Per Ostmo: Thank you for joining us. Today's webinar is titled Family Physicians in Rural America: Training, Distribution, and Scope of Practice. Our presentation features Dr. Lars Peterson from the Rural and Underserved Health Research Center and Dr. Davis Patterson from the WWAMI Rural Health Research Center. Today's webinar is brought to you by the Rural Health Research Gateway, which is funded by the Federal Office of Rural Health Policy.

Per Ostmo: Please note that all attendees have been muted, but you may submit your questions for our speakers using the chat box function. Today's session will be recorded and posted to the Gateway website for later viewing. A brief Q&A will follow today's presentation. Next slide, please.

Per Ostmo: 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 make sure to drop my email in the chat box. So if you have any questions about Gateway, please reach out to me. Next slide, please.

Per Ostmo: So what does Gateway do? We provide easy and timely access to research conducted by the rural health research centers, which are 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 100% free.

Per Ostmo: Following today's presentation, I will provide a brief demonstration of how to access research on Gateway and how to stay up-to-date on the latest rural health research. Next slide, please. Now I'll hand things off to our presenters, Dr. Lars Peterson and Dr. Davis Patterson.

Lars Peterson: All right, thank you for that, Per. I'll get things started. As Per mentioned, I'm Lars Peterson. I'm the Vice President of Research at the American Board of Family Medicine and also Associate Professor of Family Community Medicine at the University of Kentucky, where I'm affiliated with the Rural Health Research Center. My partner Davis Patterson from the University of Washington and the WWAMI Rural Health Research Center will present today on what Per already said is Family Physicians in Rural America: Training, Distribution, and Scope of Practice, but not necessarily in that order. Next slide, Davis.

Lars Peterson: So an overview of today's talk, a little bit about who we are, which I think has already been covered. Then we're going to review recent research findings, much of which you can find on the Gateway, looking at the supply and distribution of clinicians in rural areas, including family physicians. Then a little bit about what they do there.

Lars Peterson: Then also looking at residency training with some findings that Davis and I have been collaborating on that are not quite out yet. So you get an early look of things that are in the works. Then I'll review scope of practice of family

physicians in rural areas and how that's been changing over time, and save some time for some Q&A from the audience. Davis, back to you for this next slide.

Davis Patterson: Thanks, Lars, and thank you, Per and the Rural Health Research Gateway, for inviting us to talk today about our work. So I'm the Director of the WWAMI Rural Health Research Center, as well as Rural PREP, which I'll say something more about what that is in a minute.

Davis Patterson: I just wanted to acknowledge it takes a village to do research and representing a number of studies. So my collaborators include folks at the University of Washington, Department of Family Medicine, where I'm located as well as Randy Longenecker at Ohio University, Dave Schmitz at University of North Dakota, and Lars, my co-present, and Zach Morgan from the American Board of Family Medicine. Lars, did you want to [crosstalk 00:04:09] about your team?

Lars Peterson: Yeah, and then ... Yeah, it definitely does take a village, as Davis said. So at the Rural Health Research Center ... So the findings we're presenting today involved a team as well, and Ty Borders is the director of the University of Kentucky, Rural and Underserved Health Research Center. I will get that right one of these days.

Lars Peterson: Then some other staff at the ABFM, including Bo Fang, Zach Morgan, have ran a lot of these data and really done a good job of understanding the data, and also, as you can see, helping with the other studies.

Lars Peterson: Then Vashisht was actually a general surgery resident who worked with us during his research year on one of the studies I'll talk about. Urooj is an undergraduate. Well, she's graduated now and is applying for med school. She is getting interviewed now and hopefully will get accepted soon, and did some great work with us, too. Next slide, Davis.

Lars Peterson: Then as mentioned, a lot of the work we're talking about or presenting today has been funded by HRSA, through the rural health research centers. So the first one that I'm affiliated with, as I mentioned, Ty Borders is the ... My gosh, the PI or the director of the center, and the focus of the Rural and Underserved Health Research Center is to advance understanding of the effective means of organizing health services, facilitating access, and improving population health in rural America, particularly with a focus on economically disadvantaged areas.

Lars Peterson: It has a wide range of affiliated investigators at the University of Kentucky and also a few outside of the university and from a wide range of disciplines. It's been really good working with them. I'll turn to Davis.

Davis Patterson: Yes. So WWAMI stands for the five-state region that our medical school serves, but our work is really national in scope. So the WWAMI Rural Health Research Center is also one of the FORHP-funded rural health research centers around

the country. Our mission is to improve and sustain rural health through research that engages policymakers, planners, and practitioners in advancing equity and rural access to care. The health workforce is one of our main areas of focus, and particularly education and training of rural health professionals.

Davis Patterson: Then I want to mention something about Rural PREP, which is also funded by HRSA through the Division of Medicine and Dentistry. It's a five-year, well, now six-year, project. Our research there is specifically focused on education and training of rural primary care clinicians. And so, I'm going to be including some work there because it's very relevant to this topic of rural family physicians.

