Managing Challenging Atopic Dermatitis Cases
(Supported by Pfizer)

Zelma Chiesa Fuxench, MD, MSCE, FAAD, interviewed by Carmen Castilla, MD, FAAD

CARMEN CASTILLA, MD, FAAD: Hi, everyone. I'm Dr. Carmen Castilla and I'd like to welcome you to the *Dialogues in Dermatology*. We're going to be talking about difficult to treat eczema cases with Dr. Zelma Chiesa. So Dr. Zelma Chiesa is an Associate Professor of Dermatology at the University of Pennsylvania Perelman School of Medicine. She is a board certified dermatologist who's clinical work focuses on inflammatory diseases, with a specific focus on eczema and psoriasis.—

--Dr. Chiesa's research work is focused on the epidemiology and genetics of inflammatory skin diseases, primarily atopic dermatitis. She is also actively involved in the conduction of clinical trials in atopic dermatitis. So welcome, Dr. Chiesa, thanks for being here.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: Thanks, Carmen, and thanks for the kind introduction. It's great to be here.

CARMEN CASTILLA, MD, FAAD: Just to get started, can you explain in your clinical practice, what makes a certain eczema case difficult, from a clinical perspective?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think that's a great question to start our conversation with. I think we have to set up where we find ourselves. I'm in a practice that primarily takes care of patients who are a little bit on the older side, so I'm dealing primarily with adults and not pediatric patients. I think it's important to make that distinction because there may be differences there from the get-go. If we focus primarily on adult patients, I think some of the hardest things is, first of all, trying to untangle a lot of the misconceptions that patients have when they come in to see me for the first time.—

--There's a lot of information out there that they get from other providers that they've seen in the past, the internet, social media platforms, and so it's trying to make sure that patients really understand what their disease is about and what it means to have this disease. What are some of the misconceptions around it versus when we talk about eczema being a disease primarily of children, why is it happening now as an adult. Some people think they can't get it as adults.—

--So it's really important to set that kind of foundation, where you're sure that you understand what the patient knows about the disease. Because sometimes I think that's the hardest part, just kind of getting through with that first education, interaction with the patient. In terms of what makes it challenging to treat when we're thinking about is it moving in the direction of topical or systemic changes, some of the difficulties that I tend to see in my practice is adherence to treatment, tolerance, understanding what needs to be done, follow up.—

--As physicians, we want to do what's best for our patients and sometimes we come up with this very nice treatment plan that we specify, "You're going to do this for that and this for that," and the patient seems to be nodding and being like, "Yes, I understand everything you're saying." And then they go home and everything is forgotten.

CARMEN CASTILLA, MD, FAAD: Yeah, they do whatever they want.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: They come back and see you and it's like, "Were you applying this or that," and they're like, "No, I just used the one I had two weeks ago." Or, "I used the medication prescribed by my other dermatologist." You're like, "Okay, let's take a step back." So I think those are some of the challenges that we face. Of course, there are other things in terms of can we get approval for patients for certain medications that are more targeted, that always is a challenge.—

--In adult patients, where is the patient in their lifetime? Because sometimes I have college students, for example, that are traveling back and forth. Or I have female patients or women who are in the process of wanting to become pregnant. So it's just how do you fit that treatment regimen into their lifestyle I think is very important.

CARMEN CASTILLA, MD, FAAD: Kind of to segue off of that, so how do you approach patients when they come to you and they've seen a bunch of different doctors, they've done a bunch of different treatment options, biologics, and they've tried multiple therapies with little or no success. What do you do with them? And then how long do you treat a patient with a certain therapy before you decide it's a failure?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think when you have a patient coming in that has seen other physicians, advanced practice providers in the past, and they're coming to you saying, "I've tried all these things and I've failed all of them," my first step is really to take a step back and look at my patient and try to figure out do we have the correct diagnosis. Are we missing something else here? Because we know that some of these new targeted therapies, they should work for a fairly large number of our patients, so why is it that you're not responding.—

--And so making sure that we take the time to really look at the patient, get a thorough history, try to understand whether or not we are on the space of atopic dermatitis or eczema, or is it now we're dealing with something else. So once I look into that, the next step is why have you failed these therapies, quote, unquote. Sometimes you'd be surprised when you are talking to a patient and they say, "I was on a biologic for four weeks and it wasn't working." That's really not a sufficient amount of time.—

--So the next question is, "Okay, so you were on it for four weeks and it wasn't working. What do you mean it wasn't working? Did you notice any improvement in the itching during this process?

