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TRANSCRIPT - GR 12 08 23 **"Home-Based Medical Care for Complex Patient Populations: Horizons of Innovation"** guest speaker Justin Mutter, MD, MSc from University of Virginia

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Medicine Grand Rounds

- Hello, everyone. Welcome to Medicine Graham rounds. I have the pleasure today of introducing Doctor Justin. Mutter. Dr. Motto started at University of Virginia as a college student.
- He was then a Rhodes scholar, completing his master's of science at University of Oxford. Afterwards he was brought back to Uva for his doctor of medicine.
- He then completed Family Medicine Residency at Mountain Area Health Education Center, followed by geriatrics fellowship at UVA. He is now an associate professor of Geriatric Medicine. He has taken on many roles at Uva, including the section head for Geriatric Medicine Director of the Health Humanities Program, core Faculty for the general scholars, program and medical director for the Virginia at home program.
- He has won numerous awards for his teaching, his research, his leadership, and his clinical excellence. His scholarly work is focused on home based primary care outcomes and health policy for elderly adults.
- He has Federal and Grants estate grants focused on home based medical care. And this includes the Virginia home program which he's going to discuss with us to day. Please join me in welcoming Doctor Justin. Butter alright. Well, thank you. Let me turn my mic on. I hope that's coming out. Okay, thanks for those of you who are here. Thanks for those on Zoom so. And thanks for that kind of introduction. It's really a pleasure to be here today. I wanna thank the department and the chiefs for having me this is a topic, as those of you who know me is very close to my heart, so it's always fun to get to. To talk on this and it is it is a systems based. Talk. This is about systems-based innovation. And so I'll just say, as a caveat here at the beginning there are obviously, many, many, many, many complex, patient populations. So I you know, we could talk a lot about what populations we should be focusing on, what populations are most appropriate for home based medical care just for the purposes of my own interest and background. And for time I will really just be focusing on the geriatric populations. I just wanted to mention that up front.
- But so here's our outline out. And I want to say at the beginning here, when it comes to systems-based innovations one of the refrains we often hear when we're doing new things is quote we need more data. I've been a lot of conferences, very active and a lot of great groups that are working in the space of of home based medical care. And I feel like at the end of every conference that's kind of like the refrain, right? Very appropriate one when we are assessing the state of the science on systems-based innovation so very appropriate, very important.
- But in some ways that line can also sometimes be disempowering. And what? What? As we're sort of setting up the stage for what I want to say today I think it's really critical that

we understand the opportunity costs of not innovating. So the question is not so much whether we should innovate. The question is, how fast and how well can we innovate? And I think that's very true in in home-based medical care.

- So I am. Gonna talk in that sense. On a little bit about the status quo. That'll be the first sort of section of what I talk about today. Because I think it's really important that we understand the status quo and what it means.
- I'm gonna talk a little bit about the research landscape for home based medical care certainly will not be exhaustive. Unfortunately, in that space cause there's plenty to talk about. I will then spend some time talking about our experience in our Virginia at home. Home-based primary care program. What we have learned, and then talk a little bit very briefly at the end about sort of next steps. I just want to say, from the outset I have had the privilege of being on this journey with a lot of great people. It's always risky to put a bunch of names on there. But these are many wonderful people, clinicians on our program, administrators, etc., researchers, data scientists who have been on this journey with me. And so I just wanna thank all of those individuals those named and not named as well as the entities that you see, listed here, I mean, what we have done with our house call program has really been a team effort across different groups, and Uva health. And so it's been a real privilege to do that.
- Thinking again about kind of the bird's-eye view, and this question of not whether we should innovate. But how fast and how well we can innovate!
- Oftentimes, in healthcare we innovate very slowly. And some ways that's a good thing in some ways, maybe not so much but I just wanna note here at the outset that things are moving very, very quickly and profoundly in Medicare's political economy right now. So this is just a few examples here on this slide. So Cvs acquired Oak Street health. They also acquired signify health. The total cost of that this is in the last couple of years was almost 20 billion dollars. So clearly Cvs thinks that those of you who are familiar with Oak Street health are signify. These are companies that are really innovated in the Medicare advantage space home and not just home. Based care but primary care more broadly for older adults.
- Similarly, Walgreens. So village Md is another company that's been innovating. They built home, based care into their model for primary care. And Walgreens acquired them just recently, in the last couple of years.
- And this is a study from Mckinsey, the consulting company that came out in February of 2022 where they looked at just how much we think could shift to the home in terms of what we already do. In the next few years, and the numbers are fairly staggering. I mean they? They felt like over 250 billion dollars and health care expenditures could reasonably shift to the home within the next couple of years. That's 25 of total costs and medicare fee for service and medicare advantage expenditures. So clearly, the ground is shifting and so I wanna just mention that as we start off and think about sort of the status quo otherwise but also what we started to learn here with our own house call program.
- So I'm a big fan of the triple aim, the quadruple aim, the quintuple. I think one of the biggest questions we often have when we take this sort of systems, level view is how do we measure our effectiveness? How do we know that we're a high performing health system and not a poorly performing one. And of course, the triple aim dating back to the seminal article from Don Berwick and colleagues over a decade ago was really the first attempt to systematize that kind of measurement that has now been expanded to include the quadruple aim which includes provider clinician satisfaction. Right? We are part of the system. We are part of the goal of the system. And so including, that is really important. And it's also been expanded even further in the last few years to include health equity.

