Food Oral Immunotherapy: Risks, Benefits, Expected Outcomes

✦ Course Transcript ✦

Editor's Note: This is a transcript of an online course released in June 2024. It has been lightly edited for clarity. To obtain credit for participation, CLICK HERE.

Mimi Tang, PhD: I'd like to first walk through the different outcomes that can be achieved with oral immunotherapy, focusing specifically on challenge-defined outcomes and then shifting to patient-centered outcomes. And hopefully, you will, following this, have an understanding of how these match with each other and, in so doing, be better equipped in aligning your patients' needs and expectations with treatment outcomes as you offer them oral immunotherapy.

Let's start with some challenge-defined outcomes. This is a typical schedule of oral immunotherapy, with which I'm sure you're all familiar. What we do with oral immunotherapy is we administer by mouth, by the oral route, the allergen that the child is allergic to. We start at very small doses and build up fairly quickly to higher doses to reach a maintenance dose. The dose escalation phase can take weeks or months, and then the maintenance phase can be continued for a period of a year, or you could actually be remaining on maintenance dosing indefinitely, depending on the clinical outcome that you achieve from oral immunotherapy.

The outcome, as defined by challenges, can be tested at different times. If you perform a food challenge during maintenance dosing, or immediately after stopping maintenance dosing, you are testing for something called desensitization. If you then stop treatment and wait a period of time before performing a further food challenge, you can then test for the clinical endpoint of remission. And we're going to walk through those so you have a very clear understanding of how they're different.

Challenge-defined efficacy outcomes. The outcome of desensitization refers to an increase in the reaction-eliciting dose. What we mean by this is the dose that triggers an allergic reaction goes up. For example, if you were allergic to 1 peanut and had a reaction at 1 peanut, being desensitized you would now not react until you ate more peanuts, say 4 peanuts. Now, the way you test for desensitization is really you should have a challenge before starting oral immunotherapy and then a repeat challenge during or immediately after stopping oral immunotherapy and showing that your reaction threshold went up. That is the definition of desensitization.

What this offers to patients is protection against accidental reactions. The reason we say this is that desensitization, whilst it shifted your reaction threshold, has not modified the underlying allergic response. You are still allergic and therefore you should continue allergen avoidance other than your daily dosing, and this protection of desensitization is only maintained provided you continue on a daily dose of exposure. For desensitization, you get protection against accidental reactions, but you must continue both allergen avoidance of other sources of your allergen, and remain on your daily dose, to maintain your protection.

Let's shift to remission. This is quite different. Another way to refer to remission is sustained unresponsiveness. What this refers to is the absence of clinical reactivity after you have stopped the oral immunotherapy dosing for a period of time that's long enough to move away from the desensitization effect. Okay? We'll come back to the definition of remission and how you test for it in a little bit more detail, but what this remission endpoint offers to patients is the ability to stop treatment, to no longer have to adhere to allergen avoidance, and the choice to eat your allergen in your diet freely. There is an idea that some allergen intake is important to consolidate this newly rewired allergic response.

Is there another, longer lasting protection than remission? In our research group, we have been examining a particular outcome called persistence of remission. This is where you show the remission endpoint is still present years after stopping treatment with ad libitum allergen intake in the intervening years. I would say that if you have had continued allergen intake ad hoc, that allows your

immune response—your newly formed remission response—to consolidate and firm up, much like booster vaccinations in the childhood vaccination series for tetanus and diphtheria and, in this instance, you have a strengthened remission response to your allergen. So, in this situation, you probably don't need to have some form of allergen intake. You probably have a very stable remission endpoint. You're able to stop treatment, no longer avoid your allergen and eat your allergen freely.

What do we know about oral immunotherapy and these challenge-defined efficacy endpoints? Several systematic reviews have now been completed and there is very consistent and convincing evidence that oral immunotherapy is very effective at inducing desensitization. This is for egg, peanut, and milk. These are just where the studies are abundant, and you can see here, using this forest plot, that there is very clear benefit for all of the different oral immunotherapy regimens.

