the facilities get dual certification so that differentiation between skilled nursing facility and nursing facilities is sort of diminished over time. But again, if there is a need to do that, I'll try to distinguish that.

The second part of this presentation is going to be about the availability of post-acute care and long-term care services across the country. We'll try to explore this one looking at just the nursing facilities, and then the second part would include the availability of swing bed hospitals. Because rural areas will have a lot more of them as a proportion, so we'll explore the availability within that distinction as well. Then we have also looked at some of the alternative providers of post-acute care and long-term care services in places where nursing homes have closed. So we'll also present a little bit of information on that as well.

Before moving on just a little bit of a background. I'm sure most of you are fairly aware of some of this information, but again, we have about 1.3 million residents that live in approximately 15,000 nursing homes. A little bit over then 15,000. Most of them are dually certified. 94% of nursing homes are dually certified. That means they have certification for both Medicare and Medicaid. We have about 4% that are certified only for Medicare, and about 2% of the facilities are certified for Medicaid only.

Now, depending on the certification, these nursing homes may be providing one or both of post-acute care and long-term care services. Now, since Medicare does not pay for long-term care services, the facilities that provide long-term care services tend to be certified by Medicaid. So either dually certified or certified by Medicaid. Now in many rural areas, the hospitals provide post-acute care and long-term care services through their swing bed program, in addition to the regular acute care services. It's less common in urban areas for hospitals to provide post-acute care and long-term care services, but it still does exist in some of the cases. We'll try to incorporate that information in our analysis.

Now, why do we care about the nursing homes in rural areas? That's because when a nursing home and a rural area closes, it's more than just shutting a store, right? It's both an economic and a health issue. When a nursing home closes, most of the people in the community are impacted by it. The people working in the nursing home, the residents, the families of the residents. In the smaller rural communities, the whole community can be impacted by nursing home closures.

In particular, we're concerned about the residents living in the soon to be closed nursing homes, because we have to transfer them to other providers. If there are no providers nearby, then we have to make decisions around what to do with the residents. Try to send them home, or try to send them to some far away places because we just don't have options nearby. Now, again, I

mentioned this earlier, too. There are fewer options in terms of other providers of post-acute care and long-term care services in rural areas. So residents will be severely impacted by nursing home closures, particularly in the rural areas.

We'll use a bunch of different data sets to examine the issue of availability of post-acute care and long-term care services. The data I will present today relies on one, looking at the Medicare provider of services file. We use the termination date that's listed in this data set to identify which nursing homes have closed. We try to verify the closures by making sure that we don't observe these nursing homes in other data sets, including Nursing Home Compare and LTCfocus data set. Nursing Home Compare is now the dataset that's released by CMS, and it has a ton of information about nursing homes, including the five-star ratings and other quality information. The LTCfocus data set is built by a team at Brown University, and they also try to incorporate a lot of information about nursing homes in the U.S. And that's another data set that we use to verify nursing home closures.

We also use a bunch of other data sets in our analysis. We use hospital cost reports to get information on availability of swing bed services, and that's mostly for the second part of our analysis. We use the Five-year ACS data to get information on publishing estimates, and also some of the population characteristics. Now for the rural urban identification, we use the Urban Influence codes, and then we define counties as metropolitan counties or non-metropolitan counties.

For the second part of our analysis, or presentation as well, we examine nursing home availability by separating not metropolitan counties into micropolitan and non-core. You'll see why we did that as we present the results.

Now, the first part of our analysis is going to be on nursing home closure trends. We'll examine how many nursing homes have closed over time and where they have closed. In this figure, we're looking at nursing home closures from 2008 to 2018. When we looked at the closure of dually certified or Medicaid certified nursing homes in the U.S. From 2008 to 2018, we found that we had 1,255 nursing homes that closed during this time. Of these 1,255 nursing home closures, 783 were in metropolitan areas and 472 were in non-metropolitan areas.

As a percentage of open facilities in 2018, there's a higher proportion of facilities in rural areas that closed. 10.4% of all open facilities in 2018 closing the non-metropolitan areas, compared to only 7.2% in the metropolitan areas. Now, the natural question then is, so where are these closures happening, right?

That's where we have this map, which shows the counties with one or more nursing home closures from 2008 to '18. Between this time, we saw 400 non-metropolitan counties and 368 metropolitan counties that had at least one nursing home closure. Just as a reference, there are 1,976 non-metropolitan counties and 1,166 metropolitan counties for a total of 3,142 counties in the

U.S. Now, the closure of a nursing home does not mean that these counties don't have nursing homes available because there could be more than one nursing home that's operating in these counties. We'll look at the areas without nursing homes at all in the next slide.

