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<https://reachmd.com/programs/cme/initial-treatment-steps-after-any-asthma-diagnosis/11264/>

Released: 02/28/2020

Valid until: 10/31/2020

Time needed to complete: 45 Minutes

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Initial Treatment Steps After Any Asthma Diagnosis

Announcer:

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Dr. Yawn

Welcome to the American Thoracic Society and American Academy of Family Physicians' educational activity on the topic of severe asthma.

Dr. Wenzel

Thank you for coming back to hear a little bit more about facing severe asthma, and in today's module we are going to talk about initial treatment steps after any asthma diagnosis. Your faculty today are the same ones that you had for the first module. I'm Sally Wenzel. I'm at the University of Pittsburgh.

Dr. Yawn

And I'm Barbara Yawn, and I'm at the University of Minnesota.

Dr. Wenzel

These are our disclosures. They haven't changed since our last module.

All right, let's go back over the learning objectives, just again to remind folks where we are. So there are actually 4 modules as part of this series. The first was to explain the diagnosis, stratification, phenotype and presentation associated with severe asthma. That's what we did in module 1. In module 2, we're going to outline some communication strategies to facilitate the patient's awareness and to improve outcomes related to asthma, and these are things including symptom management, action plans, etc. In the third module, which we hope you'll all come back for, is to develop evidence-based treatment plans for severe asthma and begin to talk about really the heterogeneity and the phenotypes that we see in association with severe asthma. And then the fourth module is to actually review some of the clinical trial data on some of the new and relatively exciting treatments that are emerging for the treatment of patients with severe asthma.

So, going back to module 2, our module for today, this is to outline effective communication strategies, to facilitate patient's awareness and to improve outcomes, and again, talking about things like symptom management, treatment of comorbidities, trigger avoidance, and the importance of action plans for severe asthma.

So let's start with a case, a little bit different from the cases in module 1. This is a pediatric patient, 12 years old, diagnosed with asthma. Unfortunately, the school nurse sends you a note that she reviewed the action plan that you sent last year, but Liam, despite this asthma action plan, is still coming to your office at least once a week, and, in fact, he had to miss a field day, which is a pretty

important thing for most kids, because of asthma symptoms. And she talked to his parents, and they agreed that she could contact you.

So, what do you do? Do you wait for Liam to come into your office?

Dr. Yawn

I don't think so. I think that if a school nurse and the parents are concerned enough they want to call me, then my response should be let's have Liam and his parents come in and let's talk about it.

Dr. Wenzel

Absolutely. I think there are some real, again, red flags here. If a nurse is noticing that a child is having that degree of problems, it's time to get that child and the parents in, so you have your assistant call and invite Liam and his parents to come in after he's been to the emergency department once again.

All right, so you start talking to him, and of course he's using a leukotriene receptor antagonist, a pretty common treatment for pediatric asthma with low-dose inhaled corticosteroids, and he's actually doing pretty good, filled his prescriptions in 8 of the past 10 months, but he's also filled his short-acting beta agonist, his albuterol, each month for the past 3 months. Now, that's 1 canister a month. That's a lot of short-acting beta agonist.

Dr. Yawn

Yeah, I don't think people realize sometimes. I mean, we're talking 120 puffs per canister, so over a month that's an average of 4 puffs every single day of their short-acting in addition to your maintenance. That's a lot.

Dr. Wenzel

And that's really a sign of very poor asthma control. But, despite that, when Liam comes in—and of course we do what we always do—"Gee, how are you doing?" and he says, "I'm doing pretty well," and that's not uncommon and certainly not uncommon for a soon-to-be teenager. He's just finished 5 days of oral steroids, prednisone or Medrol, and, of course, 5 days of prednisone is going to make anybody feel pretty good, so again, you have to sort of factor that in. Mom is glad though that he's finished because, ooh, those steroids make him a little bit hyper, and he doesn't sleep very well when he's on them—one of the really common side effects for being on oral steroids.

Dr. Yawn

Very common.

Dr. Wenzel

So, what do you think? Is this severe asthma, Dr. Yawn?

Dr. Yawn

I don't know yet. I'm really waiting for a couple other evaluations, as we talked about in the first module.