What about sustained unresponsiveness remission as an endpoint? There are very few studies actually evaluating this endpoint with oral immunotherapy and the vast majority of studies are in egg or peanut allergy. What we do know is—of the limited studies available—there does appear to be a consistent ability for oral immunotherapy to induce remission. This occurs in a smaller subset of patients where the majority of patients receiving oral immunotherapy will achieve desensitization. Only a subset will achieve remission with oral immunotherapy and this particular systematic review, published in 2023 by investigators at the University of Melbourne, showed that the number needed to treat is approximately 3. If you treat 3 children with oral immunotherapy against peanut or egg, using the regimens that were tested in these particular studies, 1 out of those 3 children should achieve remission.

But when we talk about desensitization and remission, we need to understand that there are actually different levels of protection that are achieved, and I want to walk through this because this is a very important point to take away. Desensitization, as I mentioned, is a shift in your reaction-eliciting dose, but how far that shift goes can vary, depending on the oral immunotherapy dosing regimen that the patient is offered. For example, with low-dose oral immunotherapy with PALFORZIA as the first approved treatment in the United States, you can achieve desensitization against 4 peanuts in around half of treated patients or 2 peanuts in two-thirds of treated patients. If, on the other hand, you use a high-dose oral immunotherapy, say the maintenance dose of 2,000 mg rather than 300 mg as would be offered with PALFORZIA, if you're offering 2,000 mg, you should be able to achieve a higher level of desensitization and, for example, you could potentially achieve full desensitization against a standard serve or a standard diagnostic challenge whilst you remain on treatment and that might be 20 peanuts rather than 4 peanuts. With remission, the difference here is you have no evidence of clinical reactivity. What we mean by this is that you would do a standard diagnostic challenge to peanut, say, and this is the sort of challenge I might do, or you might do, to test whether a child has peanut allergy. If the child passed that particular challenge, you would have confidence in saying, "I have no evidence your child has peanut allergy and you may go home and eat peanut freely." When you're trying to test for remission, that is the sort of food challenge you need to administer. You need to administer a standard diagnostic challenge that, if the child passed, having stopped treatment for at least weeks or months, to clear any desensitization effects, you would then have confidence to say, "Right now I don't have any evidence of clinical reactivity and therefore the child is in remission." And, in this case, you can take free peanut intake off treatment.

Why is it important to distinguish between achieving desensitization as compared to remission when you've offered someone oral immunotherapy? It's very important because, depending on what you've achieved, you need to advise your patient differently in terms of allergen avoidance and the need for ongoing maintenance dosing. As I've already mentioned—but I wish to emphasize this point because it's so very important—if the patient has only achieved desensitization, you need to continue on a daily immunotherapy dosing. You need to continue allergen avoidance other than your daily immunotherapy dose. The level of protection you've achieved will vary, depending on the dosing regimen you've offered, but generally and typically speaking, it

is against accidental exposure to small amounts that might be contained in packaged foods.

If, on the other hand, you've achieved remission of allergy, what this then allows you to guide the patient is to say you no longer need to continue on regimented oral immunotherapy because your protection should persist. You no longer need to avoid your allergen and you have the choice to eat your allergen freely. We do advise some intake because, as I mentioned earlier, intake offers something similar to a booster vaccination in the setting of vaccines. What we're doing is we've rewired your immune response away from allergy, towards remission, and we want some level of exposure, periodically, to consolidate that newly rewired response, that new remission response, so that it can be stronger and more stable and persist in the long term.

The other reason we want to know whether someone has achieved desensitization, as compared to remission, is that these different challenge-defined outcomes align differently with patient-reported outcomes.

