

## **Get Ready for Seasonal & Pandemic Flu: Strategies for Early Care and Education Providers**

Hira Khan: Hi, everyone. Welcome and thank you for standing by. My name is Hira Khan and I am a program manager for the National Center for Early Childhood Health and Wellness. I am pleased to welcome you to today's webinar, Get Ready for Seasonal and Pandemic Flu: Strategies for Head Start and Child Care. Today's session will be presented by Dr. Flor Munoz and Dr. Timothy Shope. Before we begin, I have some announcements for you. All participants will be muted throughout the presentation portion of the webinar.

There is a slide presentation being shown through the webinar system. If you have a technical question, please type it in the chat box on the corner of your screen. We have a lot to cover in the next hour and a half, so please submit your questions at any time by typing in the chat box on your screen. We will answer questions at the very end of the webinar. A feedback survey, and your certificate, are available afterwards.

And lastly, the webinar is being recorded, and a link to view the webinar will be sent in the following days. All right. Dr. Munoz and Dr. Shope, thank you for joining us today. I'll turn it over to you.

Flor Munoz: Thank you so much, and good afternoon everyone. This is Flor Munoz. It is my pleasure to welcome you to this webinar today on behalf of Dr. Shope and myself. I would like to start the discussion this afternoon. I will, if you can see my slides, go over the objectives of this webinar. We would like to discuss with you today the prevention and treatment of influenza for this season and update you on the recommendations for the 2019-2020 influenza season. We would like to emphasize the importance of influenza immunization for everyone in child care, and school settings in particular.

And we would like to share with you some strategies to use in early care and education settings to prevent and control influenza this season. It's important also to review influenza pandemic preparedness and we will do this towards the end of the presentation. So, I would like to start with just bringing everyone to the same point of concern regarding influenza, and why we should be worrying about influenza, which is an epidemic, if you will, that occurs every year.

And as you can see from this triangle figure here, we have a significant burden of influenza disease in the form of usually many, many illnesses that occur towards – in the population. Numbers that vary, this is an estimate of 50 to 60 million people can get sick from influenza in a given year. It is thought to be about at least 10% of the population will get the flu. This results in many doctor visits – millions of them – and many patients who end up in the hospital. And we see the tip of the iceberg being mortality from influenza which, unfortunately, continues to occur every year. And we do see influenza as a vaccine-preventable disease for which mortality could be prevented.

This figure shows you a way of assessing the influenza seasons year to year. So, the Centers for Disease Control and Prevention has reviewed the influenza seasons over the last few years, and based on different parameters which include the number of influenza-like illnesses,

hospitalization, and mortality, they can determine the severity of the season in different populations including children, adults, older adults. And you can see how, for example, at the very bottom I have there the 2003-2004 season, which was a particularly severe influenza season for children. This is when we started documenting infant mortality and children mortality from influenza.

You see the 2009-2010 influenza season also, and the second arrow at the middle where again, young people – especially children – had a very high risk of complications and hospitalizations and mortality from the flu. Last year, interestingly, 2017-18 was a very high severity season for all ages. And you can see, and I'm sorry that was 17-18, but you can see how the most recent season, 2018-19, the one that we just ended, was considered moderate by these parameters, yet it resulted in over half a million hospitalizations and you see 36 to 60,000 deaths that were estimated among which 136 were pediatric deaths. Certainly the 2017-18 was the most severe season outside of a pandemic in recent years, but the 2018-19 was the longest influenza season that we have had over a decade. It lasted 21 weeks. In this figure, I am showing you the 2018-19 season where you can see the graph that the CDC produces every year giving us an indication of the types of influenza viruses that circulate.

So, you know we see usually influenza A and influenza B viruses causing the annual influenza epidemics. And in the last season, we saw initially influenza A/H1N1, which is what you see in the orange or mustard colored bars. And this was taken over by influenza A/H3N2, which is in red, towards the middle and the end of the season. You see that in green is the influenza B viruses and that represented a small proportion of the influenza viruses that we saw. But typically, an important message about this figure is that, in a given year, you have several types of influenza viruses circulating.

At least two A/H1N1 and H3N2 and at least two B-typed viruses that circulate. So, let me ask you first. This is a question for the audience. If you can recognize influenza. Which combination of symptoms best describes a common presentation of the flu? And this is open for you to respond. And you can see the different options there. Cough, chills, headache. Sore throat, chills, red itchy skin rash. Fever, headache, vomiting, diarrhea. Or cough, fever, sore throat, and body aches. I'll give you all just a minute to respond to this one. All right. So, let's end the poll. I think we've had good representation, more than 50% of those who seemed to be on the call. And I see that the responses, as you can see maybe on your screen, favor answer D, which says, "Cough, fever, sore throat, and body aches."

So, let me move on to this. This is the correct answer. D. Cough, fever, sore throat and body aches. And some of you might have had the flu and so would recognize these symptoms very promptly. So, let's talk a little bit about this. So, what is the flu? We tend to call pretty much anything the flu. Respiratory or even gastrointestinal symptoms. But the flu is really a viral infection of the respiratory system. It does affect the upper respiratory tract, so the nose and throat and also the lungs. And it does have systemic symptoms, which is what makes it really different from the common cold.

And it's definitely more serious than the common cold. You see that you can have a variety of symptoms as listed there. Including fever, which is a very important characteristic of the flu. You have cough, which is sometimes reflective of the lower respiratory tract infection as well.

And then you don't feel well at all. Headache, body aches, chills. You do have much less energy than usual. You have sometimes nausea, vomiting, and diarrhea. And you know, a number of symptoms that really, really end up affecting the way that we function in a given day.

So, this is just a visual reminder here to make sure that we understand that although both common cold and the flu can be caused by viruses, the symptoms of the flu are definitely more intense and systemic, meaning you have body aches and other symptoms as well other than just respiratory. And it is a steeper illness. Compared to the other common cold viruses, which tend to be very common as well, the flu tends to be more serious, causing hospitalization or death. And we do have vaccine available to prevent it and we can also test for it. So, let's just go over briefly the complications of influenza in children, which you can see in this slide. Thinking about, again, our early life and child care settings, as well as school.

So, children are particularly susceptible to complications of influenza – especially young children. We have to keep in mind that influenza by itself, so primary influenza infection, can cause the lower respiratory tract illness being labeled as pneumonia, for example. So, these are the usual symptoms that we mentioned before with the fever, chills, headache, but you also could have this terrible cough and difficulty breathing when you have influenza pneumonia. Common complications, especially in children, are ear infection – so Otitis media – croup, which is that very loud barky cough that children can have, bronchiolitis and pneumonia, which are again lower respiratory tract, it affects the lungs directly.

And this can result in a secondary bacterial infection, which we see relatively, you know, frequently I would say, in the hospital setting where we do have patients coming in with staph – so MRSA – or regular staph pneumonia, as well as other bacteria that can cause a secondary infection. Children, and even adults with influenza, can also have severe inflammation of the muscles, that myositis, myocarditis, or infection of the heart, and then even some central nervous system manifestations such as seizures or mental status changes. This could be leading to other complications such as Guillain Barre syndrome, which is much less frequently seen, but we do definitely see those febrile seizures, especially in children.