Now, this is a map of nursing home desert counties. When we said desert counties, that means they don't have nursing homes at all. This one is looking at dually certified or Medicaid only when it's certified nursing homes. Of the 243 counties with no nursing homes, 200 counties are in non-metropolitan areas, and 43 counties are in metropolitan areas. Basically, they don't have a nursing home that's certified by Medicaid, or they are dually certified.

Not all of these counties that don't have a nursing home, had a nursing home to begin with, right? So as a result of the closure between 2008 and '18, we had 44 new nursing home deserts that were created. But most of these new nursing home deserts were in the non-metropolitan areas. After 44 that were new, we had 40 that were in the non-metropolitan areas and only four new desert counties were created in the metropolitan areas. Again, even this one does not mean that there is no availability of long-term care services in these counties, because we still need to look for alternative providers of long-term care services.

That leads us to a little bit broader analysis here, where we're looking at two types of nursing home closures. One is thinking about the closures for long-term care services, and the other one is thinking about closure for post-acute care services, or PAC services. The other thing that we're trying to do here is we're looking at the average distance to the alternative options for rural and urban areas that saw a closure of a nursing home. Again, depending on the type of care, right? So for LTC services, which is long-term care services, we're looking at closure of a Medicaid only or dually certified facility. For post-acute care services, or PAC services, we're looking at the closure of a Medicare only facility or dually certified facility. This one we're looking at the zip code level because that makes it easier for us to assess the relative distance. It's harder to do that at the county level, but for zip codes, we can assess the distance between alternative providers, and the places where we've seen closure of a facility.

One caveat to these averages is that we're only looking at the average distance where available within a hundred miles. So if there is no facility within a hundred miles, we kind of ignore that. For the most part, there's going to be a nursing home or a home health agency available within a hundred miles. We also know that a higher proportion of rural areas will have a hospital with a swing bed compared to urban areas within a hundred miles. Now, even though most of the counties will have home health agency within a hundred miles, there's a question about whether these agencies will have service areas within a hundred miles. Most of it is probably a smaller distance than a hundred miles.

Now we can see that from this table, in rural areas that saw nursing home closure for long-term care services, the next available nursing home providing

long-term care services is seven miles away, compared to only one mile away in the urban areas. Now same is the issue with home health agencies. In rural areas, the average distance is 15 miles away and it's a little bit smaller for the urban areas. The one part where it's a little bit different is the availability of hospital with nursing facility swing beds. Now that's available 17 miles away for rural areas compared, to 37 miles away for urban areas. That's kind of expected, right? Because not many urban areas will have hospitals with nursing facility swing beds.

If we look at the zip codes that have no nursing homes certified to provide long-term care services, we again see similar issue. Which is rural areas don't have a suitable provider nearby compared to the urban areas. If we look at nursing homes in zip codes that have no nursing homes at all, the closest one is 16.7 miles away. And that's compared to only 4.5 miles for the urban areas. Look at hospital with nursing facility swing bed, it's a little bit smaller here compared to this one. Home health agencies, 22 miles away, right? The question is, will the home health agencies send their staff 22 miles away? In some cases they might, but again, that's a question of concern for us.

The story is similar for post-acute care services as well. Rural areas will require patients to travel further away to receive the PAC services, or in the case of home health agencies, the staff will have to travel further distances as well. So if you compare that, we can see that for PAC services the average distance is 6.3 miles in rural, compared to only one mile away in urban areas. Hospital with swing beds, 18.8 miles away, 36.7 miles away for urban. Again, in general, hospital with swing beds are available in rural areas, but not the other providers, namely home health agencies or nursing homes.

Now, sifting a little bit to nursing home characteristics by non-metropolitan and metropolitan location. When we look at the types of facilities that close, we find that the closed facilities are smaller in size. For example, the bed size of closed facilities in non-metropolitan areas is about 60 beds compared to 86 beds for the open facilities. We also see that closed facilities had a higher percentage of Medicaid occupancy, and also many of the closed facilities tend to be affiliated with the hospitals. Finally, the higher proportion of closed facilities were certified for Medicaid only. 12.3% of closed facilities were Medicaid only compared to 5.8% for open facilities. Now, the characteristics of facilities that closed are fairly similar in both metropolitan and non-metropolitan areas. Closed facilities in general tend to follow similar characteristics, whether it's urban or rural areas.

