

Seasonal Influenza Prevention and Control: Strategies for Head Start and Child Care Programs

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You can also click the question mark in the top right corner of your screen for technical assistance. During today's webinar, our speakers will cover the following topics: Why influenza, commonly known as the flu, can be serious in children; what are current flu recommendations and why is it important for Head Start and childcare centers to aim for universal immunization of children and staff; and what are some strategies that can be used in early education settings to prevent or control the spread of influenza.

At this point, I would like to introduce our speakers for today's webinar. Dr. Henry Bernstein is a Professor of Pediatrics at Hofstra Northshore-LIJ School of Medicine. He serves as a general pediatrician in private practice and in academia at urban, suburban, and rural children's hospitals to promote the health and well-being of children, their families, and the communities where they live. Dr. Bernstein spearheaded PediaLink, the American Academy of Pediatrics, online home for lifelong learning, and is the associate editor of Red Book Online, the Web-based home of the report of the American Academy of Pediatrics' guidelines for the control of infectious diseases in children. As chair of the Bright Futures Health Promotion Workgroup, Hank has led the creation of a unique health promotion curriculum, video, and companion educational website which provide important pediatric competency skills for child health professionals. Dr. Bernstein is certified by 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 of New Jersey School of Osteopathic Medicine. In May of this year, Dr. Bernstein earned a Master's in Healthcare Management at Harvard School of Public Health.

Dr. Timothy Shope is an Associate Professor of Pediatrics at University of Pittsburgh School of Medicine. He retired from the Navy in 2011 where he served as Childcare 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 Childcare for four years. He is the co-editor of *Managing Infectious Diseases in Childcare and Schools*, third edition; the technical panel chair for *Caring for Our Children*, third edition; and is co-author of *Curriculum for Managing Infectious Diseases in Early Education and Childcare Settings* as well as subject matter expert for the *Managing Infectious Disease in Early Education and Childcare*, online module.

Dr. Bernstein will get us started today.

Dr. Henry (Hank) Bernstein: Thank you, Lisa. And welcome, everyone. I'm excited to be here and talk about influenza in children. So as we start with slide number three, we all need to understand that children entering childcare are vulnerable to infectious diseases 'cause this might be the very first time that they're exposed to these germs. They also may be too young to have developed their own immunity against these diseases. Remember that infants and toddlers are particularly vulnerable. They tend to touch everything around them, they touch their hands as well, and they put lots of objects into their mouths. Children in group care play and eat close together. This makes it really easy to spread germs. And although caregivers and children might know what they are supposed to do to prevent the spread of germs, like washing their hands, covering their cough, getting vaccinated, they don't always do these things. You can see on this slide that there's a notable impact of influenza each year in comparison with other vaccine-preventable diseases. Influenza is incredibly common, but, of course, it's a serious public health problem and it contributes significantly to morbidity and mortality and creates quite a financial burden on the U.S. healthcare system. So what is the flu? Influenza is a contagious disease caused by a virus known as influenza. It infects the respiratory system, or our breathing system, so that's the nose and the throat and the lungs, but it actually can affect all parts of our bodies. The signs and symptoms of the flu are fairly common and people are quite aware of them, such as a sudden onset of fever, sore throat, body ache, chills, headache, and many other symptoms, as you can see on this particular slide.

So how does influenza spread? Influenza is spread person to person primarily by the droplets created by coughing or sneezing. Contact with these respiratory droplets that may even have landed on a particular surface is another possible mode of transmission for influenza. During community outbreaks of influenza, the highest attack rates occur among school-aged children. And then, of course, when children in school and even preschoolers, they can be secondary spread to the adults and other family members as well as to the adults and other caregivers in the settings where they spend their time. Both adults and children can spread infection when they're developing an illness, this is the incubation period, or while they're recovering from an illness, and that's through a viral shedding. They may also be contagious if they are infected but they don't really have any overt symptoms. People of all ages can, therefore, infect one another even when they don't show signs of being sick. This makes it especially challenging to control the spread of germs. The incubation period for influenza is the time between being exposed to it and when the signs of the illness start. The typical incubation period is one to four days, and on average it's two days, so it's quite short. The contagious period is the time during which the illness can spread from person to person, and it lasts from the day before the symptoms start until at least seven days after the onset of the flu.

