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TRANSCRIPT

Advising Parents on Complementary Feeding and Food Allergy Prevention

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Complementary Feeding Recommendations and Challenges

Ruchi S. Gupta, MD, MPH: We're going to be talking about complementary feeding recommendations and challenges. During the complementary feeding period, lifelong behaviors begin to take shape, and the window of opportunity to learn about flavors, textures and experience a wide variety of foods is right then, at the beginning. Now, parents' and caregivers' responsiveness to infants' hunger and fullness creates those dynamics around feeding and eating that last a long time. So, it's so important; that complementary feeding period is so critically important for growth, for development, and creating those positive experiences with foods and with eating. According to the World Health Organization (WHO), complementary feeding is the process of providing foods in addition to milk when breast milk or milk formula alone are no longer adequate to meet those nutritional requirements.

I wanted to just explain that, currently, the recommendation is to introduce complementary foods between 4 and 6 months of age. Now, we say 4—and not before 4 months—because of a lack of developmental readiness, the need for breast milk or infant formula to meet those nutritional needs, and an increased risk of future obesity. Now, around or before 6 months: due to declining levels of key nutrients in breast milk and increased risk of food allergies if that exposure is delayed. And so that's why this recommendation now is really between 4 and 6 months, and it's really when the infant is developmentally ready. So, observing some of those readiness cues, like control of head and neck, bringing objects to the mouth, the palmar grasp, loss of tongue thrust. Really, I remember with my children—now they're very much older—but it was just, they're sitting there at the table looking hungry and drooling and ready to take a bite of what you're eating.

Okay, so the basic recommendations for complementary feeding. Let's talk about how and what to start with. So, infants should be fed nutrient-dense, developmentally appropriate foods alongside continued breastfeeding or formula feeding with a focus on adequate micronutrient content. So, these are iron and zinc, particularly with breastfed infants. Variety and diversity—this is our new slogan. We need to introduce early and often with eventual inclusion of all food groups. Exposure to different flavors and developmentally appropriate textures and avoiding added sugars, high-sodium snacks, and meats and processed foods.

And what are the challenges of this transition? So, complementary feeding represents a major role shift. Caregivers have to juggle several priorities, including both short-term nutritional needs and long-term goals for establishing those healthy eating patterns. Many caregivers report feeling overwhelmed and anxious. Many turn to social media, family, and friends for guidance. So, what is really, really important here is parents, new caregivers, need your support to tell them it's okay. Feeding is a very natural thing, and it should not be medicalized to the level that we've done it. And really empowering parents to feel confident in their ability to start this new transition for their infants.

What are the perceived threats during complementary feeding? Eighty-five percent of mothers feared choking during complementary feeding. So, this is where it's so important to make sure, you know, it's pureed, or no whole nuts, as we talk about, to avoid that choking. And then 85% of mothers feared food allergy reactions during complementary feeding, and that's really important, especially to me and all the research we do around this because severe food allergy reactions are very rare in infants. So again, empowering them, reinforcing that they can do this and it is okay—it is so important.

Early Introduction and Allergy Prevention

Now, we're going to get into early introduction and allergy prevention and all the new data that we have on this. So, what has happened? So much has changed on these recommendations. So, I trained—I'll age myself—I was actually a resident in that year of 2000 when the American Academy of Pediatrics (AAP) came out with the new recommendation to avoid peanut products till age 3—peanuts and tree nuts and

fish. Don't introduce eggs till age 2 and, of course, milk is still age 1, that's cow's milk that they're talking about. So, these recommendations came out by the AAP in the year 2000 and pediatricians, like myself, followed them. And I believe the reason they came out is because we saw this increase in peanut allergy, and there was fear around it. We didn't want anaphylaxis happening to these young infants.

But then, in 2008, they took back these recommendations because there was no data showing that they actually did anything positive or negative. There was actually no data at all about when you should introduce foods. But I have to say, in 2008, when that happened, most pediatricians, including myself, just continued with those recommendations. And then in 2015, the LEAP study was published, which we'll talk about, and then, in 2019, there was now new evidence showing that early introduction, especially of peanut products, may actually prevent peanut allergy. So, those recommendations completely turned around 360; went from don't introduce in 2000 to, by 2019, early introduction is important.

What was that LEAP study? So, this was a study conducted in London by some of our colleagues who found that introduction of peanut products (not whole peanuts) early in life—and they had looked at between 4 and 11 months—reduced the development of peanut allergy. And this is in high-risk infants: so, infants who either have already developed an egg allergy or have severe eczema. In those infants, it prevented peanut allergy by 86%. Now, that number is so significant. I mean, if we have an opportunity to reduce the development and prevent allergies by 86%, we need to get on it right away. So, this was such a powerful finding that it changed our recommendations.