Were the skin signs, was the redness, the scaliness, was that improving but was it that it was still present?" Then the other thing is, "Is it not working because you were not able to tolerate it?" So I think trying to understand, especially when a patient comes back saying, "I've failed two or three biologics already," what do you mean by failure?—

--So trying to understand really what the patient is telling you and not sort of saying, "Oh, they failed. We have to go onto the next one." That to me, I think it's actually detrimental if we don't take the time to really evaluate the reasons as to why a patient is saying, "I have failed therapy."

CARMEN CASTILLA, MD, FAAD: It sounds like it's important to counsel the patient on what their expectations should be in terms of their improvement timeline.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: Yes, you used the key word, it's "expectations." And I think in this era where we have all this information overload and it's very easy to, you go online and you see all of these testimonials about people getting better and "I tried this and I'm better. I tried that." I think it can lead to an idea that somehow eczema and atopic dermatitis can be cured and we can't really promise that.—

--I think it's important to set those expectations upfront, like you mentioned. Sometimes if we're in a very busy clinic and we're running behind, we don't have time to talk to our patients. But I think it's very important from the get-go to make sure that patients understand what to expect. When will we start to see an improvement. What is it that we're trying to achieve. What should we expect in terms of tolerability.—

--We're talking about setting up expectations for patients and I think it's very important that we do that from the get-go. As soon as we're thinking about prescribing either a topical or a systemic agent for our patients, we really need to make sure that the patient understands what is the purpose of the treatment, what they should be expecting in the long run. These are things

as simple as saying to them, “When should I start to see my itch improve?” “How long should I be on a medication?”—

--I think if we don’t have those conversations early on, we might just be setting ourselves up for failure later. There’s a number of times when I have patients in clinic and they come to see me and I know that they’ve seen one of my colleagues who are also excellent. So I’m, “Why are you here?” And then as I try to understand a little bit more why they’re here because of treatment failure, you start to see that, “Oh, wait, it wasn’t really clear what the expectation was with respect to treatment.” So all they really needed was just to have that conversation and that usually will help.

CARMEN CASTILLA, MD, FAAD: When you’re getting these patients and you’re starting them on a biologic or other systemic medication, are there certain features of these patients where you would choose something like the IL-4/IL-13 combo, versus the IL-13 alone, versus the other systemic medications that are available for eczema now?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think that’s a very important clinical question. When I was in residency training many years ago, we didn’t struggle with this question because we had nothing. This is what we have and this is what we can give you. Then came the first biologic for atopic dermatitis and we’re like, “Okay, this actually does work,” and it was like a simple answer to that question at the time. We would basically just start patients who were candidates on the systemic on this particular drug.—

--But as we’ve developed a better understanding of the pathophysiology of the disease that has led to newer therapeutic options, it now becomes more challenging in clinic. But I think it’s challenging in a good way, because now we have options that we can offer to our patients. I’ve had these conversations about whether or not do you try to use a biologic first or just a JAK, what is your current recommendation? Our current guidelines or consensus statements from the

AAD don't really put these as a step therapy approach, where you have to fail one and then go to the other.—

--I think it's nice that they really do leave it open for us who are taking care of these patients in the frontlines, that we can choose what we want to do and not be forced into boxes. In terms of selecting a biologic or a JAK, I think it's very important to think about first the patient in front of you. Every patient is going to be different and it's important that we get to know our patients. And that's going beyond what you see on the skin. It's understanding how eczema affects their quality of life. How quickly do they need these things controlled?—

--Do they tolerate a certain type of mode or route of administration? Some people would say, "I'd rather take a pill every day than have to inject myself every two or every four weeks." And that's important because if someone says from the get-go, "I'm not doing an injection," do not force them on that route because we're all going to fail. If you want to do that eventually, you have to rope them in. Clinically speaking, these are all drugs, these newer targeted treatment options have all shown to have efficacy in clinical trials and to be safe to use.—