That that needs its own sort of point on the Pentagon and so importantly, as I mentioned all of these, I want us to see these as interdependent. So the idea about whether it's the triple aim or the quadruple aim or the quintuple aim is not that these points on the Pentagon are sort of their own thing, like we can just innovate and make sure we're reducing costs, or we can just innovate and make sure we're improving equity but rather that these things are interdependent. And as we innovate as we build new systems for complex, patient populations, we will be able to achieve improvements in all 5 of these domains.

- So but how are we doing now? So with regard to the access problem. I would sort of classify this as the patient experience, patient care, experience, access is often, as we all know, a really challenging problem. So thinking about the homebound population in particular, and really the epidemiology, the homebound population is still somewhat in its infancy. The first big paper on. This came out about 10 years ago, not quite 10 years ago. And so we're still learning a lot about this population. We're learning a lot about their struggles. About what they need, etc. But this is some, some data on access. So nearly 40% of medicare beneficiaries, as you all know, have difficulty accessing primary care right now. We all know this from our clinics where it's tough to. We got here where we've got difficulty with people accessing new patient appointments in our clinics. And that's both primary and specialty care. When we translate that to the homebound experience. Really, very, very few homebound persons actually receive home-based medical care less than 15%.
- And so access is a huge problem for these individuals. And so most are still. Most homebound. Persons, as we all know, are still accessing regular primary care, regular specialty care within the context of clinic walls. But when they do that they don't access it very easily or very frequently. And so studies have shown that, for example, in this study homebound persons didn't even see their primary care clinician, many of them almost half in a given year. And so access is a huge problem. Access to specific kinds of services like advance care planning also extremely low for this population, and in some cases less than 10%. So access is a big problem.
- So the quality challenge the quality problem. We're all probably most familiar with this because we're caring for older adults. Right, almost 50% of hospitalizations in this country are older adults every single day. And so this is the population that we see in the acute care, setting quite frequently, and disproportionately so.
- But as we can imagine, the quality challenge for this population is quite substantial. We know that when people don't get advance care planning, but that's associated with significant high intensity, utilization, and in hospital death. Toward the end of life homebound persons average double the number of er visits and hospitalizations annually relative to other medicare beneficiaries.
- And, as I said here, as I said in the previous slide, about the epidemiology of the homebound population, because our population studies are not superb in this space.
- One interesting way to look as a proxy for the homebound population is to look at the dementia population. The epidemiologic studies that we do have suggested. About 80% of those who are homebound are those living with dementia in the community. And so in some ways we can look at persons living with dementia as a proxy for the homebound. Of course that's not a perfect overlay but can be helpful. And so when we look at, for example, readmission rates 30 day readmission rates all cause we're still not doing super well in this country. We've. I think we've improved a little bit some rates. Hrq. Publish something a couple of years ago before the pandemic that said we'd gone down to 14 to 15, but more recently, seems like we're around 18 to 20 still.

