

## **Response to Seasonal Influenza**

Sean Diederich: Welcome and thank you for standing by. My name is Sean Diederich, and I am the Program Coordinator for Disaster Preparedness and Response Initiatives at the American Academy of Pediatrics. I am pleased to welcome you to today's webinar. The webinar today will describe recommendations for this year's influenza season, discuss why it's important for everyone who works in Head Start and other child care programs to be vaccinated for flu, and share strategies that can be used in child care settings to prevent or control the spread of influenza. Before we begin the presentation, I have some quick announcements. All participants will be muted throughout the entire presentation.

There is a lot to cover within the next hour and a half, including discussion at the end of the webinar. You may submit questions and comments at any time by using the question box in the tools panel on the right-hand side of your screen. Staff will reply to your question or we will ask the presenters to respond to common questions near the end of the webinar. The webinar is being recorded, and an archived version along with the slides will be available. If you need technical assistance during the webinar, please call 866-709-8255. You can also click the question box in the top right-hand corner of your screen if you need help. After the webinar, you will be redirected to an online evaluation. Please take a few minutes to share your feedback. Participants who complete the evaluation will receive a certificate of participation.

For today's session, we have two expert speakers. Our first speaker, Dr. Hank Bernstein, is the Professor of Pediatrics at Hofstra North Shore-LIJ School of Medicine. He has served as a general pediatrician in private practice and in academia at urban, suburban, and rural children's hospitals to promote the health and wellbeing of children, their families, and the communities where they live. Besides various administrative, teaching, and care responsibilities, he leads several national initiatives in medical education and clinical primary care research. Dr. Bernstein spearheads PediaLink, the AAP online home for lifelong learning, and he is the Associate Editor of the Red Book Online, the web-based home of the report of the American Academy of Pediatrics Committee on Infectious Diseases whose responsibility it is to develop and revise AAP guidelines for the control of infectious diseases in children.

Dr. Bernstein maintains a certification through the American Board of Pediatrics. He completed his residency training in pediatrics at St. Christopher's Hospital for Children in Philadelphia after earning his medical degree from the University of Medicine and Dentistry in New Jersey School of Orthopedic Medicine. Dr. Bernstein also earned a Master's degree in healthcare management at the Harvard School of Public Health last year. Our second speaker, Dr. Timothy Shope, is an Associate Professor of Pediatrics at the University of Pittsburgh School of Medicine. He retired from the Navy in 2011 where he served as the child care health consultant for the Navy's mid-Atlantic region and for the Department of Defense for ten years. He also served on the American Academy of Pediatrics executive committee of the Section on Early Education and Child Care for four years. He is the co-editor of *Managing Infectious Diseases in Child Care and Schools*, 3rd Edition, the technical panel chair for the *Caring for Our Children*, 3rd Edition, and is the co-author of *Curriculum for Managing Infectious Diseases in Early Education and Child Care Settings*, as well as a subject matter expert for *Managing Infectious Diseases in Early Education and Child Care* online module.

Again, if you have any problems during the webinar, please call 866-709-8255. And with that, I will invite Dr. Bernstein to begin his presentation.

Dr. Hank Bernstein: Thank you, Sean. And welcome, everyone. I'm excited to be here and talk about influenza prevention and control in child care settings. So why are young children at risk for infectious diseases? Children entering child care are vulnerable to infectious diseases because this might be the first time they are exposed to these germs. They may also be too young to have disease-resisting immunity. Infants and toddlers are especially vulnerable. They tend to touch everything around them and often put

their hands and other objects in their mouths. Children in group daycare tend to play and eat close together. This makes it easy to spread germs. Although caregivers and children might know what they are supposed to do to prevent the spread of germs, such as washing hands, covering their cough, getting vaccinated, staying home when ill, they don't always do these things. It's easy to forget to do some of them. Influenza is a very common and serious public health problem contributing significantly to patient morbidity and mortality and creating a huge financial burden on our healthcare systems. You can see the notable impact of influenza each year in comparison with other vaccine-preventable diseases on this slide. So now here's a quick quiz. Which of the following could be symptoms of influenza? Select all that apply. And you can see: headache, chills, sore throat, cough, spots or bumps on the throat, red, itchy skin rash. The correct answers are A, B, C, and D. Headache, chills, sore throat, and cough are all very common symptoms of influenza. Influenza is known more commonly as the flu, and it's a contagious disease caused by the influenza virus. It infects the respiratory tract or the breathing system, which is the nose, the throat, and lungs, but it may also affect the entire body. We talked about the signs and symptoms of the flu which tend to include the sudden onset of fever along with the body aches, headaches, sore throat, et cetera. Influenza is spread person to person primarily by the respiratory droplets created by coughing and sneezing. Contact with these droplets or even surfaces that have some of these droplets is another possible mode of transmission. During community outbreaks of influenza, the highest attack rates occur among school-age children. Secondary spread to adults and other children within families is quite common. Both adults and children can spread infection while developing an illness, that's when the infection is incubating, or while they're recovering from the illness and they're shedding some of the virus. They may also be contagious if they are infected but do not have any notable symptoms. People of all ages can, therefore, infect one another even when they do not show signs of being sick. This makes it especially challenging to control the spread of germs. The incubation period is the time between being exposed to a disease and when the signs of the illness start. This typically, for influenza, is one to four days.

The contagious period is the time during which the illness can spread from person to person, and that lasts from the day before the symptoms appear until at least seven days after the onset of the flu. Another way to describe the contagious period is viral shedding. Shedding of the influenza virus can last longer in children and those who have compromised immune systems. This slide shows a comparison between the common cold and the flu. Both are respiratory viruses, but they're caused by different viruses. The two types of illnesses are sometimes difficult to tell apart because they cause such similar symptoms. With the flu, symptoms such as fever, body aches, extreme tiredness, and dry cough are common and often quite intense. The common cold, on the other hand, is usually milder than the flu, most often causing a runny or stuffy nose. Unlike the common cold, the flu can cause severe illness and life-threatening complications in people of all ages.