--So again, you can choose. There are certain things that may make one thing an easier choice in certain patients. For example, there are medications that require bloodwork monitoring. If your patient is a patient that doesn't enjoy blood draws, then it's probably not the way that we're going to go. Maybe there is a patient where the itch is the driving force. It's really what's just keeping them awake at night and you really want to tone it down, you might consider something like an oral JAK inhibitor which may act a little bit quicker than some of the biologics.—

--You might also consider IL-31 inhibition, that's another option that you have. In terms of maybe just using our usual IL-4, IL-13, or IL-13 only inhibitors, I don't think we're at the point yet where we can say it's best to just go with this one versus that one. Because in my mind, I don't

think we have enough clinical trial data yet to suggest that you should just do IL-13 inhibition first because it's a homerun compared to the earlier biologics.—

--It could go either way and both of them have been shown to work. Ultimately in the nature of the setting where we practice, unfortunately in our country a lot of it is dictated by insurance companies. So we may decide that we want to go with one or the other but an insurance company may force us to try one option that we may not think is the correct one but ultimately it's the one that may be more available to patients. So that's the other thing, getting your patients on treatment, I think it's also very important.

CARMEN CASTILLA, MD, FAAD: So it sounds like there's no clinical features, except for itch potentially, that would push you to one versus the other, and it's more of a holistic approach to the patient.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: There are certain things. For example, in terms of side effects, so talking about our earlier biologics, conjunctivitis which seems to be, or even our more IL-13 recent ones, they do have a higher rate of conjunctivitis in treated patients versus placebo-treated patients in clinical trials. That's not something that we really see with the JAK inhibitors. So when I'm evaluating patients, beyond the clinical signs of the disease, when I do my review of systems, I do ask them, "Do you have any prior history of eye disorders? Do you have recurrent conjunctivitis?"—

--If that is an issue, it's not that I may not prescribe these agents, but I may be more cautious. If the patient maybe is willing to go on a JAK, then maybe I'll do that. We've seen changes in terms of monitoring for arthritis symptoms in patients on dupilumab because we have seen new onset arthritis develop in these scenarios. So I will ask patients about any joint symptoms, which is something that I think it's not on the top of our minds most of the time.—

--But it is something that because now I have different options to choose from and because we know that the data shows that there's maybe a stronger signal there for one of our earlier biologics, I do ask that question. Again, it's not a contraindication in my mind but it's something that I monitor closely. Comorbidities, if we have a patient who has a history of rheumatoid arthritis, asthma, or another comorbidity where I could use one drug as a dual indication and I can comanage my patient, that's another way that you could tease out what you would want to do.—

--In terms of clinical features of the patient, which I think is where your question was getting at, I haven't really in my practice it's not something that sort of drives the decision primarily. Because again, these are drugs that have been tested in clinical trials. Patients that have met AAD criteria when enrolling in these trials. You've pretty sure that they have the diagnosis hopefully. I don't think yet that there is something about these drugs that would treat these different maybe potential AD phenotypes differently.—

--As we do more studies in the future better characterizing these different groups, that actually may change. At this point, I don't think that really drives my decision.

CARMEN CASTILLA, MD, FAAD: Do you ever combine therapies, such as JAK inhibitors and an IL-13? If so, how do you do that?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think that's another thing that we are, you know, it's interesting how these things happen organically in a way. As we have these options to choose from, we start going into our little closet and pulling things out. It's kind of interesting to see how it also parallels the psoriasis world, where we had these biologics coming out and then we started doing combination therapy, and we do that. For atopic dermatitis, particularly for our newer systemic agents, I will do I would say a combination therapy between JAK inhibitors and a biologic.—

--I would say that that's thankfully not the majority of my patients but there are patients where the disease is so severe and they're put on a biologic and they're doing great, but then there's just something else that's not being treated. And then we try switching to a biologic and we're kind of towards the end of the line and we're thinking we're really running out of biologic options. Let's start maybe a JAK. I haven't seen in the literature any potential contraindications to using that approach. These are not FDA-approved approaches.—

--Typically insurance companies are not happy when I try to get these two types of medications prescribed for patients because they are particularly expensive but there are just some patients that, again it's probably a bias of our clinic, that are just very severe. You get them to a pretty good point on one agent but they're still suffering because of another aspect of the disease and you know that you probably need to give it something else to tackle that. Because I think there's probably different mechanisms that are driving it.—