Davis Patterson: Then I need to issue this disclaimer because we are funded by the federal government, that our funder doesn't endorse any of the content that we're going to present today, but we're very appreciative of their support. They, I think, very much do have been interested in and helped to set the research direction for many of the projects that we're going to present today. And so, I just wanted to issue a disclaimer and acknowledge our gratitude for that funding. That's across our three centers.

Lars Peterson: Then a word, since a lot of the data you're going to hear about came from the American Board of Family Medicine. I just want to give a brief mention to the ABFM. As I talked to Per about in the IT check before the webinar started, we are in Lexington, Kentucky, have been since we were founded in 1969.

Lars Peterson: We are a member of the American Board of Medical Specialties or ABMS. We're a member board of them. So there's 24 primary boards, and we're the primary certifying body for allopathic physicians, even though we do certify a number of osteopathic physicians as well.

Lars Peterson: We're the third largest board currently as of last week, 101,000-plus certificate holders, or diplomates, as we refer to them. The mission of the ABFM is really to improve the health of the public by ensuring that family physicians have the requisite knowledge, attitudes, and skills to provide high-quality care.

Lars Peterson: And so, to help understand that mission, and if we're meeting it particularly through our certification program, and using the data we have to understand what's happening in primary care, and with family physicians in specific, we have had a research department for over nine years. Then we've collected data since the 1980s, at least in the 1980s, maybe earlier, on examination registration, when physicians sign up to take the certification exam out of residency, and then the continuing certification, an examination, at the earliest seven to 10 years, and then continuing on to every seven or 10 years, depending on the timeframe after that, into their 60s, 70s, and even 80s.

Lars Peterson: Then some other data you'll hear about, about six years ago, or starting in 2016, we started administering a survey to graduates who were three years from residency training in conjunction with the Family Medicine Residency Directors

organization to provide feedback on the outcomes of graduate training to family medicine, to improve training, hopefully. Davis will cover those outcomes. With that, I'll turn it back over to you, Davis, to get us started.

Davis Patterson: Great. Thank you. So I'm just going to start by giving an overview of the landscape of the supply and distribution of the family physician workforce in rural and urban areas. This work comes from a set of reports that we did. I guess it just came out last year, and there's link to the reports there in the slides, which will be available to you later.

Davis Patterson: And so, we have a national report looking at supply and distribution of primary care workforce. We also have state-by-state profiles. And so, if you go to that link, you can pull down all that material, or just the profile for your state.

Davis Patterson: So to do this work, we used the National Provider Identifier Data. And so, every clinician, or nearly every clinician, in the country has to have an NPI number. It's a free data source available on the web that you can download. And so, using that, we can find their location. We use the urban influence codes to measure virality and population data.

Davis Patterson: And so, using the urban influence codes, we have a three-category geographic classification. So we have the metro counties, which are the urban counties. Then we have two categories of rural, because we know that there's variety in rural. And so, we have micropolitan counties, which are a bit larger in population. Then the non-core counties that are smaller in population. Then the other factor that the UICs take into account is whether a county is adjacent or not to a metro county. And so, that goes into the codes as well.

Davis Patterson: So first off, I just want to show this national map of family physicians per population per 100,000. And so, the gray counties here are the urban counties. So we're not concerned with them in this analysis. Then all the colored counties are the rural counties. The deeper the red color, the greater the concentration of family physicians.

Davis Patterson: And so, you can see there are some areas like the New England area that's deep red. There's also a swath of counties that run roughly from the upper Midwest down toward the southwest that are deep red, some areas of the west. Then there's pockets where family physicians are not as plentiful, like you can see there in North and South Dakota, Eastern Montana, some parts of Texas, et cetera. So this is just the national distribution by county.

Davis Patterson: We also wanted to look at breaking into these three types of counties, looking at what's the national distribution in a statistical sense. The first thing that you notice ... And, by the way, so we've included in this report not just family physicians, but others that provide primary care, including NPs and PAs.

Davis Patterson: And so, first thing that you notice that, unlike the other clinicians, family physicians supply actually increases with rurality. So the more rural you go, the more concentrated or plentiful family physicians actually are. Again, this is aggregate nationally, not necessarily in every place but overall.

Davis Patterson: The other thing that we did was look at counties that do not have each one of these kinds of clinicians that do primary care. And so, you notice, first of all, that the low bars actually indicate greater supply. In other words, there's fewer counties that do not have family physicians, do not have NPs, or do not have PAs compared to the internal medicine physicians or the pediatricians.

Davis Patterson: And so, family physicians, NPs, and PAs are the most common in rural places. But at the same time, we do notice that as you get more rural, there are more counties that do not have one or more of these types of clinicians. So one in 10 non-core counties has no family physician.