I'd like to talk about how we test for remission because this is also an important point to take away from today's talk. There are 2 aspects to proving that remission has been achieved. One is you have to clear the desensitization effect. You have to be able to stop treatment and wait a period of time before you come in with your remission challenge test. Now, how long should we wait? At this time, there is no consensus on the duration of time you should wait after stopping treatment before testing for remission. However, the key point to remember is that you simply need to be sure you are not getting confused with desensitization. Now, data from drug desensitization studies have shown that the desensitization effect is largely cleared within 3 to 4 days. Desensitization works because you have modified the mast cell reactivity response and studies in drug desensitization have shown that the mast cell can recover very nicely within 3 to 4 days. Provided you clear that, and I would recommend a minimum of 4 weeks off treatment—in our research group we use 8 weeks following stopping of oral immunotherapy to test for remission. As long as you clear that by several weeks, I think it is a very robust test for remission. If you wait too long, I would say there is a risk that these unstable, newly rewired remission immune responses could be lost in some children. I believe the earlier we can test for remission, the greater confidence we have that we have cleared the desensitization effect. So that is why I recommend something like 4 to 8 weeks after stopping treatment.

Now, the second key factor you have to overcome in order to demonstrate remission with confidence is the amount of allergen you challenge the patient to. I made reference earlier to a diagnostic challenge. This is important because we want to be sure that the patient doesn't have allergy. Most clinical services will challenge to a cumulative dose of a standard amount of food for that allergen. Let's go back to peanut as an example. A standard serve of peanut might be somewhere between 2 and 4 g of peanut protein, or 1 sachet of peanut butter in those takeaway packs, 2 sachets in the case of 4 g. In most clinical settings, we're challenging young infants to 2 g, older children to 4 g. In research settings, most people now are using 4 g or 5 g. My research team, we use 5 g of cumulative peanut protein and I think this is very important to give you confidence that it is remission that you're testing for and not sustained desensitization. There is an endpoint that you could think about called sustained desensitization where someone remains partially desensitized after pausing their desensitization therapy for a few weeks, but this is very different from remission. I emphasize again that we must do a standard diagnostic challenge.

Okay, so let's move on to patient-centered outcomes now. This is a lovely study by an American group published in 2021. They surveyed over 1,000 patients, presenting to a single academic center, seeking oral immunotherapy between 2017 and 2019. And these patients were asked, "What do you want to achieve from oral immunotherapy?" And what they found was that three-quarters of patients are looking for an improved quality of life. Just over 60% were looking for better management of accidental reactions. A reduction in the number or frequency of accidental reactions or perhaps a reduced severity.

We conducted a similar study in Australia. We surveyed the Allergy and Anaphylaxis Australia

membership. These are families who join our patient support organization, and we surveyed 220 members over the course of 2 months. And we asked them what their goals were when pursuing oral immunotherapy. And we found that the overwhelming majority of families wanted to be able to stop allergen avoidance. They found this to be quite burdensome. A vast majority, over 90%, wanted to no longer have to remain on maintenance oral immunotherapy dosing, and a large number wanted the choice to eat their allergen freely, not that they had to, but they could choose whether or not they could do so. You can only achieve these outcomes with a remission endpoint, allowing you to stop allergen avoidance, stop maintenance dosing and eat your allergen as you like.

How do the challenge-defined outcomes we discussed earlier, desensitization and remission, align with these patient-centered outcomes of quality of life? Let's have a look a bit further. This is a nice meta-analysis that was published by Dunn Galvin and colleagues in 2022, and what they did was they pooled the study results from 3 different randomized trials, evaluating the PALFORZIA therapy and 2 follow-on studies that patients could roll over into after they had completed the randomized trial phase of intervention. The 3 different studies are, I'm sure, familiar to you. Two were conducted in the US and 1 was conducted in Europe. The outcome for these studies was desensitization against either 600 mg or 1,000 mg, that is 2 peanuts or 4 peanuts.