Dr. Wenzel

Yeah, and I think that's obviously the right thing to do. And you've seen this slide before. For all of these cases... And this person certainly does have something that is difficult to control at this point, but the first question we always have to ask is: Is this asthma? And we want to confirm the diagnosis through our history, through our physical, and in some cases our use of spirometry testing.

Dr. Yawn

And a 12-year-old probably can do spirometry.

Dr. Wenzel

Absolutely. In fact, some people would say that if you've got a child who's responsive, that you can have adequate spirometry down to even 6 years of age in some children.

Dr. Yawn

I agree.

Dr. Wenzel

So, what's contributing to the asthma? Again, are there comorbidities that are making things worse? Do we know about medication adherence? We know his adherence to his controller medication is pretty good, but clearly he's using a lot of short-acting beta agonist. Is it severe asthma? And we want to confirm that it's severe asthma, that despite being on all these medications, he's still having poor control, going to the emergency department, going to the hospital, etc., and do our best to address the confounding issues.

Now, the last bit of this is: Is this time to send the child to a referral center? And so, are there things that we can do to start understanding the type of asthma that this patient has, things like elevations in inflammatory markers, things like exhaled nitric oxide, allergy triggers, things like IgE levels, and even—not necessarily in this case—advanced radiologic testing like CT scans.

So again, first step, confirm his diagnosis of asthma. And obviously we go through the same order of things that we would do when we see anybody, and you start with your history, and you go to your physical, and certainly he has had recurrent episodes of wheezing, shortness of breath. He's got a family history. We know that he's got certain triggers. All of that suggests that he has a diagnosis of asthma. Physical exam, again, if he's right after he's finished his oral steroids, his physical exam is probably going to be normal at that point. You're not going to hear any wheezing. But, if he's got allergies, you might have those allergy shiners. And depending on how many times he's been in the emergency room and how many times he's gotten oral prednisone, his growth could actually be stunted to some degree, so if you've got a very short 12-year-old, that's something to certainly be concerned about as well. And then the final test of the initial evaluation is, of course, that lung function testing, that simple spirometry that you can do in the office pre and post bronchodilator with good inspiratory loops. And again, despite the fact that this child is 12 years old, he's quite symptomatic or has been quite symptomatic. You might be surprised that there could actually be some abnormalities even though many children with asthma actually have relatively normal lung function.

Dr. Yawn

Is there a time when you don't do spirometry? "Oh, they're having an asthma attack. I shouldn't do spirometry." "Oh, it's only been 5 days on the steroids. I shouldn't do it." What about timing?

Dr. Wenzel

That's a very important question, and I think the most important time to do it is actually when a patient is having problems because that's when the test is going to be the most abnormal. I think coming off of a prednisone burst it's likely to be pretty close to normal at that stage, so, would I not do it? Well, if they're still having symptoms, yes, I would still do it. But if they're completely fine and they were in the emergency department 2 weeks ago and now they're completely fine as they finish their prednisone burst, I probably wouldn't do it. I'd wait until I saw them the next time.

Dr. Yawn

Okay.

Dr. Wenzel

So, what's contributing to this asthma? So again, these are things that every patient that you see you should kind of go down this list. Does the patient have heartburn? Is it symptomatic? Is there evidence for silent heartburn? Well, in this case there's not. Upper respiratory symptoms, i.e. allergies, rhinitis, sinusitis, post nasal drip, and in this case, yes, there are some signs and symptoms of this. Anxiety, depression, well, no, there's not right now, but if he keeps missing these field days, he's going to probably start getting anxious and depressed.

Dr. Yawn

Well, and you should think of this even in pre-adolescent and adolescent. It isn't just, "Well, they have to be 21 to get anxious and depressed." There are no rules like that.

Dr. Wenzel

No, for sure, for sure. Type 2 diabetes, no, he's actually of relatively normal BMI. He's not obese. If he's not obese and has a normal BMI, his chances of having obstructive sleep apnea as a 12-year-old are probably pretty slim, but he could certainly have it. And then vocal cord dysfunction right now we don't see any evidence of that. Really, his symptoms are much more suggestive that he does, in fact, have a lower respiratory sort of problem related to asthma. And then, of course, there are always some personal things that might develop along the way.