--So far while my experience is small, because again my goal is to try to make it simple for patients and if I can treat you with a single agent, that's what we're going to aim for. But so far my experience has been that patients do tend to tolerate both treatments fairly well when combined. You just have to make sure that you have the correct diagnosis, that this is a patient who is overall a pretty healthy patient when you think about it, that would be able to tolerate these types of treatments, and that this is a patient that you feel you can trust.—

--That they'll come in for their appointments, that they'll tell you when something is wrong. And you can do that. I do think we need more guidelines on this area, but we don't really have clinical trials looking at this. I think what's going to happen is that as these drugs become more available and we become more comfortable with their use and people start using them in combination, hopefully we'll get some literature that's published out there that we can learn from the experience of others, as well, in terms of how to do this properly.

CARMEN CASTILLA, MD, FAAD: Do you keep them on both long term? What I've done for a few patients is I have them on a JAK. They were on an IL-13, they were doing okay, not great. I switched them over to a JAK, doing better, not great. Gave them a few doses of an IL-13, kept them on the JAK, and now they're fine. But I don't know, what do you do? Do you keep them on long term?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think that's a great point. Like you just mentioned, you have a patient, you're doing the best you can to take care of this patient. You're trying to get them to a point where they're happy, their quality of life is improved. You start to grab for those things in your closet. I do the same thing. I start them on these therapies. Like you said, I start one, see how this response goes. If it's like I feel there's something else, and this is something that it's hard to teach.—

--You learn as you get more experience, so that's why I encourage people to, these medications are out there, consider using them in the appropriate patient so you get comfortable with them. And then you can start doing things like you're just saying, Carmen. I put them on a biologic and a JAK and then I notice that maybe I could reintroduce the biologic again and then take it out. I don't think that's unreasonable, I do probably the same thing. The patients that I have, I sort of have done the opposite though, where they're on a biologic but then they're saying, "I'm still a little bit itchy," or there's still a little bit like redness.—

--And then I introduce the JAK, thinking that it might be easier to take them off from the JAK or manage their dosing. Because with the biologic, there's less flexibility in dosing. Where you have to do it every certain weeks or whatnot, versus with the JAK it's a pill that they can say "not take it today," then they take it when maybe they experience a breakthrough flare or things like that. There's no right or wrong way to do it in my mind at this time, because we just don't have any evidence to suggest that it is.—

--My advice would be for other dermatologists out there who are thinking, if they have a patient like this, is just to be careful. Monitor your patients closely. Make sure that they understand the risk versus benefit of these approaches. And then see them in follow up a little bit more frequently, so you can make sure that things are flying steady. And then once you're comfortable with their response, once the patient feels comfortable being on combination therapy, then start stretching those appointments if everything is going well. That to me is a pretty reasonable approach.

CARMEN CASTILLA, MD, FAAD: Do you have patients who are on both longer term?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: Yes, I have patients who I can't get off of. They go on a biologic and they're doing great or they go on a JAK. Their skin signs are improving but then they're still itchy and so I may add a biologic that may be specifically targets itch. I have a patient who is currently on that scenario. What's interesting about this patient is that they are on a--.

CARMEN CASTILLA, MD, FAAD: Is that the IL-31 that you added?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: Yes, the IL-31, which is nemolizumab. So that one does work pretty good for the itching. We have it approved for prurigo nodularis, as well. I do think that sometimes the skin lesions just take a little bit more time to actually see an improvement. I've had patients on combinations with the IL-31 and a JAK. A very particular patient comes to mind, where this patient is on let's just say the 30 mg dose of this particular JAK, which is the highest FDA approved dose, and they're actually pretty stable on both the IL-31 and this JAK inhibitor.—

--But every so often, this particular patient experiences a flare when they get exposed to certain environments. They have even upped the dose of the JAK inhibitor a little bit more, to 45, which

is a dose that's approved for inflammatory bowel disease. They do that for a couple of days and then they go back to their usual dose and they'll tell me, "Now I'm okay." But again, this is not something that I would advise people to do if you don't feel comfortable with these drugs or have never prescribed them before, because these are not FDA-approved dosing.—

--Again, you have to have a very, what I call a patient that you are confident that they understand what the instructions are and that they follow through with their visits. But I have kept patients long term on dual therapy, because some people are just, for whatever reason we can't seem to shut it down completely and they're not able to be controlled on just one therapy. That always opens up the discussion about is there another pathophysiological mechanism that's driving this.—

--Is there a way that I can better identify this patient? But there's really no blood test that we can order just yet that's going to tell us you should use, we're not in that era of precision medicine just yet. But I think we are slowly moving there and it would be great if we had something like that in the future.