Vaccines are available, and it's the best way to prevent influenza. Influenza imposes a heavy disease burden on the United States and society in any given year. Because it is so highly contagious, influenza's responsible for an average of 50 to 60 million infections annually that result in 25 million healthcare visits, hundreds of thousands of hospitalizations, and thousands of deaths. In the United States, Influenza A, the pandemic H1N1 virus, predominated over all, but Influenza B viruses, and to a lesser extent the H3N2 Influenza A virus, also circulated. The peak of activity occurred during December of 2013 when 31 percent of samples tested positive for influenza. That's virtually one in three samples tested. There were lower hospitalization rates observed during the last flu season, and in addition, there were a lower percentage of outpatient visits for influenza-like illness. There also were fewer deaths. Although children with certain medical conditions are at higher risk of complications, substantial proportions of seasonal influenza causes illness and even death among healthy children. Among children hospitalized with laboratory-confirmed influenza, almost half, 43 percent, did not have any known underlying condition, 26 percent had asthma, and 14 percent had a neurodevelopmental disorder. For the 2013/2014 influenza season, 108 laboratory-confirmed influenza-associated pediatric deaths were reported. In comparison, there were 171 pediatric deaths the year before, and during the 2009/2010 pandemic, there were 348

deaths reported. The influenza virus is incredibly unpredictable.

Some flu seasons are mild and others are much more severe. The word "outbreak" refers to a sudden rise in the number of cases of a disease. An epidemic is generally more serious than an outbreak and occurs when the number of cases in a community is much higher than expected. And then, of course, there's a pandemic, which is an outbreak on a global level and the spread person to person is very, very high. The take-home message is: If you notice any unusual symptoms in your child care setting, be sure to report them to public health authorities right away. The ABCs of influenza include both the seasonal flu, which comes in two types, Type A and Type B. Then, of course, there's the swine flu that people are familiar with, which also has H1N1 and H3N2v. And then the avian flu, which is the bird flu, which is an infectious disease of birds caused by a Type A strain of the virus, H5N1 or H7N9. Now here's a question as well. There are blank number of new strains in the seasonal influenza vaccine for 2014/2015. The correct answer is A, no new strains. The strains in this season's influenza vaccine are identical to the strains in last season's influenza vaccine. And when we look at the influenza vaccine, we know that there are both trivalent and quadrivalent vaccines available for this coming flu season. There are three strains, two As and one B, in the trivalent. And then the quadrivalent has the same three strains but adds an extra B strain, so it actually covers four influenza strains.

There are two ways to receive the vaccine. You can get it as a flu shot or as a nasal spray. The shot is inactivated and it contains killed virus and it's given as an injection into the muscle. The nasal spray is made with a live weakened flu virus. It's approved for use in healthy people 2 through 49 years of age who are not pregnant. This season the nasal spray is available only as a quadrivalent vaccine covering four vaccine strains. Using a special analytic framework called "grade," the CDC systematically reviewed the evidence pertaining to the effectiveness of LAIV and IIV for healthy children. It concluded that there is an increased relative efficacy of LAIV as compared with IIV against laboratory-confirmed influenza among younger children. And this is based on two studies including children up to six years of age. The risk of adverse events after the immunization, fever, wheezing, and serious adverse events, appears to be similar for the two types of vaccines. Therefore, LAIV should be considered for healthy children two through eight years of age who have no contraindications or precautions to the intranasal vaccine. Our overall goal is to immunize as many children as soon as possible to protect them against influenza. So if LAIV is not readily available, IIV should be used in these children two through eight years of age. Vaccine -- or vaccination, I should say, should never be delayed in order to obtain LAIV. Now, let's imagine that Jane, who is 18 months old, has never received the influenza vaccine. How many doses does she need this season? No doses, one dose, two doses given two weeks apart, or two doses given at least four weeks apart. The correct answer is D. She needs two doses in order to develop the appropriate amount of protection against the various strains of influenza that are in the vaccine. And you want to wait a minimum of four weeks in order for the immune system to properly respond. This algorithm shows the number of doses that children six months through eight years need. When we think about the influenza vaccine, infants younger than six months of age are too young to be immunized and they cannot get the vaccine until they become six months or older.

Children nine years of age and older need only one dose. Children six months through eight years receive the seasonal influenza vaccine based upon their individual and personal vaccine history and their age at the time of being vaccinated. The first time a child six months through eight years of age needs the vaccine, they need two doses to be properly protected. Now here's another question. For whom is influenza vaccine not recommended? Pregnant women, women who are breastfeeding, infants under six months of age, health care personnel, household contacts of healthy children under five, household contacts of children with high-risk conditions, children and adults with egg allergy. The correct answer is C. As I mentioned earlier, children under six months of age are not able to get the vaccine. They do not respond appropriately and develop the correct amount of protection. So all people six months of age and older should get the flu vaccine each and every year. Annual vaccination against the flu is necessary

because the flu virus usually changes from year to year, and protection from the flu vaccine only lasts for about 6 to 12 months. So even though the 2014/2015 vaccine strains have not changed from last season, everyone needs a flu vaccine this year.

Three-year-old Jack once got an itchy rash after eating eggs. His parents are concerned because they heard that the influenza vaccine is made in eggs. What would you tell them? Select all that apply. The correct answers are B and D. Children with egg allergies still should get the flu vaccine. Research shows that the flu shot is safe for nearly all children with egg allergy. C is incorrect because there are new flu vaccines that are egg-free, not made in egg; however, they're only licensed for young adults beginning at 18 years of age. There is enough scientific information to show that the injectable influenza vaccine can be given in a single age-appropriate dose to virtually all children with presumed egg allergy. So basically, what needs to be asked is whether or not there's a history of an allergic reaction to eggs. If not, they can get the vaccine. If there is, then they need to decide whether the allergic reaction was a mild one, such as an itchy, blotchy, hive-like rash, or whether it was more severe, such as low blood pressure, wheezing, difficulty breathing. These are special populations that we need to make every effort to reach. As I mentioned, all children should get an influenza vaccine, and they commonly need medical care because of influenza, especially before they turn five years of age. And in fact, in an average year, 20,000 children under the age of five are hospitalized because of complications from the flu. Health care personnel really need to also get the influenza vaccine not only to protect themselves but all the patients and families that they come in contact with in their clinical setting. And the same is true for child care settings.

