Speaker 1: From the Vision 20/20 project, welcome to CRR radio.

Ed Comeau: Well, welcome to CRR radio. My name is Ed Comeau with Vision 20/20. Today, we're talking about cardiovascular disease as a Community Risk Reduction issue and joining us, is Dr. Seth Martin from Johns Hopkins University School of Medicine. Dr. Martin, could you take a moment and just tell us a little bit about yourself, please?

Seth Martin: Yes, absolutely, Ed. Well, first of all, thanks for having me. I'm looking forward to our conversation today. I'm a cardiologist at Johns Hopkins in Baltimore, Maryland, and I specifically have a focus on preventive cardiology.

So, within that field of preventive cardiology, we're really just trying to think, how can we, within our clinical spheres of influence, but also out in the community, work to prevent heart attacks and strokes and other cardiovascular events before they happen? We ultimately hope to help people lead healthy lives and prevent these events from ever happening, which we consider to be primary prevention, but then even in people who've already suffered, unfortunately, a heart attack or stroke, we're working hard to prevent another event from happening down the road. And the good news is we know a lot of what can be done from a preventive standpoint, so I really dedicate my career to the specific field of preventive cardiology.

Ed Comeau: Well, I'm really glad you could join us today because that's really what we're all about with Community Risk Reduction is prevention. And before we get started, though, I'd like to give some context to what we're talking about today, because some of our listeners may not realize the impact that cardiovascular disease has on every community across the country and potentially the role that they can play through Community Risk Reduction. I was just looking at the stats just before we got on here, and according to the CDC, it is the leading cause of death, which it has been for a number of years, killing over 600,000 people each year. And as a matter of fact, for the last year at data, it was 659,000, which is about 23% of all deaths, a pretty substantial amount. And to put this in perspective, we lose between 3,000 to 3,500 people per year to fires.

So, this means that for every fire death, 200 people die from cardiac related causes. Or if you want to look at it another way, someone dies in a fire every two and a half hours, but someone dies from a cardiac related death every 50 seconds. And on a community level, not every community has had a fatal fire, but I can guarantee you, and I'm sure you can too, that every community has lost people to heart attacks or other cardiac related causes. So this kind of leads me to my first question for you, Doctor, why are cardiac related deaths so high? Why is it the leading cause of deaths? What factors are kind of contributing to all that?

Seth Martin: First of all, I appreciate you, Ed, sharing those statistics, which are really staggering. You know, I hear them all the time and they never cease to amaze me how prevalent cardiovascular disease is. And actually, currently, one of the hats I wear is serving as vice chair of the American Heart Association Statistics Committee. And I'll tell you, it's a tremendous amount of work to get all those statistics together, but we do provide this annual update every year. And the statistics are, just continue to be, staggering. Cardiovascular disease continues to be so prevalent, so prevalent to the point that as you mentioned, every community, I think it's hard to find a family where a family doesn't have someone who's been affected by cardiovascular disease. And the reason it's so prevalent, despite having effective treatments, is because we live longer and plaque buildup, the process that we call atherosclerosis, that underlies a lot of cardiovascular disease.

It's a process that happens starting early in life and over multiple decades. And many of the factors that cause atherosclerosis, they really start to manifest in, in many people, in their fifties or sixties or seventies. And, as a population, we live longer. So if our population was getting killed early in life before cardiovascular disease could develop as was the case in the past, then we wouldn't see it as much, but we live longer. And this is a disease that happens with age, but it's not like it happens all of the sudden that, within a year, someone develops cardiovascular disease. It's happening over a long period of time. And we, as a human species, are not necessarily adapted for the environments within which we live. And with respect to that, we do tend to live in an environment now where many people are more sedentary.

So spending a lot of time at a desk or on a sofa, not getting a lot of physical activity because a lot of jobs don't involve as much labor. And then there's very, very common to have high cholesterol levels, high blood pressure levels, and other cardiovascular risk factors like obesity and diabetes related to our diet. We're seeing major epidemics of obesity and diabetes, which are causes of cardiovascular disease. So the major causes are high cholesterol, high blood pressure, smoking, high blood sugar levels. These factors contribute to cardiovascular disease. And the earlier that they start in life, the bigger impact they're going to have, because the reason that age is such a strong risk factor for cardiovascular disease is because age tells us how many years somebody has likely been exposed to these risk factors for cardiovascular disease. So although, unfortunately, cardiovascular disease often hits a family kind of suddenly, it comes as a surprise and it's really sad and unfortunate and overwhelming and a stressful event. Although it comes on suddenly, the reality is that the underlying causes for cardiovascular disease were there for many years.