Dr. Yawn, how would you go about addressing some of these issues?

Dr. Yawn

Well, I use the asthma APGAR because I think it's good to have a tool that gives us reproducible results for assessing control or assessing the symptom burden, if you want to think about it that way, whichever way you'd like to think about it. So I use the asthma APGAR. This was developed specifically for primary care because it not only asks about the activity limitations, daytime symptoms and night time symptoms—which are the sort of hallmarks of control—it goes on to ask about triggers and possible allergens because that's something that happens a lot and doesn't get evaluated in primary care. It has the next section that goes on and asks about, "How do you use your current medications and what are you taking?" because all of us have been in the situations we look in the medical record and it says they're taking this, this and this, and they don't think they are taking any of those things, or they have had to change them all

at the pharmacy because of the formulary. In addition, when it asks about, "How are you taking and when are you taking them, as needed or regularly?" it helps you distinguish do they know that their short acting is supposed to be taken as needed and their maintenance is supposed to be taken daily. And then it asks them, "Well, what kind of problems do you have? Why are you not able to take it?" I think those are really important. And then the last one is something that with the vocal cord dysfunction might be very helpful. "What happens when you take your medication? Does it help or not?" And so, you do this and you can score it. Top score is 6. Anything that's 2 or greater or greater than 2, I'm sorry, greater than 2 says they are not well controlled and you want to do something about it. So, this is what I would do for assessment. And as I said, it goes through each of these. And besides giving us a score, I think it's an opportunity to start a discussion. If they have circled 3 things in their triggers like tobacco or smoke, well, where are you getting? For a 12-year-old, yes, I'm going to ask him if he's smoking, but where are you exposed? And you find out that somebody is smoking in the car or he goes to Scouts and there's somebody smoking at Scouts, things that parents may not be aware of, so I think it's a good way to start an important discussion.

Dr. Wenzel

And, of course, now in 2019, '20, you have to worry about vaping too.

Dr. Yawn

Oh, you do.

Dr. Wenzel

And a 12-year-old is very—has a very good chance that that 12-year-old could, in fact, be vaping, and, of course, we don't really understand all of the problems that can arise even short-term or long-term with vaping, but it really is important to include that in your discussions, I think, with the child and the parent.

Dr. Yawn

Absolutely. So, cigarettes and vaping or e-cigarettes, all the words you could think of that he might, "Oh, no, I don't do that." You don't use e-cigarettes but you vape.

Dr. Wenzel

Right.

Dr. Yawn

We've all heard those, so I agree completely, really important.

So, today Liam's APGAR is 5. He's missed his activities twice in the last 2 weeks. He's had daytime symptoms 5 days—this was actually before his last visit to the emergency room—and his nighttime symptoms 3 nights. He has had lots of these problems in the week before he went to the emergency room, but they are still important to know so you understand what's going on. He says he feels better this week, and that's certainly because of his oral steroids, but when you have mentioned about the smoking and he did circle the smoking, mom says, "Oh, yeah, my new partner does smoke in the house and in the car." Well, big red flag.

Dr. Wenzel

Yeah.

Dr. Yawn

And they identify that maybe there's some seasonal allergens, and so we're going to need to evaluate those. So, am I ready to say he has severe asthma? Not yet. I think he has uncontrolled asthma, but he may have things that I can deal with that would bring him back under control and he wouldn't end up being called severe yet.

Dr. Wenzel

But there are certain signs that he could be a little bit more difficult to control than some patients as well.

Dr. Yawn

Absolutely. So, I think we want to identify and manage the triggers, the allergies. As I said, he did say on his asthma APGAR there were some things that we needed to think about because he did have a couple seasonal allergens. Now, I could send him off to the allergist to get skin testing, but I happen to practice in a rural area and that's about 100 miles away, so I do the blood screening panel, and it's a panel that I can do from my region, so it has the trees and grasses that are common in my locale, and I like to do that because I think it gives me a great starting place. And it can also do things like dust mites, for example, and those I'm not going to send him off for allergy shots for dust mites. I'm going to help him learn and his parents learn how to avoid dust mites. So I think those are really important steps. And I'm also going to think about in the rest of my patients, "Who is it that I should do these allergy evaluations?" Well, anybody certainly that's at step 4 or 5, and I think it should be step 3, 4 or 5, they really need an evaluation. It doesn't mean you're

doing skin testing. That means you ask the right questions, and the APGAR is one way to start asking those right questions. People who have been in the emergency room, certainly anybody who's been in the hospital, an allergy evaluation needs to be part of their workup.