I also should mention, and I'll go back a slide, that household contact of children should get the influenza vaccine, and it is also critically important that all pregnant women get the influenza vaccine. They can receive it at any time in the course of the pregnancy, in the early on, middle, or third trimester. The reason they need the influenza vaccine is not only to protect themselves, but they develop antibody protection that they pass on to their newborn baby so that that baby in the first six months of life can be protected with mom's antibodies. This slide just shows that the influenza vaccine is recommended for all children 6 months through 18 and older. And when we look at influenza vaccine coverage for children 6 months through 17 years, we see that the rate is 59 percent last year, which is a slight increase from the influenza season before. Estimated coverage among children was highest in the younger age groups and is lower in the older age groups. For children six months through four years of age, the vaccine coverage rates were almost 71 percent, while the vaccine coverage rates for children 13 through 17 years of age was only 46 percent.

This leads to another question. Did you receive influenza vaccine last year? Some may say yes; some may say no because I do not need it annually; no, I don't believe the vaccine works; or, no, I am concerned about the vaccine side effects. The correct answer, we hope, is A, yes. Again, as we mentioned, everyone needs the flu vaccine every year. And remember, protection lasts for only one flu season, so this needs to be boosted with the vaccine every year. Remember that some people don't think the vaccine works. It certainly doesn't work 100 percent of the time, but it is absolutely the single best way to prevent the flu. And then people talk about the side effects, and while the flu vaccine can never give you a flu illness, there are definitely some side effects that may make you feel like you've gotten the flu, but it absolutely does not cause influenza.

This slide highlights that all adults need the flu vaccine every year. And this is because flu is a vaccine-preventable disease. As many as 50,000 people die annually. Treatment costs over \$10 billion a year. And remember that children spread it to adults, but adults spread influenza to children. So does cocooning make sense? Cocooning means, for example, if a young infant can't get the vaccine, then everyone around that child, all caregivers, should get the flu vaccine themselves. They're decreasing the chance that they get the flu themselves, in which case they're decreasing the exposure of the infant to influenza. So cocooning does make sense. All caregivers should receive the influenza vaccine to protect young infants.

These have the rates of influenza vaccination for adults, and you can see different groups have different rates. In the upper left-hand corner, for most adults 18 through 64, it's only one in three. For adults 65 and older, it's two out of three.

For healthcare personnel, three out of four, and for pregnant women, it's a little over half. All of these numbers should be at 100 percent, and that's the ultimate goal that we're looking for. Now, it is very important that all healthcare personnel, child care staff, et cetera, receive the influenza vaccine every year. And last year, 75 percent of healthcare personnel were vaccinated. 36 percent of these healthcare personnel reported a requirement for vaccination. And it turns out that flu vaccine rates for healthcare personnel are highest when the vaccine is required; as you can see, 98 percent. It tends to go down when it's not required but just promoted, and you can see that's 72 percent. And then it even goes down more when it's not required and not promoted, only 48 percent. The best coverage rates happen when vaccine is given on site, free of charge, and given more than one day. There are also antiviral medications available to treat influenza should people get influenza, and your doctor can help you decide who needs an antiviral medication for the treatment of influenza. And now that's the end of my talk, and I'll turn the presentation over to my friend Dr. Shope. Thank you very much.

Dr. Timothy Shope: Thanks, Dr. Bernstein. And I love that slide. It's great to be here with you all today. I hope you're all having a good day. Keep in mind, we're doing very well on time, so you can continue to write in any questions, and I think we'll have time to answer those questions at the end of the webinar. So my goal is to take the general information that Dr. Bernstein just gave you and help you develop strategies that you can employ in the early education and child care settings. And first, I just want to review what's unique about influenza prevention for young children in the settings in which you work. And just to cover some of the points again, younger children are at higher risk of influenza complication, especially those children under two years of age and under six months old are not immunized. So they're very vulnerable.

Again, the complications, death, hospitalization, school absence, doctor visits, ear infections, we want to try to avoid those. These kids obviously have less social distancing and hygiene. I saw a question come in already about family-style meals. Those are great for encouraging socialization and sharing and a community atmosphere. Obviously, when they're playing in the room, they're going to run up and hug their friends. When they're sitting at the table, they're going to reach over and grab their food. They're going to stick their fingers in their friend's mouth, in their nose, in their eyes, and all these things. We can't really avoid that, prevent that from happening. And so that's how flu is spread. In addition to coughing and sneezing, the touching is also important. Children obviously bring influenza home to families and spread it into the community. So all those reasons make the settings in which you work extremely important to us for preventing the spread. Okay, so 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.

Fortunately, the recovered and did not suffer any long-term health problems. However, this experience made you determine not to let this happen again and to do the best possible job to address this season's expected influenza outbreak. So what could you do as a director to prevent and control influenza? Some possible answers are to immunize, to do good infection control techniques, and to exclude. And of those three, which one do you think is the most effective method for preventing influenza in child care settings? I'll give you a moment to think about that. Immunization, infection control, or exclusion. The answer is immunizations. So we're going to talk about each of those three methods to control influenza. We'll start with immunizations. So as was described, there's two different methods.

There's the intranasal and the shot. The intranasal is only available for children who are healthy and older than -- two years and older. And the effectiveness is about 80 percent. The shot isn't 100 percent effective,

but still very effective. We're gathering data on exactly how effective this is, but I put an estimate of 70 percent for purposes of this talk. The rates of effectiveness are going to change from year to year because it depends on how well we match our influenza vaccine. We try to predict what virus is going to occur when we're making the vaccine and sometimes there's a better match in some years than other years. Now, you want to compare the effectiveness of the vaccine versus the chances that a child might get infected or sick. So let's start with children who get sick from the flu yearly. We think that about 10 percent to 40 percent of children in the age group in which they're in early education and child care settings will get sick from the flu each year. That's a pretty broad range. Again, it varies each season based on the type of virus and how much immunity they might already have to that virus. Now, getting sick is different from getting infected. Many more children actually get infected.