Sepsis in neonates because of the fever, and then people who have underlying problems, such as asthma or other type of chronic lung disease or heart disease, can certainly have these complications of influenza more frequently than others. We also might see Reye syndrome, and obviously mortality, which is the most severe complication. Now what about children in school settings and day care settings? They are particularly special in terms of the transmission of influenza in a given season. So, influenza has a very short incubation period. It means that from the time one is exposed to the influenza virus, one comes down with symptoms within a day to four days. The average is about two days, so that means the virus is able to replicate very quickly and cause symptoms very quickly.

And one of the concerns is that we have is that certainly you do have a very long incubation period, or contagious period, where you can have virus already in the nose and in respiratory secretions, the day before your symptoms appear. So, you can be contagious before you know you're sick and even a week or more after the symptoms begin. This is because viral shedding, secretion of the virus through the respiratory tract, can last for several days. And young

children, in particular, have higher numbers of viral pieces – particles, and then they can transmit them over a longer period of time because the shedding is longer than in adults.

So, importantly, again, both children and adults can be infecting other people before they even show symptoms of illness. During the time they have symptoms and at the time when they're recovering from the illness because of the shedding of these viruses. So, this is a figure to show you again the importance of children who are really the drivers of influenza epidemics every year. Children, as you can see, in child care, preschool, or even school age children have many opportunities to be in contact with each other, with other children, with family members, and then able to transmit the virus to the family and to the community, including high-risk populations.

So, why are they at high risk of infections? I think you have seen how we have young children that many times they have never been exposed to the flu, or have had these viruses so their immune system has not been able to recognize these infections and they tend to be affected because of that. They're exposed to many germs. They have many opportunities to share not just their toys, but also secretions and contact with each other. So, it's very important to keep in mind that even though we are very careful many times, to make sure that children wash their hands and that we try to use any skin disinfectant, it's very hard to prevent children from touching their eyes and nose and mouth, especially when they're eating and having so many activities.

So, they could still be transmitting. They might not be as good as adults as covering their cough, and they might be too young to be vaccinated, so we need to keep that in mind in terms of transmission. I wanted to show you this figure that is also put out by the CDC where we need to think about who is at risk for influenza complications. And here you have different medical conditions on the left – and you see from asthma, heart disease, down to renal disease – and the percentage of people who can be hospitalized, usually with influenza. This is for last year's season.

And you can have, for example, the observation of adults are noted in the blue bars. You see how adults tend to have underlying problems such as cardiovascular diseases, metabolic disorders such as diabetes, or even chronic lung disease, such as asthma, and obesity as one of the main reasons why they have influenza complications and end up in the hospital. But for children, the bar at the very bottom you see in green, most of them, about 50% at least, that are hospitalized, have no underlying medical conditions. They're previously healthy.

So, just because of their age you do have potentially, children having a higher risk of complications. Other medical conditions that place children at risk are asthma, some neurologic disorders, especially cerebral palsy or seizures, anything that prevents young children from being able to swallow properly or manage their secretions and then chronic lung disease such as asthma, prematurity, and so on. I'm showing you here now just the effect that influenza has in terms of mortality in children.

You see the last season 2018-19, up to 136 deaths were reported, and you see the curve showing again the peak of the season is similar to previous seasons where the mortality ranges from 100 to a couple of hundred of children dying of influenza every year, again a vaccine-

preventable disease for which we shouldn't see this mortality. And when you look at who dies, this is data from the 2017-18 season, you see that both influenza A and B can cause mortality. Influenza A in this season was predominating so it caused 60% of the deaths, but both types of influenza A and both types of influenza B can cause mortality.

You also see that the age of the children is variable. It can be from young babies, 8 weeks of age to teenagers. Mean age of the mortality was about seven years. And you see again that the majority of children who die end up being children who were admitted to the hospital, half of them with no medical conditions. And this is a figure that is very frequently reported, nearly 80% of those who die have not been vaccinated before. I'm calling here then for realization that vaccination is indeed the most important tool for influenza prevention.

The recommendations for influenza vaccination and influenza prevention for 2019 to 2020 are put out and agreed upon by all these organizations: the CDC went through the Advisory Committee of Immunization Practices, or ACIP; the AAP, American Academy of Pediatrics; the American Academy of Family Practitioners; and even ACOG for obstetrics and gynecology. And everyone agrees that in the United States, the recommendation is a universal influenza vaccination so that everyone starting at 6 months of age should receive their influenza vaccine. Special populations that we do need to consider to vaccinate are listed here.

So, I mentioned already children, especially young children under 5 years of age, should receive their vaccine even if they are completely healthy because of their high risk of complications. The same is true for persons over 65 years of age, whether they have any medical conditions or not, because of their age they are having a higher risk. We include there as well, health care personnel, pregnant women, anyone who is in contact with individuals at high risk, including by age. And all the underlying medical conditions that have been described before, which include asthma, heart disease, diabetes, other chronic renal or neuromuscular diseases should be populations at risk that need to be vaccinated. So, the recommendations for vaccination for 2019-2020 have not changed in that universal influenza immunization is recommended for everyone starting at 6 months of age.

Now this year, both the inactivated influenza vaccine, which goes with the acronym of IIV, or the live attenuated influenza vaccine, which is LAIV, so that is the shot or the nasal spray, they both can be used this season as indicated in their label with no preference. This is a harmonization where both the American Academy of Pediatrics and the ACIP of the CDC, can have both the IIV or the LAIV. We have both trivalent or quadrivalent vaccines. Trivalent includes two influenza A and one B. Quadrivalent include two influenza A and two B, and either one can be utilized with no preference. Noting that all pediatric vaccines for 2019-2020 will be quadrivalent vaccines this year, so they will all have two A and two B strains.

Contraindications to vaccination, and this is true for all the vaccines, are basically any severe allergic reaction to any component of the vaccine. Precautions, meaning we might want to consider discussing this indication with the provider, is that if you have someone with the acute febrile illness, a illness that requires specific treatment, their immune system might be working towards getting over that illness so it's better to defer, delay a little bit. And then individuals with a history of Guillain Barre syndrome might have a concern and it's important to discuss

that with the providers. These are some updates regarding the strains that are included in 2019-2020 seasonal influenza vaccine.

And you can see that for the trivalent vaccines, the two influenza A viruses have been updated. These are going to be different this year compared to last year's vaccine. And you can tell this because the H1N1 strain is a 2018 strain, and the H3N2 is similar to a 2017 strain. The B viruses – so one contained in the trivalent vaccine is a Victoria lineage, compared to the B virus in the quadrivalent is going to be Yamagata, which includes everything that is in the trivalent plus the B Yamagata in its composition. So, important again to note that for B the strains are unchanged, and for A, these will be new strains in the coming vaccine.

And I wanted to show you this, not that you need to worry about too much, the details, but to make the point that in 2019-2020 all of the pediatric vaccines will be quadrivalent, so they have two A and two B strains, which are the expected strains that will circulate. And that we have different types, three different types mainly. One is an activated vaccine given as a shot that is egg-based – so produced in eggs. So, we have four different products, and importantly they have different compositions, different representations, if you will, in pre-filled syringes or multi-dose vials in different dosages, and you can see here that they're all basically available for any child starting at 6 months of age. And they can be given at different ages.

