Hello and welcome to this episode of The Forefront Improving Mealtime Insulin Outcomes with Connected Health Tools. My name is Jody Lavin-Tompkins and I'm a nurse and certified diabetes care and education specialist, and Director of Accreditation and Content Development at the Association of Diabetes Care and Education Specialists. Joining me today is Diana Isaacs, the remote monitoring program coordinator at the Cleveland Clinic Diabetes Center.

And we'll be talking about the value of mealtime insulin and the benefits of using a connected pen in clinical practice from the perspective of a diabetes care and education specialist. I'm excited to be talking with Diana today because she speaks throughout the country on new tools to assist with diabetes management and how to interpret the data generated from this technology welcome, Diana.

Thank you so much for having me.

Would you like to tell our viewers a little bit more about your background.

Sure, so I'm a clinical pharmacist and also a diabetes care and education specialist. And in my role, I have a collaborative practice agreement that gives me a scope of practice to start new medications, adjust medications, as well as start people on new technologies and train on those technologies. As well. And I work I see a wide variety of patients.

I do work only with adults, but I see type 1 type 2 diabetes and all other forms of diabetes. So a wide variety of experience. And it's really great to be here today.

Great. Well, you know, we're here to talk about mealtime insulin. And I'm wondering what people are on basal insulin. What factors do you use to decide when to add mealtime insulin?

Yeah, it's a great question. So for starters, we do want to optimize our non insulin medications for type 2 diabetes. So our guidelines actually recommends before going to mealtime insulin that we evaluate use of agents like GLP-1 receptor agonist and SGLT-2 inhibitors and try to
utilize those in patients that are appropriate for them. However, we know with diabetes people are developing diabetes younger and younger now type 2 diabetes, and when a person's had diabetes for years and years through the natural progression then often people do require first a long acting insulin or a basal insulin and then do require a mealtime insulin to be able to achieve their glucose targets.

Speaker 2
So some ways you can kind of figure out is the person requiring that. One is by looking at how much insulin the person is taking and generally we have some guidance from our guidelines about really starting to look at someone's on more than .5 units per kilogram per day. Of a long acting insulin. We should be evaluating if we should be starting a mealtime insulin.

Speaker 2
And one of the things we want to watch out for is this concept called overbasalization And what happens here is in our best efforts to help a person with diabetes to reach their glycemic targets we increase the long acting insulin, not realizing that we might actually be using too high of a dose that could be causing unrecognized hypoglycemia especially we worry about that happening overnight, for example.

Speaker 2
So a couple of the ways that you can notice or be alerted to that is if if a person is on more than that point, five units per kg per day. But also when you look at the difference from the bedtime to the morning glucose levels, really you want that background insulin to be consistent. And so if you are seeing that drop overnight by more than 30 to 50 points, that should alert you that, hey, maybe we're using too much long acting insulin trying to make up for the elevations that are actually happening during meal time when really what the person needs is a mealtime insulin.

Speaker 2
The other thing we see is that as A1C gets closer to 8% or lower that often it's actually the meal time, the postprandial glucose that's having more of a profound impact on their elevated A1C level and really to be able to reach that A1C or to reach that time in range target that 70% between 70 to 180 using a mealtime insulin can really help.

Speaker 2
Continuous glucose monitoring data has definitely been a game changer in this area because if you can put that on someone then you can see you're not guessing. You know, you can see are there elevations that are happening at certain meal times where the person is going over the target and that's part of why it's difficult to reach their glycemic goals.
So when we do, when those factors are present and we do decide to add a meal time insulin, usually it's not all or nothing with type 2 diabetes. Usually what we'll do is we will add it with the largest meal of the day or if someone's wearing CGM where we see there's the biggest glucose elevation. And our guidelines typically recommend taking about 10% of the total long acting insulin dose and we can use that to start with the meal time, or we can start with four or five units and gradually go up.