We can tell that by drawing blood and looking and seeing that they've developed antibodies to the influenza virus. So it's possible for children to get infected and not have symptoms. And some of these children may actually spread the virus. But the main point here is, even though the vaccine isn't 100 percent effective, if you get vaccinated, you're much less likely to catch the flu or to get seriously ill. So, again, one other technique that we can use is infection control. And just to show you another picture of how influenza is spread. It's primarily spread through these droplets that go spraying through the air with a sneeze and travel about three feet and then rapidly fall to the ground and touch various surfaces. So influenza spreads in this way in the air; but to a lesser extent, it's also spread by those droplets falling on to surfaces that are being touched by others, and then those hands that are contaminated can touch eyes and noses and mouths of themselves or other children. So we try to address this with infection control. And we can use these various components: Hand hygiene, hand washing, or alcohol-based hand sanitizer if soap and water is not available; surface cleaning, sanitizing, and disinfecting; teaching children cough and sneeze etiquette, turning their head and sneezing or coughing into an elbow. And these recommendations are extensively covered in *Caring for Our Children*, 3rd Edition, and we have the link there. This is a searchable database. Everything there is free and accessible to you on the Internet.

So compared to immunizations that we saw were 70 percent to 80 percent effective, how good is infection control in reducing respiratory illnesses? We know in children who are attending school, kindergarten age and older, when we teach them good cough and sneeze etiquette, that we can reduce the spread up to 50 percent, but it's not very good in the younger age group, in the zero to five-year-olds who you are taking care of. One study did show a 35 percent reduction in influenza-like illness. That's an illness that looks like influenza, but we don't test for it, so we don't know for sure. But that was with hourly hand sanitizer use of the caregivers and the children. When they looked at whether two hours was good, it was not sufficient to reduce influenza-like illness. There wasn't any, in fact, on absence, even though illness did decrease a little bit with hourly hand sanitizer use. Other studies have looked at overall respiratory illness by using good infection control. And we see a small reduction of about 17 percent in one study, and another one showed about 10 percent decrease in absence. So it's clear that infection control is not as effective as immunization, but we still should definitely do infection control. The regimen that you use should not change for influenza season.

And keep in mind that although it's not really effective in preventing influenza because those droplets go through the air to other children, and we can't really prevent that from happening very effectively, good infection control does help prevent other infections. And research shows that infection control is especially effective at reducing diarrheal illness. One thing you could consider is increasing the alcohol-based hand sanitizer or hand-washing that you use during influenza season, but I realize doing this on an hourly basis is not practical. So I just want to briefly touch on what I'm sure you've all seen in the news about this enterovirus infection that's going through our country right now and it's resulted in the death of several children. It's, we think, spread very similarly to influenza. So the message for you in early education and child care settings is to use the same techniques with infection control and with exclusion that we'll talk about momentarily in trying to prevent this illness versus influenza. You aren't going to be

able to tell which is which. Just keep employing good infection control and exclusion practices. Okay, so let's do another case: Who's In and Who Snot? You're a teacher caregiver in the toddler room and it's flu season. You've seen the reports in the media and noticed more children becoming ill. You see that Suzy has been flushed, laying on the floor for the past hour, and has a runny nose. She wants to be held all the time. You take her temperature and it's 104. You call Suzy's mother, who is frustrated that she has to come pick her up. When she arrives, she notes that Suzy's classmate Bobby also has a runny nose.

Why doesn't he need to be excluded, too, she asks. Bobby is playful and running around with the other children. Now, I'm sure you've seen this happen many times. So let's discuss what you might talk about to Suzy's mother. Let's start with actually the second bullet here. You should exclude if the child is unable to participate in normal activities or if requires too much care for the staff to be able to care for that child and attend to the needs of other children. Now, Suzy certainly fell in this category. In addition, Suzy had a fever with respiratory symptoms, so she needs to be excluded until the fever resolves without fever-reducing medicine. There are other exclusion criteria that are covered in *Managing Infectious Diseases*, 3rd Edition, which is available from the American Academy of Pediatrics. Going up to the top of the slide to the first bullet, we can't exclude solely for the prevention of spread of influenza. That's because when we compare Suzy and Bobby, we can't tell who actually has the influenza virus. It's likely that Suzy is certainly more likely than Bobby to have the influenza virus, but we don't know for sure. We don't have a test that we do in the child care setting and we don't even do tests in the doctor's office. Only if children are hospitalized. We don't recommend testing.

Influenza virus may be shed, like Dr. Bernstein described. In other words, the child has that virus present in the secretions in the nose and when the child sneezes and can be infectious for more than a week. So oftentimes with influenza, the fever may resolve after three days or so. The child is feeling better and is back in care but is still spreading the infection. We can't keep those kids out for a week every single time because that's not practical, and we don't know who actually has influenza or not. Also, lots of children are infected and infectious with influenza but actually don't show the symptoms. So it's very hard to control the spread of influenza through exclusion. We don't actually know if exclusion reduces the spread of influenza, but we do know that the amount of virus is in the greatest concentration in children who had fever and respiratory symptoms. So that's why we recommend that you do exclude children with fever and respiratory symptoms during influenza season. Now, those children are also not going to be very interested in playing and require a lot of additional care. So that should be -- they should need to be excluded for multiple reasons. We obviously can't exclude everyone who might have influenza. This should be like Bobby. Bobby was the one with the runny nose and running around and playing. He wasn't required extra care and was participating in activities.