CARMEN CASTILLA, MD, FAAD: So we have all these great new medications. I feel like things are coming out, new things. But how do you manage a patient who has severe eczema but wants those alternative treatments? They want to find the root cause.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think this is a question that I would dare to say that if you ask every dermatologist in the country who has seen an eczema patient, regardless if they're a pediatric patient or an adult patient, that they will tell you stories around this sort of conversation about a patient coming into the dermatologist's office and wanting to try alternative therapies, complementary therapies. I think it's really important to try to understand from the get-go, what is happening here. What do you understand about the disease?—

--We talked about that initially, about setting expectations, making sure that the misconceptions around eczema are clear. I think oftentimes patients, a lot of them might be frustrated or caregivers might be frustrated. Because they're seeing the patient is suffering. They see their child suffering or their partner suffering and they're really trying to get to the bottom of this. Typically when I see patients in my practice, that's the first thing I tell them.—

--You have to think of eczema as a chronic disease. You have to think about it as the same way you think about hypertension, the same way you think about diabetes. These are diseases that once you get them, you're going to have them for a very long time. Some people may be able to manage their hypertension or their prediabetes with exercise and diet but others really need to go on therapy. And once they go on medication, they're on it a very long time.—

--Usually saying those three sentences is enough to see the patient's face sort of change and be like, "Oh, I get it. Okay, I get it." When you see that, you know that this is going to be okay because the patient is ready to understand. I tell them that this is a complex disease, there's just not one single thing that's causing the eczema. There may be potential triggers and if we eliminate those triggers it may get better, but it may not necessarily disappear.—

--So I do counsel patients that we don't really have a lot of good clinical trials or data to support the use of some of these interventions as being like the cure or the alternative to a systemic agent, if this patient really needs to be on a systemic agent. I try not to dismiss this when they come because I feel if we dismiss and just say, "No, that doesn't work. Why are you here? If you want to try that, then go somewhere else," I think that really just does a disservice.—

--As much as it drives us crazy to hear that question, we should not be dismissing the patient's concerns that way. I think we should be honest with the patient and just really tell them that we just don't have enough good clinical trial data to say that if you do X, Y, and Z in terms of diet

and complementary medicine that you will be better. So we don't know to say to that. But at the same time, I do ask the patient, "What is it that you want to try?"—

--A patient might say, "I read that taking probiotics is good." And I'm like, "Okay, then you and I can find common ground here. Let's start some probiotics and maybe you'll start this, as well." And we try to find common ground. Sometimes patients are very hesitant and they're seeing me for the first time and they're saying, "No, I'm just going to do this." And I'm like, "Okay, start with that. See me in a couple of weeks and then we'll take it from there." So you can leave the door open but I'm hoping that eventually, and most of them do come back.—

--When they come back, now I'm like, "Okay, now can we do it my way? Let's do that." Because we have to remember that, particularly for a lot of our adult patients, many of them have been struggling with the disease for a very, very long time. They may have put up with it, so there's probably a lot of frustration, a lot of kind of disappointment in terms of what's been done in the past, and they may not know that there are newer, more effective treatment options that now they can choose from.—

--I think it's important that we continue to do also more research in this area, because people are asking these types of questions. If there's anything that we can do to help empower our physicians to be better equipped to answer these types of questions, I think we need to do that. The last thing that I was going to say on this topic is that a lot of the data that we have out there in terms of probiotics, prebiotics, it is primarily more in the setting of primary prevention, developing the (s/l onset of) the disease.—

--It's not really looking at a patient who comes to you, whose eczema is "flaring," very severe. So those are different patient populations. I think it's important for patients to also understand that, it's just that at this point their disease is so active, the floodgates are so open that we really

just need to shut them down and then we could try to explore those other options and kind of move in that direction, if that's something that the patient is still interested in.