Now, what we found, because the other thing is what about other allergens, right? So, how does early introduction differ across other potential allergens? So, there was a meta-analysis of 23 RCTs, and what we found was that there was a 51% reduction for multiple potential food allergens based on moderate certainty of evidence. So, the problem is the LEAP study only looked at peanuts, and so the peanuts, we have clear evidence for introducing them early. But why would this not go for other foods? The other food that we have quite a bit of data on is egg. So, for egg, 40% reduction if egg is introduced early, and this is high-certainty evidence because there are more studies looking at egg. And then, for cow's milk, it was low-certainty evidence, but a lot of this is just because the studies have not been done and many researchers, including us, are looking at multiple foods. But overall, I think it's safe to say that introducing allergenic foods earlier on your timeline is okay and could potentially reduce those allergies as well.

There is this window of opportunity for early introduction, and I think this is very important because that window is very narrow. The window closes earliest for infants with severe eczema: about 1 in 4 already had peanut allergy by 9 months. Peanut allergy risk reduction declines with every month introduction is delayed. So, especially in those high-risk infants, the ones with severe eczema, it's so important to start as early as you can, really by 4 months if possible.

Real-World Allergy Prevention Practices

Okay, let's get into real-world allergy prevention practices. So, as many of you know: you can find the data; you can publish the paper, but that translation to get it into practice can take 10 to 20 years. So, how do we speed it up so that we can curb this increased food allergy epidemic that we're seeing, and really take it to prevention?

This is what we have found. The timing of introduction of peanut-containing foods in households after this recommendation: what you can still see is that less than half of infants had peanut-containing foods introduced by 1 year of age. And the quantity of peanut that was introduced, only 5 received the recommended amount. One thing that we often see is that people tend to introduce peanut products once, and then they stop. They think, "Okay, great, my kid isn't allergic." But then, in 2 months, I see these infants back, and now they have a peanut allergy. And the parents are like, "But we introduced it." So, it is very, very important to introduce it and keep it in their diet and keep amounts that are reasonable. We don't know what that amount is, but we're thinking 1 to 2 teaspoons at least 2 to 3 times a week, ideally—especially for those high-risk infants.

Okay, so what are potential barriers? Why do we not see this happening? Awareness, right? So, we have not gotten that message completely out to all our patients, all caregivers, that this is really important. Second, access, especially for

underserved kids. Do they have access to foods that contain those potential allergens? And this is a really important area we all have to work on together. And then lack of resources on safe preparation of those foods that contain the allergens, caregiver fear is a big one (reactions or choking). I think, because we've built so much fear around food allergies and reactions—which is also well-founded—caregivers of young infants get nervous. I can't tell you how many have come into our pediatric practice and introduced there in the waiting room. Or how many parents I hear drive to their emergency room parking lot and feed it out there so, in case of a reaction, they can run in. So, I think that fear is real, and we have to work together to dissipate that. And then, a lot of times, pediatricians are so busy in those early months that they are not having enough time to have this whole conversation. There're so many things we have to talk to at that 4-month and 6-month visit around immunizations and sleeping and any kind of illnesses or worries, that getting to early introduction is often challenging.

What did we find with pediatric providers and their recommendations for complementary feeding? So, this is really interesting because we asked pediatricians, "When do you recommend introducing food (any food) to infants?" And we separated it into exclusively breastfed and not exclusively breastfed. So, what is interesting is, for exclusively breastfed, a third are saying 4 months, but the majority are saying around 6 months. And if they are high risk—or for any of these infants, this could be waiting a little too long. For not exclusively breastfed, you see there's a higher percentage at that earlier stage. So, providers also were more likely to recommend waiting to introduce complementary foods, like we said for exclusively breastfed infants, and also, in this study, we found that they were waiting longer for kids who had any food allergy history in their family. And so, we've got to reverse that. They actually need to get them on some of these foods earlier. So, 68% of our providers said that they felt like they needed more training on these guidelines because it's somewhat confusing.

What are other barriers to early introduction? Some of them included this conducting an in-office, supervised feeding of peanut. Now, no pediatric providers, I think, do this, and so having that in the recommendations, we can just ignore it. But the other big things that I mentioned earlier are lack of clinic time, and then what the other recommendation is, if you are feeling that infant may be at high risk, then getting a peanut-specific immunoglobulin E (IgE) antibody test or referring them to an allergist. Those are the recommendations. The problem with referring them to an allergist is, sometimes, at least for our underserved—I work in a predominantly Medicaid clinic—and getting them to the allergist can take 6 months, and then they have passed that window of opportunity. So, really teaching how do you get that specific IgE? Because if it's negative, then they can go ahead and introduce.

