Yvonne Commodore-Mensah:

Hello, and welcome to the American Heart Association, Hypertension Treatment Podcast. I'm Yvonne Commodore-Mensah associate professor at Johns Hopkins School of Nursing and Public Health with expertise in hypertension, research and community based interventions to advance equity and hypertension outcomes. This podcast series is part of a larger program addressing unmet needs and hypertension treatment options.

In addition to this podcast, this program includes webinars, spotlights and an update to the conference guide on hypertension, which will be released in January of 2023. The overall goal of this program is to improve systems of care and understanding unmet needs across the hypertension patient journey. Our formal learning objectives are first to recognize treatment and management options for patients with resistant hypertension, apply shared decision making strategies that improve health equity by engaging patients in healthcare decisions, patient provider communication and patient centered care will also be addressed, lastly, and also we will address healthcare disparities in hypertension treatment and management.

This program is made possible by an education grant from Medtronic. However, the content has been created and directed by the volunteer planning committee, independent of Medtronic. Today's podcast will focus on the topic of home blood pressure monitoring. Our clinical experts for today are Dr. Jennifer Cluett and Dr. Valy Fontil and our patient expert is Mr. Duncan Martin. Thank you so much for your willingness to have this conversation.

Valy Fontil:

Thank you, Dr. Commodore-Mensah for inviting me to participate in this discussion. My name is Valy Fontil. I am a practicing primary care physician health services researcher and implementation scientist at UCSF who's focused on health systems intervention for hypertension and with some particular focus on leveraging digital health technologies, especially clinical decision support to address hypertension control and disparities in hypertension. As a matter of disclosure, I should mention that as part of my research, I develop a clinical decision support that I am now spinning off into a commercialized product for a clinical decision support in hypertension, and other cardiovascular diseases.

Jennifer Cluett:

Thank you, Dr. Commodore-Mensah for having me here today. I'm very excited to talk about this topic. My name is Dr. Jennifer Cluett. I am a practicing primary care physician and a hypertension specialist in Boston, Massachusetts. I'm an assistant professor of medicine at Harvard Medical School, and I'm the medical director of our multi-specialty hypertension center here at Beth Israel Deacons [inaudible 00:02:57] Medical Center. I serve as a content expert on the American Medical Association sponsored Independent Review Committee for the United States Blood Pressure Validation Device Listing since 2020.

Yvonne Commodore-Mensah:

And I serve on the advisory board of the US Validated Device listing. Thank you so much, Mr. Martin for being with us today.

Duncan Martin:

Yes. Thank you for allowing me to be here. My name is Duncan Martin, I'm 81 years old. I'm retired, a jazz musician, was and a teacher enjoying my retirement now and taking my blood pressure regularly.

Yvonne Commodore-Mensah:

So why are we having a conversation about home blood pressure monitoring? First, we must acknowledge that we have a hypertension problem in the United States. One in two adults has hypertension and only one in five adults who have hypertension has the condition under control. We know that hypertension or high blood pressure is a major risk factor for cardiovascular disease, stroke, kidney disease, and vascular dementia. We also know that hypertensive disorders of pregnancy are increasing, and we know that this also increases a woman's lifetime risk of cardiovascular disease. Hypertension is also the number one reason for office visits to primary care clinicians.

We also know that there are persistent racial and ethnic disparities in hypertension, prevalence and control. For instance, black people are more likely to be diagnosed with hypertension and less likely to have their condition under control. The reasons for these disparities are deeply rooted in structural factors and differences in social determinants.

The good news is that there are proven best practices and evidence based interventions to improve blood pressure. And one of those strategies is home blood pressure monitoring, or self measured blood pressure monitoring. Home blood pressure monitoring involves a patient's use of a personal monitoring device to assess and record their blood pressure at home. Home blood pressure monitoring is recommended in numerous US and international guidelines for hypertension management and confirming hypertension diagnosis. Dr. Fontil can you walk us through what we know about the usefulness of home blood pressure monitoring with clinical support to improve hypertension outcomes?

Valy Fontil:

In terms of its usefulness, I like to think of home blood pressure monitoring within the context of what it take or the process of managing hypertension in clinic or any kind of healthcare setting. A patient or someone has to somehow make an encounter with their clinician, either by coming to the office for a visit or maybe do a telephone or a video call. During that visit a blood pressure has to be measured and somehow be available to the clinician. And then they have to decide to prescribe a medication or some sort of treatment for that high blood pressure.