And that's why the risk factors, such as hypertension, are called a silent killer because you can have high blood pressure and not necessarily be feeling it any differently, but it's predisposing you to basically building up these fatty cholesterol plaque in your arteries, in the arteries of the heart, but really in the

arteries all over the body. And even though that term silent killer is attributed to hypertension or high blood pressure, the same thing can be said for something like cholesterol, where you can have high cholesterol, but not necessarily feel it, but it's raising your risk for cardiovascular disease. These factors, which are related to sort of the way we live our lives and the fact that we live longer these days, these kind of add up to make cardiovascular disease very common in our modern society. But the good news is that we also now have a lot that we've learned about how we can mitigate risk. So I'm looking forward to talking about that as well.

Ed Comeau: And since age is such an important component of the risk and the aging population is getting bigger, do we only see the trends going up for cardiovascular disease?

Seth Martin: For a while, we're seeing improvements in the trends with respect to cardiovascular disease and cardiovascular mortality. But we've recently started to see a plateauing of the improvements that have resulted from changes in public health measures, as well as preventive treatments that have become about. So this plateauing that recently has come about raises alarm bells. It is possible that in the years ahead, in the decade ahead, depending on how well we do as a society, really addressing risk within our health systems and our communities within families, that we could even see a worsening. And again, despite knowing so much and having so many effective measures to mitigate risk, so the current trends that we're seeing are concerning. And certainly if the age of a population shifts towards older age, that'll be one factor that could push us towards having more of a burden of cardiovascular disease in our society. But my hope is that we do a good job counterbalancing that risk by implementing prevention measures such that there'll be still the net effect is to actually see continued reductions in cardiovascular disease in the years ahead.

Ed Comeau: So you live in the world of prevention as do we in Community Risk Reduction. As you know, much of our audience is the fire service. So I'm kind of wondering when it comes to preventative actions that can be taken in the community, is there a role that's the fire department could play in some of these things that could reduce an incident from happening in the first place, and also conversely effort, an incident occurs at a role that the fire service can play when it comes to things like cardiac rehab and other things that are done post event?

Seth Martin: Well, the short answer is yes. And I'd first of all like to say that I have great respect for the fire department and the service that's played in the community. I think communities have great trust and respect for the fire department. And that's, having trust and respect, I think is the, one of the fundamental kind of starting points to make an impact when it comes to the health of a community and of an individual, because these days with the amount of misinformation, that's kind of going around online, on social media, there's just so much bad information out there. So I think one of the starting points is just getting

accurate information because you could spend your time when it comes to preventing cardiovascular disease, reading articles about, okay, here's supplement a or supplement b that you could take to prevent cardiovascular disease when, and have somebody promoting this bad information when the reality is that that supplement may have very little evidence that it actually would help in prevention.

In fact, may have some toxic components to it. So I think there's a lot of bad information out there. So one obvious role for the fire department, being well-respected and trusted within the community, is to help just get accurate information out there. And we have accurate information coming from health systems, universities, like the one I work at at Johns Hopkins, but also at a national level by societies, like the American Heart Association and American College of Cardiology, that put out guidelines that basically synthesize the best evidence when it comes to preventing heart attacks and strokes. Evidence related to the optimal diet and physical activity patterns to follow, as well as knowing your numbers, what is a blood pressure that would be considered normal or somewhat abnormal or really abnormal and what is a cholesterol level that would be considered good?

And what are common treatments to consider talking to your clinician about? So I think that the fire department could be really helpful in kind of spreading accurate information, but also sharing the statistics that you shared at the beginning, just how common this is and why it should be made a priority within communities and within the fire department when it comes to programs like cardiac rehab. Cardiac rehab is a way of really organizing everything that we know about secondary prevention of cardiovascular disease. So preventing further risk after somebody's already had an event and cardiac rehab focuses on structured exercise. And it's possible that you could envision programs where patients are coming to the fire department to actually participate in that exercise. But also beyond exercise, it really is about organizing all the information around risk factor modification, cholesterol control, blood pressure control, and stopping smoking, and so forth, where there's a lot of need for kind of coaching and support to get that done well.