Other barriers to update are conflicting recommendations about complementary feeding time. So, WHO says introduce at 6 months and exclusively breastfeed. The USDA says later than 6 months. How do we balance wanting those infants to continue breastfeeding and getting some of these allergenic foods introduced early? And studies have found that it can be done. Introducing these foods early does not decrease breastfeeding in these infants.

Best Practices for Supporting Parents Starting Complementary Feeding

Let's talk about best practices now. Offer anticipatory guidance based on key considerations. So, for the baby, age—after 4 months, usually, a baby starts becoming ready, but it could be at 5 months, 5½, so really observing that baby for that developmental readiness. If they're breastfed, formula-fed, or both? And what is their allergy risk? And those are those high-risk things I mentioned, things like severe eczema is 1 of the main ones. Even a sibling does not constitute high risk. Family and caregiver considerations, intended complementary feeding approach, traditional spoon feeding, baby-led weaning or a combination? We'll talk a little bit more about this later. And then cultural practices, food security, confidence, educational needs and access to resources. So, really empowering them.

The North American Allergy Consensus Recommendations for Early Introduction. So, what the recommendations currently are is, introduce 1 single-ingredient food at a time. Now, also, a lot of the recommendations are to wait between 3 to 5 days after a food is introduced. This is something that, I have to say, for which we have no evidence. This is similar to the avoid peanuts till 3 years of age. Waiting that long is not due to an allergy, and I'm not exactly sure where that recommendation came from,

but what we are learning is that diversity of food is really, really important in that young age. So, I often tell my patients, you could wait a day. Allergic reactions usually happen immediately. So, waiting 3 days with 1 food isn't necessary. More importantly, it is getting in different varieties of food in that infant's diet. Feed peanut- and egg-containing foods beginning around that time (not the first food) but soon after you introduce whatever parents want, whether that be vegetables or fruits, and then encourage at least 1 to 2 teaspoons of thinned peanut butter or egg per week. Focus on regular, consistent exposure over several years. And most infants love it; they love the taste of peanut butter, and they'll eat it right up. Do not discontinue peanut except for if they, of course, have an allergic reaction. Do not purposely delay the introduction of other common allergens once complementary feeding starts. Even milk can be introduced if they're being breastfed in the form of yogurt. So, try to get those milk, egg, peanut, some of the other tree nuts. There's a lot of cashew butter, almond butter. Encourage those for these infants.

Okay, early introduction and ongoing breastfeeding. So, breast milk or infant formulas should continue to be the main source of nutrition during the first year of life. In the Enquiring About Tolerance study (EAT)—this was a study again out of that same LEAP group in London—they randomized all breastfeeding infants to early introduction or continued breastfeeding. Ninety-five percent of the infants in that early introduction group were still being breastfed at 6 months, so what they found is that introducing some of these allergenic foods before 6 months did not interfere with their breastfeeding. And I think this is a very important note because we all agree breastfeeding is so, so important, but knowing that early introduction does not impact that and may prevent those food allergens is what we need to start discussing with our patients.

So, examples of infant-safe forms of common allergens: peanut butter thinned with breast milk, formula or pureed foods; peanut powders (there's a lot of powders out there now too if that's easier for your families); and there's also peanut puffs, and that is where these recommendations originally came from was that kids in Israel were eating Bamba and had less food allergies. So, a lot of them love the peanut puffs too. Egg: well-cooked, boiled or scrambled egg; egg-containing baked goods within the first 3 ingredients; and, of course, there's egg powder now too. And others:

- Tree nuts: the butters I mentioned
- Milk: yogurt
- Wheat: pasta, baked goods
- Soy: tofu or yogurt
- Sesame: hummus or thinned tahini

And, we have a lot of resources if anyone wants to give you more recipe ideas, etc.

Okay, so quickly, I know we're running a little short on time, so the National Institute of Allergy and Infectious Diseases (NIAID) recommendations for screening, let's talk about this. Currently, really just looking out for that severe eczema because most of these 4-month-olds will not have started egg, but if they do have an egg allergy or if they have severe eczema, the NIAID recommends to get a peanut-specific IgE, and a pediatric provider can do this. If it's less than 0.35 kUA/L, then go ahead and introduce because that is definitely convincing that they will not react in the majority of them. The negative predictive value is very high. Now, if it's over 0.35 kUA/L, then get them into an allergist right away. The other option, if you don't want to do a peanut-specific IgE, is to send them directly to an allergist, and then they'll do a peanut skin prick test and, depending on the value of that skin prick test, they will make recommendations. But many times, you have to call that allergist and tell them it's an infant and they need to get them in immediately. And then they will, but otherwise the wait can be quite long.

