Multi-jurisdictional contractor advisory committee (CAC) meeting

Thursday, February 28, 2023 6 p.m. ET

Topic: Remote physiological monitoring (RPM) and remote therapeutic monitoring (RTM) for non-implantable devices

Medicare administrative contractor (MAC) participants

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Dr. Robert Kettler – Contractor Medical Director, Wisconsin Physician Services (WPS)

Dr. Raeann Capehart – Contractor Medical Director, Noridian Healthcare Solutions

Dr. Janet Lawrence- Contractor Medical Director, Noridian Healthcare Solutions

Patti Reidenbach-WebEx host/CMD research specialist, Novitas Solutions

CAC/Subject matter expert panelists

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Emily Zeitler, MD, FACC

Patti Reidenbach

Good evening. I'm Patti Reidenbach, and I will be your Webex host for this evening's multi-jurisdictional CAC meeting on remote physiological monitoring, or RPM, and remote therapeutic monitoring, or RTM, for non-implantable devices. Before we get started, I want to take a moment to remind everyone that this meeting is being recorded. At this time, I will turn the meeting over to Dr. Juan Schaening, who is the RPM and RTM national work group chair and Contractor Medical Director for First Coast Service Options and Novitas Solutions. Please go ahead, Dr. Schaening.

Dr. Juan Schaening

Thank you, Patti. I'm Dr. Schaening, medical director for Novitas and First Coast. Next slide, Patti. As Patti stated, this meeting is being recorded. The Centers for Medicare and Medicaid Services require MAC to record each Contractor Advisory Committee meeting and ensure that the recording is maintained on their contractor website. In order to comply with the CMS guidelines, as well as state recording laws and federal wiretapping laws, please be aware that Novitas Solutions Inc. and First Coast Service Options Inc. are recording this virtual CAC meeting. By remaining logged in and connected via webinar, you acknowledge that you have been made aware that this virtual CAC meeting is being recorded and you are consenting to the recording. If you do not consent to being recorded, please disconnect from this virtual CAC meeting. Otherwise, your continued participation on this virtual CAC meeting constitutes your consent to this recording.

In this meeting, we have representation from the national RPM, RTM for non-implantable device work group, with the contractor of medical directors for WPS, Dr. Kettler, Dr. Capehart for Noridian, Dr. Lawrence for Noridian, Dr. Loveless for CGS Administrators, Dr. Sandler for CGS, and Dr. Stroud for Palmetto GBA. The purpose of today's meeting is to examine the quality and strength of the clinical evidence related to remote physiologic monitoring and remote therapeutic monitoring for non-implantable devices, discuss how the current clinical evidence specifically relates to improved health outcomes in the Medicare population, obtain CAC members and subject matter experts' opinion and expertise on questions related to the clinical evidence. The multi-jurisdictional CAC panel was selected to provide a broad representation in terms of medical specialties, background, geography, and practice setting. We have an extensive list of multi-jurisdictional CAC panelists composed of CAC members and subject matter experts. All of them provided us with their impressive curriculum vitaes and conflict of interest disclosures, if any. In the interest of timekeeping, I won't be reading the names of the panelists now. I will call them by name when they are going to answer one of our questions.

So let's go to the evidential [inaudible] discussion. Let's start with the clinical questions. First clinical question. Are you using remote physiological monitoring and/or remote therapeutic monitoring as defined by the AMA CPT code descriptors in your clinical setting for your medical patients? If the answer is yes, how do you identify potential patients? Example, in which clinical situation would they benefit from this type of intervention? Let's go answer that question first. Raise your hand, please. Dr. Galin, please.

Dr. Benjamin Galin

Am I on?

Dr. Juan Schaening

Yes. I can hear you loud and clear.

Dr. Benjamin Galin

Okay. Sorry about that. Ben Galin here. I'm a physical therapist, and I'm the owner of Evolution Rehab Group. It's a value-based, in-home therapy provider. I'm also the VP of strategy for Genie Health, a virtual therapy platform. An RPM and RTM advisor. I do use RPM and RTM in my clinic. I've worked as a vendor consultant in RPM and RTM for the past five years. And currently, like I said, a consumer of RTM personally for the past year. So am I using RTM in my clinic? Yes. I'm using it for my home therapy patients as we speak. I also have spent, and do spend, considerable time launching RPM and RTM solutions to large practices, regional and world-renowned hospital systems, and physical therapy practices. So want me to keep going down the line here with the questions if yes?

Dr. Juan Schaening

Okay. So let's go then-- when you answer then, let's make it that you go over the different aspects of the questions. So are there a specific thing you into consideration? If there are, are there specific ranges of diagnosis that you target? Are there certain clinical situations where you might choose physiological monitoring versus therapeutic monitoring? And please explain. And how do you determine how long to monitor a patient?

Dr. Benjamin Galin

Sure. Without getting into every specific code, which we can kind of sendoff on an email later, the M codes and S codes, which are the typical musculoskeletal codes, combined with a bunch of the G code, which are neuromuscular codes, and some of the R codes, which has to do with neuromuscular movement and gait, are the typical range of codes that we would use for these patients. Like I said, if you want a real specific list, I can get you a very specific list. But really, patients who'd benefit from having a musculoskeletal status monitored. So that's that. Are there certain clinical situations where you might choose one versus the other? And how do you determine? Yes. There's always clinical reasoning that goes into any choice of modality or motive care in a care plan. I mean, there's never a blanket rule. So for my practice, we select patients who are physically confident enough, health literate enough, motivated and self-empowered enough, who will be at a heightened risk for not having remote monitoring between appointments to be on the RTM program. We further screen based on availability of Wi-Fi, comfort with technology, available caregiver support if needed, and those who truly want to be on the program.

As far as certain clinical situations where I'd pick one over the other, I'm a physical therapist. My current licensure only allows for RTM. In my consulting and vendor hat I do them both. Depending on who's monitoring and what is being monitored and the objectives of monitoring, our clients choose a program that is best suited for the program objectives. At this point, with RTM only being in existence for one year and not able to be performed under general supervision like RPM had been, typically my rehab therapists work with RTM and my physicians work with RPM. With RTM being specific to two or now three categories of statuses being monitored, which would MSK and respiratory, and now cognitive behavioral, it does seem that many of the solutions in a rehab and MSK world and respiratory world have been heading more towards RTM, while other monitoring solutions have been more focused on RPM, though both are using both. How long do I monitor the patients? As is the case with all of physical therapy, this is kind of-- because I'm a physical therapist, it's going to be really geared for physical therapy. Everything is based on a care plan that is centered on a given episode of care, that is based on medical necessity, reasonableness of care, and need for skilled care. Most patients tend to be on the program two to six months as most therapy care plans are, which now encompass remote modes of care that are also typically in this range. There's obviously CMS standards where it says there's no rule-of-thumb measures, so I can't say that every patient's on for two months or every patient's up to six months. It's based on medical reasonableness, medical necessity, so I don't give strict guidelines to myself or my therapists about how long a patient could be on, as long as they're meeting those criteria for reasonableness of care, necessity of care, and skilled care which keeps them on a therapy care plan. And I give this all based on the chapter 15 of the CMS Benefit Manual which spells out the care plans in physical therapy.

Dr. Juan Schaening

Thank you. Appreciate your response. Dr. Freedman? And if any provider, also if any CAC member or subject expert, if the response to the first clinical question is no, feel free to also expand in what factors led you to the decision not to use the monitoring. Dr. Freedman, please go ahead and respond to the clinical question.

Dr. David Freedman

Thank you. And you can hear me fine?

Dr. Juan Schaening

Perfectly.

Dr. David Freedman

Excellent. So as a podiatric physician, we see many at-risk patients at least four to five times per year. During our examination process, we determine which patients are at risk for ulceration and/or musculoskeletal deformities that cause breakdown that could easily cause ulceration. So that's generally the patient population I've been treating for RPM. For the diagnosis range, I would say it's primarily the diabetes diagnosis of E08 through E13.8, the neuropathy diagnosis of G60.0 through G65.2. In musculoskeletal, we consider traumatic arthropathy of M12.571 and 2 and Charcot arthropathy of M14.671 and 2 and then the vascular disease patients of I70.201-I73.9. So that's the range of patients for ICD-10 diagnosis codes that we would be targeting in RPM as that's what I've been doing.

The next part about the physiologic monitoring in clinical situations and how I determine how long to monitor a patient. As a practitioner, I feel compelled to evaluate if RPM's the right fit for our podiatric practice. And then in the interest of targeting temperature, which is what we're using, which is a physiological parameter, that's what was being used in the clinical practice to see whether we would get benefits for the patients. We saw this with many patients over the period of time. So we're looking to see the risk for those patients. Primarily diabetics, as I stated before, which requires long-term RPM because, as we know, their disease is chronic; it's not expected to go away. As for the advantage of using RPM over standard of care, which is another clinical question, the problem with standard of care is that we only potentially see patients periodically. And we're missing opportunity patients develop acute breakdown. RPM offers the opportunity, when there is a temperature change in a patient by more than 2.2 degrees centigrade, to see the patients that are having this and get them in the office immediately, evaluate them for the potential that could cause ulceration breakdown. And by doing so, we're saving the system a lot of dollars because they're not going to end up with an ulceration, an infection, hospitalization, operation, potential amputation, which obviously costs the system a lot of money. So as it goes for RPM, I feel there are important parts of RPM that's important and that AMA created the CPT codes specifically for both physiological monitoring and therapeutic. So what we're looking at in the podiatric practice typically has been the remote physiological monitoring. And I think that's been beneficial to us. And we've been able to see patients do very well by getting them into the practice and preventing ulcerations.