Davis Patterson: The other thing that's important to think about is not just where they are, but what are they doing there? we know that OB care is in crisis in some parts of rural America. there's been a lot in the press about this. And so, we wanted to look at the distribution of family physicians who deliver babies, as well as other clinicians, in rural versus urban places.

Davis Patterson: To do this, we actually did partner with Lars's organization, the American Board of Family Medicine, and used their survey data. And so, we produced statistics and mapped as well where there are family physicians who deliver babies and where they aren't. What you notice actually is that family physicians are the main clinician in those more remote non-core counties who deliver babies. So they're really critical for the rural OB workforce.

Davis Patterson: The other thing, though, which is concerning, and these are percentages of counties that don't have clinicians who are delivering babies, over half of rural counties have now family physicians that deliver babies.

Davis Patterson: Then the other thing I think that you'll notice here when you look at ... So to the far right there, those are counties that have no OB services based on ... Not a single one of those clinicians to the left. Two out of five non-core counties have no OB services or clinicians that deliver babies.

Davis Patterson: And so, taken together, I think what you see is if family physicians aren't doing it in a non-core county, then nobody probably is doing it. And so, again, just underscoring their critical role in providing OB care.

Davis Patterson: So we've looked at distribution and a little bit about what family physicians are doing in rural areas. I wanted to talk more about so how can we get more family physicians to practice in rural places? Training is a really critical component of that.

Davis Patterson: And so, there's been a lot of work going on in this area. The Federal Office of Rural Health Policy has been investing for over 10 years in rural residencies, and for many of the last several years, specifically through the Rural Residency Planning and Development Program. So there's a big investment there in trying to get more rural training.

Davis Patterson: Then there was recently new legislation enacted that creates more opportunities for rural training track residencies, so that residents can spend more time in a rural place learning how to take care of rural people and hopefully building connections to those communities.

Davis Patterson: So we wanted to find out, looking at rural family medicine residency programs versus urban, what are their practice outcomes? What's the yield to rural practice and practice in under-resourced sites? So our study question was how do graduates from rural family medicine residencies compared with the urban residents? How do they compare in their practice in rural versus urban places and in practice in under-resourced settings?

Davis Patterson: When I talk about a rural residency, what I mean are those programs where residents spend more than half their time in a rural location. We define that as meeting at least two federal rural definitions to count as rural.

Davis Patterson: Then for this study, in terms of determining where residents practice when they get out into practice, we used zip codes, geocoded those using the Rural-Urban Commuting Area Codes. So it's not a county-level definition. It's a more fine-grained definition of rural for this study.

Davis Patterson: Our data source here, as Lars was mentioning earlier, we used two surveys. One is the National Graduate Survey, which these are those board-certified physicians just three years into practice. Then there's the Continuing Certification Exam Registration Questionnaire. And so, every time a physician has to re-certify seven or so years after initial certification. And so, we call these the mid to late-career physicians. So I'll be presenting data on early career and then the mid to later career physicians.

Davis Patterson: The first thing that I want to point out here is this slide just helps you to see who are the folks? Who are the rural versus urban program graduates? What do they look like on these various characteristics?

Davis Patterson: And so, the first thing that you can see there, that top row, comparing graduates from rural and urban programs is in the early career, the younger physicians, there's no difference in age at that first row. These are the proportions that were under age 40. Looking at the older physicians who are in mid and late career, you can see that those who graduated from rural programs, 54% of them were over age 50 compared to just 46% of the urban program graduates. And so, there's a significant difference there in age. The rural program graduates are a bit older.

Davis Patterson: There are also significant gender differences. And so, greater proportions of rural program graduates in both groups were men. Although you can see, over time, looking at both rural and urban program graduates, there are more women.

Davis Patterson: In other words, the proportion who are men, that's going down over time. More women are choosing family medicine. In medical school overall, more women are becoming physicians relative to the past. But there's still a gender difference there, even with the early-career physicians, in terms of the proportion who are men who come from rural programs.

Davis Patterson: Then the third row looks at whether people have an MD or if they're an osteopath. No real difference there in the early-career physicians based on which kind of program they went to. But in the mid to late-career physicians, you can see that a lower proportion of the graduates of rural programs are MDs. So in other words, more of them are osteopaths. That fits with what we know about the fact that osteopathic medical schools often produce more rural physicians. And so, going into rural training as well.

Davis Patterson: In terms of the international medical graduates, there is a significant difference among the early-career physicians. About 10% more of the rural program graduates are international medical graduates as opposed to US medical school graduates compared to their urban program counterparts. There was no difference among the mid to late-career physicians there.

Davis Patterson: You can also see an increasing proportion of international medical graduates. If you look at the mid to late-career physicians, just 16% of them versus 34% to 44% of the early career physicians are IMGs.