It's not just about a doctor writing the prescriptions, but about really reinforcing those prescriptions and helping, sometimes it's the simple things like having transportation to get to the pharmacy to pick up your meds or other simple barriers that get in the way of the patient being successful. And so a cardiac rehab program really organizes all those things. It's also about the comradery that's developed between the participants in the program that helps kind of each person motivate each other to keep moving forward after having suffered a cardiovascular event, to keep moving forward and making progress and really figuring what works for them. So the more that these programs can be made kind of locally accessible to patients rather than having to drive two or three hours to a center. I think the more that they're going to be adopted and

effective at reducing risk in our communities cause currently cardiac rehab is considered to be a very important and effective program, but unfortunately 20% or less of patients who qualify participate because we really just don't have enough access to cardiac rehab for patients.

Seth Martin: And so that really limits its impact.

Ed Comeau: And I mean, I can fully understand that because as you know, I've been through cardiac rehab a couple of times, so I have some firsthand experience on it. And one of the things I really remember is they were trying to do some behavior modification. You know, you're in rehab, they're trying to get you on exercising on a regular basis, eating well, if you were smoking, stop the smoking, all that sort of stuff, but there is a finite amount of cardiac rehab sessions you can go to 12 weeks. And what they're hoping is for behavioral modification after you leave there. In other words, these new good habits stick. And correct me if I'm wrong, once you're out of there and back into the community, it's easy to slip. If there were programs like you were talking about, the fire department was helping with fitness in the community or the fire department was giving information on healthy living and healthy eating and that sort of thing, that would just reinforce the message I was given in cardiac rehab. Wouldn't it?

Seth Martin: It would, it definitely would. I mean I want to actually highlight the word you used, reinforce, because in my kind of experience, I feel like that is, and just listening to my patients, that word reinforcement is so critical because it can be an overwhelming amount of information at first when it, the sort of things that you need to do to help your heart after you've had a heart attack, for example. And you're just not going to absorb all of it the first time. It takes that reinforcement of hearing it again and again to really realizing the importance of it and understanding it. And so I think that reinforcement, the more it can come from multiple kind of trusted sources, including the hospital, including the fire department, and also come in different kind of formats. Certain formats may resonate more with certain people.

So sometimes it may help to sort of read it on sort of a one page kind of infographic and informational sheet. Sometimes it may be nice to have kind of a trusted source to go to on a website. Sometimes it's nice to have a really beautifully animated video. And so my team has become quite interested, in the recent years, on using mobile health technologies, specifically smartphones and wearables as a way to also deliver high quality cardiographs or information. And I think each of these points can be reinforcing.

But it's important that these be accurate kind of trusted sources because if we end up, the patients go for that reinforcement to websites that have misinformation, then it may start becoming confusing because they're reading something that doesn't fit with something else that they learned. And now they're wondering sort of what's the real, scientifically valid source of

information? And that can create confusion, but this point of reinforcing knowledge around cardiovascular prevention is so important. It's not something that happens in a matter of a day or two. It needs to, we kind of need to keep coming back to the key points and figuring out, in a person's particular case, sort of where the actionable information is.

Ed Comeau: We're in a world of technology nowadays. And you mentioned that your, one of your projects that, you're working on that, getting it into the community, using technology. Could you expand on that a little bit more? I'd really like to hear what you guys are doing.

Seth Martin: Yes, so we have been very fortunate to be part of an interdisciplinary team within my university that basically started by listening to our patients who were in the hospital talking about what their experience was like when they're having a cardiovascular event. And what we're hearing from our patients is "This is stressful, overwhelming. And I don't understand half of what the medical team is telling me about what just happened and I just feel lost." And so listening to our patients and when we round in the hospital, seeing that it's just so common. You look on sort of the bedside table there in the hospital and there's somebody's smartphone sitting there on the table. Our team and my close colleagues here include Dr. Francoise Marvel, who was a resident at the time, now she's a cardiovascular fellow. And our engineering colleague, Dr. Mateus Lee.

We have co-founded Corrie Health solution, which is basically a smartphone-based platform for patients, to basically help patients not feel lost, to help patients when they have had a cardiovascular event, a heart attack to, now, in addition to working with their medical team and getting handouts to have an app on their phone. That's sort of when the question is, okay, what do I do next? Here is the information you need and the actions you need to move forward. So this Corrie Health project was a project inspired by patients that we really have been working on, with, to basically meet the needs of our patients by building a smartphone app.

And we've strived to be really comprehensive to meet the full needs of patients. You know, there's a lot of apps out there and we didn't want our patients to have to download 10 or 20 different apps to meet their needs. When it comes to a cardiovascular prevention standpoint, we wanted them to sort of have a one-stop place that they could go to meet their needs. And so that's what we've been developing with really the central goal of empowering patients to take control over their cardiovascular care and their prevention. And so that's called the Corrie Health app, and this was something that started as a project at Johns Hopkins University and has spun out into a startup company called Corrie Health.