We also looked at the characteristics of counties by nursing home desert status. So looking at counties that have nursing homes, and looking at counties that don't have nursing homes, we see that there's a ton of individuals that live in non-metropolitan counties. Often one of the things that people say is we know a lot of the rural areas don't have these providers, but not many people live in rural areas. That's not quite true when you are looking at nursing home deserts,

or whether it's in non-metro or metropolitan areas. There's a lot of people that live in these counties.

When we are looking at the characteristics of individuals that are living in these counties, we find a higher percentage of white population. They tend to have lower household income. They tend to also have high percentage below poverty level compared to metropolitan counties that are nursing home deserts. Now, having said that, counties that are not nursing home deserts, basically these counties have some nursing homes in there. They tend to have slightly lower incomes, and also slightly higher percentage of individuals below poverty level when compared to nursing home desert counties. So there's just a little bit distinction between desert counties and non-desert counties.

Just to recap the first part of the presentation, we saw 472 nursing homes in the non-metropolitan areas that closed between 2008 and '18, and these closures created 40 new county level nursing home deserts. To really understand if there is an access issue, we should consider the availability of hospitals with swing beds, or home health agencies. When we look at these alternative providers, we saw that this tends to these providers is much higher in rural areas than in urban areas for the most part.

We also must keep in mind that there are quality concerns as far as these other providers are concerned, because we haven't really examined the quality of care provided in these alternative settings to the same extent as in the nursing homes. Going forward, we also need to be concerned about the financial viability of rural nursing homes because we've seen a lot of the rural hospitals closing their SNF units as well. Okay.

Moving on to the second part of today's presentation. First project we examine the closure of nursing homes and also the potential options for post-acute care or long-term care services in these areas. But now we brought in the analysis from closure to looking at the availability of post-acute care and long-term care services. Again, focusing mainly on nursing homes, but extending that examination to incorporate hospitals with swing beds. We'll also try to differentiate facilities likely to provide post-acute care and long-term care services using the certification types. Those that are dually certified or Medicare certified are likely to provide post-acute care services. Those that are dually certified or Medicare certified are likely to provide long-term care services. Doesn't mean they will provide it, but they are likely to provide and admit patients for those services.

We'll also be getting at swing bed services for hospitals using the hospital cost report data. Again, we'll try to distinguish between SNF swing beds and nursing facilities swing beds. SNF swing beds being for post-acute care services and nursing facilities swing beds being for long-term care services.

This is showing the percentage of counties with nursing homes. When looking at the availability of nursing homes, there's some clear difference between non-

core counties and metro or micro counties. About 95, 96% of metropolitan or micropolitan counties have nursing homes, but the percentage of non-core counties with nursing homes is much lower, 82% when it comes to dually certified or Medicare certified nursing homes. It's a little bit higher at 87% when you're looking at dually certified or Medicaid certified nursing homes. We did not find a whole lot of difference between micropolitan areas and non-core areas in terms of nursing home closures. But we see some differences here. Like I mentioned earlier, this is not a complete picture of availability of post-acute care or long-term care services, because in many rural areas, we do have hospitals with swing beds that kind of provide similar services.

Now, this is presenting some data on percent of counties with hospitals and as expected, a smaller percentage of non-core counties have hospitals. But when we look at the counties with swing bed services, we clearly see that a higher proportion of non-core counties have hospitals with swing beds. Both SNF type that is providing post-acute care services, and also nursing facility type that's providing long-term care services.

This one is showing the percent of counties with post-acute care and long-term care services. Now, when we incorporate hospitals with swing beds, the percentage of non-core counties with availability of post-acute care and long-term care services, it jumps to 90% but it still lags behind metropolitan and micropolitan counties. We need to remember that home health agencies may also provide post-acute care and long-term care services, and we have not yet included home health agencies in our analysis. But existing research suggests that there are fewer options when it comes to home health care services in rural areas. Even though the inclusions of home health agencies might improve this a little bit, but we still expect to see differences between non-core, and micropolitan or metropolitan counties. Especially when we think about the distance to some of these providers.

I've mentioned that several times today it's important to examine swing bed availability in rural areas, because when we look at the non-core counties without swing bed hospitals, we find that only 75% of the counties have a nursing home. These counties are left without swing beds, and with that nursing homes. In general, what we see is that the places that have hospitals with swing beds, they also tend to have nursing homes in general, right? So we are really concerned about these 25% of the counties that don't have a hospital, or a nursing home. That's a concern to us.