Davis Patterson: We also looked at whether physicians were underrepresented in medicine historically, and those groups include Black or African American, American Indian or Alaska native, native Hawaiian, or other Pacific Islander physicians, or if it's multiple races, any combination, also includes Latino or Hispanic ethnicity. And so, that's our measure of our indicator if someone is underrepresented in medicine.

Davis Patterson: That wasn't asked in the early career survey, but it was asked of the mid to late-career physicians. You can see a lower percentage of the graduates from rural programs are underrepresented in medicine compared to the urban graduates.

Davis Patterson: So now let's look at what did we find in terms of where folks are practicing. Probably not surprisingly, we found, first of all, that the rural graduates are more often found in under-resourced practice sites. By that I mean FQHCs, rural health clinics, or IHS sites. The difference is mostly carried through the rural health clinics, which shouldn't be surprising.

Davis Patterson: So of those rural program graduates who are in an under-resourced practice site, over half of them, 57%, are in rural health clinics, but also significant proportions in FQHCs, a smaller number in Indian health services sites.

Davis Patterson: Then in terms of rural practice, we found that rural residency program graduates were about three times as likely as the urban ones to end up in a rural location, just about half of them, 51%, compared to 17%.

Davis Patterson: Then looking at the mid to late-career physicians, same analysis. We found very similar patterns. So more rural program graduates are in under-resourced sites. About three times as many of them are in rural locations compared to the urban program graduates, 53%.

Davis Patterson: Interestingly too, if you remember, it was about half of the early career physicians were in rural. That proportion is remarkably stable here. So we find that there's some staying power. This is not a longitudinal analysis. So these are different groups that we're looking at. But it was interesting to see that roughly similar proportions of these older physicians are still in rural places, or maybe some of them went back to rural after being in urban, went back to their roots. Another possibility.

Davis Patterson: Then the last piece that I wanted to present. So here those past analyses, we're just breaking out rural versus urban. But we wanted to do a multi-varied analysis to control for all those factors that I mentioned earlier, age, sex, and so on, to see how these different groups compared.

Davis Patterson: What we found was that both the early-career and the mid to late-career physicians had about five times the odds, or more than five times the odds, of choosing rural practice compared to their urban program graduates counterparts. Likewise, both of these groups who trained in rural residencies had higher odds of being in an under-resourced practice site, as you can see there by the odds ratios of 1.6 and 1.8.

Davis Patterson: So even controlling for all those factors, these overall practice outcome findings are stable and very solid. And so, now I'm going to turn it over to Lars to do his part of the presentation.

Lars Peterson: All right. Well, thanks, Davis. So I'm going to cover family physician scope of practice. So next slide, Davis. So one of the questions you hear often in research training and people discussing research is so what and who cares? So why do you care what family physicians are doing?

Lars Peterson: You heard from Davis earlier that you might care if you're a pregnant woman in a rural county, because you want to know who's going to deliver your baby. But in a more broader sense, the two figures on this slide are represent work done by Barbara Starfield, who is a pediatrician who actually did a lot of health services research and worked defining primary care.

Lars Peterson: Both of these look across different countries. So there's 10 high-ranking, high-economic countries here. One of them is a primary care score ranking. So you want to be that way on that slide, higher up, where the United Kingdom is is number one and the other one with the primary care score, you want to be higher. So there's two different ways of looking at the strength of primary care within a country.

Lars Peterson: The point of one of the slides shows that health outcomes are better the higher your rank in primary care. So if you have more resources and investment in your health system, primary care populations are healthier. The other slide with the dollar expenditures shows that the more investment you have in primary care, the stronger your primary care system is to lower your health expenditures. Of course, the United States, being the outlier, way up top.

Lars Peterson: There's also evidence that we've published in the ABFM showing that family physicians who do primarily outpatient care, but also deliver babies or do inpatient medicine have lower odds of burnout as well. Having those lower costs, better health outcomes, lower rates of burnout or better clinician wellness are I think at least three of the four aims of the quadruple aim, which is now being turned into a quintuple aim.

Lars Peterson: So I think hopefully that convinces you that this is something we should care about for populations and also for the people providing care. Next slide, Davis.

Lars Peterson: Then more specific to United States, with my collaborators at the Robert Graham Center, we published a paper a few years ago using Medicare data for family physicians, and showing that using either the Medicare claims data or from the physicians in the study, linking to what they told the ABFM they were doing on these exam registration questionnaires, either way, you looked at what they were doing. So the broader their scope of practice or the more things they were doing, their patients had lower odds of hospitalization in that year and also lower healthcare costs. So there is a direct benefit you can see in the United States as well. Next slide, please.

Lars Peterson: However, we've also been publishing data for over a decade showing that there is a decline in the scope of practice of family physicians that we've witnessed through our data and some other sources. The two slides on the top, going back to Davis's discussion about maternity care and who's delivering babies in rural areas, figure one on the upper left shows a decline. At about a quarter of family physicians were delivering a baby at the turn of the century and that went down to lower than 10% by 2010. That's further gone down to about 6.5% now.