Dr. Juan Schaening

Thank you. Dr. Sprintz, please. Go ahead and respond.

Dr. Michael Sprintz

Hi. This is Dr. Michael Sprintz. I am a expert in chronic pain, addiction, and addiction medicine. I've got a clinical practice that specializes in both chronic pain, managing patients with chronic pain and/or with substance use disorders. And I'm a subject matter expert in that area as well. So to answer the first question, yes, I use RTM. Some RPM, but I use primarily RTM in my clinical practice for medication adherence monitoring. How do I identify potential patients and in what clinical situations? So for my patient population, the ones that I'm most concerned about are patients that are chronic pain patients that may be taking chronic opioid therapy and those that are at a higher risk for development of-- either high risk for substance use disorder, for those with a diagnosed substance use disorder, those that are at risk for relapse into active substance use disorder. Patients that are at risk for overdose as well. And that's not just necessarily patients with a substance use disorder or diagnosed one. You've got those who have psychiatric or behavioral health diagnoses. Then you also have patients who are on different combinations of medications that may have synergistic effects as far as central nervous system depression. Patients with opioids with a known alcohol use disorder. But also patients on chronic opioid therapy who may have co-occurring respiratory problems like obstructive sleep apnea, morbid obesity. Or those that have cognitive dysfunction or memory impairment, such as dementia, Alzheimer's. Or those who may be oxygen dependent or have severe lung disease. So the specific ranges of diagnoses are chronic pain-related conditions, normally musculoskeletal related, or opioid use disorder. We have a lot of patients with OUD, with or without chronic pain.

Situations where I would choose clinical physiological monitoring versus therapeutic. Really, at the end of the day, it's ideally I would want to use them as complementary. I like the RTM because of the medication adherence monitoring is really vital in my patient population and has a very big impact on whether or not I'm going to use this information. And not just adherence, but I also correlate this information with other data. I mean, I think that's a really significant part about this, is that using RTM and medication adherence data, I can also look at other data points such as urine drug testing or aberrant behaviors that may indicate other things so I can get more of an early warning or a better, more accurate picture of what's going on with my patient. And how long do I determine how long to monitor a patient? So for my at-risk patients-- and again, those are who may have chronic pain with a behavioral health or a substance use disorder as well. Depression, anxiety, PTSD, any of those that have a higher risk for development of a substance use disorder that are also on opioids or other controlled substances. Every time, it's always evaluating the patient specifically for appropriateness and reasonableness of whatever therapy I'm choosing to do for them. And in these patients, I would normally-- for the high-risk patients, as long as they are continuing to take chronic opioid therapy, I would use it as long as they were on that, unless there were reasons not to. Meaning that as long as there's a life-threatening situation or potential for overdose, I would. However, when we have patients that have been stable for a period of time, if I've got a low-risk patient with not as many risk factors that may be taking opioids, monitoring them for three to six months. If the patient's stable and they're on a current therapeutic regimen that's working and there are no aberrant behaviors or changes in the medication plan, then I would-- at that point, then I wouldn't necessarily need to continue monitoring. However, if I change my medication plan or there are unusual behaviors or I have a question about whether their actual pain is worsening or if there's a change in their status, I would consider restarting the monitoring at that point in order to make sure that I'm evaluating and continuing to monitor that patient.

I think a big thing with patients on chronic opioid therapy, especially when we're talking about our current opioid abuse and overdose problems that we're having and that a lot of pain physicians really don't necessarily have great abilities to identify an undiagnosed substance use disorder in a chronic pain population, utilizing as much data as we can to early identify some of these patients can have a significant savings on both patient lives and outcomes, as well as healthcare utilization. Because the sooner we can identify a patient with a substance use disorder and get them access to appropriate care, the better off the patient and the rest of our healthcare system is. Thank you.

Dr. Juan Schaening

Thank you. Dr. Taweel, please respond. Okay. I don't see Dr. Taweel any longer, so let's go to Dr. Michael Mont.

Dr. Michael Mont

Right. Thank you very much. So I am an orthopedic surgeon in Baltimore. I've worked with my own hospital and various other hospitals with mostly RTM, with a lot of physical therapy groups, with a number of different apps. But I've also done a lot of studies in this field. Not only with smartphone apps that work with RTM or RPM, but wearables, as well as combinations of smartphone apps and wearables. So those three different categories. We've been using different apps at my hospital with RTM. We don't have the bandwidth for RPM at the moment, but we may be expanding that way. So we have a whole group of 23 physical therapists. To me, I would say we get tremendous benefits that is also found in the literature in orthopedics after knee replacements. We get reduced number of actual person-to-person physical therapy visits. There's less ER visits, which leads to less readmissions. Patients are very happy with this. We've even done some studies that patients after knee replacements are very happy to be monitored in this type of manner. Many of them not only get monitored with feedback back to the office, which is the intent of RPM and RTM, they also get home-based physical therapy programs. They like doing that. So we find that it's tremendously-- on every level, from the patient to the practitioners, to the hospital, it works. I mean, I would start every patient with a potential to be using these things because you can't tell down the line is this patient going to need it for one month, for two months, or three months. There may be 20 or 30 percent of the patients that really need to use RTM, and use this heavy physical therapy, and keep going for three months, sometimes even more. And other people may not-- they achieve most of their goals by four weeks or six weeks.

And what I want to sort of say, which not-- I want to try to add to what some of the people have been saying, there is tremendous literature on this. And not just for total knee replacement, but for other fields as well. And I'll be happy to give a whole-- there's probably 35 to 40 references that are showing improvements in patient care, decreased costs, decreased readmissions, decreased ER visits, decreased physical therapy visits after total knee replacement. That's pretty rampant. I mean, these aren't even-- some of them are not even trivial studies. There's a Gazendam study of, G-A-Z-E-N-D-A-M, nine RCTs with 835 patients showing efficacy of RPM, RTM in treating patients after knee replacements. So I'll be happy to supply this group with references after this meeting. So I think I answered-- unless there's any other thing I missed here—

Dr. Juan Schaening

No, we really appreciate your response. And we would really appreciate you sharing those references with us. So let's give Dr. Taweel an opportunity. He was not unmuted. So go ahead, Dr. Taweel. My apologies.

[silence]

Dr. Fred Taweel

Hi, everybody. Fred Taweel here. Can you hear me now?

Dr. Juan Schaening

Yes. And sorry for [laughter] pronouncing your last name.

Dr. Fred Taweel

No problem.

Dr. Juan Schaening

Go ahead, Dr. Taweel.

Dr. Fred Taweel

Yeah. So Fred Taweel. I'm a internal medicine physician in Reston, Virginia. I actually still see patients, but I guess my bigger job now is I'm the chief medical officer for Privia Quality Network in our mid-Atlantic market. And we're one of the larger ACOs and more successful ACOs nationally. And we actually saw an opportunity with remote monitoring that I think will eventually lead to a lower total cost of care. So we ended up working with a partner who developed a system where we identified patients who are at risk, not all of our patients. And we put them on the program-- basically a catch and release. We put them on the program. The program is also an enhanced care management program where it was-- several of the articles that were sent to us talked about the importance of having some sort of feedback loop into the care team in order to manage patients well. So we have an ability to identify our at-risk patients, put them on the program. Yeah, manage them essentially, using a remote patient monitoring device as kind of an anchor to that patient, and then release them when a patient's considered controlled and no longer need services. So to go down these questions here, how to identify patients, so bottom line, hypertension, if we have patients who are averaging above 140/90; diabetes, hemoglobin A1C is above eight; and congestive heart failure patients who have more than one hospital stay in a year. And we also target our high utilizers and people who go to the ER for whatever reason, who happened to have a chronic condition that we can then anchor them to a care manager for. We really think that a big part of the benefit here is that anchor to the care team. And so that's what we really try to hone in on in terms of reducing total cost of care, ER visits, and hospital stays. The diagnosis we target, as I mentioned, hypertension, diabetes, congestive heart failure, and frequent utilizers. The certain clinical situation where we might choose-- well, we use remote physiologic monitoring pretty exclusively because we have a device that a physician ends up ultimately overseeing.

And how do we determine how long to monitor a patient? As I mentioned earlier, we have some observational data that shows that for our hypertensive patients, it looks like the sweet spot of monitoring seems to be about six months. It might be less for someone who's not too far off of control or longer for someone who's way out of control. But it seems like within six months on average we can get our patients off of the program. With diabetics, it's still to be determined. We are noticing substantial, again, observational reductions in A1C. And we're too early in the program to really give any definitive data on length of stay for our diabetic patients. And we're not really targeting a discharge date, if you will, for our high utilizers, depending on what the clinical situation is. If they improve, if they have issues with mood disorder that causes them to be high utilizers and those are then treated, it's really at the discretion of the physician to discharge a patient when they feel it's appropriate. Thanks for your time.

[silence]

Dr. Juan Schaening

Hello. Sorry. I was muted. So let's continue. In the interest of time, let's try to keep the responses up to two to three minutes. So let's go to Dr. Marat Fudim. Go ahead.

Dr. Marat Fudim

Thanks for having me. My name is Marat. And I'm a heart failure cardiologist at Duke. I manage advanced heart failure patients and lead our remote patient monitoring clinic for patients specific for heart failure using noninvasive and invasive tools. Maybe just as an intro, I don't know, because we have a variety of specialties, so heart failure hospitalization is the number one cause for the Medicare population. And while I personally manage a panel of several hundred patients, I can, through remote patient monitoring, actually touch greater than 1,000 patients with the few resources provided. So a much larger reach for a population in great need.