Jennifer Cluett:

Thank you, Dr. Fontil and Dr. Commodore-Mensah for setting the stage. And you mentioned something that I wanted to say a little more explicitly, and that is that the United States preventive services task force, going back to around 2015 has recommended using out of office blood pressure measurements to confirm the diagnosis and before starting treatment. They just reiterated that recommendation in a 2021 update. So our options for out of office blood pressure measurement include 24 hour ambulatory blood pressure monitoring, which has long been considered the goal standard.

And although I'm a fan of [inaudible 00:06:38] PMM, it really is just a snapshot of a patient's hypertension journey. And what I really love about home blood pressure monitoring is that it's something that patients can do on their own, in their own home, over weeks and even months, or as Dr. Martin will point out over years. And it can really give them a sense of engagement and participation as well as an immediate feedback mechanism on their health.

As you mentioned, there are multiple national and international guidelines and organizations that support home blood pressure monitoring to enhance our care for hypertension. But I think it's important to emphasize what you alluded to, which is that just giving a home blood pressure, a patient, a cuff alone is not really enough. You have to combine that along with some clinical support medication,

titration, education, lifestyle counseling, and that support can be done by a variety of different care team members, depending on your own individual practice.

It could be done by nurses, by pharmacists, by physicians or other clinicians, but all of that together has been what is shown to improve hypertension. It's important to note that this combination of factors home, blood pressure plus a co-intervention or support for the patients at home has been shown to not just improve their hypertension care immediately, but even long term and sustained for a year and beyond.

Yvonne Commodore-Mensah:

Dr. Font, can you share with us, what are some of the challenges with home blood pressure monitoring that you've observed in your clinical practice?

Valy Fontil:

Dr. Cluett is right that just giving patients a blood pressure cuff and tell them to take measurements at home is simply not enough. We've seen in multiples of QI initiatives in multiple interventions in trials that home blood pressure monitoring programs require a level of support in order for them to be effective. And it makes perfect sense when you think about the processes of care in managing hypertension, when you think about encounter frequency, treatment intensification, and medication adherence, without integrating home blood pressure monitoring and clinical support within a clinical workflow for these processes, it makes sense that it wouldn't help very much.

If somebody measures their blood pressure at home the first thing that needs to happen is that those blood pressure measurements have to be communicated back to the clinician. And then those numbers need to be processed in order to assess whether the blood pressure is high or not.

If there are just a lot of random numbers, clinician who's receiving them still has to either do the average of them or, or some other form of synthesis to determine that this blood pressure is elevated and requires treatment. Therefore, any program that's going to be sustainable is going to require some workflow integration, sort of operated and executed by human beings or automated with the help of clinical decision support. To the topic of home blood pressure monitoring, to advance equity, or to address inequity. I like to separate it at multiple levels. So the first thing to address equity, the home blood pressure monitoring program needs to actually work.

Yvonne Commodore-Mensah:

I like the way you brought out the equity implications. There are emerging best practices that are shown as that home blood pressure monitoring may be an effective way to advancing equity and hypertension outcomes. Dr. Cluett Can you talk to us a little more about some of the clinical indications of home blood pressure monitoring?

Speaker 5:

So it may be intuitive that we ask patients who have hypertension to check their blood pressure at home, but it's useful also in patients who don't yet have a diagnosis. And we're trying to tease out whether or not they have white coat hypertension. And again, it makes sense when you think about it, patients spend such a small amount of their time in the office with us. The rest of their life is happening outside the clinical office. You could also use it, treatment response, and also whether or not they're taking their medications at home.

Yvonne Commodore-Mensah:

So I think you've made a very strong case for why we should implement home blood pressure monitoring. But how do you go about advising a patient like Mr. Martin, how do you go about advising him to select a home blood pressure device?

Speaker 5:

So believe it or not, there are close to 4,000 different blood pressure cuffs that are available for consumers to purchase and less than 20% of those have data to support the accuracy. And so for me, because I'm sort of a blood pressure geek, accuracy is one of the most important factors in determining a home blood pressure cuff.

Yvonne Commodore-Mensah:

Dr. Fontil?

Valy Fontil:

This is a challenge that I think those of us who want to work in this space, who want to make sure that a home blood pressure monitoring program can be effective in sustainable in lower resource settings and sort of safety net clinics or other clinics that are like safety net that have few resources. It's a challenge.