CARMEN CASTILLA, MD, FAAD: If there's something that you could change about how we manage eczema, what would it be?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I think this is a great question, too. In terms of changing, there is a lot of information that these patients are receiving. It's very difficult to make sure that we're all on the same page in terms of causes of disease, expectations, treatment options. There's a couple of things actually that I would change. One, I wish that we had more time with our patients. But for reasons that are outside of our control, sometimes we don't.—

--It's really hard to provide all this information to our patients and then you're looking at them and you're like, "Oh, my God, I just provided information overload to this person. They're not going to remember anything I said. I probably just made things worse." So finding a way to empower the patient, so how can the patient, is there a way that we can provide this sort of education that they can remember, that they can feel empowered to make decisions.—

--Does this fall into the realm of developing eczema action plans that are actually actionable and not just a piece of paper. How can we leverage some of the new technologies to help empower patients that way to be able to make those initial, if they're flaring what is it that I need to do. I think that's a very big aspect that we need to think about. The other thing is, and this is outside of control, it's just what frustrates me a little bit is having these options for treatment and then just having insurance companies kind of in the back there, sort of dictating what you want to do.—

--As physicians, we went to medical school. We trained. We are going to put patients on therapy that we know are good for them. We're doing the best we can. It's a little bit frustrating to know

that there are options for treatment for patients that can improve their overall signs and symptoms of the disease, that can improve their quality of life and potentially change their trajectory of life, and then have someone dictating that they cannot be on those drugs.—

--I also think I'm in a pretty large academic practice, so I do have a support system to be able to run through the whole preauthorization process. But I do think about my colleagues who are in private practice, who just may not have the time or the financial resources to be able to do this type of work. They want to put their patients on therapy but it's just so hard for them to do it that they may not end up going on therapy.—

--That to me is a little frustrating, to know that we could do better by our patients and the fact that we're not doing better is because of things that are just so outside of our control.

CARMEN CASTILLA, MD, FAAD: That's definitely a struggle.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: It is a struggle. I think the other thing is as we move in the direction of more targeted approaches to treatment, the other thing is how do we guide treatment selection? We talked about during our past discussion here today about which is the patient that you choose for what. I do think that this is an area that needs additional research work, because we really need to better phenotype these patients. Can we fit them in different buckets?—

--Is there a way that we can figure out exactly who is the patient that may benefit from X, Y, or Z. We don't have that yet for psoriasis and at this point we have so many biologics to choose from. But I do think that we need to figure out a better way to identify the patients so that we're in a clinical setting and we're trying to make those decisions that we could maybe use that information to help guide which agent we choose. That, to me, would be another great way to improve treatment of patients, just more of that precision type of medicine approach.

CARMEN CASTILLA, MD, FAAD: I think that would be wonderful. To have some clinical features or something about the patient where it really drives your decision making. So thank you so much for this interview, it's been really great and you've given lots of great information and education on this subject. As a last question, where do you see the treatment of complex eczema in the next five to ten years? Are there any new blockbuster treatments that are on the horizon that you've seen?

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: I'm really happy to be on this space at this point in time, because again as I mentioned, when I was in residency training we had really nothing to choose from. It was just very frustrating to have these patients come in and you wouldn't be able to do a lot for them. You were kind of limited in terms of these are our traditional systemic agents and this is what we get. And you knew in your gut that it wasn't really going to move the needle that much, but that was all you had.—

--Again, as we understand more about the pathophysiology of atopic dermatitis, I think one class of drugs in particular that are more advanced in terms of their development are the OX40, OX40 ligand and receptor inhibitors. These are drugs that are currently in phase 2 and phase 3 clinical trials. So far, the trials really do show pretty good clinical responses, with the possibility of extended dosing or extended frequency of injections. So I am really excited.—

--Again, if you look at the psoriasis story, you see similarities in terms of the atopic dermatitis landscape and "biologics or systemics." Really looking for those particular types of drugs where you can achieve more with less frequent injections and a pretty good safety profile. I think that's going to be the blockbuster thing and I'm really excited about that. So we'll see what happens in the next couple of years. It's going to get more complicated but hopefully complicated in a good way for our patients.

CARMEN CASTILLA, MD, FAAD: And we'll have better treatments and things will be better in general. Well, thank you so much for taking the time to speak with me and nice to meet you, as well.

ZELMA CHIESA FUXENCH, MD, MSCE, FAAD: Nice to meet you, Carmen. Thank you for the opportunity.