How do we identify patients and target them? Well, we center a lot of our RPM efforts around patients at highest risk. So not everybody with heart failure will get it, but only patients at highest risk. And those are patients primarily who had a recent heart failure hospitalization, who have a history of heart failure hospitalization in the last 12 to 24 months, patients that are unstable as determined by clinical exam or biomarkers. We also target patients with-- particularly for the distance, to allow-- I live in North Carolina and many of my patients are rural. The average travel time to my clinic is around two to three hours. So in order to accommodate many of my patients, particularly who are frail-- heart failure as a syndrome includes a lot of frailty, a lot of comorbidities. These people have trouble coming to see me in the cadence that I would have to have them, which is three to six months. So here, we offer a remote monitoring all through. Preferentially, as I said, we can offer noninvasive or invasive tools. And that actually leads me then to the final question, is duration. I agree with the prior speaker on a sweet spot around six months. In heart failure, when you had a prior heart failure hospitalization specifically, the biggest predictor of rehospitalization for heart failure is a history of heart failure hospitalization. So once you leave a hospital-- we refer to it as a vulnerable period. You're a very, very high risk, up to 50%, to be readmitted in the subsequent 6 to 12 months. So that's when we deploy our remote patient monitoring technologies and have our team act on invasive and noninvasive data and try to, through this early intensive phase, keep people out of the hospital.

Having said that, with invasive remote monitoring tools, it's not like we kind of remove those. Those tools usually stay with the patient for the rest of their lives. It's also important to acknowledge that even though there's an intensive phase where we do a lot remote monitoring, patients remain high risk with heart failure. There's no such thing as a heart failure patient suddenly being risk-free. Patients tend to get worse with time. We just decrease the risk and the burden on the healthcare system. That's hopefully summarized it for me. Thank you very much.

Dr. Juan Schaening

So thank you. I really appreciate your feedback. In the interest of time, let's now move to the following questions. We will give opportunity to the experts, subject matter expert, and CAC members that were not able to answer this question. And you can bring points that you wanted to make that were not made by your peers during your two-minute presentation. Let's go to the next slide for the next questions, please.

[silence]

Okay. Let's go to the clinical questions, number two to seven. First, question number two, what is the advantage of using RPM or RTM over standard of care or standard monitoring care done without remote monitoring technology for any given patient? Dr. Blood, please respond. So we will go back to Dr. Blood later. Let's go to Dr. Carlos Nunez. Dr. Nunez?

Dr. Carlos Nunez

Thank you. Yeah, I was waiting for it to unmute. So very quickly, so my name is Carlos Nunez. I am an anesthesiologist and intensivist by training. And currently work as the chief medical officer for one of the largest suppliers of a respiratory and digital health solutions in the world, especially in the United States. Going to give a couple of very, very quick examples, one for RPM. So there are a billion people in the world with obstructive sleep apnea, but more than 80% are undiagnosed and untreated. And it is a difficult condition to keep people adherent. If I just give you a CPAP machine, there's a 50/50 chance you're going to use it. But the published literature shows that if you give a person a connected CPAP machine and their physician or their provider can monitor their care, the chance of them adhering to therapy jumps from about 50% to 73%. And if that patient downloads an app, the patient is allowed to then also self-monitor their care in conjunction with their provider, adherence to therapy jumps to 86%, an enviable rate. Most of us who practice in the United States know that medication adherence is about 55%. So to be able to use a connected device and an app to take someone's adherence to a lifesaving therapy that prevents multiple chronic conditions in the future from 50% to 86% is an amazing testament to the fact that digital health and remote physiologic monitoring works.

Another solution, we provide sensors for patients with asthma and COPD to monitor the use of their inhalers. These are remote therapeutic monitoring code technologies. And what we've shown is that the use of rescue inhalers when you are able to monitor-- the providers and patients are able to monitor the use of rescue inhalers and the things that trigger you to have exacerbations will decrease the number of exacerbations and decrease the number of things like ER visits and overall cost to the system. Sorry, I forgot to mention I am a subject matter expert in connected medical devices. I have published extensively in the literature for more than two decades on the use of data, connected care, and patient engagement to improve clinical care and decrease the cost to the system. So both RPM and RTM codes are extremely important because it enables this type of care so that patients can do better, adhere to therapy, and end up in the hospital, in the ER less, and save money for the system. Sorry, I went really quick, but I'm trying to get in a lot of points and give others time.

Dr. Juan Schaening

Thank you. That was really appreciated. Let's give an opportunity to Dr. Blood.

Dr. Alexander Blood

Thank you very much. My name is Alexander Blood. I'm a cardiologist and intensivist at Brigham and Women's Hospital in Boston. I also run some of our remote health efforts and recently published a trial on about 10,000 patients where we remotely managed hypertension and well as hyperlipidemia. In addition, our group has worked extensively in heart failure. What really we know across all these conditions is providing the ability to measure and monitor these patients at home not only gives a better diagnosis and understanding of their disease state and control but also can lead to improved disease state management and reduce long-term incident cardiovascular disease as well as decompensations for things like heart failure as well as increased incidents of things such as heart attacks and strokes. So really providing these resources to our patients and allowing providers deeper and more physiologically important insight into their patient's control of medical conditions while at home allows us to invest in their health and actually decrease the incidents of downstream disease. So really think these types of monitoring markedly above what's done at a clinical routine baseline and annual or semi-annual visits and point measurements of blood pressure or assessments of heart failure really for these patients, especially those an increase cardiovascular risk, does not do them the service I believe they deserve. Thank you very much.

Dr. Juan Schaening

Thank you. And Dr. Rahim.

Dr. Arshad Rahim

Oh, yes. Thank you. So Arshad Rahim. I'm an internist in New York City area. Just wanted to speak to advantage of RPM over standard care. I think that this is kind of a unique innovation, a unique opportunity we have and a very cost-effective way to provide a higher intensity of care and really manage patients upstream. I think as many of us have discussed, the progression of chronic disease leads to incredible debility in healthcare costs. The fact that we can, in a proactive manner as opposed to a reactive manner, be able to titrate medications out of the office setting and get patients under control sooner than simply waiting for the next time we're able to engage them in a brick-and-mortar setting is a total game changer, frankly. And I think that, as many have mentioned, there is some strong data supporting. And the data will get even stronger as many of us learn how to be even better operators and users of the technology as most technologies have an implementation learning curve as well.

Also for us - I'm at Mount Sinai health system - I will say just very frankly, this has made a major impact in us caring for black and brown populations. So in terms of improving equity and access, we have many patients that don't have Wi-Fi or much technology in their home to be able to leverage using our devices that also come with the data hub and a Bluetooth connection. We're able to actually engage them in healthcare value in the digital world. And obviously, we know about substantial healthcare disparities. And I know Medicare is taking some very specific steps to address that. And I think RPM is one of those that's right at the center. Just probably the last point that I'll mention is that simply gathering enough data to better manage chronic conditions is a challenge. And the fact that we have many patients that can't be compliant with home readings, we have white coat hypertension, we just don't have enough data to really make informed decisions. And RPM gives us the data to react and have more confidence in diagnosis and treatment. Thank you.

Dr. Juan Schaening

Thank you. Dr. Damani, please go ahead and answer.

Dr. Samir Damani

Hi, can you hear me okay?

Dr. Juan Schaening

Perfectly.

Dr. Samir Damani

Yes, so the reality is-- and I guess we're answering two through seven here, correct?

Dr. Juan Schaening

We were answering number two. I was planning to go over each one, but go ahead and answer.

Dr. Samir Damani

Yeah, so the advantage of RPM is that, and I think you've heard this through a number of the other panelists, but you're actually now going from episodic care where you're literally treating exacerbations to actually being able to connect with patients before their disease gets severe. So I'm a cardiologist and practice in multiple settings, inpatient, outpatient, and in various specialties As well as an internist. And what we found is that what you end up doing is you end up doing a lot of sick care, especially for those patients where the data has been pretty clear in the literature around diabetes and heart failure admissions in particular. Also COPD exacerbations. Being able to identify those patients early has been really crucial. So I think RPM is very helpful in monitoring weight for heart failure patients particular because, as you know, any increase in weight in a heart failure patient could indicate an exacerbation. And being able to identify an unusual weight gain could allow for initiation of therapy such as diuretics earlier. We've seen a lot of benefit from that. Similar with COPD patients who are on the early part of an exacerbation. Diabetics as well. There's some data on diabetic foot ulcers where we've seen that. And then RTM is actually quite effective as well, in that you're able to actually do medication adherence, which is crucial for the kinds of conditions that are top of in terms of costs related to hospital readmissions, such as CHF.

One of the other things that I did want to just quickly mention also, because I know-- I'm not sure. I know we have a lot of panelists, but the cost of devices has come up in various conversations, in terms of how much the reimbursement is for that. And one of the things I wanted to make sure that-- whether it's RPM or RTM, the reality is that these devices have to be connected by cellular. There has to be an integration to the practice EHR in many instances. Shipping logistics are there as well. And so all these, the costs related to the actual integration of the device within workflows, as well as shipping and other things, as well as actually just support down the road is also crucial. So I know we talk about the general concept of RPM as well, but I think the ability to support the technology that's required for RPM, RTM is quite important as well, too.

Dr. Juan Schaening

Thank you. Dr. Ostrovsky, please respond.

Dr. Andrey Ostrovsky

Hey, folks. Can you hear me okay?

Dr. Juan Schaening

Yes.