Now what happened, because those recommendations were hard and we were not getting these infants into an allergist in a timely manner, there was a consensus recommendation that came out from the American Academy of Allergy, Asthma & Immunology and the College (the 2 big allergy societies in the US) saying don't screen. Just tell them to introduce peanut products because most infants will either, even if they do react, have vomiting and have skin symptoms but do not typically have anaphylaxis or any more severe reactions. So, it's quicker to just tell them to get it in the diet than to go through this whole testing and allergy.

Now, we want to avoid overmedicalization, as I said in the beginning, so meet those parents where they are. At-home,

early introduction without screening is safe, especially for those low-risk infants. And the risk, like I said, is very, very rare of a severe allergic reaction. When considering screening, evaluate risk and, again, it's the comfort, it's pure decision-making, it's you and that family and what is comfortable for them. If they're not going to do them, get them to an allergist right away so that they can do it in a safe environment.

Interprofessional Case Study Discussion

Case Study: New Parents

Ruchi S. Gupta, MD, MPH: Now let's talk about some case studies: what you're actually seeing in your patients.

So, let's get started with a case study on new parents. So, this is a case of a 4-month, well-child visit: a 4-month-old, exclusively breastfed infant is brought in for their 4-month, well-child check, with both parents. Both parents are immigrants from East Asia; Dad speaks English and translates for Mom. Physical exam reveals normal growth, 50th-percentile height and weight, and developmental milestones are all good. Parents ask about introducing solid foods, as baby is now starting daycare and Mom is going back to work soon. So, how should these parents be counseled about the introduction of complementary feeding?

Raquel Durban, MS, RD, LDN: I think a good first place to start is asking what their comfort level is. Assessing if they have any concerns. Sometimes, they've read something online that can be much more concerning than it needs to be, so helping to clarify, "Where are you in this moment as far as introduction of solid foods? And, at 4 months old, how interested is your baby in the introduction of solid foods?" And helping them understand what those cues look like. Like Dr. Gupta had mentioned, the consideration of their interest in foods or if they're opening their mouth when you bring the spoon towards them—if they have good head control. So, I would start the conversation less about the food and more about the readiness from the parents and the baby.

Olga Kagan, PHD, RN: I absolutely agree, and Dr. Gupta did mention some great points earlier today about looking at readiness of the child (developmental readiness), but also family. And I think, from the nursing perspective, we oftentimes—and Dr. Gupta did say that there is so little time during the visit—so one of the things that sometimes goes sideways is our ability to assess parental resources and readiness and their needs. So, things like food shopping, having access to fresh food and vegetables maybe within the market that may or may not be close to them. We still have food deserts in the United States. So, access to transportation, childcare, and knowing that this parent is going back to work—what's going to happen with this child? Are they going to be getting a family member looking after this child, preparing meals, and feeding the child? Or will they be getting hired help? So, some of the things that parents may need to kind of keep in mind as they do this early introduction with their child as they're planning to go back to work. What's the infrastructure within their family so they can support that practice?

And it's interesting, another thing that sometimes comes up is the financial hardships, which we also kind of have to be cognizant of. Given that both parents have to work, is there some other financial need? Do we need to refer them to social worker? Do we need to refer them to federal housing assistance or Supplemental Nutrition Assistance Program (SNAP) benefits, formerly known as food stamps? So, some of those things we want to look at from a holistic perspective to assist those families.

Gupta: That's right, exactly. I 100% agree, couldn't have said any of that better. So, let's talk about the case of a 6-month well-child check visit. So, now you're at 6 months, and parents report partial breastfeeding supplemented with cow's milk formula. Following a baby-led weaning approach—which is very popular and I'm excited to hear your thoughts—for complementary feeding recommended by friends. And the baby has refused many vegetables to date, and parents are concerned this may persist. So, what would you do with this family? They haven't introduced any of the allergens and they're trying the baby-led weaning approach.

Durban: As the dietician, my first question to parents who say they're supplementing with formula is: "Which formula?" Many of them are using a gentle formula, which is actually partially hydrolyzed. Or maybe they're even using a hypoallergenic formula, and they're just calling it cow's milk formula or may not be aware of how it's been modified. So, my first question is, "What kind of formula?" And then, "What do you guys eat?" Because that would be really important to feed your kid—that's that cultural relevancy. And just like Olga said, "Where are you shopping? What is your budget?" I tend to make a list of the foods that the families are eating, trying to incorporate grains, fruits and veggies, as well as proteins when they become important in the diet.

This baby is doing some formula, so they're getting some iron supplementation. But, Dr. Gupta, like you were saying about the baby-led weaning, I think that this is a really, for me, a controversial topic because developmental readiness and milestones are so critical for not only feeding development, but for speech development as far as feeding goes. They're working on a lot of oral motor skills while they're learning how to eat, from that traditional pureed form to more whole foods. And I completely respect that they were looking at their friends for guidance, but this would be an opportunity to provide education on the significance of traditional feeding with respect to their desire to provide some baby-led weaning and maybe help them to bridge how we could do the 2 of those together.