Another way to describe the contagious period is the viral shedding. And shedding of the influenza virus can last longer in children and also last longer in those whose immune systems are compromised for any reason. Many people wonder: What's the difference between a cold and the flu? And they're both respiratory illnesses, but they're caused by totally different viruses. These two types of illnesses are sometimes difficult to tell apart because they really do have similar signs and symptoms. With the flu, as we mentioned earlier, usually you'll see fever and body aches, extreme tiredness, dry cough. Those are probably the most common. And honestly, when somebody has the flu, it usually overtly makes them

feel sick and they're not able to maintain their usual activity level. The common cold, on the other hand, is usually milder than the flu and most often is characterized by a runny nose and perhaps a little bit of a cough. Vaccines and diagnostic tests are available for influenza, but they're not available for the common cold.

Now, influenza causes a huge burden on the United States in any given year. Because it is highly contagious and it's an acute respiratory disease, it is responsible for an average of 50 to 60 million infections annually, resulting in 25 million healthcare visits, hundreds of thousands of hospitalizations, and thousands of deaths. In the United States, Influenza A and the H3N2 type remain the predominant virus throughout the season that just ended 2012/2013. However, Influenza B viruses, and to a lesser extent Influenza A virus, H1N1, which is the same as the pandemic H1N1 virus from 2009, also circulated in different parts of the United States. We all know that the peak of activity occurs during the winter months, but in this particular past season, it occurred mostly in December 2012 when almost four out of ten samples tested for the flu came back positive. In addition, there was a higher percentage of outpatient visits for influenza-like illness last season compared with the previous year, and there were also more deaths associated with pneumonia and influenza. Although children with certain medical conditions are at higher risk of complications, substantial proportions of seasonal influenza, morbidity, and mortality occur among healthy children. And as you can see on this slide, almost half did not have any underlying health condition that would pre-dispose them to a problem should they get influenza, yet 45 percent of them were actually hospitalized for it.

For 2012/2013, and this slide was just recently updated this week, there were a 158 laboratory-confirmed influenza-associated pediatric deaths. For comparison, in 2011/2012, there were only 34 deaths. And, of course, during the pandemic season 2009/2010, there were 348 pediatric deaths reported. Before the pandemic, less than 100 deaths were reported in the pediatric population per year. As you're probably well aware, from year to year, influenza is totally unpredictable. Some flu seasons are incredibly mild; others are much more severe. When we think about influenza, we think about an outbreak, when there's a sudden rise in the number of cases of the disease in our community. And an epidemic is generally more serious than an outbreak and occurs when the number of cases in the community or region are much higher than regularly expected. And, of course, we all experienced the pandemic, which is an outbreak on a global level that requires significant human-to-human transmission. And because humans had low immunity to that particular strain of the pandemic virus at the time that it breaks out, everyone is essentially susceptible, and it spreads easily from person to person, and has a huge global impact.

The take-home message is, if you notice any unusual cases or symptoms in your childcare setting, be sure to report them to the public health authorities right away. Now, what is influenza? Well, people think about influenza as a seasonal flu, the swine flu, and the avian flu. When we think about the seasonal flu, which is the most common, really there are two major types, A and B. With the A type it's either H1N1 or H3N2. With the B type, there are two lineages, and only one of the lineages is included in the vaccine each season until this year, and I'll explain that in a moment. Besides seasonal flu, there is swine flu, and swine flu are viruses that normally circulate in pigs. And the main swine influenza virus that is circulating in U.S. pigs in recent years are H1N1 as well as H3N2v. And you may have heard of that

because that's been the problem in the Midwest where there are a lot of agricultural fairs and there's direct contact with pigs. And a majority of the cases of H3N2v have been in children who've had close contact with kids. And then, of course, there's avian flu or so-called "bird flu." and that's most common at this point with H5N1, and most recently with H7N9 which has broken out in China. And these viruses occur naturally among wild birds worldwide and they can also affect domestic poultry in various countries around the world. Avian flu viruses do not normally infect humans. However, there have been cases of human transmission with these particular viruses.