So this approach we hope will reduce some of the spread of influenza, and obviously influenza is a serious disease that can in some cases be fatal. So after considering the effectiveness of the various options for controlling flu, you decide to really focus on immunizations this year and you develop a strategy for adult caregivers and for children. So what are some of the ideas that you can use to increase immunization rates in the adults, the caregivers that are present? Here are some basic strategies: Require it, appeal to their intellect through education, appeal to their consciousness, address the reasons why adults don't get immunized -- in other words, their health beliefs -- and mention that adults can be role models for others. We'll talk about how to go about that next. So some healthcare systems require influenza vaccine, as Dr. Bernstein described, as a condition of employment. And it's his and my opinion that child care should be the same. When you get admitted to the hospital, you expect that you're not going to get ill from exposure of somebody who's taking care of you there in the hospital. You kind of assume that the doctors and nurses taking care of you will keep themselves healthy and not make you sick. The same assumption is made by parents when they enroll their children in child care. They're assuming that the caregivers are going to keep themselves as healthy as possible. Now, we also have a duty to protect the children that staff care for, especially those under six months.

They don't have a choice to get immunized or not. So it's not solely an individual decision that you're making for yourself. When you decide not to immunize yourself, you're potentially exposing those children under six months to infection should you become infected. So that gets to the idea of protecting everybody around those vulnerable children by making sure that they're in a protective cocoon of immunizing all those people. There's also the argument that immunizing adults prevents illness and lost work. Lost work for an individual can lead to lost wages. Lost work for a child care center, for example, can lead to a lot of problems with trying to find temporary help or staffing ratios. We also want to prevent the spread of influenza into the community and into families. And we think that occurs from children first into the families. So another reason to immunize yourself so you don't infect any of the children. And we just want to set the example as adults. How can we ask the parents to immunize their child when we're not doing that ourselves. Okay, so here are some reasons why adults don't get influenza immunizations. There's a belief that healthy people don't need it, lack of physician recommendation, fear of vaccine side effects, infrequent physician visits. If you're not going to the doctor, it's unlikely that your physician is going to recommend that you get the influenza vaccine. Adults are afraid of needles, and cost and inconvenience. So we're going to address some strategies that you can use to try to address these reasons why adults won't get immunized. So we talk about education, we can talk about how to improve access to immunizations and how you can address costs or provide incentives.

And I just want to point out this wonderful picture of our AAP staff who are on the call with us, and they're all baring their recently immunized shoulders complete with Band-Aids and just setting the example for everybody. And I applaud them for that. Okay, so let's start with education. So there's great resources through both the American Academy of Pediatrics and the Centers for Disease Control. You can click on this link and download lots of resources that'll be good for your staff members as well as parents. Now, one thing is just simply informing adults about influenza vaccine recommendations. Still many adults don't realize that that's a recommendation that everybody get immunized every year. So start with basic education and try to address the barriers in the health beliefs.

Some people, numbers work. So they may say, "I don't ever get the flu." Well, adults have about a 10 percent to 20 percent chance each year of getting the flu. So it's true. Most years they don't get influenza, but it's possible that when they do get it on that fifth year, they're going to be sick and out of work for a week. So just knowing the numbers I think helps. The belief that the flu vaccine causes me to get sick, as Dr. Bernstein described. It does not cause influenza. It can have mild side effects that I'll address on another slide. Some people just simply don't trust immunizations or the companies that make them or the government. It's a secret plot by the government to make everybody sick. Obviously, this doesn't make much sense when you think about it logically. Why would we be trying to make people sick? So trying to appeal in terms of education using a bunch of different methods is important. Now, addressing getting immunizations done on site, a variety of techniques can be used also. You can start with calling your local health department. I checked with ours here. They actually don't do outreach, but some health departments might, or they might be aware of agencies that do outreach for various members of the community.

There are commercial entities available that do outreach immunizations. This one company called Passport Health has locations, over 200 locations in the United States, and for a fee they will come out and immunize staff, children, anybody. So that's something that could be looked into if it's financially feasible for your organization. If you can't arrange on-site immunizations, then it's important to make it convenient for staff to get immunized. And so as a director, it's important to find information about local sites and to try to provide scheduled time off for the staff so that they can get that done. Basically, we want to start a culture of annual flu immunization. Make it a habit and a routine that occurs about this time of year every year. Okay, so let's also address some cost issues. Studies show that immunization is cost-effective for employers.

So we talked about that organization called Passport Health. Obviously, it costs an employer money to get somebody to come out and immunize and to pay for the immunizations. But studies show that they save money based on not having lost the cost incurred by illness of the workers. So that's been shown over and over again. So I know if you're a caregiver in a room, you don't have the power to make this happen, but if you are a director of a large center or part of the network of centers, then potentially this is something that needs to be brought up as an idea. Some businesses pay for the vaccine and make it free for the employee. And one study showed the two most important predictors of vaccination for those who already are getting it free and on-site was an additional gift card and being able to choose shot versus nasal vaccine. Believe it or not, you think everybody would want to get the nasal vaccine, but some people prefer a shot.

So let's take another scenario. You're having a staff meeting this morning, one of the topics is flu vaccine, and you have been on the fence about getting yours. You know your co-workers have lots of questions. Luckily, your health consultant is at this meeting to answer the following questions: What are the main side effects from the vaccine? So remember, there are two types. The shot can cause local soreness where the injection was and can cause low-grade fever and some general body aches. The intranasal vaccine causes the same symptoms in some people but not the local soreness because the vaccine was given in the nose. In the nose, there may be congestion, sneezing, and mild cough. The side effects are much less severe than the actual disease, so that's why we recommend the vaccine. Are you contagious after immunization, or can you still be around the children? Yes, you can still be around the children. You are not contagious.

If you get the flu vaccine -- can you still get the flu vaccine if you're sick with a cold? Yes, you can. If we get immunized early, in September or October, will it still be effective enough if there's a late outbreak in February or March? Yes, definitely. Sometimes flu season goes as late as May or June. Still it's effective. So get it early, and if you haven't gotten it even in December, January, February, we still recommend getting the influenza vaccine. If you've already had the flu, should you still get a flu vaccine? Well, what people consider the flu is often not, but like we said, we can't tell who really had the flu or not. So you should still get the flu vaccine because chances are you might not have had the flu.