The second group is a cell-culture based vaccine, which is also available for children 4 years and up. And then the live attenuated influenza vaccine, which is also egg-based. And you can see how this is available for children 2 years of age and older who have specific indications for that vaccine. I wanted to share with you a little bit of the effectiveness data on the seasonal influenza vaccines. We understand that the influenza vaccine does not have a 100% protection every year. The protection, or the effectiveness, varies depending on various factors, not just which strain the vaccine contains and whether it matches with the influenza virus strain that is circulating.

But also, as you can see, it varies depending on the age of the person receiving the vaccine, when the vaccine is given, other host factors, such as underlying medical conditions. And it's variable, but we do have coverage – this is data from last year – where we had lower effectiveness for the H3N2 strain and that reduced the effectiveness overall to almost 30%, but for H1N1 it was much better, nearly 60%. So, it varies, and it's important to just know that being vaccinated does offer the opportunity to have protection even though the protection is variable year to year.

And I wanted to point this out as well because we talk about protection against getting infected from the flu, but more important than that, is protection against complications from the flu. So, these are two studies that I would like to mention so that you can discuss this with families if they might have concerns. One study looking at hospitalization and the intensive care unit, where vaccinated children had 74 to 82% less risk, or were less likely to be admitted to the ICU for influenza, demonstrating that when vaccinated – properly vaccinated, children who receive their flu shot, or flu vaccine, will have lower risk of hospitalization, meaning complicated influenza.

And the second study looked at mortality. So, again two-thirds of lower risk of mortality – 65% – when children were vaccinated compared to those who were not over various seasons. So, this is important to keep in mind. I'm coming to the end, so I did want to ask you a couple of additional questions here as a quiz. You have here an 18 month old, little Sofia, who received two doses of the flu vaccine last year and wanted to ask you, how many doses of the flu vaccine or flu shot does she need this season? No doses, one dose, two doses given two weeks apart, or two doses given at least four weeks apart. I see everybody is answering. Very good. So, let's go ahead and end the poll because I see that there's a pretty overwhelming response.

[Laughing]

Ninety-one percent of you said that she needs one dose, and this is the correct answer. I just want to mention that it is important to make sure that young children, this is an 18 month old, young children 6 months to 8 years of age, receive the correct number of doses of influenza vaccine. And this is the updated algorithm that the American Academy of Pediatrics recommendations has. Here you see that we have two groups, one is the first part on the left, which is children 6 months to 8 years of age, and on the right, you see children 9 years to 17 years old. Children that are 9 years and older only need one dose of vaccine – of influenza vaccine – regardless of whether they've had the vaccine before, or they've had influenza illness before. They only need one.

But young children 6 months to 8 years actually have less ability to respond and have protective levels of antibody with a single dose, especially if it is the first time they are vaccinated. So, one needs to understand that if they have received at least two doses in the past before July, because this is the new vaccine for this season, then they only need one dose. But if they've never been vaccinated, or if they have not received at least two doses before, even if it's in different seasons, they do need to get two doses of vaccine. Importantly, if you have, for example, an 8 year old who has never been vaccinated before, they need two doses even if they turn 9 years old during this season. So, if you start at age 8 and you already determined they need two doses, they need to continue and complete the two doses even if their birthday comes up during the season.

So, when should we get vaccinated? This is just to complete the recommendations. Ideally, we need to get influenza vaccine before the flu starts circulating in the community, so that we are ready and protected. So, it's important to offer the vaccination as soon as the vaccine becomes available, and we say ideally by end of October, so, "Flu before Boo," before Halloween. That would be our goal. And vaccination should continue to be offered for sure as long as influenza viruses are circulating because there is an opportunity of having influenza all the way into the spring, and more than one influenza virus is circulating, so even if you get the flu, you should get vaccinated. And this is another quiz. For whom is influenza vaccine not recommended?

As I'm trying to wrap up, let's make sure that we are clear on the recommendations in the high-risk groups. So, who is it not recommended for? Is it for health care personnel? Is it for women who are breastfeeding? Infants under 6 months? Household contacts of young children? Or household contacts of high-risk condition children? All right. So, this is great. I think the message is quite clear. Let's go ahead and end the poll. And I have an overwhelming majority. Ninety-seven percent of you responded that it should be infants under 6 months of age, which

is exactly correct. And this is because we don't have a vaccine for infants under 6 months of age. So, these babies are going to be depending on the maternal antibodies that they receive at the time of birth.

So, this is exactly why we need to vaccinate women who are pregnant, every time, every year, and every pregnancy. And this will protect the babies for a few months, and certainly after that, vaccinating everyone in the house, especially if it's during the flu season that the baby is born, so that we prevent transmission in the household as well. And I have one other point to make about the recommendations, and this is through another quiz.

So, the question here is, you have young David who is allergic to eggs and he's 3 years old and he needs to come in, but parents are concerned because they say the flu vaccine is made in eggs. What do you tell them? Should he not get the flu shot because of his egg allergy? Should he only get a flu shot that is egg-free? Or should he get the flu shot anyway because egg-allergic children can get it just like any other vaccine? The other option is, he can receive the flu shot, but he should be seeing an allergist, and the allergist should give it to him. Ah, this is interesting. So, I see that there is a majority. I'll let this just go for one more minute. OK. Let's go ahead and close the poll and see if we have a consensus here.

So, actually, the majority of you responded here that David should only get a flu shot that is egg free. Sixty-five percent of you said that. Let's look at the correct answer. So, the correct answer is that actually, David can get the flu shot because being egg-allergic doesn't mean it is a contraindication. Actually, the flu vaccine can be received just like any other vaccine, and there should not be any additional precautions to receiving flu vaccine in children who have a history of egg allergy.

And I'm glad to see that we can bring this message to you. This is part of AAP policy, you see that, all children with egg allergies can receive the influenza vaccine with no special precautions than those recommended for routine vaccines. That include vaccines that are made in eggs, which is the majority of the pediatric vaccines. Why is that? Well, data from at least 28 different studies where more than 4,000 egg-allergic subjects, including children and including those with severe allergies to eggs, were evaluated after receiving influenza vaccine. And what was identified is that even though they had this history, even with severe allergies, there were no serious allergic reactions, which included anaphylaxis or any respiratory symptoms after receiving the influenza vaccine.

So, the studies are listed there in this slide and based on this, actually this is already the second to third season that we are going to be not being concerned about influenza vaccination in those who are egg-allergic because of this data that shows that there shouldn't be any specific precaution for these children with egg allergy. So, no worries. You can receive any vaccine. And then I will finish by just basically saying, "Does cocooning make sense?" So, what is cocooning?

I'm looking at this here in the context of protecting children by vaccinating anyone who takes care of them. So, not only the family members, but also any caregivers. Us, as health care personnel, us as child care providers, the more we have vaccination, higher coverage vaccination, we have less likelihood of getting infected and then less likelihood of children being exposed to influenza virus, which means we will be protecting young children. This is the

goal. And if you ask anyone, or you know this is a poll in the population saying, should health care providers and child care providers be vaccinated for influenza, the majority of people, greater than 90% think we should. So, it's important to keep that in mind.