Lars Peterson: The figure to the right of it shows when you break that down by volume, it's a lot of the low-volume delivery, or physicians are stopping delivering babies, but yet that highest volume, so if you're delivering over 50 babies per year, that actually has dropped as well in the last few years, showing that we are getting out of the baby game.

Lars Peterson: The slides on the bottom look at inpatient care. So the proportion to family physicians doing inpatient care has also gone down, from about a third to a quarter over the last few years, according to our data. Then the other slide is looking at the percent caring for children. It's also gone down. It makes you think that's part of being a family, taking care of the kids. Next slide, Davis.

Lars Peterson: And yet while we have evidence the scope is going down writ large, we have lots of evidence showing that rural family docs do more, which makes a little bit of sense, looking at the information that Davis presented and also looking at the prevalence of specialists. You're far less likely to find young neurologists and dermatologists, et cetera, in rural areas, in addition to who's doing primary care, like Davis showed.

Lars Peterson: That is part of what goes to family physicians doing more across 20 different items on the figure to the left that we presented in one of our studies from a few years ago, showing that family physicians did everything more than urban physicians, except taking care of adults, which over 98% of them did.

Lars Peterson: Then also our colleagues at the University of Iowa Rural Health Research Center also published data using Medicare claims, showing that family physicians also did more. The more rural you go, they also were doing more across a range of services and also sites of settings. So next slide, please, Davis.

Lars Peterson: So we then were able to get funding from HRSA, from the Federal Office for Health Policy, to look at this in a little more depth through some of the data the ABFM collects on family physicians in the scope of practice, rural versus urban, and then also looked at whether or not you were in a patient-centered medical home in a rural area, if that was associated with having a broader scope of practice. The other two studies there, I will present a little later. So next slide.

Lars Peterson: So you've heard Davis explain this a little bit already. So we did use data from the American Board of Family Medicine Examination Registration Questionnaires, and I'm doing this myself next month. I have to take my exam. It's been that long since I finished residency. As part of the process, since the '80s, you have to verify your training and pick your test center.

Lars Peterson: Part of that has been questionnaires about are you still practicing medicine, still seeing patients? What's your practice like? Where is your practice? What your scope of practice is like? There's a core set of questions that everyone gets. Then to get more data, but also limit the burden on our physicians of collecting this, we introduce a rotating question set where 20% or 25%, depending on the year, get an additional question set. We use some data on additional procedures and additional ... Anyway, additional scope items and procedural care for the rural health policy brief that we'll discuss.

Lars Peterson: Then one of the main outcomes is a scope of practice score, using those, how many things you're doing. It's scaled from zero to 30, with a higher score

indicating a broader scope of practice. Then from that exam registration questionnaire, we've got a self-report of whether or not your practice was a patient-centered medical home.

Lars Peterson: Then, of course, we collect practice address and we're able to geocode it to county level or other geographies. These are all county level. Next slide, Davis.

Lars Peterson: This is largely repeating what Davis showed. Rural family physicians tend to be slightly older, more likely to be male, more likely to be MD and less likely to be IMGs. Davis already hit that. I'll say next slide, please.

Lars Peterson: And so, this is straight out of the policy brief that we wrote as part of this, which is available of course, on the Gateway and also from the Rural Underserved Health Research Center's site. And so, what this shows is looking at the county-level geography, metropolitan is blue and then large rural, small rural, and frontiers using the Rural-Urban Continuum Codes.

Lars Peterson: Looking at the color scheme for each of these 20 services or so, you can see the general pattern is to go blue, the smallest, and as you get more rural, the percent doing each of these services goes up near universally across the board. A few weird twinges, as you get more rural, there are some variation, but largely it's increasing as you go.

Lars Peterson: Then force from the bottom to verify internally. It's nice when data is consistent. Force from the bottom is obstetrical care for delivering babies. You see, for what Davis showed you, same finding. As you go more rural, more family physicians are delivering babies there. Next slide, Davis.

Lars Peterson: The numbers. So this is using data from that rotating question set, looking at more specific procedures, and particularly women's health procedures like putting in IUDs or long-acting reversible contraception like Nexplanon, circumcisions, et cetera. You can see the same general pattern tends to hold. Rural docs tend to do more, and including hospital-based procedures like central lines is down there fourth from the bottom, and paracentesis, lumbar punctures, et cetera, more likely to do them if you are in a rural area. Next slide.

Lars Peterson: Then looking to see whether or not you're in a patient-centered medical home-supported broad scope of practice, which you hope it would. It's supposed to be giving extra financial support and extra resources for primary care. So you're taking care of more in your medical home and don't have to be referred out or have other physicians providing your care.