In addition, like Dr. Bernstein described, there's more than one influenza strain that goes around each year. So the immunization covers more than one, and so you should get the vaccine for that reason, too. Can the flu shot give you the flu? We discussed this many times already. The answer is no. Last year seemed to be a very active flu season in our area. Why is it that so many people were vaccinated yet still became ill with the flu? Well, remember, we can't tell who truly has the flu or not. Some people believe they have the flu when they actually don't. We're giving the flu vaccine at the same time that many other respiratory viruses are occurring, so it's possible that they didn't truly have the flu. But the other thing is that the influenza vaccine isn't 100 percent effective, so in a very active flu season, it's possible that some people that were immunized might still get the flu. Okay, so that's kind of the advice that I have for you for trying to get adults and staff immunized. Now we need to turn to children. Now, this is a little more challenging because we're limited a little bit because we're trying to convince adult parents to get their child immunized at a site like a doctor's office. So you're dealing with a bunch of different steps. Now, the model should be the same that you use for all the other vaccines, the MMR, the DTaP vaccine, the pneumococcal vaccine. These are all required just as much as the influenza vaccine. And I know you all do a good job with that, so we need to regard influenza as just as important. Okay, so let's start with education with parents. And the first step is to inform them of the requirements.

Some may consider them new requirements. They're really not that new, but make sure they know that everybody over six months should be immunized. You can point them to information at the Centers for Disease Control. We want to make sure that parents have access to good resources, good advice. And they

can find a lot of misinformation on the Internet, so make sure that you save this link and use it for downloading good information. Educate that the risk is higher, the risk of complications from influenza for younger children, especially those younger than two. Use multiple methods of communication, verbal, written, translated, and send these messages home and post them in the centers, and you can even try social media or texting. You can go over the likelihood of infection or illness. Remember, illness is about a 25 percent chance for any given child in a year. The possibility of death or hospitalization. And as Dr. Bernstein described, a number of the children who died last year and every year are healthy. Now, we don't like to scare people and use fear tactics; however, it's important to realize that of all the things we immunize for, more people die of influenza than any other vaccine-preventable disease. So this is scare tactics, but it's the truth.

Okay, so there's a number of resources that you can use. A letter that child care programs can customize to share about influenza season planning strategies with parents. That's available from the AAP. A fact sheet of influenza prevention and control strategies and information for caregivers or teachers also available from the AAP. And then a posting of the latest information about influenza. It's a messaging series, so that third link is there for your use. Okay, now, just like with adults and with employers, you can appeal to the pocketbook of the parents. Days that a child misses from care leads to lost work for the parents. That can mean lost income for hourly workers, and if that occurs frequently enough in a year, that could possibly lead to a lost job. So I think that that is important for parents to realize, and sometimes that is what sways them. Make sure they understand the exclusion criteria. If their child who's not immunized gets sick and has a fever or can't participate in activities, their child will need to be excluded. So every year you should go over the exclusion criteria with parents. We can try to appeal to the parents' duty to society. This is interesting in that vaccinating zero to five-year-old children in child care reduces infection in household contacts as much as 42 percent in all household contacts, but especially in the school-age contacts. So you have these younger kids in child care who are making their school-age children get sick from influenza, and if they're immunized, that risk goes down significantly. Vaccinating school-age children, these are a little bit older than kids in child care, but the research hasn't been done on children in child care. But vaccinating school-age children is more effective at reducing influenza spread than vaccinating adults. So if the goal is to try to prevent mortality in the older people, older than 64-year-olds, if we can vaccinate just 20 percent of school children, that's more effective than vaccinating 90 percent of all adults. That's pretty interesting. Okay, and then just mandate it. Influenza vaccine is just as required as the other immunizations. And it's just a newer requirement. It's not yet incorporated into child care state policies or codes. Only Connecticut and New Jersey have incorporated it so far. But just like every new immunization that has come out over time, it takes a little while before these things are set in requirement, but that doesn't stop you from developing your own rules or requirements in your program. Also, require regular health visits as you already do.

That increases the odds that there'll be an interaction with the clinician, and the clinician will recommend and give the influenza vaccinations. You can try using reward techniques. You can try to arrange on-site vaccination programs in your child care. I'm sure that that's not easy, but it has been done before. You can consider a reduction in fees or a voucher potentially to encourage immunization. Again, this is just idea since we know that works for adults. That might be a technique that you could use. Even \$5 makes a difference. I just wanted you to be aware that there are certain high-risk groups that are less likely to be immunized, minority children, and some of the reasons, limited English proficiency. So pay attention to the types of materials that you hand out and it's possible to translate them. Younger parents. Less interaction with the medical home and regular doctor or health care team leads the less chance that immunization will be brought up and performed. And also a lack of a reminder system from the medical home. Okay, so I'm sure you get a lot of questions during the year from parents about children getting the flu immunization. So I wrote down a few of these and let's just go over those.

Can infants and toddlers receive the flu vaccine at the same time as other required vaccinations? And the

answer to that is yes. Does requiring immunizations open up a possibility of a family to claim discrimination if they currently get a religious waiver? Well, like I said before, influenza immunization is just as required as the other immunizations. Any family in almost every state, I believe, has a religious or philosophical exemption. They can exercise that if they want. Luckily, it's only about 3 percent of all families. So there's nothing we can really do to prevent that. You may want to consult with your legal advisor, because there is one case in Kentucky that I'm aware of where a child care center was held liable for the lack of immunization in one child who had -- it wasn't influenza; a different bacterial illness. But the center tried to have that child immunized, and the parents didn't actually immunize. That child got sick and the parents actually sued and won that case.