Kagan: I tend to agree, actually, because while baby-led weaning is important for a child developmentally and promotes that independence and dexterity and just fine motor skills and hand-eye coordination, there's just a lot of benefits, right? At the same time, we also have to encourage parents to be cognizant as to the types of food. And I know choking was brought up before as a potential high risk when babies are starting to put things in their mouth, reaching for foods. And so we kind of have to educate parents about what would be appropriate. Soft, easy-to-cut foods, fruits and vegetables that are low sugar, low sodium, less processed.

And you know it's important, like in this case, we talked about language barrier and the cultural differences perhaps. So that's something we also have to be aware of. So if we give any sort of education or educational materials, we want to make sure it's accessible to them in their language and something they can take home to refer to because, when they come to the providers' office, oftentimes it's just this certain level of anxiety, I think, when the baby's getting the shots, and they're screaming and then you're trying to absorb all this information. And when you go home, you're like, "Okay, so what was I supposed to do? How many spoons? And what forms? And how do I prepare this?" So, I think it's important that we give them something to take home, whether it's a handout, whether it's a digital resource (online) that's easily accessible. But we do have to make sure it's also available to them in their language and culturally appropriate. Because even, in certain cultures sometimes, even warm food is preferred over cold food, for example. Even the temperature sometimes makes a difference. I just wanted to mention that.

And educating the daycare on why some things might be different than what's expected—but this baby is refusing vegetables. So, as Dr. Gupta said, we don't have to wait 3 days. So, sometimes it's like a breakfast, lunch, dinner—as long as it's 2 hours before bedtime kind of introduction, and that gives the kid that baby-led weaning empowerment where there might be a little bit of applesauce, a little bit of pea and a little bit of sweet potatoes. We have 3 different colors, different textures, and that would allow maybe more versatility and opportunity for not only nutrition, but the child to explore the mixture of flavors, using their hands or maybe just different colors, too, being introduced. Sometimes you have to attempt it multiple times, just like anything.

Kagan: Right, so exactly, because even as adults, sometimes we just don't feel like eating certain food at a certain time, right? So, it's like, we can't just give up quickly. You have to keep on trying different types of preparation and maybe in combination with different foods just so that they get something they've already been introduced to prior.

Case Study: Siblings With Food Allergy

Durban: This is a hot topic. I see a lot of pregnant moms actually in clinic who are wanting to know, even before the baby is born: "What am I going to do?" So, I look forward to hearing you all chime in on this as well. So, this is a 4-month-old who was brought in for just a general well-child check. The medical history is unremarkable, which is fabulous because I don't know that we see that too often. And, during the discussion with the parents, the complementary feeding and early introduction came up with the parents because they have a 3-year-old in the house that has a really severe IgE-mediated allergy to peanut as well as an intolerance of cow's milk.

So, they're kind of nervous about keeping those things in the house to give them to the baby as well as keeping their 3-year-old safe. And this is something that I'm sure will come up as you guys are seeing patients in your own clinics. So, not only thinking about the safety of early introduction, but I guess like how would you help even to drive home the point of those risks vs the benefits of early introduction vs delayed, because they're so reluctant?

Gupta: Yeah, I can tell you, we deal with this so much, and it is very, very challenging because they've already been through it with 1 sibling. And although a family history is very, very important, the Learning Early About Peanut Allergy (LEAP) study found that it was not a major risk factor to the other sibling. And so, it is even more important. I think really talking to the parents about how important it is to get peanut products into that infant early so that they don't develop this allergy that the older sibling has. Now, some parents I talk to are all in and they're like, "Okay, we'll do it." They already have epinephrine at home, so they feel a little bit more comfortable, you know, with their older child. And keeping that food in the house—they do get nervous about it, but it's always, keep it in a higher place or somewhere where the other sibling can't get to. Just wipe down after. There should not be any cause for that other 3-year-old to get into the food. So, we just kind of go through: how do you keep that food out of the way of the 3-year-old? Whether it be peanut butter, or if they want to use—a lot of times they just want to use the powders, so open a pouch, dump it and then throw it away. So, different options for them.

Now, if they are nervous, if they're really nervous, we have some that say, "I just can't do it. I've seen an allergic reaction and anaphylaxis." I then would just get them into an allergist to be able to do it in the office as quickly as possible. So again, shared decision-making, really talking to those parents about what their desire is and their level of comfort.

Kagan: And I was going to also piggy-back on that because I think it's never too soon to start teaching children, especially siblings, to be careful, and things like hand hygiene and maybe color-coding foods because they're not reading yet, at 3 years old (or maybe they are if they're very advanced). But you want to make it as easy—just like, if you want the food to be accessible to them, you can color code and teach them what's safe and what's not, not to share food, and maybe even not expose a younger child to allergens via the skin—so that hand washing becomes important. So, this way, babies are introduced to the food orally before its exposure through skin occurs.