- So not doing very well. But when you look at people living with dementia. That number tends to be even higher, 20 to 35 depending on which study you look at. So readmissions are very ubiquitous in this population. I'm gonna talk a little bit about independence at home. That's ih and the acronym here later in my conversation. But if we look at people who are eligible for independence at home, which is now sundowning demonstration program for home-based primary care that Medicare has had they account for about 30% of all Medicare part A and B spending at about 25% of all hospitalizations. And again, this is like probably somewhere between 5 to 8% of the Medicare beneficiary population. So you have a significant, disproportionate number of people who are experiencing recurrent hospitalizations.
- So the cost problem as we can imagine, a lot of the access and quality issues translate into cost issues. Homebound persons have, on average at least $11,000 increased costs annually relative to other beneficiaries. The out-of-pocket expenditures can be quite high as well for this population. And if you look at again thinking about dementia as a proxy for the homebound population. Medicare, spending on persons living with dementia in the last 5 years of life, significantly outpaces those living with cancer and Chf, which are 2 conditions that I think we commonly associated, and appropriately so with high costs and high utilization.
- But it's even greater with dementia, and to the tune of a hundred $1,000 greater. In the last 5 years of life in general, as we all know.
- with the trajectory of one's life Medicare costs tend to grow as we approach the end of life. And so in the last 3 years of life in general Medicare costs are about $50,000 per year on average, so significant cost challenges.
- The equity challenges are also quite profound. And we could have taken any of those statistics instead of broken them down and shown that whether it's the access issues or the cost issues or the quality issues that when you stratify those according to various socioeconomic and racial groups?
- You find significant inequities. For that population among the homebound. And unfortunately, this is getting worse. So this is a study that was published during the pandemic and found that not only is the homebound population substantially increasing in number but also the inequities that have existed for a long time are worsening within that population. And you know they in particular noted that in a time during the middle of the pandemic, when telehealth was all we were thinking about how to optimize it. The homebound population well, over half we're not even able to access telehealth. So significant inequities that are again only unfortunately growing.
- And then, lastly, there's the clinician satisfaction problem, which is equally important, right? We've seen articles in New York Times like this one about the moral crisis of America's doctors. We've seen all kinds of debates and ongoing studies about Provider Burnout, and those are super important. But what a lot of those commentaries are focusing on is the moral distress and moral injury that we all experience within the system right? That that when we want to provide a certain level of care, or we feel like it's super important that this particular population receive this this kind of care. We are not, in fact, able to provide that and that causes moral distress and moral injury.
- That is absolutely true with the homebound population. So in many studies, it's often called, this population is called the Invisible Homebound, because they're invisible to our system. Right thinking about the access problem until they arrive in the er until they arrive in our hospitals. And then we're not really sure how best to care for them. And I and I think one of the things about house calls that's so amazing is that when you walk over someone else's threshold. You finally realize what they're really struggling with, because behind our

Ehrs, behind our clinical hospital walls, right? It's extremely difficult to know that. And so to know how best to care for people.

- And so I want to say again, going back to the discussion about the imperative of innovations, that if we don't innovate, we can't meaningfully care for this population in the way that they deserve to be cared for. Without innovation, as some geriatricians like Sharon, in a way, would argue, Sharon. In a way, those of you don't know is a geriatrician at Harvard, who is the world expert in delirium. Has written a ton on delirium. Most of the tools we use for delirium were created by Dr. In a way. But we might argue even that without innovation. The default, the status quo that we've been talking about here is, in fact, an agist system that is baked into the structure of what we can provide, and that is, that is not what is going to serve our patient populations the best. So thankfully we do have solutions and home-based medical care. That's the status quo pretty resoundingly and comprehensively. Not optimal. But what is the state of the science? And again, this is not gonna be an exhaustive review of the science of home based medical care. But I do wanna hit some of the high points. And first of all, we'll talk about home-based primary care home based primary care is probably the most studied model within home-based medical care models it's certainly the one that I know the best as a home based primary care provider, and in general a lot of those aspects of the quintuple aim have really strong evidence whether it's patient experience, right as we can imagine. That's when someone comes to your home. it's gonna be a huge burden off of the patient off of the caregiver. You don't have to spend an entire day off work trying to get to the clinic, for example. And so patient satisfaction. Scores are quite high for this model improve quality, or at least sustained quality of care, reduction and hospitalizations and er visits and reductions and costs. And I'm gonna say a little bit more about one of the controversies surrounding this in a second. But home based primary care really started in the veterans, affairs, communities and the that's probably the best evidence we have year by year, decade by decade. And the suggestions are sort of up to 25% reductions and costs annually for beneficiaries. In those programs I mentioned the independence at home demonstration. This was a center for Medicare and Medicaid innovation department innovation that's been going on for about a decade. It is sundowning actually this month. And there is still some controversy about that which I'll mention. But the independence at home model is really the robust home based primary care model built in large part on the on the Va. Experience with this, and this is a study that came out of the looking at years one and 2 of the demonstration, and they found that on a per beneficiary level for each Medicare beneficiary they achieve 10 to 12 times the amount of cost reduction than an accountable care. Organizations did in the same period, so very effective in terms of cost reductions at the per beneficiary level.
- Not all home based. Primary care needs to be primary care as conceptualized. There are, I do wanna mention there are some home based specialty care type services there. Certainly home-based palliative care that some of you may be aware of, but also very focused programs and specialty care. For example, there have been innovations. For persons living with Parkinson's disease, who are homebound or other advanced neuro neurological illnesses. And so this is one program that is not a primary care program. It's called a capable program that was built by Sarah Zanton at Johns Hopkins, who's now Dean in the school nursing at Johns Hopkins, and that team has just really done extraordinary work over many years, including a randomized, controlled trial of their in a intervention. And it's meant actually to be kind of a temporary accompaniment of homebound persons, and so they kind of come alongside patients in their homes for about 6, 5 to 6 months, and provide lots of different support. Some of that is helping fix up homes that that needs to be more accessible. Some of that is medication management. Some of