So this is a tricky issue. I know you do the best you can to get all the kids that you can immunized and sometimes people just refuse. But check out your -- what your lawyers or legal advisers say regarding that. Is the intranasal vaccine still contraindicated for those with asthma or other chronic health conditions? Yes. You have to be healthy and older than two to get the intranasal vaccine. I've had parents tell me the flu shot gave their child the flu and that's why they don't get it. How can one help the person understand that the vaccine does not cause them to get sick? Well, we've just said a number of times that you can't get influenza from the flu vaccine. You can get some mild side effects. And with my own patients, I tell that to them over and over again and still some people just don't seem to get it. But we try to explain it as best we can. And if you're doing that also, that will make it better for all of us if they're hearing the same message from everybody.

Okay, so I just also want to remind you that we do recommend that every program have a community outreach influenza plan, and I'll give you a reference as to how to do that in just a second, but here are the components that you need to consider. We want you to have a written plan that describes what you'll do to prevent and control influenza. There should be a committee of staff members, parents, and guardians and a child care health consultant, if you have one, to help develop this plan. One person should be identified that can identify reliable information regarding seasonal influenza, monitor the public health department announcements, and forward key information to staff and parents as needed. And identify who in the program's community has legal authority to close child care programs if there's a public health emergency or pandemic. That's different from seasonal influenza. This is like the H1N1 epidemic that does not happen often. But somebody should be aware of what would happen if that were to occur. And this information should be compiled on community services that can help staff, children, and their families deal with the stress and other problems caused by a flu outbreak. And you should be in communication with other child care programs in the area about how to share expertise and resources in the event that some of your staff gets sick. So Caring for Our Children has this Standard 9.2.4.4 that goes over the components, all that, and you may be aware of Model Child Care Health Policies in Pennsylvania which also has a nice handout or sheet, worksheet that you can develop your own influenza community outreach plan. Okay, so just take a moment and reflect about what you've done in your programs to increase influenza vaccination this year, or what you plan to do. And I'm going to give you a few ideas. Again, trying to address the financial issue, trying to explore whether you can offer free flu immunizations on site. Consider gift cards. Nurse consultants can give the flu immunizations during their monthly visits if you have a nurse consultant or child care health consultant. A nurse can come from an office or a health center to offer flu vaccinations on site at the center. Directors can encourage employees to take a flu quiz, and so there's a link here to the CDC.

The idea of this quiz, there's ten questions, and it just gets people thinking about influenza and also increasing their knowledge at the same time. So that's kind of a nice exercise that you can do to get people in the influenza vaccination mood. Putting up posters from the CDC and circulating frequently asked questions. And, again, we have lots of resources available. Again, another link from the CDC. You can have a health consultant or health professionals talk individually with any staff with concerns before flu vaccines are offered on site to address questions. So I just want to round up with the take-home points

that influenza is the most common cause of vaccine-preventable deaths in children each year. We really want to hammer that home. It's not an optional vaccine. It's something that we consider just as important as the other immunizations that you're giving routinely. Children spread influenza into the families and community, and immunization is by far the best prevention tactic. Infection control is also important but not as effective as immunization, and exclusion should be used when needed but not primarily as a method to reduce the spread. Should primarily be looking at how the child is behaving, whether they can participate and whether they are requiring too much care.

Child care programs because children are sort of the epicenter of an outbreak or an epidemic, have a very important role and an opportunity to improve immunization rates. Okay, so I just want to point out that there's four slides that follow here with lots of information about contacts and informational material that you'll have access to after this webinar, and you can feel free to use any of that to the extent that you need. And with that, I will conclude, and we will take any questions that may have come up during the presentation. Thank you very much.

Sean: Thank you very much, Drs. Bernstein and Shope. This now concludes the presentation portion of the webinar. We will now begin the question and answer period. The first question we received is: Do family-style meals increase the spread of influenza?

Dr. Shope: I can take that, Dr. Bernstein. So I think that -- I'm sure that they do because kids are closer together, but I don't know how else you would really feed the children, and they're close to each other even when they're not sitting at the meal table. They're hugging each other, playing with each other's toys. There's lots of snot and saliva that's being spread. And so I wouldn't change family-style meals in the context of flu season.

Sean: Thank you. The next question is: Can you explain the difference between LAIV and IIV again?

Dr. Bernstein: Sure. IIV is inactivated influenza vaccine. And that is the flu vaccine that's given as an injection into the muscle. The strains that are in the inactivated vaccine are the same strains that are in the LAIV, which is the live attenuated influenza vaccine. The live attenuated influenza vaccine is the one that's sprayed up the nose. The side effects of the injection, obviously, are local pain and tenderness at the site, and sometimes children can get some low-grade fever after the injection. The most common reactions in children who get the LAIV are a little bit of a runny nose or nasal congestion, or sometimes they can seem a little less active or complain of a sore throat. Remember that our nose is drip into the backs of our throat, and so they may feel a little bit of discomfort that way.

Sean: Thank you very much, Dr. Bernstein. The next question is: If a child is sick with the flu, when can they go back to child care?

Dr. Shope: Okay, so I'll take that one. So remember, we don't know who has the flu or not. So we're just - we don't count on you guys to diagnose. You're just seeing a child who has respiratory symptoms, and if there's no fever, you're going to exclude because the child is not participating in activities or is requiring too much care. Those are the most common reasons why you might exclude that child. And so they can come back when they can participate. That might be the next day. If the child has a fever with respiratory symptoms, almost always those children are not going to be participating anyway, and they shouldn't come back until the fever has resolved without fever-reducing medicine. And the reason there is because some of those children could have influenza and the virus is present in the highest concentration when the child is actually having a fever. So that's the rationale there. You know, I think that it would be pretty rare that you would have a child that was having fever, runny nose, and feeling perfectly fine in running around and totally active. But anyway, we want you to keep them out until the fever has resolved. And the parent might make a mistake. They might wake up in the morning, at 6:00 in the morning, the child looks

fine, and send them to care, and then a fever pops up at 12:00. Possibly that fever might have been hidden by giving Tylenol or Motrin. I'm sure none of the parents that you take care of ever do anything like that, but anyway, so I know scenarios arise in real life where that might not be ideally followed. Sean: Thank you, Dr. Shope. The next question is: What is the risk to pregnant women with the nasal spray vaccine? And then the same question for those older than 49 years of age.