Dr. Andrey Ostrovsky

Awesome. Great. Thanks for the chance to participate. I'm a pediatrician at an FQHC here in Washington, DC. I'm also the former chief medical officer of the national Medicaid program. We've dealt with coverage and reimbursement decisions, I think very similar to the ones that you all at MAC deal with. I had to deal with Zika in Flint, Michigan and value-based payment for hep C treatment. So I appreciate what you all are doing, and I appreciate you all taking all of our feedback. Also, thank you for including our paper in the bibliography here, the paper Nature, highlighting the impact of remote monitoring on health equity. I want to echo Dr. Mont's point. There is meaningful evidence that demonstrates the digital health innovations, especially RPM and RTM, improving patient care, reducing hospitalizations, minimizing complications, improving patient engagement, augmenting the caregiver experience, especially in light of all the workforce shortages. So in addition, Dr. Mont, I will happily also forward along those references.

And to this fundamental question of what's the advantage of RPM or RTM, I'll give you a specific example in FQ that I work at. Vast majority of my families, English is a second language. They are meaningfully impacted by poverty. I have so many kids that deal with asthma, their entire families deal with asthma. And I've prescribed Propeller before so that I can help these families and help myself in understanding their utilization patterns. These families have a hard time accessing food. Fighting landlords for remediating cockroach infestations. There's medical literacy issues around what red flags to follow. I recently had a mom who didn't understand that Tylenol can be obtained over the counter. And having a technology that can help me understand is this kiddo compliant or noncompliant is incredibly important. Now, here's the rub, the kiddo's care is reimbursed by Medicaid. Fortunately, we have Medicaid. But because of the constraints and, frankly, slowness for reimbursement at the Medicare level, commercial and Medicaid-- and I know it's not your purview around commercial Medicaid, but I need you all to know. Commercial Medicaid cues off of Medicare. And if we have any kind of perturbation, any impediment to RPM or RTM, then Medicaid will follow suit, and we limit coverage to these families that have incredibly limited access already. And then providers like me that just-- I can't be physically in the home all the time, we lose these very powerful tools.

And for what it's worth, on the Medicare side, at least 50% of Medicare patients are under 400% of the federal poverty level. So all these SDOH issues are very relevant to them. So what I think is really important here is these modalities are tools in our armamentarium. We need them. RPM and RTM cannot be taken away. They cannot be combined either. They're fundamentally different codes for different services. And look, we can always do more research. And there's a ton of research in the hopper. These codes have only been around for so long. So code-specific health services research is underway. But in the interim, echoing the White House, echoing the CMS administrator, echoing CMS, with the focus on health equity, we cannot err on the side of limiting coverage and reimbursement while even more robust reproducible evidence is being put out there. So hopefully, you all listen and, frankly, do nothing about RPM or RTM.

And one final point. I will echo that it speaks to the advantage of not just RPM and RTM but digital modalities. As CMS came out with this HCPCS code for digital therapeutics-- I'm sure folks are familiar with A9291. And supposed to be this catch-all bucket. And I want to make sure that on the RTM side we don't reproduce-- and I commend CMS for doing that, but we can't just say RTM is applicable to all of the things. Let AMA do its thing by creating new codes, evolving the codes for RTM, getting more specific beyond just musculoskeletal, beyond just pulmonary, beyond just CBT. But let them do that, right? They know what they're doing on that side. And they'll figure it out. I think it's great that you all are listening. Please over-index on health equity and access. And thank you for allowing me to comment.

Dr. Juan Schaening

Thank you. Appreciate it. Dr. Kesselman, please go ahead and speak.

Dr. Paul Kesselman

Can you hear me?

Dr. Juan Schaening

Yes.

Dr. Paul Kesselman

Okay. Thank you for having us. I know I've corresponded with many of you [inaudible] medical directors in the past. I am a retired podiatrist, having 35 to 40 years of clinic expertise at Mount Sinai systems as well, seeing a lot of inner city patients with diabetic foot disease. And I can tell you the literature that you provided to us for review, plus the literature that we've submitted to you, is clearly showing that RPM has an advantage over the standard care. I'm not going to repeat any of the materials that Dr. Friedman and some of the other speakers have already mentioned. I just want to reinforce the fact that patient engagements with RPM has shown, even from the most primitive devices to the more sophisticated, ubiquitous devices, that podiatrists can provide to their patients such as socks, mats, or inserts, that will flag the patient if they have a greater than two degrees centigrade difference between the feet or normal to show that the patient's got a potential hot spot. It's clear that the literature and our clinical experience for thousands of patients, where I helped build some of these platforms, which are compliant with the AMA CPT codes, show that there is a significant advantage for early intervention, eliminating amputations and surgery and surgical dressings and wound vacs and hyperbarics and all the other stuff that goes into treating these very complicated patients who have a myriad of comorbidities. So I think RPM, like other digital health CPT codes, is got to be here to stay. It's not just another set of CPT codes that providers are going to be billing and adding to the burden of the Medicare system. It's got to be, and it has shown-- again, from the primitive devices back 15, 20 years ago to the ones we're using today, shows a significant change in the experiences of the podiatrist that I had spoken with, with terms of incidences of foot ulcerations, as well as a significant [demonition?] in the expenses that the Medicare system has to burden. So again, I didn't want to repeat any of the things that others have already said. And we will be submitting some additional comments. We being APA and myself. Thank you for your time.

Dr. Juan Schaening

Thank you. That's greatly appreciated. I really appreciate not repeating the comments of other. You can expand or defer. But for times constraint, let's move now to question number three. Okay? What is the goal of remote therapeutic monitoring? And how is it different from remote physiologic monitoring? And if you don't mind, Dr. Chuo, John Chuo, could you answer?

Dr. John Chuo

Yes. Thank you very much. Thanks for the opportunity. I'm sorry. [inaudible] at the Children's Hospital of Philadelphia. Sorry about the echo. Okay. And I know that the question is mainly focused on Medicare patients, so I really appreciate the invitation to speak briefly on pediatric patients. Most of the points made from the previous experts also applies to the pediatric population. There is data supporting that many conditions have daunting chronic disease implications in adulthood, so the provision of high-quality loss, cost-effective care to pediatric patients benefit adult population health in significant ways. In my case, approximately one-third of these children are graduates from the neonatal intensive care unit with chronic medical conditions. So RPM and RTM allows us to help caregivers take care of medically complex babies immediately after hospital discharge by allowing us to monitor patients effectively when we do not actually need to physically touch the babies. We can provide continued support for families in underserved areas in the care of medically complex technology-dependent infants, detect unexpected progression of disease, and address family-patient self-care gaps early so that they can have higher sense of self-efficacy. With these codes, it also allows us to continue to collect the needed data so that we can begin to identify what specific cases are best done with RPM and RTM. So the goals of the remote therapeutic monitoring in our cases is quite useful because it allows us to extract non-physiological data, such as weight gain, as well as adherence to therapy for our families that are taking care of these infants. Thank you.

Dr. Juan Schaening

Thank you, Doctor. So Dr. Bell, could you address number three, please?

Dr. Alice Bell

Thank you. And I appreciate the opportunity to speak. In terms of the goal of remote therapeutic monitoring, as used by physical therapists, it is distinctly different than remote physiologic monitoring. As was stated earlier, PTs do not use RPM, are not able to. But when we look at the use of remote therapeutic monitoring, we're really assessing a patient's ability to execute on a prescribed self-management or home exercise plan. And given that in the vast majority of physical therapy episodes of care the ability of a patient to engage in prescribed exercises or activities is outside of the therapy visit is a critical component of the plan of care. Right now, the standard of care is that therapists rely on patient and/or caregiver report and feedback to determine adherence with and successful performance of the program. And we reassess patients when we see them. And at times we may see that the expected results are not realized. And it's difficult to determine if that is based on problems with the program itself or with the adherence to the program as prescribed. There's been a lot of discussion around adherence here. And adherence as it relates to home exercise programs and physical activity programs is a significant predictor of reaching the optimal function results from physical therapy.

Additionally, several days may pass before a therapist sees a patient and identifies issues with the way in which the program is being implemented. So the real advantage of remote therapeutic monitoring over the standard of care is that the therapist can gather real-time objective and subjective data to determine if the patient is performing a program in the way it was prescribed and at the duration and intensity of the prescription and to intervene quickly if more education and instruction or support is needed or if the program needs to be modified. Having patients actively engaged in their rehabilitative process is critical. And remote therapeutic monitoring provides us with a tool that we have not had in the past to really engage our patients and create a true partnership in the therapeutic process. And we believe, as has been stated before, although we're continuing to gather the data on actual remote therapeutic monitoring, there's no question about the extensive data that exists on the importance of adherence to home exercise programs and the challenges associated with that level of adherence and the fact that having continuous connection between the provider and a patient and continuous opportunities to provide patients feedback on their performance and for the therapist to receive data on their ability to engage is a significant game changer in achieving function outcomes. Thank you.

Dr. Juan Schaening

Thank you. Dr. Bolander, please address number three.

Dr. Richard Bolander

Yes. Hello. My name is Richard Bolander. I am the head of-- no, I'm sorry, the vice president of research and development at TracPatch Health. And primarily, I develop wearable technologies for measuring the recovery post-total knee arthroplasty, as well as ACL reconstruction. So specifically, I look at this problem in multiple ways. A, I make the devices; B, I'm also a published researcher in the area of these biomechanical aspects, as well as a data scientist. And I'd like to point out that when we look at the advantages to a patient, there's the-- within what we would call an episode of care. So we're looking at an individual patient and the type of value that we can have from that constant monitoring. Where in our case we're looking at leg positions, step count, activity, temperature within every minute of a day. So not only do we look at exercise compliance, but we also look at total daily behavior for patients that may not be as empowered to manage their own recovery.