that is functional focus with occupational therapists. This program has significantly reduced costs for participants. So these are 2 studies, one focusing on Medicaid. Another focusing on Medicare costs and the studies found that for each of those, not just both together, but for each of those cost savings were about $10,000 per beneficiary per year. So very significant outcomes in that space part of the reason that we may not hear this. All sounds like really good right? So why? Why don't we see this everywhere? There are a lot of reasons why we don't see this everywhere. But one of them is that there's some debate out there about the impact of home-based primary care in particular. So I'm not gonna get into the weeds of this debate. I just wanna highlight it cause you might find it out there if you're if you're interested in this space. But with regard to the independence at home demonstration. Cms. Then contracted with Mathematica to do a full 7 year review of the program. This caused a huge debate in the academic literature because Mathematica came out and said, Well, it's not effective, and it's not even cost reductive in a significant way.

- The research teams that have been working on this for over a decade strongly disagreed, and the academic literature as you can. As you can see here, there were a number of back and forth, and the Journal of the American Geriatric Society. Again, I'm not gonna get into the weeds of like what the nature of the debate was. But I do think it's important. What happened with Mathematica is that they used a very complex actuarial algorithm to determine costs that had to do with more of a budgetary actuarial approach to understanding the challenge, and a sort of a nutshell. What the what the researchers who are embedded in the work we're saying was that this is not a real world.
- Let's look at cost before and look at costs. After a way of understanding this this data. And so I just want to highlight that because I think it's really hard to study counterfactuals.
- right? It's hard to study things that don't happen. We can do it in some ways. And the way that we design randomized controlled trials with medicines and other interventions, right? But when you're dealing with a system that has so many different complex parts not to mention a heterogeneous population and the home base. Home. Excuse me, the homebound population is a very heterogeneous population.
- It's really hard to know. And you're also often dealing with fairly small numbers of people. This is. These are, these are high-intensity, but low volume programs.
- As you'll see with our Virginia and home program and so you're in as small. And so the it can be very challenging to show the impact that that that many people feel strongly the data supports really briefly, hospital at home. Some of you may be familiar with this. This is probably the second most studied home based care model. Significant cost savings have been shown over and over again. I will say the hospital at home is widely accepted in many industrialized countries. Look at Australia, some provinces in Australia.
- Every hospital has a hospital home program, so has been very much embraced, and the international scene less so in the United States.
- But strong improvements as well and patient satisfaction. Quality of life scores ability to remain at home, which is sometimes a really important indicator. Of the impact of these kinds of programs.
- And again, I wanna mention, just like with home base primary care when home based. Excuse me, when hospital at home started was really just focused on a few select conditions that we felt like we could care for adequate home things like community acquired pneumonia cellulitis. We need to some Iv antibiotics for a couple of days. We can hook up an Iv and make sure we're caring for that appropriately. Obviously there are things that should not be cared for. At home, depending on acuity and complexity. But people are really innovating in this space and other ways, and I'll just highlight this recent study. That

came out on the huntsman Cancer Center Institute innovation. And they found for oncology patients doing hospital at home reduced length of stay, reduce the total number of hospitalizations reduced costs. So some really exciting data on that front as well.