I tend to be more cautious. I'll start with a lower dose and gradually build up to get someone comfortable with that new type of dosing. And then we continue to add as needed. So if someone is having elevations just one meal, we can start with one meal, but if we see it's progressing to needing it at all of their meals, then we would go ahead and we would add it to all three of the meals.

And of course, whenever we're adding additional insulin injections, we do just want to counsel on potential risks of hypoglycemia and just make sure that people are ready. They have fast acting carbohydrates on hand, glucagon on hand if needed, so that they're ready in case of potential episode were to occur.

Yes, it's important to recognize the risk of hypoglycemia and making sure that you educate your patients on how to prevent and treat it properly. So I'm wondering if you could explain to our viewers how pattern recognition helps drive decision making to help people with diabetes increase their time in range and what tools you've used for this.

So there are a lot of factors that actually impact glucose levels. So I love the from diatribe Adam Brown created this 42 factor that affect glucose levels. And I think that's really important because we often think of the common ones, right? Like carbohydrates, rice is going to raise glucose levels and insulin will decrease them. That's to be expected.

But it actually is much more nuanced than that. We see in certain people, they are very sensitive to caffeine. Even a cup of black coffee that has no carbohydrates in it will actually spike some people's glucose levels and other people have no impact. We also see a wide variety with physical activity, really depending on someone's fitness level and the type of activity yes.
You know, commonly something like a walk will decrease someone's glucose levels, but strength training for some people, that will actually spike them and intensive activity may initially spike a person and then later on they have a drop. And all this to see is that there's a lot of factors that impact glucose levels. It's a little bit like a puzzle, but in order to learn how someone's uniquely affected by those, by those different factors, it helps to have more data, more information.

And when you throw mealtime insulin into the mix, you have additional factors. You have the timing of how the insulin is taken you have the amount, the dose. If a person is counting carbohydrates, that is going to impact their glucose levels as well. And that's really where technology has been such a game changer in this space. So starting off with increased glucose monitoring through continuous glucose monitors, just having more of that glucose data allows us to really assess those different patterns.

But also glucose is just part of that picture, being able to see insulin doses and when the timing of when those are taken and incorporating that with carbohyd rate information or the size of the meal, that really pieces the whole picture together. And that information is really useful for the person living with diabetes and also for the health care team to just get that full picture of what is actually happening, which can then be used to make treatment changes as well as motivating for certain lifestyle changes as well.

Right, so any tools that will help someone put together this big picture for the team and themselves, that's going to really help them with their diabetes management, I imagine. Are there any particular tools that you want to share with the audience that you use as possible solutions to help put this picture together?

Yeah, so I've already mentioned continuous glucose monitoring, but that only provides the data with the glucose. Yes, people could put in additional information but another tool that we have are connected pens and connected pens are able to really link up the insulin taking behavior directly with glucose data without additional action, without asking someone to manually record things. The data from the connected pen will pair in.

And so we capture that whole clinical picture together.
Have you seen any particular challenges in moving someone to say, a connected pen, and can you describe how you helped overcome those?

Speaker 2
So there are a few challenges with using connected pens. I would say the first one is just awareness that they even exist. So we have used vials and syringes. We've used traditional insulin pens for so long and those are the things that people know and are familiar with. And so connected pens, unfortunately, I'm seeing that even though this is a great option, most people with diabetes are not even offered this option or are not even aware of it.

Speaker 2
So I think making sure that health care teams, the diabetes care and education specialist and people with diabetes are all aware of the option of connected pens. Beyond that because it is a connected pen, it does require that a person is able to have a mobile app that syncs with the connected pen. And so for that, it does require typically having a smartphone or having a certain device that can download mobile apps.

Speaker 2
Fortunately, I am seeing that most of my patients these days do have those. We even my older patients have often getting rid of their flip phones and are using smartphones. They don't always know it's called a smartphone. So sometimes you have to clarify what you mean by a smartphone. But many times they'll pull it out of their purse or their bag.