Dr. Wenzel
Agreed.

Dr. Yawn
So, this is the asthma APGAR algorithm. So, as we said, he was at 5, so we would still go down this. Even though he's just come off his corticosteroids, I still am going to go back and assess all of these things to see are there reasons that he got into trouble with his most recent exacerbation and other just baseline things that are going on. Inhaler technique, I always say that is one of the most important things. And it's not a matter of, "Well, this is how you do it." It's a matter of me watching. Or I don't have to watch. My MA or nurse can watch. And if you don't have anybody that you're really comfortable teaching in your practice, there are some excellent YouTube videos. Now, you want to watch them before you use them.

Dr. Wenzel
Yes.

Dr. Yawn
But there are some excellent ones that you and the patient or your MA and the patient can watch together and then say, "Okay, now show me what you learned." Make sure they really did grasp. You can always show them again if you have to. But anyway, the inhaler technique, the adherence, we know that he's refilling the medication. We assume he's using what he refills. The trigger—we've discussed this, smoking—and the lung function testing, we're probably not going to do that today as you said because he's just off his corticosteroids. But I am going to work on the inhaler technique, which wasn't so great, and I am going to work on getting the new mom's partner to smoke somewhere besides the house and the car or anywhere near the house, so we do have some things that make me say I'm going to do some evaluation.

One of the things that we do think if it's time to move up in therapy I like to do it in this stepwise approach, and we know that right now he's somewhere around step 4.

Dr. Wenzel
Mm-hmm.

Dr. Yawn
And so that's not a mild asthma anymore.

Dr. Wenzel
No, it's not.

Dr. Yawn
It's at least moderate if not getting into the more severe range, and he's still out of control, so we need to think about what's next, and the high dose, this is where we would definitely think this is someone that I want to be very suspicious of having severe asthma.

So, patient education, we talked about the partner smoking outside and away. I want to confirm that he has the medication and he's using them the way... Fortunately, he's leukotriene modifier is pretty easy. "Are you taking your pill? Yes or no?" And we did notice one of the things though that he—with his inhaled corticosteroid because for some reason he was using not the combination but he was using the inhaled corticosteroid and the bronchodilator in 2 separate inhalers—maybe insurance, that happens sometimes—but the mother seemed to have confused the ICS and the SABA. Well, that could be one of the reasons he's getting into trouble, so I'm going to fix that and want to see him back in 2 to 4 weeks since she is confusing the medication, probably 2 or 3 weeks I want to see pretty quickly what's going on.

And so the idea of adherence, we did say that we think Liam has pretty good adherence, but we need to look at all of our patients. As we said, 50% of them the prescription for the asthma medicine may never even make it out the door, or if you e-mail the prescription for the pharmacy, they never go to the pharmacist to pick it up. That's a huge percent. Then about 20% of the patients are not refilling their prescription on a regular basis. They may call in and say they need a refill but they never show up. And even in clinical trials, 11% of these people are using their medication less than 80% of the time, so even when we're calling them once a week, it is not easy to take these medications. I mean, I'm not saying this is just the patient being lazy or not caring. They do care. But there's a lot of things that go on, especially in a 12-year-old's life, that make it very difficult to be adherent.

Dr. Wenzel

And I think that's a point worth emphasizing too. I think the issues with young people, teenagers, etc., are perhaps a little different from what they are in a 60-year-old person, and certainly, I think teenagers are distracted very easily, so that's probably one of the main reasons, but I think one of the other reasons is that especially in that sort of 16-year-old age range, there's a desire not to be labeled with a disease. "I don't have a disease. I'm stronger than this. I don't need medications." And I think that's actually a really important thing to work through because it's a fine line between telling a patient that you're going to make them better, they're going to be great, they're going to live a normal life, but you still have a disease and you have to take your medication every day. So, again, just some nuances to think about.