Now, many of you will have heard just through common discussion that desensitization improves your quality of life. And here, you can see the meta-analysis examined whether or not your quality of life improved from baseline scores to the end of the test period. Whilst you're on oral immunotherapy, they measured your quality of life as you entered oral immunotherapy and then at another point further down the track. And what they showed was that, yes, in teenagers and children over the age of 8, both parent-reported and self-reported quality of life appeared to improve. It was less convincing, actually, for children under the age of 7, but in the older children and teenagers, they were able to show some improvement compared to baseline scores. However, this information is misleading because when you actually look at whether or not there was improvement compared to the placebo group, you now see that, in fact, desensitization did not offer patients improved quality of life compared to the placebo group, whether or not you looked at it from the carers' perspective or the patients' own reported quality of life.

When you are considering whether or not a treatment has offered improved quality of life, you must compare it to the placebo effect just as you do for any other efficacy trial. And the reason is when you participate in a randomized trial, everybody benefits, including those who receive a dummy treatment. They receive the benefit and support of the study team, and they feel more assured and confident of the management of their condition as a result of participating in that trial. You are only able to say something provides a benefit, whether it's a challenge-defined efficacy endpoint or a self-reported outcome such as quality of life, if you can show greater benefit compared to placebo. Desensitization with oral immunotherapy does not lead to improved quality of life compared with placebo. There are no other studies showing improved quality of life with desensitization compared to placebo.

In contrast to this, our own study, published in 2022, looked at comparing quality of life outcomes in children who achieved remission, those who achieved desensitization only and those who remained allergic. Here, the children who were desensitized were actually fully desensitized. These children passed a 5,000 mg peanut challenge whilst on treatment but were not in remission. They failed their remission test performed 8 weeks later. The allergic children actually did include some partially desensitized children as well. We defined allergy as anyone who did not achieve full desensitization at the end of our study. The remission children were children who passed the 5,000 mg challenge 8 weeks after stopping oral immunotherapy.

This is a standardized quality of life questionnaire that's recommended by all expert bodies as the gold standard for measuring quality of life in food allergy. The way it works is that the higher you score, the worse your quality of life. What you are looking for is a reduced quality of life score or reduced food allergy

quality of life questionnaire score. And it's very important to take the change from baseline because your baseline score clearly influences the ability to improve.

Here we plot improvement from baseline. If there's no improvement, you stay at zero. If there is worsening, you go in a positive direction. If there is improvement in quality of life, you're going to come in the negative direction on your score. This quality-of-life questionnaire has also been validated to show you need a reduction of at least .45 to be clinically significant. Now, what this study showed was that the only group of patients who achieved clinically relevant and statistically significant improvement in quality of life compared to allergic kids was the remission group and, indeed, also the remission group was the only group that had significant benefit compared to the desensitization group. And the benefit well exceeded the minimum clinically important difference.

In contrast, children who were fully desensitized did show some modest benefit in quality of life compared to baseline in their own group and also relative to the allergy kids, but this was not statistically significantly different to the allergy children and they did not exceed the minimum clinically important difference. Take home message, remission is the only outcome that has been shown to offer improved quality of life compared with the other outcomes.

The greatest improvement was in social and dietary limitation, highlighting the importance of being able to stop allergen avoidance and stop maintenance dosing. Our data has also shown that your improvement in quality of life continues to increase in the years after stopping treatment. Using the same quality-of-life score, there is continued improvement out to 4 years post-treatment in the treatment group who achieved remission as compared to the placebo group who received a dummy therapy. You can see that the placebo group have no significant change in quality of life over time.

Another interesting finding from this study was that children who were eating more peanut, and eating peanut more frequently, achieved a much greater improvement in quality of life compared to children who were eating it less frequently or not at all, and eating it in smaller amounts. And this makes a lot of sense to me because what it basically tells you is that each time you're eating large amounts of peanut, you get reassurance that you are no longer allergic, you are in the remission state and that helps to improve your quality of life.