What I'd also like to point out is that with this data that we have, we're also able to analyze systems. So we go beyond the episode of care itself and start looking at, in aggregate, what does the recovery profiles look like? And what do adverse events look like for patients? So before we'd be looking at, for example, two-week, four-week, six-week follow-ups as opposed to daily. Now I can create new metrics that allow me to compare patients against age, BMI, other types of norms to identify what do we expect for you and what falls on the outside. So it provides another way to also create tools for physicians to triage, but also set better expectations for patients. And the last point I want to say is that being a technology developer, one of the things that we've identified is that with the RTM and RPM codes we're able to create more incentives for physicians that may be kind of more on the fence about using technology or scared about it. But by having this opportunity here, it can offset the cost of devices, which we've been hit pretty hard with due to supply chain issues over the last couple of years. But also, by driving this technological adoption, then it gets us to get to these data sets faster so that we can recommend these new improved outcomes through, once again, advanced protocols or better technology to lead to better outcomes overall. So that's what I'd like to comment on. Thank you.

Dr. Juan Schaening

Thank you. Appreciate your comments. Let's move to question number four now. How has the use of RPM, RTM altered your plan of care for your Medicare patients? So Dr. Fields, could you address that question, please?

Dr. Robert Fields

Sure. Thank you. My name is Rob Fields. I'm a primary care physician and most recently the chief population health officer at Mount Sinai. We have several thousand patients enrolled in RPM and are evaluating RTM as well for several conditions. We use RPM primarily for hypertension, and heart failure and are evaluating COPD and diabetes and other conditions as well. So for Medicare specifically, some of this has been discussed and it's not really radically different than Medicare patients, but there are really fundamentally different or strong impacts compared to the standard of care. One is we have evolved care from an intermittent management process where it depends on essentially a face-to-face visit with a physician to control-- let's take hypertension, for instance. Where you write a prescription, do a diagnostic, and hope on a prayer that the patient will adhere to the medication, check their vital signs at home, and then follow up in the weeks to months later to titrate the medication again when we know that a quarter of the patients or three-quarters of the patients don't take their medications as prescribed. We've evolved from that to an RPM model where we were able to monitor patients in real time and have clinical pharmacists that can evaluate the information coming in, can then titrate medications up or down as necessary, prescribe and add medications all in a continuous way in between visits. So when the patient is followed up or follows up with the physician again, their time to management is really decreased rather dramatically.

The physicians also love it as-- workforce issues were mentioned previously. From Medicare patients who are generally fairly complex medically, the physicians have responded very positively to having the pharmacist support and having that additional management expertise and polypharmacy evaluation and management done by the pharmacist in between visits. So it's radically changed our management of Medicare patients. It's also increased engagement in other ways. There's a halo effect on this in terms of medication reconciliation and other errors that are common in standard practice that we've been able to alter and impact positively based on the ongoing engagement. Beyond the technology itself, but the technology facilitates this ongoing engagement process, which has proven to be beneficial. Our initial work in this area has some pre-published data that has shown very positive effects on readmissions. Won't comment on that further here since it's not published yet. But we have seen radical improvements in the Medicare patients across the board. Lastly, just very quickly, Dr. Rahim mentioned the equity perspective here. We have been able to disproportionately positively impact, in particular in hypertension where our data is most robust, care for our Latinx and African-American patients who are disproportionately affected from uncontrolled chronic conditions. So we feel from an equity perspective, in the Medicare space in particular, that has had a positive impact there as well. Thanks for the time.

Dr. Juan Schaening

Appreciate it. Thank you. Dr. Frost, could you address question number four, please?

Dr. Christopher Frost

Yes. Hi, this is Chris Frost. I'm the national medical director for LifePoint Health. We have roughly 60 markets across 29 states. My clinical specialty is med-peds, hospital medicine specifically. We're utilizing RPM for three clinical programs: CHF, hypertension, type two diabetes. It's in over 12% of our markets. We have 80 physicians utilizing the technology, and we're serving over 2,000 patients right now. I'm going to be bold and speak to some of the-- jump to question five, if you'll allow me. I just want to state some of the outcomes we're tracking. We're in a similar setting. We're not published yet, but we're tracking improvements in guideline-directed medical therapy, blood pressure control, median blood glucose reduction, as well as heart failure readmission and seen significant improvements across all of those. I will qualify the readmission data for CHF is a favorable trend with all the aforementioned substantive improvements. But also, in addition to the clinical outcomes, we're also seeing some operational and cost of care outcomes. Substantive reduction in the number of patients utilizing ED resources, as well as in our ACO markets that-- we have it beyond ACO markets, but in our ACO markets, a substantive decrease in the overall cost of care.

Another thing. A little bit more difficult to quantify, but it ties to the, excuse the vernacular, stickiness of care. We're seeing a significant increase in the continuity of care that RPM has allowed. And we're tracking that through a variety of measures to include an increase in our LifePoint network retention amongst patients in enrollment. And I think a question that was alluded to before is the advantages that the patients see. And I've heard several speakers allude to this, but we've seen this as a significant improvement in our overall patient engagement. Of course, it improves access for both our clinicians and our patients in a bidirectional fashion, but we've looked for engagement metrics. And our solution invites, encourages patients to interact through entering clinical data. As you can imagine, the glucometer readings, vital signs recordings, blood pressure recordings, etc. etc. And we're seeing an over 80% of data submission of our patients consistently month over month using the 16-plus days of recorded information that's part of the process. So I'm sorry I broke from script, but thank you. I didn't think I'd make it into the queue until question number five. Apologies and thank you.

Dr. Juan Schaening

Appreciate it. Dr. Gruner, please respond to question number four.

Dr. Marc Gruner

Hi. I was actually gonna respond to question number five, if that's okay. But I really do appreciate you guys having me as an SME. So first of all—

Dr. Juan Schaening

Go ahead. Answer question number five, then.

Dr. Marc Gruner

Oh, okay. Thank you. So I'm a practicing sports medicine physician. Chief medical officer of Limber Health. I also am representing the [inaudible] Medical Society. I helped participate in the CPT process of creating the RTM codes and also helped to write the CPT assistant. And I've participated in research at Mayo Clinic where we studied RTM, digital technology, different digital technologies and the evidence of them for rehab. And I think the important thing to take into consideration here is that RTM is part of a glide path towards innovative value-based care models. And the outcome measures that are being measured here are specifically pain and function outcome measures, which have a quantitative score, which are part of MIPS emissions and really are part of a really important part of the process for innovative alternative payment models. And the combination of early and adherent therapy has a really impressive ability to lower downstream healthcare costs, specifically unnecessary imaging, unnecessary surgery, unnecessary opioid use. And the key is that the therapy's done early and the therapy's done adherent. And that's where RTM can really provide an impact. And that's by collecting various different types of data: step counts, kinematic measurements via motion capture, and also these clinically validated outcome measures. So I've seen it be very successful for different practices around the United States. And a lot of groups have been able to see improvements in pain and improvements in function, which can be measured longitudinally. So I appreciate you giving me an opportunity to speak.

Dr. Juan Schaening

You are welcome. I'm going to read now question number five. What outcome measures are you using to demonstrate improved patient outcomes with RPM or RTM over the standard of care? So Dr. Ellimoottil, could you address that question please?

Dr. Chandy (Chad) Ellimoottil

Yeah, definitely. And I really appreciate the opportunity to be part of this conversation here. So I'm Chad Ellimoottil. I'm the medical director of virtual care for the University of Michigan. In this role I work with clinicians hand in hand, boots on the ground, building RPM and RTM programs. And we have a couple RTM sort of candidate programs, but our most robust program, which I can certainly speak to and certainly speak about the outcomes that we've seen, is called Patient Monitoring at Home. And Patient Monitoring at Home is essentially a post-acute care monitoring program we launched in April 2020 to minimize hospitalizations and length of stay. And initially, we were enrolling post-COVID or COVID patients, but since then obviously we've expanded to include other patients that are high risk for hospitalization. So including CHF, liver disease, post-sepsis, COPD, and multiple other conditions. And it's kind of difficult to specifically pick diagnoses when we're identifying these patients because these patients have multiple comorbidities that make them excellent candidates for this type of monitoring. And so we enrolled about 1,600 patients in the program up until the last evaluation, which we did January of 2023. And really have seen a substantial reduction in hospitalizations and emergency room visits. I actually personally do these evaluations. I do a lot of our program evaluations. I have a background in research. We essentially looked at these patients six months prior to joining the program. And six months after, we saw a drop in hospitalizations specifically for the overall population. An average of 1.6 hospitalizations in six months before the program down to 0.8 hospitalizations six months after joining the program. So big improvement in patient quality of life and also these important critical outcomes.

And in the 30 seconds or so I have leftover, I do want to kind of address some of the other questions that we see up here. The primary advantage of using RPM and RTM-- I think that there's kind of three big points here. Number one is that the list we all reviewed here wasn't just a single one or two clinical studies. These were meta-analyses, systematic reviews of systematic reviews. So really thousands of studies that have supported this. And even in some of the studies that seem mixed, where there's no statistical difference in a particular outcome like hospitalizations, we do have to recognize that even if there's no difference between standard of care and RPM, that it's still reducing clinic visits, it's still reducing other resource utilization, and it's allowing patients to have self-management at home. And that's really the heart of RPM and RTM, is empowering patients for self-management. And it's true population management. So taking Medicare patients out of the clinic, out of ERs, out of urgent care, and empowering them to be able to manage on their own. That's cutting across both RPM and RTM. So thanks so much for the opportunity to be part of this.

Dr. Juan Schaening

Thank you. Dr. Hasselfeld, please address question number five.