We should be vaccinated to protect our patients and our children that we care for. I will finish here by saying that if everything else fails, unfortunately, you still get the flu, we do have treatment. And treatment of influenza in children, but also in anybody, does not require laboratory confirmation. It is effective, so you can start treatment as soon as you think you have the flu. The physicians will provide this for you so that you can have a shorter duration of illness. If you start it right away, after the first onset of symptoms, so in the first day or so, you could actually get better within a couple of days, and shorten the duration by more than one day as sometimes it's thought, you can shorten it by three days even.

So, you can also have lower risk of complications from the flu and lower chance of hospitalization – and even mortality. We have many agents now. We have three neuraminidase inhibitors, also Tamavir and Zanamivir and Peramavir, given in different ways and a new one for persons 12 years and older called Baloxavir. So, we will definitely recommend treating anybody who is in the hospital with flu, anybody who has severe progressive illness, and anybody who is at risk for complications, even if they're not in the hospital, should try to get treated. And anyone who has influenza and would like to make sure they don't become sicker, or if they have persons at high risk at home should also be treated. All right, I am going to end here, and let Dr. Shope give you additional recommendations for the child care settings. Thank you so much.

Timothy Shope: Thank you, Dr. Munoz, for an excellent presentation. I have enjoyed watching all of you comment about where you're coming from on the chat room here, and I see that we have one participant at least from Guam, and I just wanted to send off a "Hafa Dei" to you. That's where I spent two years after my residency when I was in the Navy and where I first got interested in infectious diseases and child care. I did want to apologize, I know that a number of you are having audio difficulties, and if you haven't seen in the written comments, we'll be sending a link out after the webinar with audio on it so you can listen then if you can.

So, what I'd like to do is transition from the general information that Dr. Munoz gave you to more specific information about your particular settings and how you deal with influenza. What's really special about influenza in your settings is that you care for the most vulnerable population at risk for influenza complications, such as staph, hospitalizations, school absences, ear infections, and that kind of thing. And you also care for that very vulnerable age group of children under 6 months of age who cannot yet be vaccinated.

In addition, in your settings the typical methods that older people use to prevent influenza are difficult to employ such as non-pharmaceutical interventions, or NPIs, that means social distancing, and trying to stay apart from each other, which young children, that's exactly the opposite of what they want to do. Teaching them hand hygiene, and respiratory etiquette. To do that effectively can be difficult. Exclusions – exclusion from care has its downsides in terms of affecting the parent's ability to work, and we'll be examining how effective that might be for preventing the spread.

And then infection control is sometimes difficult also because the way in which influenza is spread. In addition to those other factors, children bring influenza home to the families and spread it into the community. So, your particular setting is really important to try to interrupt that spread from one community to another. Let's start with a case here. You're the director of a child care center and last year during the flu season, two infants from your center were hospitalized with complications from influenza. Unfortunately – or fortunately, I'm sorry, they recovered, and did not suffer any long-term health problems; however, this experience made you determined to do the best possible job to address this season's expected influenza outbreak. And this is a really good time to be thinking about this here in October, because this is a prime month to get vaccinated against influenza.

So, what kinds of things do you think you can do to control influenza in your setting? I'd like you to write it down or talk to, if you're listening with more than one person, come up with some ideas about what you might be able to do this year, to address influenza. Just take a moment to think about that. I see some of you are writing in answers on the – on the chat box. And that's awesome. I just want you to think. So, I've come up with some possible answers. We can immunize. We can try to do infection control and prevention, and we can look at exclusion, which is the denying admission of an ill child or staff member to a facility or asking them to leave later in the day if they develop symptoms after they've already arrived. OK.

So, this is another question for you. And we'll get this poll up. Which is the most effective method for preventing influenza in child care settings? Immunization, infection control and prevention, or exclusion. I'll give you a moment to answer that. I see the responses are coming in. OK. A little bit more time. All right, great. Well, we have a trend. About 75% of you think that immunization is the correct answer, with infection control and prevention at around 20 to 25%. And in fact you are correct, immunization is the most effective method. We'll go over each one of these methods and explore kind of what the science is behind the approach to try to prevent influenza.

So, immunizing is definitely the most effective method. Infection control means practicing hand hygiene, how to catch a cough or a sneeze, cleaning, sanitizing, and disinfecting surfaces and these are all really important practices but less effective than the flu vaccination. And exclusion may help but less effective than the vaccine. So, let's go over the facts behind that. So, one of the things that I think a lot of people realize and even a reason why some people don't get the influenza vaccination is that they don't think that they're going to get the flu very often. Well, what we know from studies and child care is that children get infected at a fairly high rate.

As much as half of children in a child care setting may get infected with influenza on any given year. Not all those children are symptomatic though. Children who actually get sick from the flu yearly is between 10 and 40%. Somewhere around 25%. That means a child will probably only get sick one out of every four years from influenza. You saw the data that Dr. Munoz presented where the influenza vaccine can really vary in terms of how effective it is, anywhere from around 10% up to as high as 60%. The intranasal vaccine was on the high end of that. Up until about four years ago, it seemed like the best option for young children. And then it wasn't working.

We took it away from the recommendations for a few years, and it's been reengineered and now reintroduced for this year. So, even though the vaccine isn't a 100% effective, I think, what you saw is from the data that Dr. Munoz already presented, is you're much less likely to catch the flu or get seriously ill, hospitalized, or dying from influenza. The other thing is getting sick from influenza once every four years is not really a reason not to get the flu vaccine. When you think about other vaccinations, like the measles, nobody questions getting the measles. Well your likelihood of getting measles is much less than once every four years if you were not immunized.

So, we really should be looking at influenza I think much more seriously. This is the worst vaccine-preventable disease out there. When we think about 100 children dying every year from influenza, we can take all the other vaccine-preventable diseases and total them all up and it doesn't come close to 100 children dying every year. So, we need to put influenza where it deserves to be, at the top of the importance list.

Now how do child care centers do in the United States? Well, we just finished the study in 2016 where we looked at U.S. – licensed U.S. child care centers and asked the directors what their practices were regarding requirements for the influenza vaccine. For children, only 24% of directors required the flu vaccine. And 60% of centers did not track the flu vaccine at all. For adult caregivers, only 13% of directors required that adult caregivers receive the flu vaccination. And 51% of centers did not track the flu vaccination.

So, that was rather discouraging and that's the reported requirements. Actual vaccination rates might be higher. We only have a couple of studies, one from Ohio and one from St. Louis, looking at child care provider vaccination rates. And you can see they're quite low, 22 to 30% in Ohio, and 58 and 47% in St. Louis. So, we certainly have a long ways to go to get those vaccination rates up much higher. OK.

So, we're ready for another quiz here. How does influenza spread? Select all that are correct. There may be more than one answer. From hands that are dirty from diaper changing. It floats in the air and goes in the lungs. By droplets landing on other people's faces. By touching contaminated surfaces then touching the face. OK. So, I see the answers are coming in and a lot of button clicking going on here. I love it. By the way, we definitely will have time for answering questions at the end, so go ahead and write them in – in the chat box and we'll get to them at the end. OK.