Now let's shift to allergic reactions with oral immunotherapy. Something we all know is that oral immunotherapy causes reactions, especially during the early dosing phase when you are becoming desensitized or before you are desensitized and before you achieve remission. What we also know now is that desensitization causes more reactions than actually avoiding treatment, which is avoiding your allergen or having placebo treatment, standard care. Basically, oral immunotherapy is associated with a 3-fold increased risk of anaphylaxis and a 2-fold increased risk of needing rescue epinephrine for those reactions. A large meta-analysis published in 2019 showed that your risk for having anaphylaxis when you're on oral immunotherapy is actually the same, irrespective of how sensitive you were when you entered the study, so whether you had a low eliciting dose or a high eliciting dose. When considering the regimen of oral immunotherapy that you used, some people might suggest to you that, "Oh, if we start at a higher dose, you're less likely to have anaphylaxis or if we start at a lower dose, you're less likely to have anaphylaxis or, if we use a low maintenance dose, you're less likely to have anaphylaxis." Well, that is not the case, as shown in this meta-analysis.

The regimen that you use for oral immunotherapy, the phase of oral immunotherapy, how long you stay on oral immunotherapy, the age at which you initiate treatment, all of these do not make any difference in your risk for anaphylaxis with oral immunotherapy.

There is a lot of discussion that, as you stay on oral immunotherapy, your risk for reactions goes down. I want to emphasize this point again. The frequency of reactions, the likelihood of any reaction does go down. As you can see, in the first year of treatment, the majority of children are having a reaction on PALFORZIA therapy, for example. In your second year of treatment, this halves, you are half as likely to have an allergic reaction in your second year of therapy.

But when we look at systemic reactions or severe reactions, anaphylaxis, or reactions needing rescue epinephrine, there is no change from first year to second year. You have the same likelihood of needing epinephrine, you have the same likelihood of having anaphylaxis events. I emphasize again the risk of anaphylaxis does not change with duration of treatment and this is something patients need to be aware of because they need to remain vigilant to the likelihood of anaphylaxis if they have desensitized and continuing on treatment.

In contrast to that, if we look at the remission endpoint as compared to desensitization, we see that remission patients are half as likely to have a reaction and also half as likely to require rescue epinephrine for a severe reaction. It does appear that if you achieve remission, the likelihood of reactions goes down, as well as the likelihood of serious reactions. Now, I just want to mention 1 last thing before we move on from safety, and that is how do we think about safety when we're talking about oral immunotherapy.

Historically, with any intervention that's tested in a randomized trial, you would actually look at patients who report any adverse event. But when we do this for oral immunotherapy, we see that there's no difference between placebo and active treatment, because everybody seems to have a reaction sometime in the 18 months of treatment. That's because we have highly allergic patients who might have hives due to accidental exposure or just because they've had some hives. They might have worsening of their asthma, might have worsening of their eczema, and what systematic reviews show is that the likelihood of a patient reporting any reaction is the same whether you receive active treatment or placebo. But this does not mean that the likelihood of reactions is not different receiving oral immunotherapy.

With oral immunotherapy, a better way to think about safety and allergic reactions might be to think about the severe reactions. This, for example, shows without question that the likelihood of an anaphylaxis event is higher with oral immunotherapy compared to placebo. Or we can focus on the incidence of adverse events. I like this approach because it really tells you about the burden and frequency of adverse events. We know that children who receive oral immunotherapy will experience at least 1 event sometime in the course of the 18 months of treatment or 2 years of treatment or 1 year of treatment. What we want to understand when we're comparing oral immunotherapy interventions is, well, how many events are they actually having so that we can share this information with parents and families when we're discussing the risks associated with oral immunotherapy.