Dr. Brian Hasselfeld

Great. Thank you so much. Appreciate the opportunity to be here. I'm an internist and pediatrician, dual boarded. And seeing primary care patients in Baltimore City, but responsible for digital health and telemedicine across Johns Hopkins Medicine. All 4 of our states and 6 affiliated hospitals and 40-plus practices. I think each of these questions, including question five, is framed as a comparison over standard of care. I think I'll make the first point that one of our major areas of measurement in both our RPM and upcoming RTM programs are on equity of access. There is no one on this call who could testify that standard of care is equally accessible to all of our patient populations. We published in the New England Journal around the differential access points in telemedicine and audio-only care, and this is in line with similar findings. It is hard to get to the standard of care, it is expensive to get to the standard of care, and it's not meeting our goals. We have the most expensive healthcare system in the world. And we're debating here whether or not we should be measuring something against that standard. I agree with Dr. Gruner. These codes represent a glide path. They represent a glide path to encouraging innovative intervention in measuring both physiological and therapeutic treatment plans. We're focused on readmissions. We're focused on ED and urgent care utilizations. We're also focused on additional next 90-day E&M utilization, to the point made by the previous speaker. Reimbursement for RPM and RTM are fractions of a single E&M visit, and we're focused on whether or not we should invest in that glide path towards a greater expansion and innovative care model is more equally accessible to many. I think that we should all support focusing on these measures, but recognizing that the comparison to standard of care is a difficult one. We look forward to continuing this conversation and supporting these discussions. And if not, I think the point made by Dr. Ostrovsky is important, that if we don't take the lead here at the Medicare level, we risk seeing the opportunities in this space be pushed out to self-pay, high-resource patients, direct-to-consumer contracting for only those with high resource. Thank you very much for the opportunity.

Dr. Juan Schaening

Thank you. Let's move now to question number six. Do you use a third-party vendor to assist the use of RPM or RTM code requirements? Dr. Setty, could you address that question, please?

Dr. Amar Setty

Yes, I can. Hi. Yeah, thanks for the opportunity to add to the discussion about RPM and RTM. I'm speaking both as a practicing physician and a developer of Pain Scored. And so in practice, I can tell you we use RTM with this third-party vendor to help monitor medication adherence, morphine milligram equivalent dosing with powerful medications like opioids or benzodiazepine. So specifically treatment specific to pain, functional status, response to therapy, typically about six months to a year or so, where it informs recommendations along treatment care pathways. And we found that it particularly has benefits in these populations, particularly the elderly and disabled due to limited mobility and transportation. I'd say parenthetically, we are in the early phases as a nation of rigorous study of RPM and RTM. And there are improvements. We've also found that COVID delayed some of the published studies. And definitely think there's more time needed for a lot of peer reviewed knowledge to emerge, which I'll throw in parenthetically. But hopefully, that explained how we try to use these third parties to really bring together the codes necessary, compile it into a usable format, and make it easy both to maintain compliance within care pathways, compliance within billing and CMS guidelines, but also to provide adequate documentation necessary. I think that's where, as developers, we really have the benefits with integrated solutions that allow everything to fit together and leverage clinical knowledge, but realize that clinicians alone can't do it all. I'll yield my time now.

Dr. Juan Schaening

Thank you. Appreciate it. Dr. Cunningham, could you address question number six, please?

Dr. Eve Cunningham

Hi. Yeah. This is Eve Cunningham. I am the chief of virtual care and digital health at Providence, which is a 52-hospital, 7-state nonprofit Catholic health system based on the West Coast. And I'm an OBGYN physician by training. Still practicing as well. So with respect to RPM and RTM, we do have other third-party vendors that we work with. I think most people on this call would agree that health systems typically don't build and develop their own software. Some do, but most of us don't have the resources or choose not to do that because that's not really where our area of expertise is. So we depend on really good partnerships with vendors or other innovators out in the technology space to help us build solutions and create solutions together. And that's what we've done with RPM at Providence. we have an excellent partner that we've been working with to stand up an RPM program that we currently have over 500 patients enrolled in for hypertension and CHF. I spoke to some of the outcomes that we're seeing in the chat that I put in here, but it's been extremely successful. We see this as a highly strategic and important program that we want to continue to grow and scale. We agree with many of the speakers that were on this call. The 20-minute clinic visit is not the way that we're going to forge our path forward when it comes to being able to manage chronic diseases at scale, especially given the access challenges that we have, the health equity challenges that we have, the tech-quity challenges we have for patients. We have to be able to reach them in other places, reach them in their homes. And it's so much more complex to manage these conditions today. The number of diabetes medications, hypertension medications, heart failure medications, the rapid pace at which the guidelines are changing, it's just not sustainable for clinicians to be able to manage all of that in the context of a 20-minute visit when they also have a patient in front of them with four other chronic diseases that they're dealing with at the same time. So we need this type of care model to be able to move forward. And we also need partnership with technology experts and other types of vendors in the ecosystem to help us be able to deliver the care successfully.

Dr. Juan Schaening

Thank you. Let's give Dr. Frazier an opportunity to answer question number six. Please, Dr. Frazier, go ahead and answer.

[silence]

Apparently, Dr. Frazier is having problems with the mute button. We're going to move to Dr. Frank. Dr. Frank, could you address question number six, please?

Dr. Richard Frank

Oh, yes. Thank you. My comments have already been made. And so rather than replicate those, I've just dropped a couple of links in the chat for people to follow for another example of a third-party vendor. But I'm grateful for the opportunity to speak. I have just retired as chief medical officer of Siemens Healthineers. And I'm a voting member of the CPT editorial panel. But I'm not speaking on their behalf tonight. We have Dr. Hollmann as one of the panelists who can speak specifically with regard to CPT and so on. But I'm speaking as a fellow of the Connected Health Initiative. But I'd just like to point out that it's really only been for a couple of few years that the first RPM codes were accepted, covered, and paid. And even then, there were many more things have to happen. Clarification allowing incident to general supervision. And over the next couple of years, clarifications RPM could be used for acute and chronic conditions. And interactive communication was defined and so on and so on. And so the standardization of clinical use, which is inherent in CPT coding and guidelines, and the CMS rules for payment contribute significantly to the consistency and the validity of clinical evidence derived from these patients. And all this is to say that the clinical evidence for patient benefit was sufficient to meet CPT's longstanding requirements for the establishment of codes and adoption into clinical practice to enhance workforce productivity and expand access to care. But the widespread adoption and data generation on specific clinical applications for remote patient monitoring won't really mature for another couple of years. Much of the work to date had been catalyzed by COVID, the public health emergency, and did not focus on the Medicare population, despite the fact that Medicare fee-for-service beneficiaries utilize RPM services two to three times more than commercial patients. Medicare fee-for-service utilization is much higher, even though both the commercial and the Medicare data sets represent approximately 50 million beneficiaries. And the difference in utilization rate can be attributed to the fact that Medicare fee-for-service patients tend to be older and live with more chronic conditions, so they have a higher need for these services.

And just in closing, I'd like o to point out that currently, in ClinicalTrials.gov, there are more than 100 clinical trials in the US comparing remote patient monitoring or remote therapeutic monitoring to standard of care for outcomes as per your criteria. I've reviewed each of these trial designs, and it's-- 100 of them actually address the criteria that you've put in your questions for tonight. And furthermore, PCORI have established a granting mechanism for such studies. One example being comparing ways to monitor patients with multiple chronic conditions after they return home from the hospital for an infection. It's called the Accomplished Study. And so I just want to make the point that these studies won't be completed for another couple of years or so. And then there's a timeline for analyzing and publishing the data. And so the data that you're looking for, I think, won't really mature for another couple of few years. Thank you for the opportunity to contribute.

Dr. Juan Schaening

Thank you for your contribution. Dr. Frazier, please answer number six.

Dr. William Frazier

Yeah. This is Will Frazier. I hope I'm on, guys. I'm actually circling back to number five, which was my question to answer. I'm the chief medical officer of a respiratory management disease company. Very technology enabled. I'm also the chief medical officer of an RPM vendor company. I am a pulmonologist and intensivist by training. What outcome measures are we using? We took our first [inaudible] 102 consecutive hypertension patients enrolled in an RPM CMS-compliant program and we found that over half of those patients, who were originally hypertensive, with an average MAP of 107, after six months of RPM we lowered the average MAP in that hypertension group to 96. And interestingly, we found out, of course, there was no change in the people who were originally normal [inaudible]. And that's the kind of data we need to generate, data that actually addresses RPM and the way it's currently defined and paid for by CMS. We're continuing that data collection service.

What we're doing now is some Medicare claims date, RIF, R-I-F, Research Identifiable File studies. I've got a lot of experience doing that now in the basic home ventilation space. And we're going to look at hospitalizations, emergency rooms mortality, and cost of care in that population constructing of wonderful control groups using IPTW. What we need is time. What we need is time to continue this research, keep looking into this so that we can generate this data. We all think this worked out. I think it works. Let's prove it works. And we can, but we've got to have time to do that. And look, I read the 57 studies. And they're fine. Some worked, some didn't. That wasn't really the point. The point is the data wasn't generated by RPM CMS-compliant programs. That was great data. Just like the previous commenter said, that helped set the stage. But now we've got to bring the show home. What we've got to do is generate data now, since the codes have been introduced. And we're going to do that. All we've got to have is a bit of time. So let's keep these programs going.

Dr. Juan Schaening

Thank you. I appreciate your response. Dr. Sprintz, let's go first to question number seven for time concerns. I'm going to read question number seven. Do you use RPM or RTM in conjunction with any of the chronic care management CPT codes? If so, when and how would you use them in tandem? Dr. Sprintz, could you address that question?