Lars Peterson: As you can see, this is taking those scope items from two slides ago and just comparing within rural only, if you're in a rural area. So the blue are the large rural areas, small rural's orange, and the frontier is gray. Looking at the delta, if you are in a PCMH this way, and then if you're not in a PCMH the other way.

Lars Peterson: Across the board, regardless of how rural you are, if you are in a patient-centered medical home, you do provide more services, each of the ones we ask, somewhere between 2% and 20% more. If you're not in a patient-centered medical home, but the ones that stand out, of course, on the top is inpatient care, which I thought was interesting that in frontier areas, you're less likely to do hospital medicine if you're a patient-centered medical home.

Lars Peterson: But other than that, most of the things are higher in a patient-centered medical home in a rural area, indicating that program at least is working for supporting family physicians doing broad scope care. Next slide, please, Davis.

Per Ostmo: Lars, if I can interrupt just for a minute and go backwards one more slide.

Lars Peterson: Oh, yes.

Per Ostmo: The question is what is the breakout for cancer care services on figure four?

Lars Peterson: Yeah, we don't ask specifically about cancer care, whether or not they're providing follow-up care or ... Well, because I see the question in the chat. I'm not sure if it's about ... Obviously, cancer treatment's usually done by an oncologist, but if it's follow-up care or screening or diagnosis, it would be a different question.

Lars Peterson: We actually do have one of our current projects with the Rural and Underserved Health Research Centers, actually looking at colorectal cancer screening in rural-urban practices. So we have some information coming out on that next year.

Lars Peterson: I think to Mark's question in the chat, I think that's actually covered in this slide about global scope of practice about hospital. So the student I mentioned, Urooj, actually came to me as an undergrad from the University of Kentucky and read some of the studies from the Rural Health Research Center that I explained over, and came to me and said, "Well, Dr. Peterson, I noticed the scope of practice is going down in family physicians, but rural scope of practice is higher. Is this largely an urban phenomenon or is scope of practice also going down in rural areas?"

Lars Peterson: And so, she helped us do that project and write the paper they got just published in the latest issue of the Journal of Rural Health. This is using that scope score that goes from zero to 30. So the higher the scope is, the higher score. We used data that were consistent from 2014 to 2016.

Lars Peterson: The top slide shows all settings over time that scope is going down a little bit. So 0.5 on a 30-point scale. That's significant, and by variant comparisons. Then looking across those rural-urban divides, it's going down much more in metropolitan areas. Then in rural areas, there's some evidence that it tends to be trending to go down, but the sample size is not significant, and by variant testing.

Lars Peterson: Then the adjusted change looks at putting all data together, showing again adjusting for things, like Mark mentioned in the comments, whether or not you have a hospital in your county, supply of other physicians, some socioeconomics, et cetera, that in controlling for those things, scope of practice is larger in rural areas.

Lars Peterson: Then to the question of is it changing over time, we actually did an interaction of rural by time or year and found that term was not significant in indicating that over time scope of practice is staying the same in rural areas and not going down. So it's largely an urban phenomenon.

Lars Peterson: But when we break things out of this scope score and look at our individual things changing, it's the next slide, Davis, we do find that there are some significant changes in specific services in some of the areas. I just pulled out a few of these. You can read the paper to get the full results of emergency care, inpatient care, declining slightly, et cetera.

Lars Peterson: But when you compare this list to the next slide that shows all the services that are declining in urban areas, oh, next slide, Davis, you see it's double the size. So there's a lot more declining of larger magnitude in urban areas of family physicians. Next slide, please, Davis.

Lars Peterson: Then one of the other offshoot bonus studies we did was look at a specific set of services that can be used for cancer screening, at least the colonoscopy and flexible sigmoidoscopy. Then endoscopy is going down your mouth, in your stomach, to look for some other things, and family physicians can do, these general surgeons. People think usually of a GI or a gastroenterologist doing them.

Lars Peterson: But just looking at rural and urban as a sample size has gotten small because this is one of those rotating question sets that a subsample get. We did show that there's a decline in rural areas of physicians doing these, which could indicate lower access to screening services potentially. As I mentioned, we have a current project looking at that right now. So that next slide, Davis. I guess I'll hand back to you.

Davis Patterson: Okay. Thank you, Lars. So we're just going to wrap up here with some concluding points. And so, first off, thinking about the supply overall, as we both mentioned, family physicians are critically important for rural health systems and are more concentrated with increasing rurality. I wanted to give a shout out to this publication, recent publication, by Lars and others in his group in the Journal of Rural Health that looks at not just family physicians, but other specialties as well by rurality.

Davis Patterson: I think the big caution when we look at national estimates, that really gives us an incomplete picture. So we need to examine different types of rural areas, and certainly some of that has come up in the chat with thinking about frontier

areas versus other types of rural areas. Then we need to look at subnational, state level, substate level, and those of you who work recruiting within states. If some of you are in state offices of rural health, you know all about the needs of different areas in your states and how rural can look different from one place to the other.