Speaker 5:

As we mentioned in the disclosures portion, I am on the review committee for the US Blood Pressure Validated Device Listing. And there we have the rigorous process to review the home blood pressure devices for accuracy. And once they're vetted they're listed on that website, both for patients and clinicians to use. Sometimes patients will come in because they read in their newspaper or online that a certain blood pressure cuff was recommended. They [inaudible 00:11:58] could have some really important points, but I always ask people to cross check it with one of these independently validated.

In terms of cost, you really can get an accurate blood pressure for as cheap as about $30 or $35. You can spend as little as 30 to 35 or as much as over a hundred or beyond. One thing that's really important is to find a blood pressure cuff that fits you.

And most adults can use the blood pressure cuffs that come with a packaging. But if you have a larger upper arm size, there are some manufacturers that have accurate cuffs for larger arm sizes. If my patient gets a home blood pressure cuff, I ask them to bring it into the office once a year or so. And Dr. Martin can speak to this because I think I make him do it to demonstrate proper technique and positioning, and also just to make sure that the cuff fits him and it's still accurate for him. In general, we recommend against some of the fancier devices like wrist devices or complex [inaudible 00:12:53] devices, just because the accuracy isn't quite there yet.

Yvonne Commodore-Mensah:

Mr. Martin would like to turn it over to you and walk us through what you thought about home blood pressure monitoring. The first time you were asked to do it.

Duncan Martin:

It started probably 30 years ago when I was using one of the old stethoscope with the pump blood pressure back then. But it wasn't set up for me as a regular thing. I just took my blood pressure when I

felt like it, basically. When I started with Dr. Cluett, she asked me to keep track of my blood pressure readings over three month period. And I came in with a spreadsheet of all my readings and averaged them out, and it was 120 over 60. So that made me feel real good.

Yvonne Commodore-Mensah:

Well, that is very impressive, Mr. Martin. Can you talk us through how you receive instruction or training from your provider in terms of measuring your blood pressure at home?

Duncan Martin:

Well, Dr. Cluett basically showed me how to do that. I got real specific guidance as to how to do it. So that's how we got started.

Yvonne Commodore-Mensah:

So what did you think about the cost of the device. Now, I know you said you've had a device for quite a while. Did you have any issues or concerns about the cost?

Duncan Martin:

The cost was about $50. I don't remember when I first bought it at a medical supply place near me. And I thought that was very reasonable. I bring that in once a year to be checked against the devices in the office so that we can be sure that we're on the same page with our readings.

Yvonne Commodore-Mensah:

Mr. Martin mentioned that he thought cost of the device was fairly affordable, but we also know that for some patients, the cost of a blood pressure device may be prohibitive. Can you talk to us about some of the health equity considerations? So there is a potential for home blood pressure monitoring to advance equity, but what are some of the considerations in terms of how we might use this approach to reduce disparities in hypertension control and other health equity considerations for patients who may, for instance, not be able to afford a blood pressure device?

Valy Fontil:

I think it's important for policy makers to make it affordable for people to be able to purchase blood pressure devices and also be able to purchase different types of blood pressure devices, such as maybe cellular home blood pressure devices.

Yvonne Commodore-Mensah:

Dr. Fontil can you share with us the potential of home blood pressure monitoring with clinical support in reducing disparities in hypertension control?

Valy Fontil:

I would say that it can help in a couple of ways. One is that with the proper support home blood pressure monitoring could help reduce clinical inertia. And clinical inertia is kind of the missed opportunity for clinicians to provide treatment when needed, when say a person's blood pressure is elevated we often miss the opportunity to provide treatment intensification. With home blood pressure and often time, one of the reasons behind that is uncertainty about the true blood pressure.

And so to that point, a well executed and implemented home blood pressure monitoring program can help reduce clinical inertia and can just essentially help us make the right decision to provide treatment identification whenever blood pressure is elevated. Another contributing factor to disparities is doctor patient miscommunication, and maybe some level of distrust as well. Home blood pressure monitoring can also help with that because as patients, a well run program will then... As you're able to engage patients in monitoring their blood pressure, this provides the opportunity for education and training and facilitates communication because the patient themselves can see, know what their blood pressure is.