- Oh, and I just was mentioned. This is a newer study that also looked at equity outcomes for people that had not been well served by by hospitals and found improving health, equity, and hospital at home programs. So again, going back to the quintuple aim, a lot of positives so pivot here to talking a little bit about our own experience. And we built our experience on a lot of the data that I that I shared with you, trying to take best practices in these innovations and bring it to our communities here in Central Virginia.
- We launched in the summer of 2020. So we're now at about 3 and a half years, and we've learned a lot during that time. Happy to talk in the QA. About many of the things that we've learned and are still learning. I'll mention some of them here at the end. But we're an enterprofessional, professional, team-based design in partnership with the Section Geriatrics and the Department of population. Health.
- We serve. Both Charlottesville and 8 surrounding were primarily rural counties, and that was a very purposeful on our part of the beginning. If you look at some of these significant inequities that exist and access to home based medical care geographic equity is a is a big one. Among other big ones. And so, knowing our catchment, knowing where we are, here in Central Virginia, we wanted to make sure we were able to serve at least a significant proportion of the rural population that accesses Uva health. And thankfully we have been able to do that. More recently we this fall we have expanded to assisted living facilities. Select ones about 4 in our community here in Charlottesville we are still learning a lot about that, and it's been a great process. But that is another population that we are engaging with at this point. We've served over 200 patients at this point, and they're caregivers across our time. This is just some I call this our 4 pillars. And we're actually in the process of revising these and updating them, based on what we've learned in the last 3 years. But this is kind of the 4 pillars, as we initially imagined them. And this is pre Covid. And so certainly we've learned a lot through Covid, which has been the timeframe for much of our innovation regular house calls to streamline care and prevent of avoidable queue utilization doing that intensive face to face management patient needs thinking about the caregiver with the patient that's really important is something we often forget. When we're prescribing medicines or when we're thinking about treatment plans telehealth visits and not just video visits, but phone visits were an important part of that. We knew we would have a lot of driving time. We wanted to make sure we make those drives, but we also wanted to make sure we were in close contact with our patients when we couldn't be there in person. And then advance care, planning and achieving goal. Concordance is a big part of our goal. Again, going back to some of that data about access to advance care planning among medicare beneficiaries. We wanted to make sure we have that available to our patients.
- This is just to kinda give you a sense of like, how we function on a day to day basis. When we see a new participant in our program, we ask this big question of ourselves like what is driving clinical. If there is clinical instability like what is driving it? What are the many usually multiple features?
- Of that disequilibrium? How can we achieve a kind of equilibrium? And for that we do. Some pretty standardized assessments conference of geriatric assessments, including functional status assessments. We assess for caregiver burden, because, again thinking about if we can care for the caregiver, then that will hopefully also help us care better for the patient social determinants of health screenings, frailty, syndrome screenings. We use the Rockwood clinical frailty scale for those of you who may be familiar with that which is a

very simple tool to use. And then, of course, thinking about complex medication management really important in this population as well as thinking about cognitive impairment when appropriate.

- So I'm going to take a quick like, dive into a single participant. And we're going to look at the bird's eye view of this program. So this is a gentleman who was referred to us several years ago. Now after admission to the hospital falls for mental status, as you can see here, advanced multimorbidity, including chronic respiratory failure from Copd. And the admission Hpi is sort of classic for a lot of that
- quintuple aim that we've been talking about in terms of access and not being able to really get the care in a coordinated way across the continuum. That's necessary so this gentleman presented back to the to the er pretty much the day of, or day after being discharged from skilled nursing facility. And when we looked at the referral we found that just in the last months there have been 6 hospitalizations and hard. The patient was hardly able to really access primary care during that time, either in person or by phone. So what did we do? We did our comprehensive assessment and really trying to come alongside the patient. The caregiver understand again the sources of that disequilibrium severe housing, social determinants. Health were a big part of this poly pharmacy. Again, poor access to primary care this individual was significantly frail at baseline, but very motivated, and the caregiver was also very motivated, engaged to try to work with us, to try to get to some kind of equilibrium. A better place for this individual. So what do we do? We focus on very frequent visits again, that high touch model building relationships across time trying to catch small problems before they become big problems trying to be engaged, and frequent communication, so that we catch those we are now, 3 years into this individual's enrollment with us we have had 0 queue realization. It's very exciting. And I will just as a caveat say, this is.
- This is a wonderful success story, where, where the patient's goals have been met. Everybody's goals have been met certainly don't have perfect outcomes in many, many cases. But I did just wanna highlight in that since, like, it's not that this has happened out of the blue, right? We've done this and have focused very intensively on this patient's care. Very personalized care. 25 home visits to telemedicine visits, and many, many, many telephone encounters across that time. So it takes that kind of intensive engagement. In a complex situation to really achieve. The outcomes of the quintuple aim so very grateful. There's gonna take this sort of bird's eye view now of our program and as I said, it's hard to measure a counterfactual, and so we're constantly trying to figure out how best to measure our impact. And very grateful for the Uva health data science team, who's helped us create this dashboard? And just gonna mention a couple of things. This first of all, this is just fiscal year 23 data. So this is just looking at that particular year. There are lots of ways you could look at our data at this point at 3 years, and we are in the process of like looking at the whole picture of the 3 years and trying to understand, what our outcomes have been like. But I don't have that data to share with you quite yet, unfortunately.
- But, as you can see here you know, the just one thing I'll mention is our length of stay is longer in the post period a post enrollment period which is interesting. I'll say a bit about that in the next slide. But this is some of the exciting news. So 34% reduction in er visits, 74% reduction in hospitalizations. And those of you who are familiar with a case mix index question that many hospitals focus like a laser beam on the we track cmi of admissions both the average at Uva. And then, on the average for our participants in our program, and, as you can see pretty much the same, and for our participants, whether they're being admitted, and before they enroll in Virginia home, or whether they're being enrolled afterwards at 2. But the Uva health Cmi is actually higher than that on average. So when