So the authorities, both the CDC in the U.S. and the World Health Organization, follow the circulation and epidemiology of these viruses closely. This now leads us to a quiz question. There are how many new strains in the seasonal flu vaccine for this coming season 2013/2014? Hit "A" if you think there are no new strains, "B" if there's one new strain, "C" if there are two new strains, and "D" if there are three new strains. We'll just give you a few seconds to answer this question.

So you can see that there's an interesting spread of answers. A few thought there's no change in the strains in the influenza virus this year, most thought there was a change in two strains, and then a quarter actually thought there were change in three strains. And when one looks at the influenza virus vaccine this year, there are actually, for the first time ever, there are vaccines to protect against the flu that are trivalent, meaning three strains, two As and one B, and there's also quadrivalent vaccines where there are two As and two Bs. So actually it was a little bit of a trick question because if you use a trivalent vaccine this year, which most of us will because that's what's mostly available, two of the three strains used in the vaccine this year are different than last year. That's one of the major reasons why everyone needs to receive the flu vaccine each and every year. And as I mentioned a moment ago, the quadrivalent has both lineages of the B virus so that it covers both As and both Bs for this coming year. Now, there are two ways to receive the influenza vaccine. You can receive the shot either in the muscle or under the skin or you can get it as a nasal spray, the live attenuated influenza vaccine. The nasal spray is made with a live weakened flu virus and it's approved for healthy people two years of age through 49 years of age who are not pregnant. This year the nasal spray influenza vaccine is only available as the quadrivalent vaccine, and hence it is called LAIV.

Now, when we think about influenza vaccine, which -- here's another quiz: For whom is the influenza vaccine not recommended? Answer "A" if you think it's not recommended for pregnant women regardless of trimester, answer "B" for women who are breastfeeding, answer "C" for infants under six months of age, answer "D" for healthcare personnel, answer "E" for household contacts of healthy children under five years of age, answer "F" for household contacts of children with high-risk conditions, or "G," children and adults with egg allergy. So which of these groups is the influenza vaccine not recommended? We'll give you just a few seconds to answer this quiz. You can see the results, that there are some people that wondered about whether or not the vaccine could be given to pregnant women, and you should understand that the vaccine is fully recommended for all pregnant women regardless of their trimester. And that's really important because not only does it protect mom while she's pregnant, but it also means that she produces antibody protection that she passes on to her baby to protect the baby in the baby's first six years of life, six months of life. We also mentioned that the vaccine is important for children and adults with egg allergy. That's certainly perfectly fine. There's no problem

there, as well. All people with egg allergies certainly can get the influenza vaccine and it is not a problem. The one group that is not able to get the vaccine at this point are children under six months of age, which is why it is so important for all caregivers of children under six months of age to be fully vaccinated against influenza. So all people six months of age and older should get the flu vaccine.

Now, there are special populations that we want to be sure they get the influenza vaccine. Obviously, children are at risk, as we talked about before, for spreading the disease. Healthcare personnel, all of them should really be receiving flu vaccine because of their contact with patients. Pregnant women, as I mentioned. And children under five are at particular risk because they spread germs quickly and they also are at higher risk for medical visits, a need for antimicrobials, and also needing to be hospitalized. This is the chart, in this slide, is the recommendation. And as you can see, the highlighted in a rectangle in red, this is the recommendation that all people six months of age and older should receive the influenza vaccine. Now, how well are we doing in administering the vaccine to children six months through 18 years? Well, as you can see, we are on the rise. Things are going well. Back in the pandemic, we were only around 44 percent, but last year preliminary data is that more than half; we were up to 55 percent had received the influenza vaccine, which is really excellent. And we'd obviously like to achieve 100 percent, if at all possible. Remember also that children six months through eight years may need two doses of vaccine depending upon whether or not it's the first time they're ever getting a flu vaccine in their life.