So, let's look at the results here. So, we have 22% saying from hands. It floats in the air and goes in the lungs, 48%. Seventy-eight percent say droplets and touching contaminated surfaces, 83%. OK. So, let's look at the correct answer here – answers, I should say. Droplets and touching contaminated surfaces are the correct answers. OK. So, let's look at that. So, as you can see from this picture of the sneeze here. Those are large droplets. They travel for about three feet and normally fall to the ground or fall on surfaces, except if your child is in child care, then they go one and a half feet and into the face of their best friend and then those droplets hit mucus membranes like the eyes, the nose, and the mouth, and go into that child's body and can cause an infection.

Now some of those droplets will end up on surfaces and the virus can survive for a certain period of time on the surfaces, and if somebody touches the droplets and then touches one of those mucus membranes, that can also cause an infection, but it's less common to cause an infection in that way. OK. So, let's look at understanding how influenza is spread. Let's look at infection control and prevention as a method for reducing influenza. We went over the methods.

These are covered extensively in *Caring for Our Children*. You can look up the recommended infection control and prevention methods by searchable database, and it's free. Another source of information is *Managing Infectious Diseases*. This is a book that I edit, along with Sue Aronson. And we just came out with a fifth edition, by the way, just about two weeks ago. This is available for purchase, and we learned in our 2016 study, that about three quarters of all U.S. licensed child care used this reference, at least one of the prior editions of it. So, same information is available there. OK. So, time for another poll here.

To what extent can we reduce respiratory illness in group child care using excellent infection control methods? Can we reduce it by 100%? Seventy-five percent? Fifty percent? Twenty-five percent? I'll give you a chance to think that one over. OK. Answers are streaming in again. And ... I see that the biggest answer, about two-thirds of you think 75% reduction, and 25% of you think 50% reduction. The other two answers had much less responses. So, let's go to the correct answer here. And unfortunately, it's a little. It's not as good as you might have wished. Studies show about a 25% reduction. We can get a better reduction in school age children that are older, but it's not very good for 0 to 5 year olds, the age group that you care for.

Studies show somewhere between 17 and 35% reduction for flu-like illness, that's when there's fever and respiratory symptoms. With hourly hand sanitizer use, that number gets up closer to 35%. Of course, that's very hard to implement and practice. But a more standard common regimen only had a more modest improvement and only benefited children under 2 years of age. And there's a number of other studies. Some of have shown a benefit, some have shown no benefit. In general though, the benefit is rather small.

And what we really care about is, you know, kids that get so sick that they can't attend. Those are the kids that are either staying at home or having to go see a doctor or even be hospitalized. And that only shows about a 10% decrease when really strict infection control measures are implemented in a research setting and then measured. So, it's a little bit discouraging. I know you spend a lot of time on this and you still should, but you just need to understand it's not as effective as immunization. Don't stop doing infection control because it helps prevent other infections – especially diarrheal diseases – and you shouldn't change your practice for flu season unless you want to consider doing more frequent alcohol-based hand sanitizer or hand washing.

And I think the reason why we're not seeing as much of a benefit as we'd like, is that – that picture that sneeze again, the droplets are just flying from one child to another. It's very difficult to stop the spread in that type of a situation unless everyone had masks, and we're not recommending that. OK.

So, let's take another case here. A teacher or caregiver in a toddler room sees reports in the media that it's flu season. And she sees that Suzy's been flushed, laying on the floor for the past hour and has a cough and runny nose. And she wants to be held all the time. The caregiver takes Suzy's temperature and it is 104. And when Suzy's mother is called, she's frustrated that she has to come pick her up. When she arrives, she notices that Suzy's classmate, Bobby, also has a runny nose. And says, "Why doesn't he need to be excluded, too?" Bobby is playful and running around with the other children. So, another poll. Why is Suzy being excluded?

I'm sure you'll have to answer this question for Suzy's mother. And so, what is your answer? That she has a runny nose and a cough? That she has a fever? That she's requiring too much care? She can't participate in activities? She has a fever and respiratory symptoms. And again, more than one answer can be correct here. OK. So, your answers are coming in, and the most popular answers are that she has a fever. She has a fever and respiratory symptoms, and she can't participate in activities. So, let's see what the correct answers are. OK.

So ... There's actually three correct answers here. She's requiring too much care and she can't participate in activities. Those are two of the main exclusion criteria for any illness, including influenza. If kids are requiring too much care or can't participate in activities, in other words, they need to be held all the time, then they need to be excluded, and you don't even need to worry about what type of illness that have. Now fever alone is not a reason for exclusion. There has to be associated behavior change and kids with runny noses and coughs don't need to be excluded as long as they're participating adequately, they don't have a fever. That's why A and B are not correct. E is correct in that Suzy has both a fever and respiratory symptoms, so she should be excluded. OK.

So, and the reason why Bobby does not need to be excluded he has a runny nose, but he's acting normal. OK. So, let's talk a little bit about influenza exclusion and why it's a little bit difficult to come out with any kind of blanket recommendation for what to do with influenza. We don't want to solely exclude for the prevention of spread. As Dr. Munoz pointed out, children have influenza virus, they're contagious with it, or infectious the day before symptoms develop. And they can shed that virus – in other words, the child may still be infectious for longer than a week, in younger children quite commonly even up to two weeks.

So, kids get better before that time; they shouldn't have to stay home for a full two weeks, but they still could be spreading that virus. The point is that lots of children, as I described earlier, can get ill - - can get ... I'm sorry, infected and be contagious, but actually not have symptoms, either before the illness or after the illness is over. And so, we don't actually really know whether exclusion reduces the spread of influenza. The other issue is we can't tell which children have influenza. There's quite an overlap between symptoms of influenza versus the common cold viruses.

Now, children with influenza have the potential of becoming much more sick, and ending up hospitalized, and even dying, whereas that's not true of the common cold viruses. But some children with influenza have quite mild disease. Even in the middle of the influenza epidemic, when it goes through your community and it seems like everybody's sick with influenza, the majority of people who look like they have influenza, in other words have a fever and respiratory illness, actually have a virus other than influenza, studies show.

So, we can't exclude everyone who might have influenza, like Bobby, if he's not requiring extra care and he's participating in activities. So, which children should be excluded? The two reasons – not participating in activities requiring too much care, fever and respiratory symptoms, and one thing we know is that when they have fever and they have influenza, the amount of virus that they have is greatest while they have the fever. And then any other exclusion criteria described in Managing Infectious Diseases or Caring for Our Children also have the exclusion criteria available. So, the idea is that this approach may reduce some of the spread of a really bad vaccine preventable disease like influenza. OK.

So, now after considering the effectiveness of the various options for controlling influenza, you decide to really focus on immunizations this year. And you have to have a program in which you focus on both the adult caregivers and the children. So, what I recommend, I think we all need to change the way we talk about influenza. We need to talk about influenza as a requirement. The Advisory Community on Immunization Practices, or the ACIP, that's the committee that decides which immunizations are recommended each year. It's a committee of the Centers for Disease Control and they describe all their vaccinations, including influenza, as recommended. We turn these recommendations into requirements at the state level through the legislatures. And usually they're focused on school age children, but some states do have requirements for child care attendance.