we can prevent going to reducing costs when we can prevent a hospitalization. Not only is that really good for the for the patient, but it's also really good from a cost perspective.

- We our readmissions rate our 30 day. All cause all cause readmissions rate. Last fiscal year was 3. So we're really excited about that. And again, that's part of the model is to try to make sure that in these unstable circumstances and unstable times in people's lives we are able to be there, no matter what, and try to achieve equilibrium and stability.
- Just a little bit of additional data. Briefly, so I mentioned, we measure the rock with clinical frailties scale. And we do that because it's probably one of the most important, if not the most important prognostic indicators for or older adults.
- We're actually thinking about revising some of the way we think about enrollment around frailty.
- And because we found that that's been so clearly significant for our population. And, as you can see here, our average score is 6, which is moderately frail. These are individuals who are not completely dependent 100 on others for care, but either significantly to mostly dependent somewhere in that that framework. This is another outcome that we've been really excited about. And that's goal concordance. Again, trying to be able to provide the end of life care in tandem with our Hospice agency partners
- that we can 85% of this is 3 year data that we have completed. sit across 65 deaths over 3 years. And that is a mortality rate that's pretty similar to the national average for programs like ours.
- We have, found that 80 85% of those deaths have occurred at home which was the patient school and the national average, as you may be aware, for this is about 30. So we're really excited that we've been able to provide that care for our patients and their families.
- Interestingly, another point I just mentioned is, 80% of our referrals have come from ambulatory providers. And if you look at other house call programs or home based primary care programs across the country because they're so focused on utilization and not and appropriately so. But that's kind of part of their algorithm for eligibility they really focus on just inpatient referrals. We have really tried to hopefully have our name known in the community. We get referrals from people outside Uva. We get referrals from home health agencies. We get referrals from Hospice agencies for people that are being disenrolled from Hospice because they've graduated from Hospice and so we found in our review that 80% of referrals that come from ambulatory providers, which is which is interesting so lessons learned and still learned. I mentioned enrollment, criteria and this is something we, you know, we started our program. And really, the foundation was built during Covid and so we learned pretty quickly that if we're gonna have this like very strict algorithm that many people would fall outside of that. For whatever reason. And so we have really tried to be adaptable with thinking about enrollment. Criteria are hard and fast. Enrollment criteria are that someone has to be homebound. So that is, they have to meet homebound criteria by Medicare definition, not just transiently, but permanently. And then we also look for evidence of like, is there going back to the access problem that we discussed is their current primary care home? If they have one. Is that working? Is it functioning well for them? Are they able to access that? Or do they really need us to step in? And so we really try to focus on those 2 core things.
- This is team based care. And that's been really a really fun journey for all of us involved. We've learned a lot. We're still learning but one of the things we've learned. It is labor, intensive work. And that's a great thing. But it does mean that we need to communicate really well with one another. And we need to communicate really well between our team and the patient and their caregiver or caregivers.