This leads us to another quiz. Did you receive the influenza vaccine last year? Answer "A" if you did, answer "B" if you didn't because you felt you did not need it annually, answer "C" if you didn't because you don't believe the vaccine works, or answer "D" if you didn't get it because you're concerned about vaccine side effects. So this is wonderful. As you can see, a majority of people in our audience received the influenza vaccine, and certainly that's fantastic. There are some people that had some concerns about the vaccine, but some were concerned about side effects, which is understandable, but in general, the side effects are benign in comparison with getting the actual disease itself. We do know that the vaccine is effective, albeit not 100 percent effective. Scientists are working to improve the effectiveness of the vaccine.

And there's no question that people do need the vaccine annually because, as we just mentioned earlier, the vaccine strains change from year to year. In fact, more than 80 percent of the years in the past, the vaccine from one year to the next has been different. And even if the vaccine strains are the same, the vaccine immunity that's developed does not last generally for more than a year. When one looks at this next slide, you can see this is the adult immunization recommendation and schedule. And as you can see, influenza vaccine is recommended for all adults each and every year. And this is important because, as we mentioned earlier, as many as 50,000, people, and most of them adults, die annually from influenza. And the cost in treating and managing influenza is over \$10 million per year.

And as we also know, adults are reservoirs and easily can spread the virus to children and others at risk who may not do as well if they were to get the influenza disease. And this is why cocooning makes sense. Now, you may not have heard of cocooning before, but basically, if you think about a young infant, for example, who's under six months of age, the vaccine is not licensed for that age group, so the

young child under six months of age may not be optimally protected against influenza. We did mention that if a pregnant woman gets the influenza vaccine during her pregnancy she passes on some antibodies of protection, but we also want all caregivers to get immunized, because if they're immunized, they're protecting themselves, they're less likely to be infected with the flu and, therefore, the exposure to children, like children under six months of age, is much more limited and, therefore, the chances of disease and infection is minimized. When we look at the influenza vaccination rates for adults, last year, and this is preliminary data early on, we can see that many adults 18 through 64, only a quarter of them got the flu vaccine last year. When we looked at adults who are and older, and they're at high risk for needing to be hospitalized and even for death, only roughly 60 percent of them got the vaccine.

Healthcare personnel, we would like all healthcare personnel, 100 percent, to be immunized against influenza because when patients come to healthcare facilities and childcare centers, they expect to be not to be exposed to infectious diseases and they expect people to take the steps in order to do that. And as we also mentioned, pregnant women should be getting the influenza vaccine, but just about half got it where we would love it to be each and every pregnant woman. This is a slide that talks about mandatory influenza vaccine for healthcare personnel. And as it mentioned earlier, 67 percent of healthcare personnel were vaccinated. And in hospitals where it was a mandatory requirement, only 21 percent of hospitals had that mandatory requirement, but that number is climbing each and every year. And one of the reasons is because we know that when there's a voluntary program and we allow healthcare personnel their own personal choice whether to get the vaccine or not, only two-thirds of them get the vaccine. But when it's mandatory in a healthcare system or a healthcare setting, 95 percent or above actually get the vaccine and, therefore, are protecting patients who are coming to their particular setting. We also know that ideally we want to prevent the disease rather than get the disease and treat it with an antiviral medicine. However, if somebody were to come down with influenza and need an antiviral medicine, we do have those available.

Now, we used to have two classes of antiviral medicines. One was the first column here, adamantanes, and the other were the neuraminidase inhibitors which are Tamiflu and Relenza. Tamiflu, as you know, you take by mouth. Relenza is the one that you inhale. Unfortunately, all the influenza viruses that circulate in the United States and around the world are currently resistant to the adamantanes. So that means that the amount of antiviral medication that we have is somewhat limited and we can only use Tamiflu or Relenza. Now, there are some new horizons for influenza vaccinology that I want to be sure that the audience is aware of. In the upper left-hand corner, we've talked about H3N2v, and again, that's a swine flu virus that has been recently circulating in pigs and, therefore, has been problematic for some children. Then in the upper right-hand corner, we talk about age-specific vaccine preferences.