Dr. Bernstein: So it's a good question. The live attenuated vaccine has not been studied in pregnant women, so we really don't know the impact of it. And we know that pregnant women are in and of themselves a group of women whose immune systems are not at 100 percent efficiency, and so we would not want to give a live attenuated influenza vaccine to pregnant women in order to make sure that they themselves are fine as well as their growing fetus. As far as the 49 years old, it's been studied up through 49 years of age, and that's the age between 2 and 49 years that the studies have been done and the FDA has licensed it in the United States. It appears that the IIV, the vaccine that's given by injection, works a little bit better with older adults than it does in children. So IIV might give a little bit better protection than the LAIV anyway in those older than 49.

Sean: Thank you, Dr. Bernstein. The next question is: What is the explanation for the decrease in pediatric deaths? For instance, in 2011/2012.

Dr. Bernstein: Actually, that's good that was picked up. What that graph shows, actually, is that there is no way to predict the impact of influenza from one year to the next. So as that graph showed and I mentioned, there were 348 pediatric deaths during the pandemic. Sometimes there were less than 100 deaths in certain seasons. And others, like last year, there were 170-something deaths. So we cannot predict, because the virus seems to almost be smarter than we are. And that's why it's so important that everyone get immunized each and every year in order to try and protect against those influenza virus strains that are expected to circulate in various communities, not just in the United States but around the world.

Sean: Thank you, Dr. Bernstein. The next question is: What is viral shedding?

Dr. Bernstein: So viral shedding is, again, when somebody is infected with a virus, the question is: How does that spread? And as we saw on those pictures where somebody with coughing and sneezing, that their droplets come out, that's the viral shedding. The virus itself is in those bodily fluids, the cough, the sneeze, and then someone touches the cough or sneeze, and then they touch their own mouth or their own nose or face and they get exposed to that particular virus. How much shedding depends on different viruses, but as we mentioned, with influenza they can be shedding early on, and with children the shedding can last for more than a week. So it really does vary. Most importantly, most people tend to shed the most virus during their worst times of the illness, meaning when they have the highest fever and they're feeling really not so well. And that certainly encourages them not only to stay home to get better themselves but also to decrease their spread of the virus to anyone they come in contact with.

Sean: Thank you. The next question is: When is the flu season?

Dr. Bernstein: You know, it's a funny question because literally the flu can occur at any time all 12 months of the year. Now, in the northern hemisphere where the United States is, the most common months are January, February, and March. But, of course, sometimes influenza can come about early in November or December, and sometimes it can be identified in April, May, and June. And that's why virtually all year round people should be getting their flu vaccine. So the flu vaccine this year should be given at any time, preferably as early as possible in the season so that individuals develop protection, and that protection ideally will prevent influenza throughout the entire season going into April, May, and June.

Sean: Thank you, Dr. Bernstein. The next question is: Head Start and Early Head Start may not allow alcohol-based hand sanitizers for fear that young children will lick their hands or swallow this. Can you clarify?

Dr. Shope: Yeah, I'll take that one. So hand sanitizers do have a very high alcoholic content. The alcohol is what kills the bacteria. And so in *Caring for Our Children* and in *Managing Infectious Diseases*, we recommend washing with soap and water as the primary method. But there are situations where a sink may not be available, and in that situation we'd certainly rather that you use hand sanitizer rather than doing nothing. You need to do it safely. As far as what is safe use of alcohol-based hand sanitizer, we don't want the containers mounted above children; for example, on a diaper changing table. There is some evidence that when you dispense the hand sanitizer it can be aerosolized and potentially breathed in by children. We don't know for sure that this occurs, but it doesn't sound healthy to me, so let's avoid that. It just needs to be off to the side, not directly over the child's head. And then also, it should be out of the reach of children so that, you know, higher up, then they can reach up and dispense to themselves and ingest.

Sean: Thank you. And as a follow-up to that question: What age is it safe to use hand sanitizer?

Dr. Shope: I'd have to look at *Caring for Our Children* on that. We had the discussion, but off the top of my head, I can't remember. Again, we prefer washing with soap and water, and hand sanitizer is only if soap and water are not available. In hospital settings, we know that hand sanitizer is used more frequently when it's provided as an option, and so at least a better infection control, but that doesn't really even research if that's true in child care settings.

Sean: Thank you, Dr. Shope. The next question is: If vaccine side effects are similar to flu symptoms, how do we know for sure that vaccines don't cause flu?

Dr. Bernstein: We know that because when somebody's exposed to a germ and they develop protection, that protection can be measured. So you're able to identify how their immune system responds to being infected with a particular virus or bacteria. And so by doing the studies, they can tell if you're exposed to the virus, and then you develop antibodies. It's the amount of protection that is developed that you're able to see the difference.

Sean: Thank you, Dr. Bernstein. I believe we have time for one more question. Can someone still get the flu after they have been vaccinated?

Dr. Bernstein: So the answer to that is yes. They absolutely can because, one, the vaccine is not 100 percent effective. We wish it was. Number two is that the strains that are circulating in a community or around the country may not be a perfect match to those strains that are in the vaccine and protection has been developed. So it is possible to get the flu even though you've been vaccinated, but it is much less likely, and the effectiveness of the vaccine is excellent and certainly protects people of all ages against influenza. Sean: Thank you. And I would like to thank Drs. Bernstein and Shope for this very engaging presentation. Just a reminder that the AAP is pleased to announce the launch of our new online training module, *Influenza Prevention and Control: Strategies for Early Education and Child Care Providers*, available at [www.healthychildcare.org/flu.html](http://www.healthychildcare.org/flu.html). If you want more information or have additional questions, please email us at [disasterready@aap.org](mailto:disasterready@aap.org). That concludes this webinar. Thank you for your participation.

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