- And then goal concordance is a journey. This is not something that we achieve. Immediately with one conversation this is this is these are conversations that we have over and over again with our patients and their loved ones. And it's really meaningful to be able to do these in the home and in many ways we're able to have conversations. There's just really aren't possible, and another setting and settings. And that's been really wonderful to experience future horizons for home-based medical care. I'll just end here with a couple of words. As I said, I would argue that the stage is, in fact, well set for us to build a true, home-based medical care ecosystem.
- How we do this in an environment where we are still pretty firmly planted, but being uprooted to some degree and from fee for service into value based. Care is a really challenging question. And a question we think about within our team almost every day. But I would argue again, thinking about the status quo and thinking about other models if we so I'm a historian and addition clinician, and I enjoy reading about the history of Medicare, which is really dorky and boring. But I find it really interesting. But it's when you look at major innovations in healthcare policy almost always to a T. There was very little data support that innovation. We're all familiar with diagnostic related groups. Drgs, the way that hospitals Bill, right? There was almost 0 evidence for Grg systems in terms of cost savings when it became law in the 19 eighties.
- So we need to think about our standards of evidence and the imperative of innovation relative to the status quo. And on that front I think we have a really strong foundation for home-based medical care to continue making this leap on behalf of our patients.
- So this was a great article that was published by Christine, Richie, and Blue Bruce left, or 2 major leaders in this space and health affairs last year. And I'm not gonna go into all the details here. But I just I just wanna sort of mention like what does this all mean? What does this all really look like? So number one, they call it an ecosystem on purpose. We're really good at siloing things in medicine. We've got this program and that program.
- What we need is truly interrelated home based care systems, such that home based primary care is talking to hospital at home, is talking to rehab at home, is talking to transistors and care programs. Right? All of these need to be part of the same goal, part of the same ecosystem, certainly, each with their own processes and models but which are sharing information and really helping care for high risk individuals across the care continuum and then number 2, as you see here in this, in this slide. From that article the patient and the caregiver are at the center.
- that in some ways, tha, this isn't rocket science right?
- And the quintuple aim actually can dramatically change for the better when we focus on person centered care. And I would add to that community centered care. Thinking not just at the individual level, but also at the community level.
- So thank you for having me today happy to answer any questions. And the time we have left bye, bye. Okay? So first from Doctor Evan Heald, he said, this is characteristically thoughtful work number. His first question is, why do folks at long term care? Facilities have access issues in need for Virginia at home.
- So it's a great question. So again, I sort of mentioned that the epidemiology of this population is still kind of being worked out. We don't have. If you look at, for example, studies of programs like ours. Around the country. Some include assisted living participants, some don't. There aren't a whole lot of studies that look at that assisted living population particularly. I do think that it is a high risk. High need population. It. For so, for a couple of reasons one is just like the policy and regulatory reason, as we all know, for anyone who's ever stepped foot in an assisted living facility. There's a lot of healthcare that happens in these facilities. Okay? And I'm talking about long term care in the assisted

living space, not in a nursing facility space, but assisted. Living is regulated at the State level, and it's regulated at the State level, not as a medical facility. It's regulated as a residential community, right? And so what happens is there are tremendous needs, medical, functional, cognitive, etc. in these communities, but very poor access to being able to engage those needs in real time.

- Some people in these communities do have good access to primary care or specialty care, or both. But I think this the data that we do have very much sort of maps onto what we see with the community dwelling, homebound population where you have high levels of avoidable care, utilization fragmentation of care across providers etc., etc. So we have made that decision in our program that this is a population that we want to focus on and really try to improve the care for.
- Dr. Hill is also wondering, how do we help the system. See the value of the high touch approach in our office-based practices.
- Great question. So I will say 2 things. First of all, it works.
- It works. I mean something as simple as that. And that's what I mean. At the end they're talking about person-centered care. When we think of the quintuple aim as truly interdependent person-centeredness and community centeredness will get us there, and that has been shown time and again going back to, for example, the capable model that I mentioned that came out of Hopkins. When you look at the model, it is extraordinarily simple.
- They're walking into people's homes, and they're saying. what do you need to function well in your home what they're saying? And then the patient says, These are my goals. And then the team starts trying to meet those goals right? And then you saw the outcomes that come from that right? So I think the simplicity of that really translates into the effectiveness of that. So that's number one number 2, I think. The better we can become a team based care in every single domain doesn't matter whether it's q care invulatory care, etc., the better we'll be able to care for our patients. That is a challenge. But I think that's certainly one of the things that we've learned is that being high functioning as a team can go a long way toward overcoming some of the barriers that we find in terms of time management for high risk populations. And then the third thing is, I think, continuing to and to innovate in the payer world. Really pushing our systems to engage in value based care engaged in value based contracting. That is certainly the future. A in this space. As we saw the reason why Cvs and Walgreens and all these major corporations are doing this. They're not doing this purely on a fee for service approach. They are thinking about value based models.
- Right? Cvs owns Edna. Right? So they're thinking about how that all fits together, where you have a system where, if you do really well on the provider side, you also do really well on the insurance side, right? So we need to encourage our systems to really help us move in those directions.
- And then from Doctor Andy Wolff. This is tremendous work, Justin. Thank you for spearheading such a great program, any local initiative to start a hospital at home program.
- So we don't have a plan yet. Certainly something that's been in the conversation. As many in the department of medicine and elsewhere know. We are actively trying to learn about it, thinking about this with our health system partners we certainly don't have a plan. It's definitely in the sort of ex exploration stage but I think if we could do this and do this well and do this carefully. I think it could have a really profound impact on our communities. So and then our last chat question, doctor Hasan, if Dakar says, is there any plans on expanding to counties east of Charlottesville? I work as a nephrologist in Farmville, and

see a lot of demand for this service in areas including Appomattox, Keyesville and Charlotte.