Ed Comeau: This app isn't just something that anybody can download and start using though, is it? I mean, at this point in time, it's integrated with whatever existing health care somebody's getting, a patient's getting, isn't it?

Seth Martin: That's right. It is, exist, integrated with the existing health care. And that's been part of our strategy because we do believe that it's not just about having an app, but having it well integrated with your care plan and with your care team, because making progress is truly a team effort of the patient with their family, with their team of clinicians, including the cardiologists, but other important clinicians, nurses, pharmacists, and the list goes on, and really being a team effort. So we, the way we've designed this is to be integrated into that care pathway and with that team-based approach. So it's not something that we kind of viewed as, hey, anyone just go and download it and it'll help you. We do have a goal to further scale it up in the future, but we need to do it in a purposeful way where it really can connect with somebody at a moment that really matters for them to connect with prevention. And we know that it's going to need to be integrated into their full kind of healthcare team approach.

Ed Comeau: Has it been out long enough that you're seeing any sort of results on it?

Seth Martin: Yeah, we've conducted a initial study called the MiCORE study in heart attack patients and we are seeing promising results with more than 90% of people reporting that they're feeling, the word, the scientific word that's been used for the score, is called activated. So it's called the Patient Activation Measure. So we're seeing really high levels of activation, meaning that people are feeling confident that they know what to do with their cardiovascular prevention. And then we're also seeing a 50% reduction in the amount of hospitalizations, re-hospitalizations, after someone's had a heart attack. So we're really encouraged by the initial results and really trying to continue to develop this, to get it to more and more patients.

Ed Comeau: Well, I think that's pretty remarkable, 50% reduction in re-hospitalization. That's, boy, to me, that just speaks volumes of the effectiveness of it, that right there.

Seth Martin: Yeah. We too were really encouraged by, to see that number. And so we know we're just getting started. We have a long way to go. We've just started with four hospitals that have participated and we need to get out there to many more patients, but we think part of this is going to be further developing the software further, scaling this up to more patients. But also it's going to be about developing the collaborations, the partnerships, where the software is not just sort of something that runs on its own and that's all that someone needs, but it's, it can be a connection point to other programs in the community. And if we think back to the point of, kind of reinforcement, I think that a software program like Corrie can help reinforce the programs that are available in the

community. And the more that we can kind of bring these programs together to synergize with each other, I think the more successful we'll be.

Ed Comeau: And you're really hitting the nail on the head for us, because Community Risk Reduction's all about partnerships. We realized that no one entity can do it all. And that's exactly what you're getting into. I mean, a partnership between fire and EMS healthcare, an app like Corrie. I mean, there's just so many pieces that can really have a pretty significant impact on cardiac health care in the community, both before an event, and after an event. We've been talking with Dr. Seth Martin from Johns Hopkins University School of Medicine about the impact of cardiovascular disease on our nation and really its role as a Community Risk Reduction factor. And how, by what we were just talking about, all of us working together can contribute to a holistic approach towards cardiac health in the community because as I mentioned at the beginning of the show, a lot of people may not realize how much of an impact it has. Over 600,000 people a year are killed by cardiovascular disease. A lot more, are just, they have to retire. They have to go off the job.

And another thing, we don't have the time to talk about, unfortunately, but also it's the leading cause of firefighter fatalities. Cardiovascular disease kills more firefighters than any other cause every year. So it's something that's Community Risk Reduction, both within the fire department, but also in the community.

So Dr. Martin, I really appreciate you taking the time to talk with us today. I know you're extremely busy down there, but I really appreciate you taking the time to chat with us today.

Seth Martin: Well, thanks Ed. It's my honor and pleasure to chat with you. And I really hope that the listeners find this information valuable. I mean, it's such a major issue for our communities and country, and I'm always, for that reason, going to make time to prioritize these types of conversations. Cause we got to still bring more people onto the team to help move the preventive efforts forward.

Ed Comeau: I'll be sure to include a link to Corrie in the show notes here. So if people want to get more information on it, they can go right there. And if you are already not subscribing to CRR radio, well, you can do it through your favorite podcast app, whether it's Apple Podcast, Stitcher, Overcast, or any other app. Just search for CRR radio, hit the subscribe button and you'll get CRR radio automatically downloaded whenever we come out with a new episode. CRR radio is a production of Vision 20/20. It's edited by Rich Palmer and produced by me, Ed Comeau. Thanks for listening. And we'll see you next time on CRR radio.

Speaker 1: This is CRR radio.