Davis Patterson: Then the other thin, I think time trends is really important to track, and Lars hinted at that or addressed that very effectively. But also just looking at supply over time. Our center has a couple of projects where we're going to be tracing clinician supply, not just physicians but also other types of health professionals over time and just to take a global assessment of where we've been and where we're going.

Davis Patterson: But in this set of studies, we saw that family physicians are more concentrated in non-core counties overall, and those non-core counties at the same time, seemingly paradoxically, were also more likely than metro and micropolitan counties to have no family physicians. So, again, it really depends on where you are on the ground.

Davis Patterson: Then in more rural places, family physicians do provide more OB care. But as Lars mentioned, the supply of family physicians who are delivering babies is steadily declining over time, and that trend has been going on for some time, which is quite concerning.

Davis Patterson: In terms of the training, we found that over half of rural program graduates choose rural practice, and that's about three times the yield from rural programs. Urban program graduates are also a very important supply as well for rural places, and there are many more of them. But if you really want to invest in the places where people are going to choose rural practice, that means shifting our investments from urban academic medical centers to rural places that can do a better job of training physicians for their communities. And so, that's a really key takeaway.

Davis Patterson: We also found that rural programs produce higher proportions of physicians serving under-resourced communities and principally through rural health clinics. Not surprising. These patterns were remarkably stable at different stages of people's careers. Lars?

Lars Peterson: Yeah. Then for scope of practices, I mentioned the overall scope is decreasing, what family physicians are doing, while rural family physicians do more. There's some evidence that their care might be narrowing as well, which can threaten patient access to care, and that we know that patients and populations do better when primary care is high functioning. This is also concerning because we want people to have access to good, high-quality primary care.

Lars Peterson: And that also that payment models and health systems should incentivize rural training to produce rural physicians who do more and also support ways in

which family physicians and other primary care clinicians can provide higher scope care and to meet healthcare needs. I guess with that, next slide.

Lars Peterson: I'd just like to, again, as Davis said at the beginning, thank the Gateway for having us. It's been fun. This is my first one of these. Then also our contact information for Davis and I are there. I believe we are going to pause now and take any questions that you have.

Per Ostmo: Yeah. We'll pause for a moment and take a look at the chat box.

Davis Patterson: I do-

Per Ostmo: Oh yeah. Sorry. Davis?

Davis Patterson: Oh yeah. I just wanted to note ... So Mark's comment about not just shifting training from urban to rural. Absolutely, our work here that we're presenting today was more focused on the later part of the educational trajectory. But, absolutely, finding and developing and supporting rural education systems from K through 12, into community colleges and college, and developing those rural students and then supporting them. So I completely agree with your comment there, Mark.

Lars Peterson: Oh, and-

Per Ostmo: Okay. Go ahead, Lars.

Lars Peterson: Oh yeah. I was just trying to click and see if I could see the whole name. All I could see was Jeff. But Dr. [Dockery 00:48:22]. Yeah, so there've been a few studies that we've gone ... So on some of the questionnaires in the last few years, we ask the question, "Do you provide inpatient care or OB care?" Then if you don't, we ask, "Why not?"

Lars Peterson: And so, we've published work on OB, but not the hospital-based questions yet. But you can look them up on our website. We do post the entire graduate survey results for each year on the ABFM website. There is evidence that a lot of physicians, early career, and even we've asked the later career docs now, and we say, "Why aren't you delivered these services?" One of the more common reasons is having difficulty finding a job that offers them.

Lars Peterson: Then we do have one of the questions about difficulty getting privileges, which has been more of an issue for OB or family physicians wanting to do OB than inpatient care. That does get to our health systems or hospitals limiting what family physicians can do.

Lars Peterson: We've been chasing that a little bit. We don't quite have a smoking gun for that yet. We've been thinking about how to approach that. But that is an anecdotal

concern that we hear and suspect, but working on trying to get data to investigate that.

Davis Patterson: I also see the question of about using metrics such as the primary care year, which Bob Bowman has advocated for. We actually did a study where we compared the longer trajectories of when someone graduates from a rural versus an urban residency, how much time do they actually spend practicing in rural versus urban areas, so a more longitudinal approach, and did find, again, that the rurally trained folks contributed significantly more in terms of years of practice in rural.

Davis Patterson: But we did not compare to other types of physicians or PAs and NPs, and I think that's an excellent suggestion. If we can track down the data, which is one of the challenges in workforce research, that we don't always have the data sets that allow us to take a deep dive into some of these issues. But I think that's an excellent suggestion to compare to other types of clinicians.

Lars Peterson: I do love when your own center director starts throwing questions at you in your own talk, from your own work. So I see him put a question in the chat about why should we support local primary care when there are people who ... There's a phenomenon of bypass for primary care services and other services as well.