There are no laws against requiring vaccines for your program before the state does. States often lag in their laws and you can implement a requirement even though one doesn't exist at the state level. I want to be sure that you all understand that. For adults, I think we need to think about health care systems. Some health care systems require influenza vaccine as a condition of employment, and that's because people in hospitals, for example, are caring for vulnerable patients whose immune systems may be compromised or they can be sick in other ways and they expect that the people caring for them are not going to make them more sick by giving them influenza. Why should child care be any different?

We already talked about this age group being extremely vulnerable to influenza. We have a duty to protect children, especially those under 6 months, who don't have the choice of getting immunized because there's no immunization for them. We want to protect them, everybody around them, and their family, all the other children, and the adults that they come in contact with, and this is called cocooning. Now, there are some states that have laws requiring influenza vaccine for child care providers – in California and Rhode Island. Those are the only two states, and I looked at this really recently, that I could find that have laws, but if you're in a state where there is a requirement, let me know. Many states recommend, but don't require, influenza vaccine yet.

Now, there is more support than you might think among parents whose children attend child care. Seventy-four percent think it's important for children – for child care staff to receive the flu shot, and 80% of staff and parents support mandatory vaccination programs. So, I think that you would have a lot of support to develop your own requirements at your program and then there's no reason to wait. Start now. Now, when we talk about children, there's a little more action on the legislative front. There are requirements in Connecticut, New Jersey, Ohio, and Rhode Island, and New York City flipped back again.

And I just learned recently that Pennsylvania, their language, actually, and their code requires all ACIP recommended vaccines, including influenza. And this was not enforced very heavily in Pennsylvania, but this year there seems to be more momentum to require this in Pennsylvania, certainly there is a law for that. Now, again, no law prevents requiring influenza vaccine for children in your program either. Adults or children. There are other arguments that you can use. There's a financial argument. Adults with influenza need to stay home and they could, therefore, lose wages if they're a child care worker. They leave fewer colleagues to care for the same number of children, or you're forced to find a substitute caregiver who may not be as experienced or well-trained.

Children with influenza may have fever for up to five days, and so parents would need to be at home caring for them for that time, if they're excluded for that time, and so those parents can lose wages. And then as we stated, children can spread flu to other family members and that can sort of snowball within a given family requiring adults to stay home. We also can appeal to social consciousness. You need to protect the vulnerable children for whom you care, as we stated. And you might spread influenza into your family if you're a child care worker, you're at high risk for being exposed to influenza and you might have some family members that are particularly vulnerable to influenza also. And then the children to protect other children, and vulnerable people, and family members also.

Now, we also have to address people's health beliefs and the barriers. And there are some studies that identify top reasons for adults and children why they don't get influenza vaccinations. In terms of beliefs, people state that healthy people don't need the influenza vaccine, they never get the flu, they're unlikely to get sick from the flu, they're not at risk for the flu, and again, we've gone over that. People don't get sick from influenza every year, but you can't predict how severe flu is going to be and you can't predict when you're going to get it, and when you get it how sick you're going to be. Access. It's difficult for child care providers, for example, to see their doctors. They don't have time.

Sometimes when they do see their doctors, they may not get a recommendation from the physician to get the flu vaccination. So, there are some access barriers that we have to address. And then there's fear. People are afraid of vaccine side effects, or that they might get the flu from the vaccine. They don't trust doctors or government or any kind of authority. They're afraid of needles. So, these are all things that we need to work on. And the best way, I think, is addressing education about the flu vaccine. We definitely need to improve access and we need to eliminate cost and provide incentives.

I'll go over a couple of ideas that maybe you can employ in your setting. Regarding education, the CDC has some excellent materials that are tailored for children in child care, and you can click on these links and download these materials. What you want to do is inform staff and parents about evidence-based influenza vaccine recommendations. You can quiz your child care staff. The CDC has created quick 10-question quiz. It's kind of fun to do. You can put up posters and circulate frequently asked questions to staff and parents before offering flu vaccines on site. Encourage dialogue and participation. And there's a number of posters that are available for free from the CDC.

All of these materials try to address these beliefs about the chance of getting sick, raise awareness – a lot of parents aren't aware that so many kids die in the United States every year from the influenza. You know, raise awareness that the flu vaccine doesn't cause the flu, and it's not a secret plot by the government to make everybody sick. It's kind of ridiculous that people believe that the flu vaccine will make them sick. Why would we give an immunization that makes people sick? It just doesn't make sense, but it's a common belief. There are other resources. A letter that you can send home to parents from the AAP, and then the AAP also has a message – a messaging series that provides helpful information to child care providers.

So, in terms of addressing access, obviously onsite immunizations is the best for children and staff, but that's complicated. You have to deal with health insurance issues, who would pay for the vaccine. In some settings that might work, say a hospital-based child care center. You may reach out to your health department or to your child care health consultant to see if that is something that could be explored and pursued.

There are companies. One such company, Passport Health, actually will provide onsite immunizations for a fee and the challenge is to figure out who would pay for that. Making it convenient for staff to get the flu vaccine, find information about local sites where they can go get it, and give them scheduled time off so that they get the flu vaccine. Basically, all these ideas are on the same principle. We want to make annual influenza vaccine part of the routine and a habit that everyone does, and once we do that, I think that acceptance will increase, as it has for many of the ... All of the other immunizations we give routinely.

Now, in terms of addressing costs, studies show that employers save money when people are immunized, even when they pay for it themselves. So, when the immunization's free for the employees, they're more likely to get it, and the company saves money because they don't lose employees. So, for some syndicated child care organizations, that may be an incentive and should be brought up. Now, just tiny little incentives, such as a \$5 gift card, has been shown to increase the likelihood of adults getting their flu vaccine. For children, maybe you could reward them with getting a book for each child that becomes vaccinated. Studies demonstrate that flu immunization rates increase to 50 to 60% from the really low 20% when caregivers are given the flu vaccine for free and onsite.

So, it's definitely something to pursue. So, be very interested to hear what you've done in your program or what you're planning to do. Any comments, you can write them in the box there and everybody can kind of look and get some ideas. See you've written a lot of questions there, and we'll go over as many as we can. The take home points are that influenza is the most common cause of vaccine-preventable deaths in children. And children spread influenza to caregivers, families, and communities. Immunization is by far the best influenza prevention tactic. Infection control is also important but not as effective.

Exclusion should be used when needed but not primarily as a method to reduce the spread. Child care programs have an important role and opportunity to improve vaccination rates. And the seasonal flu plan should be reviewed and updated annually. OK. So, we're going to transition from this point back to Dr. Munoz to talk about pandemic influenza, which is different from seasonal influenza, and how you should prepare for that. Thank you.

Flor: Thank you so much. And this will be brief. I have to say I am following the chat, and it's amazing to see everyone providing advice and recommendations and some ideas to each other. This is really wonderful to see. So, just for, you know, maybe five minutes, I just wanted to focus your attention to difference between pandemic influenza and seasonal influenza because it has implications on preparations and how we should view them. These slides will be available for you to review, but as you can see, clearly there is a difference between pandemic influenza and seasonal. Pandemic viruses are new, there's no immunity in any of us.