They can then better understand why they might need treatment and can be engaged in that decision making process. We mentioned that they do have a cost associated with them and the first question is whether it does insurance cover blood pressure cuffs. So Medicaid and does cover home blood pressure monitoring devices. But it varies by state.

When we are thinking about equity, we have to think about some of difficulties that patients with low socioeconomic status, low income patients often have a hard time even making it to clinic. They often have interrupted cell phone services. All of these things are the kind of things that create challenges in terms of following up with your clinician and being able to communicate your blood pressure values to your clinician. And so this is a challenge that I think those of us who want to make sure that a home blood pressure monitoring program can be effective and sustainable in lower resource settings, in safety net clinics or other clinics that are like safety net that have few resources. It's a challenge.

Yvonne Commodore-Mensah:

Mr. Martin, can you share with our audience also, what are some other benefits you observed in terms of measuring your blood pressure at home?

Duncan Martin:

Dr. Cluett, and I talked about my lower readings that were showing up and we decided to cut the medication that I was taking in half. And then we did it in half once again. So that is a positive sign and I'm not putting more meds into my body than I really need.

Yvonne Commodore-Mensah:

Now I'd love for us to talk about how the COVID-19 pandemic may have affected how we've adopted home blood pressure monitoring.

Valy Fontil:

What the pandemic did is, and not just an acceleration in adoption of telemedicine, but also it was sort of, it forced us to use home blood pressure measurements. If you were a system that has a robust electronic health record, then you can instruct patients to use their Bluetooth enabled and connect your EHR to that home blood pressure monitor device by some sort of integration.

This is hard to do, but you can possibly do it. If you are a smaller clinic or a safety net clinic with fewer resources who does who does not have as the robust of an EHR, it's even harder to do. So in that instance, then the clinician is operating with missing data. So this is one of those things that I'm glad we have the opportunity to highlight, because it really illustrates how the digital divide or other types of topics like that, where different systems with different level of readiness, having to adopt new

technologies will lead to an exacerbation of disparities in quality of care and ultimately patient outcomes.

Jennifer Cluett:

I agree. Early during the pandemic, the transition to telehealth was so rapid and immediate and really forced our hand to use this new technology and modality to provide care. In terms of changing our payment structures and the convenience and access to care, I think if we can continue to move this forward, this is one way we can maintain or even improve on some of the ground that we've established here to address equities and disparities in care.

Being able to have a doctor's appointment from your car or a private place in your work or your home really allows people who can't afford to take half a day off of work to commute in to a large medical center and makes it a lot easier for us as clinicians to check in on people in their actual home environments. Prior to COVID telehealth or telemonitoring of home blood pressure was really a dream. And now it's a part of the fabric of what we're doing each and every day, which is wonderful.

Yvonne Commodore-Mensah:

In closing, what is one thing you'd like all clinicians to know about home blood pressure monitoring, Dr. Cluett.

Jennifer Cluett:

I think it really is a valuable tool in our toolboxes to manage chronic diseases, especially hypertension, but it has to be done well. As we started out by saying it isn't enough just to give someone a home blood pressure monitor, there needs to be education on how to do it, how to do it properly, and then ongoing support with ways for patients to communicate those results to you and a care plan back to the patient.

Yvonne Commodore-Mensah:

Dr. Fontil.

Valy Fontil:

I guess the thing I would mention is that the key word is workflow. It really has to fit within a real world, clinical workflow. It has to be part of any successful home blood pressure monitoring program.

Yvonne Commodore-Mensah:

Mr. Martin will turn to you. What would you like clinicians like Dr. Cluett, Dr. Fontil, and other clinicians to know about encouraging patients to practice home blood pressure monitoring?

Duncan Martin:

Well, I would like to reiterate what it's meant to me in terms of the empowerment part of it. I feel like by doing this, I am more in charge of my hypertension and my overall health. And that is so important. If that could be shared with clinicians and emphasized with folks who are going to start out on this course of taking their own blood pressure, you do feel that you are involved and it does make you feel really good.

Yvonne Commodore-Mensah:

Mr. Martin I appreciate what you said about empowerment, and I'm so glad that clinicians like Dr and others make you feel empowered. Thank you to our special guest, doctors Cluett and Fontil and Mr. Martin for sharing your expertise with us. I'd like to thank all of you for your time today, and thank you for sharing your expertise with our listeners. Please stay attuned for the next podcast on lifestyle modification.