Speaker 2
And sure enough, it is a smartphone that can download mobile apps so I think that's important and making sure that they can download the app on their respective device. And beyond that, configuring it to the unique person. So with connected pens, we actually have multiple options. We have different settings that we can set up. We often have the option to set reminders to take insulin doses, or we can customize different factors like that correction factor or insulin action time or carbohydrate ratio.

Speaker 2
And so making sure that we work with the person with diabetes to optimize these settings and also that we arrange for follow up that we can collaborate the data together because often those initial settings are a starting place, but then you can use that data to really optimize the settings and further increase their time spent in target range and reduce their A1C and help the person meet their glycemic goals.
So just thinking about all of that, it is important then for clinics to develop some kind of workflow to make sure they are able to support patients deciding things like, well, who will introduce this new technology? And then once it's introduced and it's prescribed, who will be the one to help the person configure it? And then who will be the person to collaborate on the data together?

00;13;26;05 - 00;14;05;02
Speaker 2
And this this can be different for different clinical settings. Certainly the diabetes care and education specialist is a great person to do this. And I know not every practice has their own diabetes care and education specialist, but with virtual care, we can really increase access. Other team members, dietitians, nurses, pharmacists, there's a wide range of people that can help, and it will be unique to the practice but I think proactively thinking, OK, who is going to be the go to person, who's going to be the technology champion of the practice? Can really optimize the use and increase access and optimize outcomes for people with diabetes.

00;14;06;14 - 00;14;18;16
Speaker 1
So it sounds like there are many benefits both for the person with diabetes and the care team with connected pens. Can you outline what you think those benefits may be?

00;14;19;10 - 00;14;42;07
Speaker 2
Yeah, definitely. There are tremendous benefits, and so some of those benefits include being able to reduce A1C and increase time in range. And so often by having this connected data, it may initially shine a light on some of the problems. Like one of the things we can often tell is, is the long acting insulin is that optimized?

00;14;42;23 - 00;15;14;11
Speaker 2
Because if we see a large increase or a big decrease overnight, sometimes we realize that's not optimized and the data allows us to be able to optimize that dose similar for the mealtime doses by being able to see the insulin taking behaviors along with the amount taken, we can really fine tune the treatment plan. And I know when I see patients and they don't have this data, I'll ask, well, how many doses of insulin do you think you've missed in the last two weeks?

00;15;14;11 - 00;15;38;04
Speaker 2
And they may say, oh, one or two, but they don't you don't remember what you forgot, right? They they just don't know when someone uses a connected pen, you know exactly how many doses a person took when they took them and when they didn't take them. And it's not judgment or anything. It just opens up the conversation to, well, what are some potential barriers to taking insulin or is there fear?

00;15;38;04 - 00;16;05;28
Speaker 2
You also often can see if a person took more or took less insulin than recommended. And so exploring the reasons why, it really opens up that dialog and then by discovering those things and addressing those things, you can help to reduce the number of missed doses. You can optimize that time spent in target range. You can reduce things like the glucose variability and hypo episodes of hypoglycemia.

00:16:06;14 - 00:16:29;29
Speaker 2
Also, we see that people generally are more satisfied when they have this kind of data and they're able to increase their time and range and reduce their variability. People feel better, they have better quality of life, they have less diabetes distress. When people have reminders of when to take their insulin so they don't forget, all of these things really work to improve health outcomes.

00:16:30;00 - 00:16:40;19
Speaker 2
And so I think it's important that we let people know that there's this option out there so they know that this is available because it does have a lot of these various benefits.

00:16:42;16 - 00:16:55;09
Speaker 1
Well, Diana, you've covered so much great information for our audience and we want to thank you for taking the time to join us for this episode of The Forefront and sharing your knowledge and experience with our audience.

00:16:55;16 - 00:16:57;05
Speaker 2
Thank you so much for having me.

00:16:57;26 - 00:17:19;25
Speaker 1
Yeah. For me, as the diabetes care and education specialist, I know how useful this information is for practice. So I'm sure our viewers really appreciate hearing your firsthand experience we want to thank our sponsor, Lily once more for their support of this episode of The Forefront. Thanks for watching. And please join us again for future episodes.