This one is showing the counties with no dually certified or Medicaid certified nursing homes in terms of where they are. We saw the percentages of counties without dually certified or Medicaid certified nursing homes earlier, but to get a sense of where these counties are, this is a map that's split across different regions. We see that many counties in the west... In fact, there are 113 counties in the west without dually certified or Medicaid certified nursing homes. That's followed by south region, which has 89 counties without nursing homes. You can see that Midwest also has a ton of counties without nursing homes. 53

counties without nursing homes. In the Northeast, we see there are only four counties without nursing homes. Again, when you're looking at dually certified or Medicaid certified nursing homes.

This one is similar to the previous one, but this is for dually certified or Medicare certified nursing homes. Thinking about the availability of post-acute care services, again we saw the percentages of counties earlier, but this is really to get a sense of where these counties are. Again, the picture is very similar to the previous one with the Western region having 123 counties without dually certified or Medicare certified nursing homes, South having 109 counties, Midwest 82 counties and Northeast four counties.

If you look at the counties from the previous map compared to this for Midwest region, you'll notice that the Midwest has slightly higher number of counties without dually certified or Medicare certified nursing homes. 82 counties compared to 53 in the previous map. There also are more dark blue colored counties here in the Midwest. These are non-core counties without dually certified or Medicare certified nursing homes. Now, if we can-

Per Ostmo: [crosstalk 00:31:42] Harry before we get too far here, we do have a question. How are we measuring the distance to nursing homes? Are you using road networks that are kind of not in a straight line? Or are you measuring distances as a straight line?

Hari Sharma: It's based on arc distance. So it's not accurate when you think about the actual travel time it takes, but it has very high correlation with the actual travel time. This is based on this data published by National Bureau of Economic Research.

Per Ostmo: Okay. Thank you.

Hari Sharma: This one is basically looking at counties without dually certified or Medicaid certified nursing homes, and no hospitals with nursing facilities swing beds. Basically here we are combining nursing home data with swing bed services from hospitals. That leads us to fewer counties without providers of long-term care services. So in the Northeast we see 23 counties. In the Midwest we see 45 counties. In the south there are 79 counties. In the West we have 76 counties. So we saw that in the South and West there were a hundred plus counties without some of these services, but includes enough hospital beds with swing beds decreases the number of counties that don't have these services. Hospital with nursing facilities swing beds are particularly helpful in the South and West in reducing the number of counties without long-term care services.

This is similar to the previous figure, but focusing on post-acute care services. If we combine nursing home data with the SNF swing bed services from hospitals, will again end up with fewer counties without providers of post-acute care services. But the number of counties are very similar to what we saw in the



previous figure. Hospitals with swing beds are, again, very helpful in the South and West in reducing the number of counties without post-acute care services.

Now, the natural question that comes to our mind is so what? What should I care that a smaller proportion of non-core counties have availability of post-acute care and long-term care services? Again, there is this thinking that in rural area there are not that many people, so probably it's not going to affect all that many people. But there is a ton of people that live in these areas without availability of nursing facility services or skilled nursing facility services, and are in total about one and a half million individuals live in these counties without a SNF or nursing facility services.

Of those, over 40% live in non-core areas. Now think about this. When about 6% of the U.S population lives in non-core counties in the U.S. but 40% in the case of counties where there's no SNF services or there's no nursing facilities services. Of those, again, 660,000 living in non-core counties, for SNF services problems 655,000 in counties without nursing facility services. Again, thinking about the rural counties or non-core counties. It's a lot of people were talking about.

Here we are looking at nursing home beds per 1,000 elderly population. So a 65 and older population. Having said all the things about how there is a real access problem in rural areas when it comes to post-acute care and long-term care services. I just want to caution that the story is a little bit more complicated than that. You know, when we look at nursing home beds per 1,000 elderly population, we have more beds per 1,000 elderly and non-core areas than in micropolitan or metropolitan areas. The problem is more with the distribution of these beds across different areas.

When you look at the variation in nursing home beds per 1,000 elderly, we see higher beds per 1,000 elderly population in some regions. Midwest in particular has very high number of nursing home beds. We also see higher number of beds in non-core counties compared to metro counties in the Midwest. If we go to the Northeast, there are some states now that have fewer beds overall compared to Midwest. But again, some states have lower beds per 1,000 elderly in non-core counties than in metropolitan or micropolitan counties.