And then another point I was going to bring up is that I think our job is also to empower our patients and caregivers, especially those who are extremely anxious or worried about it—maybe they had a bad experience. And so I feel like knowledge is power. The more they know, the more prepared they are. And so I often encourage parents and caregivers to take the first aid course, anaphylaxis recognition course, because those are easily available through the American Heart Association, through the American Red Cross, and there's another one that's called Code Ana. And those things are typically free or very affordable and parents can feel a little bit more prepared as to how to recognize signs and symptoms of an allergic reaction or whether it's choking and how to act, what to do in those situations. So, it's just, and again, if parents are working, it's a great opportunity for caregivers who are caring for the baby to then feel more prepared and gives peace of mind to the parents when individuals are taking care of their child. So, again, offer that additional support, have additional monitoring during the early-introduction stage so we can help reduce that anxiety. And I know pediatricians can't always be there, and that's what I think is important having that interdisciplinary team, and the support staff that can be sort of

the extension of the provider to deal with these types of situations.

Durban: I have, in the past, recommended a first aid course or making sure that they leave aware that the nurse is trained on how to use epinephrine, but both of your answers were very helpful and insightful. I appreciate that.

Gupta: I just wanted to mention, Raquel, because Olga mentioned that which is so important—and I didn't get a chance to discuss it in my talk—but this whole idea of, through the skin allergies begin, through the gut… yeah, they don't, they stay quiet… I know there's a rhyme in there somewhere. But that is a theory saying that, if you do have severe eczema and you're exposed to peanut protein through the skin, then your immune system kind of skews over to the allergic side vs if it gets into the gut. So, that's 1 of the big reasons that introducing it early is so important, especially for those high-risk infants, and I am a very guilty mom because my daughter was born with severe eczema, and that's where a very healthy snack that I would be eating while breastfeeding her. That mom guilt that I probably did it. To other clinicians that are listening, just know that that is a part of this. If you see an infant, even at 2 months, with severe eczema, it may not be a bad idea to just mention that we need to get this eczema under control, protect that skin barrier and probably not expose them to those nuts in that early stage until we can get it into their gut.

Case Study: Infant With Eczema

Kagan: Infants with severe eczema—and we're going to go over the presentation, what the next steps would be. In this case, we have a 5-month-old, exclusively breastfed infant presenting to the pediatrician for evaluation of ongoing eczema for the last month. Eczema is severe and covers face and neck, and they use moisturizers after baths. And topical corticosteroids that have improved some of the symptoms, but not entirely eliminated them. The medical history otherwise is unremarkable, and, at this point, we want to know what are the next steps that you would recommend for this infant, and how should complementary feeding be discussed?

Maybe we can talk about the products because—since we did mention some products here, can we talk a little bit about that? Maybe use of oat-containing products, detergents, soaps, skincare products that you might talk about with this family?

Durban: I think the first conversation that I have is, parents are like, the mom's always like, "What can I take out of my diet? I'll do anything to make this better. I want to eliminate something; I'm certain that it's something that I'm eating." And continued parental guilt, like that maternal guilt just—it's real deep. And I always say, "You're doing great. You can keep eating all the things. Let's talk about how we're treating the skin." As an extension of the allergist, I really want to make sure that we are reiterating their messages and the pediatricians' messages because, like you said, these oat-containing products, all of them are marketed as infant eczema products. And then it says, in small print, "Contains oat." Or, they have fragrance in them. Or other emollients that are not appropriate for that fragile, sweet infant skin. And the laundry detergents as well. Always, my goal is always to manage the skin before even considering any manipulations to mom's diet and, even then, it's hard for me to do that because we don't know their peak excretion time or the amount that they're excreting of these proteins. It makes it quite wonky, and I won't do any eliminations for more than 4 weeks, especially if we're not seeing any improvement, because I feel like that presents a risk factor as well.

Gupta: I love it, Raquel, because we deal with this too. You know, I'll see or get calls or emails: "I had to eliminate 8 foods." Like this 1 mom, she's like, "It's so hard. It's stressful enough having an infant." And then being told to eliminate the top 8 foods from their diet, and she just eats Chipotle, the same thing, every night—I can't remember, but it was terrible. And there is no need for that. And I totally agree. So, for an infant like this, I think, first of all, very important to get that eczema under control, get them to dermatologist. I feel like, as a pediatrician, a lot of times, moving up to different treatments outside of steroids can be difficult, especially in young infants. There's always that fear we're going to too high of a level. Getting them to a dermatologist or discussing with the dermatologist what needs to be done to get that eczema under control is very important. And then, the other thing is, this is a high-risk infant, so, how do you feel? Are the parents comfortable going ahead and at least getting peanut products into this infant immediately, as soon as possible (because every month

matters)? Or do they want a test? If they want a test, just order a specific IgE—sometimes it's called radioallergosorbent test or RAST, sometimes it's called specific IgE to peanut. And if that is below 0.35 kUA/L, they can feel safe introducing that peanut product at home. If they really want to see an allergist, just call your allergist, and try to get them in immediately because this is 1 of those infants that you could really change their lives by getting that peanut product in them and continuing it.