Dr. Michael Sprintz

Sure. This is Michael Sprintz. And again, I run Sprintz Center for Pain [inaudible] just north of Houston, Texas, which is an integrated chronic pain and addiction private practice clinic. And so we do use RPM and RTM in conjunction with chronic care management codes, but we're also very careful not to overlap anything. And I think that that's really one of the most significant things, is being sure that we're in compliant of not-- whatever time that we're using on one, we don't integrate with another. But I think that there is value in-- I think there's overall when we think about long-term outcomes. And it was mentioned earlier about the importance of the data. And what we're finding, or what I believe, is that this is showing-- the RTM that we use is for medication adherence management. And the value is as we can start to apply data, this is some of the first time these devices are now giving us information on patient behavior that we have never been able to actually track or understand. And as more data comes in and we're able to understand and correlate how that data impacts outcomes and gives us the ability then to predict events that can actually decrease hospitalizations and decrease utilization by actually getting our patients access to care sooner is really, really significant. And I agree with the other SMEs who have been in support of continuing to do this because there's going to be much more data. And as we start to correlate and integrate all the different data points, pictures and patterns are going to emerge that are going to be really useful in terms of patient care now and in the future. Thank you.

Dr. Juan Schaening

Thank you. I'm going to move to Dr. Hollmann. He has not responded to questions. So could you answer question number seven, Dr. Hollmann?

Dr. Peter Hollmann

Yes. Thank you very much for giving me the opportunity to talk. I am a member of the American Medical Association Digital Medicine Payment Advisory Group and past chair of the CPT editorial panel and current vice chair of the RUC. The Category I code was created by CPT because the service was widely performed, it had met the literature requirements to be a Category I code. And in our structure of the codes, we try to address ways that people could be paid for the work that they do or the practice expenses that they incur. We do that by having a structure that allowed for set up and education of the patient, the use of the device for a period of time, 30 days, and then also the management, sort of the treatment decision-making that would be based upon it. And that structure's similar for RPM and RTM. RPM was rather generic. RTM is a little bit more specific in terms of the areas that the devices are covered. They cannot be reported together and as other people mentioned that no time in the use of RPM management or RTM management can be included in a chronic care management, principle care management, complex chronic care management codes as well. RPM and RTM actually cannot be reported together on the same patient by the same practice, the same provider group, physician group in the same month.

And there's also some very specific requirements for reporting chronic care management codes and principle care management codes. First of all, they're considered in the E&M family, so they can only be reported by those professional classes, that licensure classes, that are allowed to report services such as office visits. Patients with chronic care management can only be reported by practices that have certain advanced characteristics. Usually, they're advanced primary care practices and you have to have a comprehensive care plan for the patient, two or more chronic conditions that could lead to serious dysfunction. Principle care managements require an even more ill patient and really require frequent changes. So while this may apply to some patients that are receiving remote physiologic monitoring or perhaps remote therapeutic monitoring, it certainly doesn't apply to them all. So I think the-- what has been said is that these services are highly valued. There are clear coding guidelines on them. And there is not really overlap of services, work and practice expense, and that there are times where it's appropriate to report the remote physiologic monitoring or the remote therapeutic monitoring codes with chronic care management codes. And a lot of the overlap has been accounted for in very clear guidelines. Also, restrictions on not reporting these services when, in fact, you're doing another service that's a very specific type of remote physiologic monitoring, such as electric cardiographic monitoring or apnea monitoring and those types of things. So thank you very much. We'll look forward also to being able to answer some of your questions in writing and potentially looking over the chat and see if there's any coding questions or coding clarification that can be provided by the AMA. We very much look forward in working together with the carrier advisory committee. Thank you very much.

Dr. Juan Schaening

Thank you. Appreciate your response. Dr. Shreibati, please, could you address question number seven?

Dr. Jacqueline Shreibati

I would prefer to just make a comment in general if that's okay—

Dr. Juan Schaening

That is okay.

Dr. Jacqueline Shreibati

--at this point. So thanks for letting me comment as an SME. Yeah, my name is Jacqueline Shreibati. I am a general cardiologist who practices at an FQHC near Stanford, California. I was previously chief medical Officer at a startup called AliveCor, where I helped set up RPM use of a single and multi-lead spot ECG for patients with palpitations or known arrhythmia, including atrial fibrillation, which is a common condition in Medicare patients. I'm also here representing the ACC, American College of Cardiology. My thought here is echoing what several folks have mentioned on the call, that we need more time for evidence generation. These codes are relatively new. And then as soon as they were introduced, we had the PHE. Which gave us a lot of flexibility but didn't really-- the flexibility has made it a little bit different from the original intention of the code. So the fact that providers were permitted to waive copayments was a big ability for adoption, but it was something-- in my experience at AliveCor, was a challenge for utilizations for patients, especially patients who couldn't afford copayments. So I still think there's a lot more that we need to gather in terms of real-world evidence on impact of utilization and patient satisfaction, given that post-PHE the utilization of RPM and RTM still needs to be more mature.

Dr. Juan Schaening

Thank you for your comments there. Appreciate it. Let's move now to the literature questions, then. So when addressing the literature questions, please consider the PICOT as you are answering the following question. This mnemonic is for the elements of clinical research question. Consider the patient population or the problem. Put it in the perspective of Medicare and specific diagnosis. In the intervention, action or treatment being considered RPM, does this intervention improve patient outcomes? Comparison or control, what other interventions should be considered standard of care, current care. Outcome, desire or expected or objective. Remember that to cover as Medicare benefit [inaudible] in accordance with accepted standards of medical practice for the diagnosis or treatment of beneficiaries condition or to improve the function of a malformed body member referring to medical necessity. And the T stands for timeframe. How long will it take to reach the desired outcome if it's of value? Zero to three months, zero to six months, longer? So let's move, then, to the question. Literature question number one. Based on the current literature available, the bibliography provided, with a specific diagnosis of congestive heart failure, hypertension, chronic obstructive pulmonary disease, hemoglobin A1C, knee pain, and musculoskeletal skeletal conditions, including prevention for diabetic foot ulcer and musculoskeletal condition, what is the quality of evidence supporting the use of RPM or RPM over a standard of care for the following patient outcomes? Take into account mortality, emergency room visits, hospitalizations, rehabilitation, shortening length of stay for hospitalization, reduction in services, example, surgeries, emergency department visits or admissions, etc. So being this said, let's give an opportunity to Dr. Mont. Could you address leadership question number one, please?

Dr. Michael Mont

So I would love to address this question. Can you, just to be-- Bryan Springer is another orthopedic surgeon on the phone call, so. He hasn't been called on. And then if you want to come back to me, I can really talk about the literature a lot.

Dr. Juan Schaening

Okay. I don't see a Springer here. Let me see if I can see him. I didn't see his hand raise up. Dr. Springer, do you want to address literature question number one?

Dr. Bryan Springer

Well, I'm happy to. I was hoping to address some of the earlier questions, but unfortunately, I didn't get called on.

Dr. Juan Schaening

Oh, sorry. I was calling in order of the hands that I saw raised on the chat. Go ahead, Dr. Springer.

Dr. Bryan Springer

So there is only-- the other point that I wanted to make, at least from an orthopedic perspective-- and I'm Bryan Springer. I'm an orthopedic surgeon at OrthoCarolina in Charlotte, North Carolina, where I-- a large academic private practice. And also represent, as president, the American Association of Hip and Knee Surgeons, which is 4,000 total hip and knee surgeons across the United States. So clearly, it's been said tonight this tool is exceedingly valuable for us from an arthroplasty perspective, for all the points that were really mentioned across subspecialties. And I certainly won't rehash that. The two areas that I wanted to make just briefly, and this was touched on before, but particularly for us, from an arthroplasty's perspective is patient access. Someone stated earlier about being in North Carolina and rural access to care. And that certainly, from an arthroplasty's perspective, our patients with hip and knee replacements really need to be monitored for life, looking for where in early failure and in late failure and infection and things along those lines. So this proves to be an invaluable tool for us from a monitoring perspective. And most of this can be done through these technologies remotely. And most of these are being done across our membership across the country remotely. But the other aspect, and I think this was slightly alluded to, is that by being able to monitor many of these patients remotely, it also opens up our clinics for patients that need to be seen in person.

The other point that I wanted to make from a orthopedic perspective, and particularly hip and knee arthroplasty, as many as you know, as in the proposed rule for 2022, is that CMS is going to mandate collection of patient-reported outcome measures. And the thing that CMS has emphasized in that is that they want to make it easy, they want to make it affordable, and they want to make it accessible. And there's really no better way to collect patient-reported outcome measures, which is one of our most important measures for monitoring our arthroplasty patients, both with general health quality measures, as well as joint specific measures than being able to collect these remotely. And so from our perspective, having access to these technologies I think goes hand in hand with CMS's mandate to be able to collect patient-reported outcome measures across the spectrum of our patients. So I realize that was out of turn. I appreciate the two minutes there just to make those comments. And I can turn things back to Dr. Mont since I think he was poised to answer that question.

Dr. Juan Schaening

Okay. Dr. Mont, go ahead and answer the question number one, please.