The Western region has lower overall beds per 1,000 elderly in general, but differences by metropolitan and non-core counties. It does vary across different states. For instance, in California, there are fewer beds per 1,000 elderly in non-core counties than in metropolitan counties. Again, even though in general, we see higher beds in non-core counties the story is not that simple. It's a little bit more complicated than that.

This figure is looking at the variation in dually or Medicare certified nursing home beds per 1,000 elderly at a county level. This is to show that these numbers do vary across different regions and counties. We can see that in the Midwest, there are more counties with lighter shades of different colors. The

lighter shades meaning there are higher beds. There are many counties with darker colors in the West, suggesting that there are lower beds. This is similar to the previous figure, except now we are looking at dually certified or Medicaid certified beds.

The story is similar again. We can see that the Midwest does have more counties with lighter shades of different colors. Again, saying that there are more beds. There are many counties with darker colors in the West, again suggesting low beds. Then again, there are non-core counties without any beds or low beds throughout the country. So we can find those darker shades all across.

To wrap off this brief overview of availability of post-acute care and long-term care services. We find that there are a higher percentage of non-core counties without nursing homes that can provide post-acute care or long-term care services. Even when we incorporate the hospitals with swing beds, we still have many non-core counties without access to post-acute care or long-term care services within the counties. They can always go to other counties, but again, that adds that travel time.

We do observe higher nursing home beds per 1,000 elderly in non-core counties in many areas, but then the distribution of those vary across states and regions. So we need to be a little bit careful when thinking about the nursing home beds per 1,000 elderly in non-core counties.

So with that, I've come to the end of my presentation. I'll be happy to take questions. You can also email me. I also often tweet about some of the research work that we do out here, so feel free to follow some of that work as well. Thank you.

Per Ostmo:

Thank you, Hari. We will pause for a brief moment in case anyone needs to submit questions on the chat box. Also, before we go today, I'm going to show you briefly how to access research on Gateway. I'm going to take a moment to do that now and let those questions percolate if anyone has any.

Okay. This is the Rural Health Research Gateway homepage. There are several ways to access research on Gateway. The easiest is just using our search function at the top of the screen here. I'm going to type in nursing homes in the spirit of today's presentation.

You'll see here that on Gateway, there are 73 results for the term nursing homes. Now you can sort these by relevance, or you can sort them by date, and since we want to access the newest research, we're going to click on date. You can filter by various fields here, and we're looking specifically for publications, so I'm going to select publications.

You'll see there are 28 publications hosted on Gateway related to nursing homes. If we scroll down here just a little bit, we're going to find one that should look very familiar. Our third option here is trends in nursing home closures and metro and non-metro area areas, the topic of today's presentation. If we select that, we're going to see the title, a brief description of this publication, the Rural Health Research Center that is responsible for it, and the authors.

Now, all the research on Gateway is freely accessible, so if you click on the view policy brief, you'll be taken directly to this publication. Now, there are other ways to access research on Gateway. You can click on the browse research tab and select topics. All of our topics here are listed in alphabetical order. If you were interested in long-term care, you can click on the letter L and it'll take you down to long-term care. Here, you will see that there are 44 publications on long-term care housed on Gateway. We also have access to previous archive webinar recordings on the topic. But let's take a look at these 44 articles.

Now, here you can filter by products. This would be policy briefs, fact sheets, recaps, chart books, et cetera, or you can filter by a peer reviewed journal articles. The reason we let you filter between these two is because sometimes these journal publications are hidden behind a paywall, but if you click on products, these are all freely accessible on Gateway.

Now, if you want to stay up-to-date on all of the latest rural health research, you can click on the research alerts tab. Here you will be able to subscribe to our research alerts. If you are subscribed to our Listserv, you will be notified whenever new rural health research is published by any of the Rural Health Research Centers that are funded by the Federal Office of Rural Health Policy.

You will also be notified about any upcoming Gateway webinars. So you can see our recent updates here. There's one for today's webinar, one on hospital closures, a couple on Medicare, and one on electronic health records. If you want to stay up to date, I encourage you to subscribe to our research alerts.

Finally, if you would like to see key findings as you scroll through social media, you can follow us on both Facebook and Twitter. That was a very brief overview of how to use Gateway. We're going to check the chat box one more time in case anyone has any questions. Hari, if you want to check your chat box in case anyone private messaged you. It looks like there are no other questions.

I want to thank everyone for joining us today. Thank you Hari for being here and presenting, and I hope to see all of you at future Gateway webinars. Have a nice afternoon, everybody.

Hari Sharma:

Thank you.