The other thing we see a lot, which I just wanted to mention because, Raquel, you did a great job about mom's diet, but a lot of times I get these infants who are like, "Well, we introduced a food"—yogurt or even peanut, and they're like, "Well, they got a rash." And they want to take it out of the diet. And so—I think it's very, very important—1 thing we're learning is to feed through that little rash. If it's a minor symptom (a rash around the face or mouth), continue. Don't stop. And if you need to talk to an allergist about it, do it. But what we do see sometimes, if they'll have these minor reactions, but if you keep the food in their diet, go down to a smaller amount, build up again, that they will overcome it and then not have that allergy. But a lot of times, when they stop and take it out is when we see that allergy appear. So, talk to an allergist about it, but don't remove a food if the only symptom is localized and mild.

Durban: I use a lot of the Vaseline barriers around the lips because I have that same question, and they come back to see me and I'm like, "Just email me, call me, phone a friend." Like, I just—Vaseline is also your friend.

Kagan: This is great. One of the questions I have for you is, how would you engage in shared decision making with parents who have high-risk infants but they want to continue exclusive breastfeeding through 6 months?

Gupta: So, what do you tell them if they want to do exclusive? I mean, I think it's just a discussion. You know, if that's what they want, just let them know that it is—studies have shown there is no decrease in breastfeeding when you introduce some complementary foods earlier. And there is this opportunity to potentially prevent, not that if they introduce it later—again, shared decision making. If the parents are 100% set on it, I don't mess with it, and we say, "Okay, when they turn 6 months, soon after, let's get it in their diet." So, I feel like we do medicalize, we push a lot of things as pediatricians sometimes, and families need to follow what they believe in and their cultural values and what they hear. So, if you can't get it in before, it's no problem, let's get it in soon after they're ready.

Key Takeaways

Durban: Thank you for your time this afternoon. We've really enjoyed this conversation and the information that we gleaned from Dr. Gupta's presentation. This complementary feeding period is really critical, but it is always, like Dr. Gupta and Olga have shared, it's always that shared decision making because we have lots of goals that are not very implementable if we're not talking with the patients and their parents about what's realistic. And we do want them to continue to be breastfed as long as mom desires, but we have so much data, as Dr. Gupta also said, that introducing these foods early—if you truly think about 2 teaspoons of peanut butter, maybe even 3 times a week, that's 6 g of protein. And that volume is not anything that would be significant to decrease the intake of breast milk. So, most of our guidelines are recommending the introduction between 4 and 6 months.

Gupta: Here are the early introduction key takeaways. Again, that narrow window of opportunity when the immune system is developing to prevent peanut allergy and potentially other food allergens and that window closes earliest for infants with severe eczema. So, really pay attention to those high-risk infants. Modern guidelines recommend the introduction of peanut- and egg-containing foods as part of a diverse complementary food diet between that 4 and 6 months. And then finally, do not purposely delay the introduction of other common allergens once complementary feeding starts. And just so you know what those are, we talked about milk and that would be yogurt. We talked about other tree nuts; some of the biggest ones are cashew, which there is great cashew butter, things like walnut butter, mixed butter, almond butter. You know, get some of those other tree nuts into their diet. And then the fishes: the shellfish and finned fish. Now that's up to cultural family decisions, but those are also common ones. And then the wheat and soy and sesame. Sesame is up and coming, so if you can get some sesame, tahini, something that those infants like into their diet early is always a plus.

And then finally, at-home, early introduction without screening is safe, but screening may be preferred by some families. So again, shared decision making.

Audience Questions

✧ **For the top-9 food allergens that include a variety of food sources (for example, tree nuts include a variety of nuts like macadamia, walnut and cashew, and finned fish includes salmon and tuna), what are realistic expectations for early and ongoing complementary feeding when there are so many foods within this 1 type of allergen?**

Durban: Yeah, this is a great question because the reality is, like introducing 1 tree nut every 3 to 7 days, whatever the past, old-school protocols used to be, can be really time consuming. There are comorbidities with peanut and tree nut allergy, but we're looking at prevention in a nonallergic child. Finding all the different nut butters is a great idea, but it can also be hard and expensive. So, if we don't have access to those, what I'll typically do is have them purchase like a mixed nut container at the store and crush them into a really fine powder that will work into a puree and then introduce them that way. As far as the fish goes, for shellfish, I say pick a crustacean, and pick a mollusk. [For finned fish], I'll have them pick like a white fish and a dark fish and just kind of introduce—about a half of an ounce is an appropriate portion size for age when they're developmentally appropriate.