Dr. Michael Mont

Okay. So skipping the first part, which I'll defer to the cardiologists here and medical the-- because we're not as concerned about mortality, although certainly, if we had enough patients we could deal with orthopedic issues that way. I've heard a little bit about not enough research. The real answer is in orthopedics and musculoskeletal, there's been a tremendous amount of research. There hasn't been as much implementation. I mean, we have a $60 billion connected care CMS program to try to do the things that are on this list, but that hasn't been totally implemented yet for orthopedics. The research does show it. And you have some of the references in your packet. I will get you some other. There's a Rosner study of just using smartphones showing reductions per patient of $656 per patient. There's a Hong study of using smartphones. I mentioned the nine RCT's by Gazendam. And that's on wearables. There's a Pal study. There's studies by Adolph Lombardi that are even now out to one year with different programs for monitoring patients remotely. There's combo studies, Summers and Cooper, decreasing physical therapy visits, decreasing ER visits. That's what decreases the cost, especially the hospitalizations. And that's because we're able to monitor these patients. We can know their pain levels. We can monitor their range of motion. We can see that they're not doing well. We have standards for how they should be doing at two weeks, four weeks, six weeks. We're not seeing these patients in the office. But when we have this type of program, this allows us to be connected. That's why it's great that it's a connected care CMS program. We're connected to our patients on a daily basis by having RPM and RTM. So we have a lot of research. It's going to be a tremendous amount of research you'll see in the musculoskeletal field. And I don't even know-- and for back, there's probably the same amount of research studies on back, which I'm just a hip-- Brian Springer and myself, we're hip and knee surgeons. But there's tremendous number there. All the other specialties, they'll chime in. I know that literature as well, but I don't think-- I think they're more appropriate to show that there have been a lot of decent studies that are showing. So enough said there. Thank you very much for the opportunity to speak.

Dr. Juan Schaening

Thank you. Appreciate your comments. Dr. Windle, would you comment on question number one, please?

Dr. John Windle

Thank you. John Windle at the University of Nebraska Medical Center. Practicing cardiology and electrophysiology and doing a lot of digital technology work. What I'd like to comment on is back to the hypertension. One of the things that has come out is that fully automated oscillometric blood pressures are actually better than in-office blood pressures and outcomes measures for the diagnosis of-- and outcomes from hypertension. So you have better outcomes and lower morbidity and mortality. And that comes from hypertension. And I'll send that reference. I think when you look at-- we had to talk about AliveCor Kardia. The diagnosis of atrial fibrillation and the under-diagnosis can have catastrophic outcomes because it accounts for about one-third of all strokes. And so the earlier, more accurate diagnosis of atrial fibrillation and these monitoring technologies have really moved us forward in that. The last point, because this has been a very interesting and, I think, consensus, from my years in qualitative research, I think one thing that should be analyzed is that I have not yet heard from this diverse subject matter experts any divergence of opinion. So if you look at intensity, frequency, and convergence, I think you have a very powerful statement from a qualitative perspective. Thank you.

Dr. Juan Schaening

Thank you for your comments. Dr. Evans, would you like to comment on question number one, please?

Dr. John Evans

Yes. Thank you. I'm John Evans. I'm a podiatrist. Over 35 years practice in Michigan and with a subspecialty in the diabetic foot. Specifically, when we're talking about RPM issues for us who deal with the foot, this type of therapies that are available to us at this point primarily deal with reducing the risk of the diabetic foot ulcer. Such a costly problem to the healthcare system. And with the number of diabetes patients going up, the foot problems are also being associated with it. And a very, very high drain on the healthcare system. We have found that through the research on the RPM technology available, there are a couple of different types of technology available that can help us predict ulcer development before they occur. This involves thermography, measuring the temperature of one foot versus the other, and with pressure relief. Areas that may have higher pressure are more likely to develop ulcer. There are technology available for this, and there are a number of studies out looking at the benefits of this technology and the cost. A review was done with Brooks in 2021 where they did a decisions tree analysis of using thermography treatment versus standard of care for the treatment of a diabetic ulcer, and they found a significant cost savings of avoiding an ulcer of almost $39,000 per year and reducing the cost of ulcer care by utilization of this technology by over $8,000. So the monetary issue is there, but we also have the concern of mortality and morbidity issues associated with it.

If we're able to predict where an ulcer can develop, it's much less costly than having to treat the ulcer once it has developed. And so the present goal of treatment has been to move from treatment of a wound through various technologies, wound care substitutes, debridement, surgical intervention and such, to prevention. And that's where these areas come in. It's been shown. A VA study done by Rothenberg in 2020 showed that they could predict the location of an ulcer at a 97% level 37 days before it would actually present clinically. So our idea is to try to find ways of reducing the risk of ulcerations, especially in the diabetic high-risk patient, before they occur, thus not needing the expenses that are there throughout the treatment course or the higher risk of these ulcers becoming infected or leading to amputation. Which, in the diabetic area, is one of the most costly areas. And we can provide our information to you on the various articles that we have reviewed. Thank you.

Dr. Juan Schaening

Thank you. Appreciate your comments. Let's move to lead issue question number two. Based on any currently available literature, is there high-quality evidence to support RPM and RTM as medically reasonable and necessary for any other patient outcomes? Please provide a copy or link of any supporting additional literature. Dr. Nunez, could you address question number two?

Dr. Carlos Nunez

Yes. And thank you. So I would say that because the codes have been in use for such a short period of time, as many others have commented on this call, we really need more time for new and current literature to reflect the realities. But what I will say is these types of technologies have been in use, have been in practice, and have shown benefits for, in some cases, much more than a decade. And I think a reasonable and thorough examination of how the technologies, how the workflows, and the how the approach and solutions that are driving the RPM and RTM adoption are very well represented in the literature. Others have mentioned other studies. And I am happy to provide links to a variety of studies. One that I quoted earlier about connected devices leading to the increase adherence therapy for sleep apnea patients. So it's not a direct answer to the question, but what I would like to say is we are building a base of evidence and literature around these codes. But as you know, the medical literature takes time. Studies take time. And these codes have only been implanted in the last little bit here. So what I would say is, as you examine this, I highly recommend that you look further into the literature, beyond just those studies looking at the codes and look at the studies and research that's been done to show how the technologies, the services, and the workflows that led to the creation and the adoption of these codes have made the case for why this is so important.

Last thing I will say, it is very, very encouraging to hear that literally every single subject matter expert on this call has rallied around this. I think it is pretty clear that the world is changing. 20 years ago, you'd send your kids to college and say, "Don't take a ride from a stranger, don't trust strangers on the internet." Now you send your kids to college and say, "Download the Uber app so you can summon a stranger from the internet to give you a ride." The world is changing. The context is changing. And the technology can be applied in ways that will make a real difference for patients, for health equity, for access, and to decrease the cost of the system and increase the efficiency. So thank you very much. I appreciate the chance to talk.

Dr. Juan Schaening

Thank you. Appreciate your comments. Dr. Block, can you go ahead and address question two, please?

Dr. Mark Block

You hear me?

Dr. Juan Schaening

Yes, I can hear you. Go ahead, Dr. Block.

Dr. Mark Block

Yeah. Out of respect for time, I'll submit the literature of articles after. But I'm going to give you a brief synopsis of my evaluation. And thanks for affording me the opportunity to speak. So after reviewing the literature, it appear that many of the patients would not have benefited at the same positive level without RPM being available. The neuropathy and lack of visual acuity possessed its own set of challenges. By utilization of the technology, such as infrared thermometers and associated schedule monitoring, provided access to critical information that likely would not be apparent to the patient and possibly clinician as well. Additionally, patient engagement appeared to enhance outcomes due to the participation in the process of treating their conditions. And this was brought out in several of the articles. RPM allowed the patient to continually update the results to their clinician, allowing identification of the deviation from a positive anticipated improvement. Proactive measures also would facilitate a positive outcome. One could argue that without access to RPM an increase in negative outcomes would likely result due to delays associated with identification of impending or developing issues. And additionally, without RPM, many patients would rely on an office or clinic visit or evaluation to determine progress. At that time, substantial deterioration could take place with commensurate challenges. In conclusion, I think the cost to implement RPM, as it related to the literature review would very likely not only improve patient outcomes but improve activities of daily living. The cost savings when considering the other alternatives and associated costs for treatment appeared to make a strong case for RPM implementation. And [crosstalk] point.

Dr. Juan Schaening

Thank you, Dr. Block.

Dr. Mark Block

Thank you.

Dr. Juan Schaening

I appreciate your comments. Dr. Bell, could you address question number two, please?

Dr. Alice Bell

Yes, thank you. And I just wanted to address some other outcomes that might be considered. We know - and again, I'm speaking as a physical therapist, board-certified specialist in geriatrics - that there is a significant correlation between prescribed exercise and adherence with exercise, for example, in patients with chronic low back pain in reducing pain and increasing function. We also know that adherence with prescribed exercise is related to several factors. And there's moderate evidence to indicate that those factors include greater health, locus of control, supervision, participation in an exercise program, and participation in a general behavior change program incorporating motivational strategies. And I would just offer to you that remote therapeutic monitoring is actually a means by which we can achieve those very important factors. And I would also just reiterate the fact that in addition to studies on remote therapeutic monitoring, it's important to look at studies that really address strategies for adherence. And I would also include the reduction in early dropout from therapy when we can engage patients early in their own self-management and also a reduction in secondary complications associated with limited mobility, including fall, skin breakdown, and incontinence. I would also just like to reinforce that another area where we know therapeutic monitoring can be extremely helpful is in skilled maintenance for individuals who are receiving intermittent intervention from physical therapy for the management of chronic conditions and the therapist's ability to monitor those patients during breaks in in-person care. Thank you.

Dr. Juan Schaening

Thank you. So due to time constraints, I'm going to move to the closing remarks. First, I am going to start saying thank you to all of you. There has been a lot of excellent comments that were placed on the chat. We would like to receive those comments through email because in that way we can acknowledge those comments and address them. So please, the comments were put on the chat and the reference, please send that to our email. To the subject matter experts, please submit any additional comments and/or literature to: medicalaffairs@guidewellsource.com no later than Friday, March 10th, 2023, please. And just reiterating that the audio and transcript for this evening meetings will be posted to MAC websites within four weeks. With this said, I just want to adjourn the meeting and give you a great, big, big thank you for your participation and your excellent comments. Thank you and have a lovely evening.

[silence]