Lars Peterson: Just from my own personal experience, I'm still practicing, see patients two afternoons a week at University of Kentucky. I have a patient from Hazard who has to drive by a couple hundred family docs to see me in Lexington. University of Kentucky even has a rural residency in Hazard. He could go see the University of Kentucky brand there, but chooses to drive in and get primary care from me, which I ... He didn't start that because of me. I inherited him from someone else.

Lars Peterson: So it is a challenge to arrange care for people when they have a lot of other needs and see specialists in that coordination function of primary care. That is difficult to do from afar. So I would say it is better to get your care local, but trying to change local hearts and minds. Growing up in a rural area ... And I always bring my mom up for this because when I told her I wanted to be a rural family doc and come back to the town where I grew up, she even had this own kind of like, "Well, no one good comes here." Like if you're any good, you'd be somewhere else.

Lars Peterson: I haven't lived in a rural area since I was a younger person, but I've heard that mindset before about the services we have can't be as good as there in the city. So we need to bypass or go get better care somewhere else. I wonder if some of that cultural aspect plays into that and how we can change that mindset, because we have data that shows if you want a really good family doc, a lot of them are in rural areas. So I don't know if you have any comments about that, Davis.

Davis Patterson: Well, I guess I'd add to that. I mean, certainly, some people have the ability to travel, many don't. So many people can't travel. I think the other thing is that loss of rural health resources in smaller communities is a greater loss than just the healthcare. People often talk about economics, but many rural clinicians are really beloved in their communities and they serve other key roles and they bring other important resources to these communities.

Davis Patterson: So I think we could dig further into the reasons why folks travel, and reputational perceptions may be part of it, which is really unfortunate for just the reason that you mentioned, Lars. And so, I think we need to combat the perception that we don't have good healthcare around here when that may just not be the case.

Per Ostmo: So we have a-

Lars Peterson: Yeah-

Per Ostmo: Sorry, Lars. We have just a couple minutes remaining here. I'm going to very briefly demonstrate how to find research on the Gateway website, and then we'll cycle back one last time in case there are any last questions. So I'm going to steal the screen share from you here, Davis.

Per Ostmo: So this is the Rural Health Research Gateway homepage. Now at the top of the page, there's a blue toolbar. Here you'll find an About Us tab to learn more about Gateway and to learn more about all of the rural health research centers.

Per Ostmo: There is a Browse Research tab and you can find research by topic. You can search all the publications on Gateway. You can learn more about the current and completed research projects that our centers are working on. You can even browse research by individual researchers. So we're going to click on this Research Publication button here.

Per Ostmo: Now on this page, you can see the five most recent publications that are published on Gateway, and you have the ability to browse by date, topic, center, and researcher. So we're going to browse by date.

Per Ostmo: These are all of the publications that have been published in 2021. There are 62 research publications featured on Gateway. If you want to find publications from previous years, you can find those on the right side of the screen. We have publications dating back all the way to 1996.

Per Ostmo: So if you want to find something about today's presentation, like the primary care workforce, you can type that into the search box at the top of the screen and you'll have the ability to sort by relevance or by date. So we'll select date. You can narrow your search by center, other, projects, publications, or webinars. So we're going to select Publications here.

Per Ostmo: You can see that Gateway has research on the general surgery workforce, on nurse practitioner autonomy, on the supply and distribution of the primary care workforce. That sounds very familiar, so we'll click on this.

Per Ostmo: You'll see a brief description of the publication, the center responsible for the publication, the authors of the publication. At the top, there is a link to view policy brief. All you have to do is click on this link and you have free access once it loads. Oh, we'll try it one more time. Sorry about that.

Per Ostmo: Well, you will have free access to this policy brief. It might download to your browser as a PDF instead of opening up in a new tab. So that's how easy it is to find research on Gateway.

Per Ostmo: Now if you want to up to date on webinars, you can click on the Webinar tab and see upcoming webinars. You'll find archived webinars. If you want to stay up to date on the latest research, you can click on the Research Alert tab, enter your name and email, and you'll be subscribed to our listserv. You'll be notified about upcoming webinars. You can see some of our newest research here. We've had recent publications on hospital quality star ratings, on breast cancer stage at diagnosis, and on statewide age-friendly initiatives.

Per Ostmo: So, finally, if you want to see key findings as you browse through social media, you can follow us on Facebook and Twitter, @RHRGateway. So with that, if there's any further questions, we can check the chat box one last time. I don't see any further questions. Lars or Davis, do you have anything else to add?

Lars Peterson: I guess at the top of the hour. Just thanks to the Rural Health Gateway and thanks to HRSA and the Federal Office for Health Policy for funding us, and all the, kind of impressed, 140 or so people who showed up today to watch this live. So thank you, everyone.

Per Ostmo: Thank you, Lars. Thank you, Davis. Thank you, everyone, for being here.

Davis Patterson: Thank you very much.

Per Ostmo: I hope to see you all at future Gateway webinars. Have a nice day, everybody.