✧ **How does exposure through breastfeeding fit into this early-introduction concept?**

Gupta: Sure, that's a really good question. There's a lot of great research happening in that currently. We don't know the answer to that: how much of that food protein actually crosses over? So, like Raquel mentioned earlier, we're not really pushing avoidance of foods, and if we do, we pick a food, and it's timing. If they eat it and then don't eat it within a couple of hours—Raquel can probably tell us better—from breastfeeding. But we don't see a lot of that food protein passing over. So, we try as hard as we can, not to restrict that diet.

Durban: Agreed. I really try hard not to restrict a diet. If a mom is feeling inflexible just because she's worried or scared that she's doing something, that's when I'll offer like a 2- to 4-week elimination with a 2- to 4-week follow-up scheduled so we can ensure that they're reintroducing. And the list of these foods sounds really, really long, that we're asking people to introduce, and so when I make a plan, I'll say what our priorities are and around, then they can decide kind of around what timeframe they want to introduce them. So, we'll take it from their current age all the way to like maybe 10 or 11 months of age, closer for that shellfish, and so that they have kind of a roadmap of when we're going to introduce these foods.

✧ **You mentioned that 1 to 2 teaspoons of peanut product should be given 3 times per week. Are there set serving sizes for each of the other allergens that we should be recommending introducing weekly?**

Kagan: Well, to my knowledge, I don't believe we have a set size, but I think the key is to be regular in introducing the allergens, so as long as they're in the diet of the baby. Because we also want to encourage diversity. So, we don't want to be feeding the same food every day, we want to introduce as many diverse products into baby's diet early on. And so, I hope that answers the question.

Gupta: We don't know how much. Even for peanut, it's just off of that LEAP study that had 2 g 3 times a week. We're trying to better understand how much it is, but I think 1 to 2 g of each food multiple times a week, and 1 of the things we're doing in our study is doing like, "Monday we do yogurt. Tuesday we do egg. Wednesday we do peanut. Thursday we do cashew nut." And kind of spread it out, but then repeat in the diet. I'm happy to share some of our resources with you or what we've developed to make sure, again, it's not too much fat and not too much protein. But if they just get in a system of getting at least 1 to 2 g, 2 to 3 times a week, into their baby, and then letting them ad lib. Again, I don't want to medicalize it too much. If they're asking for a certain food, then give it to them.

Kagan: And I was going to also mention I see some international folks on the call as well, we didn't really talk about differences between different countries and how things are introduced. And 1 other thing to be cognizant of is, what's in season. Because sometimes not all the products might be in season in certain countries that you might be practicing or living in. So, just to be aware of that and then, too, we don't have enough studies really that kind of help us trend these

differences and similarities at this time. But it's something to look forward as we try to do more research in that space.

✧ **For recommendations for introduction of foods starting as early as 4 months, many infants do not have proper trunk control or tend to lean in their highchairs. Do you generally recommend waiting until these milestones are more developed to introduce any sort of solids?**

Durban: Yeah, absolutely. When they are developmentally ready, seems like the appropriate time. We don't want to risk aspiration or choking for allergy prevention and early introduction. So, it is kind of a fine balance. If that is persisting greater than 6 months, then it might be an opportunity for some support through physical therapy, but typically somewhere between that 4- and 6-month mark, they're going to gain that control of their head, neck, and trunk.

Another mom tip is, I used to roll up a yoga block or blanket underneath my girls' highchair so that they could put their feet down on something flat and that really does help with that trunk control because they have—think about eating with your feet off the ground. You're wiggly and wobbly. But if you can put your feet flat on the ground, you're not focused on keeping yourself steady, you're able to just enjoy your meal. So, having something firm underneath their seat in the highchair can really help their control as well.

Kagan: And just along those lines, I was going to chime in as well, sometimes it may not necessarily be head control, but also we talked a little bit before about certain allergic conditions and comorbidities and 1 of the things sometimes we also should be aware of is any sort of feeding or swallowing difficulties so there could be other things that may be preventing a child, and that's where referrals and consultations might be warranted from other providers.

Abbreviations

AAP	American Academy of Pediatrics
EAT	Enquiring About Tolerance study
IgE	immunoglobulin E
LEAP	Learning About Peanut Allergy study
NIAID	National Institute of Allergy and Infectious Diseases
WHO	World Health Organization

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