What we can do is we can express the frequency of adverse events per year on treatment and how we do that is, from a study, we take the total number of adverse events and we divide it by the years on treatment to express adverse events as a rate of adverse event per year on treatment. And here, for example, in the pivotal phase 3 trial from PALFORZIA, we can see that, overall, the patients were experiencing 40 adverse events for every 1 year of treatment, and you can boil that down to 1 reaction per week on treatment on average. If I was going to talk to my families about potentially starting PALFORZIA treatment, you could say the studies have shown that, on average, the patient's going to have, in the first year of treatment, 1 reaction per year. You can also talk about the fact that we know, when you're on oral immunotherapy, reactions are more frequent as you're becoming desensitized, and they become less frequent once you become desensitized. And, as I mentioned earlier, in your second year of treatment, reactions also reduce again. From the PALFORZIA study, you can say, well, in the first year, it is actually more frequent than once a week. It's probably once every 3 weeks of treatment. But as you get to maintenance, it goes down to once every 6 weeks on average. Looking at the exposure-adjusted incidence rate, as a clinician, is very helpful in discussions with families.

However, I think another thing we need to talk to patients about when we're discussing oral immunotherapy is to be open and accurate about the issues of adverse events. What we must share with patients is that experts, as well as regulatory bodies, have actually questioned whether or not oral immunotherapy that only achieves desensitization is, in fact, offering greater benefit than current standard

care of allergen avoidance. And I think families do need to be aware of this as you discuss therapeutic options with families.

For oral immunotherapy, a large meta-analysis published by food allergy experts concluded that desensitization, with available oral immunotherapy regimens, considerably increases allergic and anaphylactic reactions over avoidance or current standard care and does not improve quality of life. And they recommended that safer approaches that can improve patient-important outcomes, such as quality of life and reduced reactions, are needed.

The Institute of Clinical and Economic Review, which evaluates cost-effectiveness and risk/benefit of new treatments, also concluded that oral immunotherapy offering desensitization does not provide greater benefit than avoidance. We need to better understand long-term safety outcomes, the ability to adhere to a daily dosing during adolescence and young adulthood, the fact that there's no evidence of improved quality of life is an issue, and also that families need to very clearly understand the tolerated dose level that they've achieved and, at this time, we do not have very clear understanding of what benefit the different levels of protection deliver to families.

I'm going to close out my talk and help you discuss oral immunotherapy as a treatment option for your patients.

When we're thinking about therapeutic options for our patients, it's very important to consider the phenotype of allergy that the patient has when discussing these options. What we know about food allergy is that patients have a range of eliciting doses and this influences the type of experience that they have in day-to-day living with their allergy. For example, a study that has modeled the different eliciting doses for peanut allergy showed that people with peanut allergy might react to very small amounts or very large amounts and the median eliciting dose for peanut allergy is around 1% or 300 mg of peanut protein. This same group also modeled the likely risk that patients have, depending on their eliciting dose. And what they found was that if you are a very highly sensitive patient who reacts to 1 peanut or less, you do have a risk of reacting to peanut within packaged foods. On the other hand, if you, in the other 50% of patients, react to 1 peanut or more as your eliciting dose, your risk of reacting to small amounts of peanut within packaged foods is negligible at less than .01%. Yet, if you consider the current standard care for patients with peanut allergy, everybody still has to avoid peanut strictly and carry adrenaline or epinephrine as rescue medication in case they have a reaction. At this time, unfortunately, children and adults across the full sensitivity level of peanut allergy must adhere to the same approach, allergen avoidance and carrying their rescue epinephrine device. This is what causes the burden of living with food allergy, so everybody carries the same burden of the diagnosis of peanut allergy, but half of the patients actually have very low risk of reacting to accidental exposures to packaged foods, whereas the other half have a higher risk of reacting to accidental foods.

When we're considering offering therapeutic options, we need to think about these 2 phenotypes. Now, why does that matter? A desensitization therapy, as I mentioned earlier in this presentation, will typically increase your reaction-eliciting dose from less than a peanut up to 2 or 4 peanuts, and the aim of this type of desensitization therapy is to protect you against accidental exposure to small amounts of peanut in packaged foods. If we are discussing this type of desensitization oral immunotherapy, we need to explain to our patients that's the goal, and therefore align it to the type of patient who might actually benefit from such an intervention. And, as I mentioned earlier, only those children who are highly sensitive, who react to 1 peanut or less, will likely benefit from this kind of desensitization approach.