And so, fortunately, while these are rare, we need to prepare because we know that early on in the pandemic, there will be no vaccine, unlike seasonal influenza vaccines. We know that everyone is susceptible. The viruses are still the same as good as the seasonal virus to spread from one person to other. And then we need to understand that our ability to diagnose and treat the pandemic viruses might be different from seasonal influenza. We would expect, therefore, more hospitalization, more deaths, more morbidity, especially at the beginning of the pandemic.

And this is just a figure that shows you the way that pandemic viruses can appear, usually there are many types of influenza viruses out there that have the ability to mix with each other, mix in animals that then can be transmitted to humans. And once a new virus arises and it has the ability to affect humans, it can be transmitted from one person to the other and this is when it can become a pandemic because most of us will not have immunity and it can spread rapidly as we saw during the 2019 ... I mean, I'm sorry, 2009 pandemic.

So, you can see how we've had four big pandemics in the 20th century, and then we've only had one this century so far in 2009. And the severity can vary, from the 2018 which was the most severe when you have almost 3% of mortality throughout the world – that was an A/H1N1 virus – and so was the 2009 pandemic, where it was relatively – and emphasis on relative – because compared to others it was milder yet it still caused significant morbidity, a lot of illnesses, a lot of mortality.

But, you know, we were expecting worse, I think is what is important to keep in mind. And there is no way to know what the next pandemic is going to look like. Severity needs to be expected and high morbidity needs to be expected. We know that a pandemic virus will affect young people – especially children – disproportionately, and there are many ways that we can implement transmission prevention strategies such as hand hygiene, and there are medications and vaccinations.

So, I will not go into a lot of detail, but, you know, for all of you in child care settings, it's going to be important to keep in mind how difficult it is to enforce this distancing or prevention of contact interventions. We know there might not be enough medications or vaccines available for everybody and that everyone is going to be at risk, including the staff. So, it might be necessary to close the child care settings or the schools immediately after a pandemic occurs to be able to control it. So, it's very different to prepare for a pandemic than to prepare for seasonal flu. You need to see the pandemic almost as a natural disaster and then hope that it never is going to happen. But you do need to have a plan. And this is important to protect your

children but also your staff and that you can have life-saving interventions ready to keep everybody healthy.

So this is, again, something that you will be able to review in your own time but you need to keep in mind that you need to think about who's going to be in charge of the plan, how are you going to make updates to the plan, think about closure or exclusion times, how communications are going to work, just like you prepare – we do this in many places for natural disasters, hurricanes, and so on, and have plans for alternative care. The plan should include a planning and coordination team, where you have the identification of the key staff who is going to take care of things and, you know, also your community partners and how you're going to work together in the community to respond. You need to have a communications plan. Very important.

As a parent, I know this is key to be in touch with families and be in touch with your staff as well. And infection control which is very much what we do already, but making plans for exclusion of students and how to continue with education. The operations need to be closely dealt with, including staff absences and closing your programs and how to manage all of those that will be affected. So, these are just some resources that are available to you and everyone as you think about pandemic and having a plan ready. I encourage you to look at these from AAP, from CDC, again where they will be available for you. And we did want to spend some time answering questions.

As Dr. Shope has mentioned, there are many interesting questions that have already come up, and I don't know if anyone wants to make a comment. I did see three questions that I would like to address, but if anybody else would like to make a comment before we start?

Sean Diedrich: Hi Dr. Munoz. This is Sean Diedrich from AAP. So, we have all participants on mute, so unless Dr. Shope had anything to add, I was trying to gather all the questions so if you want me to just start going through them, I could ask them to you two and you guys can take turns answering, if that'll work.

Flor: Perfect. That sounds good. Timothy Yeah, why don't you do that, Sean.

Sean: We had one person ask, if they get their flu shot really early in the year, they've heard that the protection can go away toward the end of the year. Is this true?

Flor: OK. So, it's an important question. It is not an easy answer. There is no question that immunity wanes over time, and this is true for any vaccination so that your antibody levels are going to come down. The issue about influenza vaccine is that there is also an important timing that needs to be considered, which is in relation to when the flu season will occur and many times, actually, every year, it is mostly estimated that we'll have influenza in December to February. Usually it'll peak in February, but it's very difficult to know.

Sometimes we'll have an influenza as early as September and October, and as late as this spring and then into April and May. So, think what is important to do is to continue to follow the recommendations of the CDC, the AAP, AFP, and so on because they are carefully looking at the data regarding duration of immunity and duration of protection and adapting recommendations as such. You know we have vaccine available this year since mid-September

and certainly the recommendation to get your vaccine by end of October is staying and is not affected by any data that has come up regarding duration of protection so this will ensure that everybody has the time to develop immunity. It takes two weeks to develop immunity, even if you have waning immunity over the next six months, it is expected that vaccination by end of October should be enough to keep you protected.

Very, very early vaccination this year was not possible anyway because we did not have the vaccine available. We will have to see in the next year, next season, if more data accumulates, if it's still going to be the same, but I think that overall we should be OK this year since vaccine has been given from September to October and through this season. It should not be a particular concern to have decreased immunity.

Sean: Thank you very much, Dr. Munoz. We received another question about how many days do you recommend after someone is diagnosed with influenza should they stay out of care before returning?

Timothy: I'll take that one. It depends on their activity. So, usually we don't know that children have influenza when they have influenza because testing is not routinely done in outpatient offices and sometimes providers will treat because the child looks like they have influenza but not actually do a test. So, in the situation where you did know, currently we say exclusion until they're able to participate in activities and not requiring too much care, and the fever is resolved for 24 hours without fever-reducing medications.

Sean: Thank you so much. We had another participant ask about children's latex – latex allergies and if they can receive the flu vaccine, because they heard that latex can be used either in the flu vaccine vials or the syringes. Do you have any recommendations regarding latex allergic children?

Flor: I'll make a comment about that. This is Flor Munoz. So, latex allergy in and of itself is not a contraindication to receive the flu vaccine. The vaccine that is pre-filled syringes, or the vaccine that is given from multi-dose vials, or even the intranasal, you know, have no latex in their – in their syringes to be a concern to result in an allergic reaction. We might talk about this later, but again, so as long you make sure that the person who's giving you the vaccine does not have latex gloves or that any other latex contact occurs at the time, the vaccine itself should not be an issue.

Sean: Thank you very much. And then kind of dovetailing on that one. We had another participant ask regarding if you could just remind them about the recommendations for egg-allergic children again as they were a little confused when that quiz question came up.

Flor: Yes, yes. And I did see some comments on the chat regarding people asking to get their vaccine and being told that if they had egg allergy, they needed to go somewhere else or they wouldn't be able to get the vaccine. So, this is very important to keep in mind because it is clear that having egg allergy is not a contraindication to receive the influenza vaccine. It's only people who have had severe anaphylactic reactions to an influenza vaccine. It doesn't matter where it's the egg or any other component of the vaccine who should not get the vaccine.

The history of having an egg allergy, what usually occurs, is that it is a history of what something that is thought to be an allergy but it's not. But even though those who have mild allergies to eggs can take the vaccine because the vaccine itself does not have enough egg protein in it at all to be able to trigger an allergic reaction. This is why those clinical studies that I mentioned where people with history of egg allergy and documented egg allergy, sometimes even severe allergy when given influenza vaccine, did not develop a serious reaction or an anaphylactic reaction to the influenza vaccine that was made in eggs.