Dr. Yawn

Oh, I think it's very important, and they definitely don't want to take that inhaler to school or the sleepover—

Dr. Wenzel

No, absolutely not.

Dr. Yawn

—or Cub Scouts or Boy Scout camp, all of those things. You really have to talk about, what could they do? Can they put it in their backpack and go into the latrine at Boy Scout camp and use it in there and then nobody else has to see it?

Dr. Wenzel

See it, right.

Dr. Yawn

So, adherence, and especially the issues in adolescents.

Dr. Wenzel

Correct, correct.

Dr. Yawn

What do you do to facilitate good adherence?

Dr. Wenzel

Well, we talked about some of these things already. Certainly, we need to address the issues that may be surrounding their adherence. What are the reasons that they exist? I think admitting that adherence can be difficult in a chronic disease, it's very hard to remember to take your medication every day. Again, the few times that I have had to take an antibiotic twice a day I'm pretty good at remembering for the first 5 days or so, but boy that 6th day I take the morning, and then the 7th day, "Oh, did I take any?" It's just hard to remember sometimes, and I'm a doctor and I know all the problems if I don't take my full course of antibiotics.

I think pricing is still a problem, a big problem. Asthma is one of the few diseases where the number of generics is really still small. We now have some generics, but it's not a lot, and there's not a big price differential when you go from branded to generics.

I think you want to identify goals. What would facilitate them achieving a certain level of adherence? Because it probably, for many people, is always going to be impossible to be 100% adherent, but if you can say, okay, well, we can manage if we get to 75, 80% adherence, that would be a good goal to shoot for.

Dr. Yawn

Well, and then, if you have a goal, it is their initiation of taking it. It's not, "Well, I'm doing it because the doctor told me."

Dr. Wenzel

Right.

Dr. Yawn

It's, "I am doing it because I want to play baseball," or, "I want to go to a field trip."

Dr. Wenzel

Absolutely.

Dr. Yawn

"I want to do..." whatever it is, and I think that, to me, with my patients that makes all the difference in the world when it is sort of their initiation and their idea to do this.

Dr. Wenzel

Right. Right. And I think, you know, this next point is probably again more important in the pediatric population. Inhaled

corticosteroids, still have a little bit of that label of it's a steroid. "My child won't be as tall as I would like my child to be because those steroids will inhibit their growth."

Dr. Yawn

They're not going to get that scholarship as a basketball player.

Dr. Wenzel

Correct.

Dr. Yawn

Of course, they probably weren't anyway but...

Dr. Wenzel

Right.

Dr. Yawn

Yes, there is... You think that that's been discussed, but I still hear that when the patients feel comfortable enough to be honest with me that they do have those fears.

Dr. Wenzel

Absolutely, and so, again, working through those and assuring the patients and their families as much as possible I think is actually very important. And then the cost issues that we've already talked about are very real.

Dr. Yawn

They are. And sometimes you can get them on some of the free programs. There are some very nice ones, but it can be real difficult in your office because it can take a lot of time.

Dr. Wenzel

Yes, exactly, and most of us don't have office staff that are committed to doing that on a regular basis.

So, obviously, again, we've talked about some of these things that can contribute to uncontrolled asthma, and I think you can go around the circle here and each one of these is very relevant. I think we tend sometimes to talk about the patient first and again focus on the patient, but to be honest with you, the underlying disease is incredibly important, the environmental factors, and even those physician-related factors can play a role in the level of control that the patient has, and then obviously the patient factors as well, and all of these need to be in balance. All of these need to be assessed and dealt with in the best possible way. And really, there is not a single factor on here that is more or less relevant. They are all relevant and they all contribute to whether the patient has controlled or uncontrolled asthma.