- Yeah, it's a great question. Expansion depends on team expansion. That's one thing we've learned. And II mentioned, you know, we are a fairly low volume, high touch model. We are trying to understand what the best panel to team ratio looks like in home-based primary care. I've been fortunate to be engaged with various programs across the country through something called the American Academy of Home Care Medicine. And you ask people what the optimal ratio is. You get a lot of different answers, and I think a lot of that depends on the composition of the team the geographic area that you're that you're serving. So some programs limit driving time by radius. From the point of origin. We have not done that. We have limited it by county on purpose, thinking about geographic equity. And so really, what we're limited by is just a big enough workforce. We would love eventually to sort of thinking about this as sort of spokes on a wheel coming out from a hub where you've got a hub. And you've got little teams that are focused on different geographic areas. In our Central Virginia communities. And being able to serve more populations across time. But I think that's one thing I'll just mention that we have learned is that there is huge need in our rural populations in various counties around here. We are well above 20 of the population being over the age of 65. And there's a lot of need. A lot of people to serve. So you just kind of touch on geographic issues a little bit. Do you think like some of those like, because the variability of the study that you're presenting and
- definitely, I mean, I think it depends on how this is conceptualized and right when and people have done some meta analyses and systematic reviews. And of course, whenever we do those things the big question is, what's the heterogeneity between these studies, and I think it is a different scenario when you're in. You know Central Manhattan. And you're going in a giant apartment building and seeing 15 people right versus driving all over Louisa County. Right? So I think It's a different scenario. It's a different kind of need. Right? There are different states and regions and counties that have different supports for social determinants of health. And that's something that we've run into. For example, housing in some counties there's almost nothing to really support our participants that have significant housing needs versus. In other places there is a lot more. So I do think that the geographic disparities are a part of some of the variability.
- I think it also depends on how we're defining home base primary care. So if you look at some of these studies like they'll def. Sometimes they'll just they'll say, Oh, well, it's one visit every 6 months, right? Or something like that. That's in the whole right, very different from what I showed you, and a few slides up before, where we're averaging one a month, if not multiple a month for some participants in our program. And so that heterogeneity can also affect sort of how we conceptualize outcomes Justin, I love what you're doing. What is being done or can be done to involve medical students and medical residents in the work you're doing. Yeah, thanks. It's a great question about education. And one of the fun things that we did from the beginning really is said we are not just an enter professional practice. We are a hub for enter professional education. So we try to engage medical students on their rotations.
- We try to engage residents whenever they have time to come out, which is not much. But we love having residents, our fellows. We've also that's on the medical education side. We've also worked with school nursing. And we have Np students that are participating with us. We have sometimes Bsn students or Cnl students so that's been, really, really fun. And so because again, this is a population that we have to figure out how to care for. Well, it is a population that no matter what we go into, what specialty, what care domain like, we are gonna be caring for the homebound and so we need to know about the homebound.

We need to know how best to care for them. We need to know what their needs are and so we see. We see Virginia at home as not just us sort of a clinical care model, but also an educational outreach model in your presentation.

- Yeah, it's a great question. So we as you said, we can only expect the demand to increase across time. So already, when this is a scarce resource, how are we going to make sure that we expand it to as many people as possible? I think some of that is hard decisions about thinking about who, as I said who is best served by these models, and II don't think that we have a perfect answer to that question. I think we've had sort of strict criteria. We've had not so strict criteria. But I think there are individuals for whom it's very clear that home based primary care is the way and it. And we need to make sure we give those individuals access. There are other individuals, even those who are homebound for whom that may not be the case, and there are people by preference who want. They like enjoy getting out and going to see their doctor. Right? So I have to. I think we have to think hard about what population is home based primary care best suited to serve? And then, I think you know, going back to the education question like the other answer to your question is building the workforce. Because, as we all know, across every health profession, and particularly in geriatrics we don't have enough workforce. And that's thirsting. That's pharmacy. That's physician. That's social work. That's everything.
- So I think building up that workforce across time. That is familiar with these innovations? And whether they're gonna do that particular innovation or not, they can take the pieces of it that that were really important to them. They learned a lot from and say, Hey, I'm you know I'm an oncologist. Now I'm gonna go do this trial of what my huntsman did out in Utah for my cancer patients to see how it goes. Right? So I think that once we sort of conceptualize this as home-based medical care is here to stay as a model for these populations, then every specialty can get involved, every aspect of the health professions.
- Thank you so much.