Keep in mind that the vaccine that we are using that is egg-based, which is the majority of the vaccines in the United States, the virus strains that are used to prepare the vaccine are grown in the eggs. But by the time it gets to be a vial or a syringe that is used in the clinic to administer the vaccination, the viruses have been split and there are only portions of the virus that are there. So, the proteins of the virus that your immune system recognizes and the full virus isn't there anymore. The vaccine has been purified, you know, everything has been ... Most of what has been used for preparing the vaccine has been already removed from there.

So, the amount of potential, you know, albumin from egg that is present is minimal to negligent and not considered enough to trigger an allergic reaction. This is why AAP and CDC recommend that you can receive the vaccine even with a history of egg allergy.

Timothy: And I'm just going to add on to that. There were a few comments about pediatricians and allergists not giving the vaccine to some children who have egg allergies and why is that. This is a relatively recent recommendation, right, like within the last three years. Maybe you can comment on that Dr. Munoz.

Flor: Yes, actually for two years. This would be the third season – this coming season – yet indeed that we have this recommendation, so I think there's still a lot of, you know, education and needing to spread the word about this recommendation. There is also a specific point that if anybody has had any allergy again to the flu vaccine they should see an allergist to see if they can get it, and this is if, you know, they do want to prevent influenza. But indeed it's new and it's a very common misconception because we used to be so focused on asking about egg allergy even in many hospitals and places people are still asking about egg allergy but it really is a matter of catching up with the updated recommendations.

Sean: Thank you so much.

Timothy: Sean ...

Sean: We had another ... Oh, go ahead.

Timothy: Yeah. I just want to be sure before time runs out. There were a number of questions about vaccination laws.

Sean: Sure.

Timothy: And I wanted to try to address some of those. There was one question about a provider that wants to mandate the flu vaccine but there was concern about how to advise her and she's in New York, which I believe I'd have to look at the slides again, but I believe that's one of the four states that actually requires influenza vaccine in child care but if you live in a state that doesn't require the influenza vaccine in terms of law, there's ... You can still make a

requirement for your center. What you may have, you saw that like 75% of parents are in favor of that, you may have some parents that get angry with that, but you also have wait lists of children that want to come in and you're doing a good thing for those children and you're doing a good thing for the child care providers.

So, you know it might cause a little bit of problems in the short term, but you're doing the right thing to make a requirement, especially if you own your own child care center. If you work for a franchise then obviously you need to go through the franchise and see what their recommendations are, but in general, you're allowed to make rules that pertain to your own child care center as long as they don't ... Are not in conflict with existing laws. Since there is no law in the majority of states for influenza vaccine, you can make a requirement. It's not going to run afoul of any law.

Sean: Thank you so much, Dr. Shope. We did have another question in the chat about, why do some people complain about getting the flu after receiving their flu shot? Is it possible to get the flu after getting a flu shot, or is that the reason they got the flu?

Flor: I'll take that one and also comment on another point that was made there regarding the egg-free flu vaccine. So, there is egg-free flu vaccine and it's totally fine to get it. It's no different, it's not that it's not as good as the regular egg-based vaccine. It's just that there might not be enough and it's not necessarily something that you can give to everybody. You need to look at the age recommendations for that egg-free recombinant vaccine.

But yes, for people who have concerns or do have egg allergy can get the egg-free or not egg-based vaccine. And regarding the flu vaccine, so as I mentioned before, all of the flu vaccines do not contain the flu virus, those that are given as a shot. The only one that contains the flu virus, which is a live virus but weakened so it cannot cause the flu is the nasal spray flu vaccine. So, the flu shot, is it possible for it to give you the flu? It cannot, there's no virus, there's no possibility that it can go into your nose and cause flu.

So, when people do feel a little bit ill after getting the flu shot, it's because their immune system is recognizing that there's something that looks like the flu in their body and that they're going to react as if they had the flu. So, you will get sometimes a little fever, sometimes some fatigue, body aches, even headache after the flu vaccine, but you will not get the respiratory illness, and you will not get the flu disease, so that you're not going to be making other people sick at all. So, when you do feel that way, it means your immune system is working and you're getting good protection against the flu.

Sean: Thank you so much, Dr. Munoz. Looks like we have time for just a few more questions. We just had a question in the chat. Is the intranasal vaccine OK for children that have asthma?

Flor: So, this is where, again, you need to look at the specific indications and contraindications of these vaccines, specifically the live so intranasal vaccine given as a nose spray is only for children 2 years and up, so not for the babies. And only for those who are otherwise healthy. So, children who have a diagnosis of asthma should get the shot.

Sean: Thank you, Dr. Munoz. And Dr. Shope and Dr. Munoz, do you have any other specific questions you saw come through the chat that you wanted to answer? We have about two

more minutes. I have a few more on my list, but I wasn't sure if there were certain ones you wanted to target.

Flor: Dr. Shope, did you have one?

Timothy: There was something but it left my mind here. You can go ahead, Dr. Munoz. I'll remember it here just shortly.

Flor: Yeah, I have one because I did see it earlier in the chat. And this is also clarification regarding the different formulations of the infant vaccines. So, typically we were given 0.25 mL for the flu shot to the babies that are 6 months to 36 months of age – or 35 months of age – so 6 months to 35 months would get the baby dose of 0.25 mL, and now, as I showed you, that there are vaccines that are full dose, so 0.5 ml, which is the same that we would give to the older children that can be given to 6 months to 35 month old babies.

And the question that I saw was, if they get the 0.5 is that one dose is enough, or should they still get the two doses? So, if it's the first time they're getting vaccinated, they still should get the two doses because you know the rule remains the same whether you use the 0.25 or the 0.5 ml. Now both can be given. Both the AAP and the CDC recommend that whatever you have in your office, or whatever the pediatrician has in their office, either the 0.25 or the 0.5 ml for babies 6 months to 35 month olds can be used with no preference. But if it's the first time they need it, they get should get two doses and keep the same algorithm. I hope that helps.

Timothy: And I remember what I wanted to comment on. It wasn't a question, but a number of people did respond that they've been able to arrange onsite vaccinations. So, I'm really happy to have that feedback from the audience that they've arranged with their local Walmart or other types of arrangements to get influenza vaccines onsite at their programs. So, that's fantastic to hear and I'm glad that you're able to successfully do that. One other example was that a program actually incentivizes their child care providers \$25 to get the flu vaccine, so that's another great example. Thanks for sharing.

Flor: And in terms of opportunity I would just say ... I'm sorry, just briefly, real quick. Yes. Flu vaccine can be given at the same time as other vaccines for children and anybody. So, any opportunity going to the doctor, they can get their flu shot. It's OK to give it with other vaccines. No risk of seizures or any concerns with fever.

Hira: All right, thank you. That's all the time we have for today. Thank you, Dr. Munoz and Dr. Shope for taking the time to put together this presentation.

Timothy: My pleasure ...

Hira: To the audience, if you want more information or have additional questions, you can contact the National Center on Early Childhood Health and Wellness. The contact information is on the screen. As a reminder, a survey and instructions will be available after this webinar. Thank you for your participation.