The other half of children with peanut allergy are actually not at great risk from reacting to accidental exposure to small amounts of peanut in packaged foods and are unlikely to benefit from available desensitization therapies. However, they can benefit from a treatment that could achieve remission because these patients are still carrying the burden of allergen avoidance and lifestyle restrictions associated with that, as well as the unpredictability of potentially life-threatening reactions, both of which lead to reduced quality of life. These patients, with the higher-eliciting dose who are less sensitive, can

benefit from remission because it will offer improved quality of life, freedom from allergen avoidance.

These concepts apply to all the different food allergies and you can actually map exactly the same data for egg allergy, peanut, milk allergy, other nut allergies, and so the concept remains. And this sort of discussion is very important to have with your patient.

Now, when you have patients who've achieved remission, you might ask yourself, well, does it matter? Are they actually eating their allergen? This is data that we've gathered from our patients who've achieved remission from their peanut allergy. And what we can see is that the majority of children in remission following peanut oral immunotherapy are eating peanut frequently, at least once a week or more, and eating a substantial amount of peanut, moderate to large amounts of peanut. Only 10% are eating peanut less than once a week and another 6% less than once a month. And similarly, only around 15%, 16% are eating small amounts of peanut.

The other confusing aspect of remission that is out there is that people believe patients in remission do not enjoy eating peanut, that they have persistent aversion to taking peanut. Our data would not support that. Our data instead shows that almost half of the patients in remission enjoy eating their peanut. Another 20%, whilst they don't enjoy it, are eating it frequently. Only 10% prefer not to eat it at all. I think what we can say is that, yes, children with peanut allergy do have aversion to peanut, but once they achieve remission of their peanut allergy, this can change, and the frequent and regular intake of peanut, without associated reactions, seems to help them move away from peanut aversion and actually start enjoying their peanut.

To conclude, these are the top tips to take back to your practice. The first thing to remember is that oral immunotherapy describes an approach to allergen immunotherapy where it's administered orally, but there are many different regimens that can each lead to different outcomes. For example, a low-dose oral immunotherapy approach will offer desensitization to lower amounts of peanut. A high-dose approach might offer you desensitization against large amounts of peanut and also the possibility of a remission outcome.

It's very important to distinguish the outcome that your patient has achieved following oral immunotherapy because if they are only desensitized, we need to caution patients to continue strict allergen avoidance other than their daily dosing and to continue regular immunotherapy or food exposure in order to maintain their desensitization protection. In the case of remission, on the other hand, patients can discontinue their oral immunotherapy maintenance dosing. They can also now introduce allergen freely, without the need to avoid the allergen in day-to-day dietary choices.

It's very important to discuss challenge-defined outcomes and how these align with patient-important outcomes when offering oral immunotherapy to your patients. At this time, remission is the only outcome that has been shown to deliver an improvement in quality of life and I think patients need to understand that in making a choice whether or not to proceed with oral immunotherapy and in making a choice as to what type of oral immunotherapy regimen that they might undertake for their child.

Finally, I think we want to understand the patient that you're offering treatment to. What is their phenotype of allergy? Are they highly sensitive or are they less sensitive? Because the type of benefit that they will achieve will vary and, therefore, your treatment goals should also vary when offering oral immunotherapy to your patients.

I think the main thing to remember is it's very important that we align our discussions to patients with patient-important outcomes. A reduced quality of life is the most significant impact for people living with food allergy, and so we should be targeting an improved quality of life when we consider treatment options for patients.

Key takeaways for your practice. Remission is the only outcome that has been shown to improve quality of life. In the case of desensitization, it is very important to remain vigilant for reactions because although reactions do reduce in incidence, the likelihood of anaphylaxis, serious reactions and the need for

rescue epinephrine do not change dramatically, and so patients must ensure that they always have access to rescue medication if they are only desensitized.