All right, so again, we're back to: Does this child have severe asthma? Well, we have worked through all of these issues. Now we have seen that the patient has many of the comorbidities that we associate with difficult-to-control asthma, but they have been addressed now. The patient is limiting the exposure to the cigarette smoke from the boyfriend, etc., so now we want to really think is this truly severe asthma? And so in this case again we have to go back to that definition, which is severe asthma is asthma which requires, requires treatment with high doses of inhaled corticosteroids, which, of course, in a 12-year-old are a little bit lower, perhaps, than they are in a 50-year-old, and/or systemic corticosteroids to prevent it from becoming uncontrolled or that remains uncontrolled despite this therapy. I think we started out with this observation that difficult asthma, which is what Liam certainly looked like he was presenting to us with, is about a fifth of the asthma patients out there. But now it's really important to determine, is it just difficult asthma where we address all of those comorbid conditions and adherence and exposures, etc., can we make this person become more controlled and move them from difficult asthma to something that's a more mild to moderate disease, or will Liam end up in that 5 to 10% that actually have severe asthma where our current treatments just actually don't treat patients very well? Again, this is really, I think, the next piece that has to be done as part of that.

So, does Liam have severe asthma? Well, at this point we haven't really done all of the testing that we probably should do, but we're getting closer. So we certainly can say that Liam has poorly controlled asthma. That's beyond a shadow of a doubt and on low-dose inhaled corticosteroids and a leukotriene receptor antagonist. He's come back, we've upped his dose now to moderate-dose inhaled corticosteroids plus the leukotriene receptor antagonist, so he's on 2 controllers. He's on an inhaled corticosteroid and he's on a leukotriene receptor antagonist. Although he had some issues with adherence, which were modest and some confusion with his medicines, those have resolved, and the mom's new partner has been helpful and is not smoking around Liam anymore. Now we need to address this level of control at this stage, and again, part of this is also understanding what are the goals of Liam? Does Liam care about this? And of course Liam does care about this, and he'd really like to go to his 7th grade graduation party and the field trip that

goes with it. He'd like to play basketball. He'd like to do typical 7th grade activities, but unfortunately, right now he doesn't think he can do any of those. I mean, that sort of breaks your heart when you hear a story like that.

Dr. Yawn
It does.

Dr. Wenzel

And, of course, mom just would be really happy if he didn't have to go to the emergency department anymore or urgent care because obviously she's a busy person too. She may be working. She may be working at home. But she doesn't like to be interrupted to take her son to the emergency department, plus it's expensive to go there. So his next visit he says he's doing much better. Liam likes to please his doctor. He's been able to play baseball after school. He hasn't been to the emergency department. Again, partner is not smoking anymore, at least around Liam, which is really important. Interestingly, the allergy report showed he actually didn't have any seasonal allergies or any things that you could sort of prevent him from being exposed to, and certainly, the timing of his exposure and the changing of inhalers, the timing of the new smoking exposure, probably influenced his level of control, but you do his APGAR, it's still not great. It's still 3. It's above that 2 threshold that we talked about, and he still is having some day and nighttime symptoms. And baseball, you have to understand, is a pretty sedentary sport most of the time. The only thing you do is run the bases really, and he still sometimes has problems with that. Again, that's not the story that you want to hear. His uncontrolled asthma actually does remain at this stage, so now what do you do? This is a 12-year-old, he's on a pretty good medication regimen. You've addressed most of the comorbidities. What do you do? Do you keep watching him longer? Do you think about referring? Are you going to add more therapy?

Dr. Yawn

Well, I think that I'm probably going to think about referring, and I know this... Because I live in a rural area, it takes a while to get an appointment with a pulmonologist or an allergist, whichever is available, and so I probably would start him on a bronchodilator in addition to what he's taking and make the appointment, which might take up to 3 months.

Dr. Wenzel
Up to 3 months.

Dr. Yawn

Because it's not an emergency. We know it's not an emergency. If it was, we could get him in quickly, but in that 3 months I will have given him 1 more trial of therapy and we'll see what happens when he gets to the specialist's office, so I'm going to do both.

Dr. Wenzel

Yeah, and I think that's really wise advice because to your point they're never going to get in to see the specialist the next day. It would be a very rare occurrence if that was indeed occurring. So, are there things that you can do in the meantime? And, yes, certainly there are some things, and you can start to understand are there specific nuances to Liam's asthma that maybe make his asthma different than others. You can start to communicate with other people involved in his care, including his school nurse who's the person that initiated this contact, obviously. You can develop a pretty good asthma management plan, an asthma plan that talks about the components of the treatment that the patient is on, practical approaches to ensure that they use their medications appropriately, again every time you see him reviewing the medications and how they're used.

And again, one of the things about asthma that makes it so difficult is that each one of our inhalers, almost everyone, is a slightly different device, so we've got metered-dose inhalers that have a pretty similar sort of actuation plan, but even those you can have breath-actuated metered-dose inhalers versus the traditional hand-initiated puffer device, and of course you've got dry powders and various devices that the drug powders are in, and all of them require a different approach to actually taking them. And then helping the patient understand their disease and how to use each inhaler at what time is, of course, really important.

So, is this, in fact, severe asthma? Again, we've gone through most of these steps already, we've confirmed the diagnosis. We've now decided that because we're increasing the doses of inhaled corticosteroids, we're adding additional controller medications, the patient is still uncontrolled by your APGAR score, etc., so we're certainly at the level of meeting the criteria for severe asthma on the basis of the medications that the patient is using. We've addressed what's contributing to the disease. We've certainly looked for factors that could impact his control, the smoking in the car, in the house, etc.

So what at this point are some other things that we could even start doing in primary care before that Liam got to see the specialist, and certainly, in this regard I think there are the collection of biomarkers, which is something that, again, get that blood count, get that CBC with a differential, get that IgE level, get the allergy skin testing—allergy testing as opposed to allergy skin testing. Those are all things that you can initiate now so that when the patient goes to the referral, you'll actually have that information to take with the patient.

Dr. Yawn

And it's okay to do it now and they are seen in 3 months. It's unlikely that their IgE is going to change drastically in 3 months.

Dr. Wenzel

Almost certainly it won't, so, yes, and I think it's very helpful. Those are the things when I'm on the other end, I'm the specialist seeing that referral patient, it's really helpful to have that information. I would prefer to have 5 complete blood counts with a differential in that package of usually the...paper that comes to me. I would prefer to have 5 complete blood counts with differentials as opposed to list after list after list of the medications that the patient is on, for instance, but that's what happens with our electronic medical records. That's what we end up getting.

Dr. Yawn

That's why there's stacks this high, yes.

Dr. Wenzel

So it seems like we're headed certainly in the direction that this is severe asthma. How do we define control? And for the criteria for control, we define the best symptom control. How does it impact your functioning? How does it impact your activities? Do you have exacerbations? Are you going to the emergency department? And if you are having exacerbations, how frequently are you having exacerbations? It's really important to remember that every time a patient gets a course of systemic corticosteroids—prednisone, Medrol or a shot for that matter—that that constitutes a severe exacerbation. It required intervention with corticosteroids. That's something that we really want to avoid and certainly is a hallmark of poor asthma control.

Interestingly, if a patient has 2 or more bursts of corticosteroids in the previous year, that defines poor asthma control, and I think sometimes we forget as physicians because it's so easy to write that prescription for prednisone, "Oh, here, here's your prednisone," that we forget it's not candy. It is a drug with considerable side effects, and especially in a 12-year-old—you really worry about long-term effects of corticosteroids in that 12-year-old—and then certainly visits to the emergency room or the hospital.

Dr. Yawn

Well, and back to the steroids, patients will tell you... if you prescribe something that's very expensive, they will give you pushback, but oral corticosteroids are very, very inexpensive.

Dr. Wenzel

That's the other thing.

Dr. Yawn

So it doesn't trigger anything in the parents necessarily, but it needs to trigger something with us of this is not acceptable without trying to explore further and see what's going on.

Dr. Wenzel

No, I think that is such a good point. And again, corticosteroids will make patients better so quickly that if you're a parent, you see that and you're like, "Well, this is a great drug. It's making my child feel better," but at a consequence, and we should never forget about those consequences. And then obviously the last thing is evidence of airflow limitation on pulmonary function testing.

So, we've got our patient. Liam is doing better now. There's a few other things that probably could be addressed, and certainly we want to evaluate all patients with asthma, especially those with difficult-to-treat asthma, for their symptom management, for avoiding whatever triggers that may be setting them off, for adherence to their medications and whatever comorbidities may coexist. Those things can all be...easily managed is probably a little bit strong, but they can be managed, and I think these are things that can be addressed in primary care. And then obviously developing action plans as the disease becomes more severe.

On behalf of the American Thoracic Society and the American Academy of Family Physicians, thank you so much for joining us for this very important educational program.

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