There are some vaccines that perhaps are suggesting that they be more effective for certain groups of children. And these are being studied because ideally we would like to be able to have an optimal response in the most children and give them the vaccine that is best for them based on their age and their personal health history. I also mentioned the H7N9, which is the bird flu in China, and just this past week it was reported that there was a case of a father who got influenza H7N9 from poultry and gave it to his daughter, 32-year-old, who was caring for him and had close contact. And then the last horizon

for influenza vaccinology is vaccine effectiveness. We know that senior citizens don't necessarily respond as well, so there is a high-dose vaccine in order to make their immune response more robust. There are things that we can add to the vaccine to enhance the response that all of our immune systems may need in order to develop better protection. And these kinds of elements are being well studied by scientists so that when we administer the vaccine to all of us, all of us can be fully protected from influenza. Thanks for your attention, and now I want to turn over the mic to my friend Dr. Shope.

Timothy Shope: Thank you very much, Dr. Bernstein. Thanks so much for having me here today. It's really exciting. I see that there's 945 people listening which is excellent that we can reach so many people in such an efficient way. It's also a little scary, but I can't see you, so I'm not as scared as I would be if you were all sitting in front of me.

I was joking with Dr. Bernstein that this gives us a little feel of what it must be like to be the Rolling Stones, but I don't think we're quite there yet. So thanks again to Dr. Bernstein for giving an excellent overview on influenza. My job is to take that information and to apply it to where you work in childcare settings and to give you information about what you can do to try to either prevent or control influenza. I did want to remind you that we're keeping track of your questions as you go along, and we'll have time at the end of my talk to have some question-and-answer session again.

Okay, so just to review a little bit, again, about what's unique about influenza in early education and childcare settings. Again, a reminder that younger children are more vulnerable to influenza complications such as death, hospitalization, absenteeism, doctor visits, and ear infections. And then we can't keep kids apart. They're very social. They share their toys, they share their food, they share their fingers in their mouth, and they like to put their fingers in other kids' mouths. And it's just impossible to keep them from swapping germs amongst each other. Influenza is different than some viruses in that it's primarily spread by the coughing and sneezing and also touching things, but not as much by touching objects. And we talked about the cocooning, keeping children from getting infected from adults, but I'm going to talk a little bit in this session about how children infect their family members and adults also, so that's another twist.

So how can we control influenza in Head Start and Early Head Start childcare settings? This is another quiz chance. We're going to talk in this talk about three ways of doing this, immunization, infection control, and exclusion. Exclusion is denying admission of a child or staff member to a facility or asking them to leave if they're already present. So we'll turn now to the quiz, and I'm interested in your opinions about which is the most effective method for preventing influenza in childcare settings: "A," immunization; "B," infection control; or "C," exclusion. Go ahead and answer. I'm going to take a look at your responses. Okay, the responses are coming in and I'm also being told I need to talk a little louder. Okay, so let's go to the answers. And the graph here almost parallel to the audience response in that the vast majority of you recognize that immunization was the most effective way of reducing influenza in the childcare setting, but some of you chose infection control, and then a very small percent of you chose exclusion. And we're going to talk more in detail about each of those three methods for preventing and controlling influenza here next.

So influenza immunization is given in two ways, as Dr. Bernstein already went over. It can be the intranasal vaccine, and that vaccine is only for children two years and older. And that is actually a little more effective than the shot, so the intranasal vaccine is 86 percent to 96 percent effective, whereas the shot is around 70 percent effective. And that's going to vary year by year depending on how closely matched the vaccine is to the strains of influenza that are circulating each year. But we see that we do generally achieve fairly good results, although maybe not as high as some of the other diseases that we immunize against. I think it's important to think about what the chances are of a child getting sick with influenza if they did not get immunized. So let's say you're thinking about all the children in your room that you're caring for and none of them are immunized. Somewhere between 10 percent and 40 percent of them would get sick from the flu yearly.

And, again, that's going to vary by flu season. So think of it about an average of 20 percent or one out of five of each child in your classroom would get ill each year. But actually a lot more than that get sick when we measure it -- not get sick, get infected when we measure it by looking at their blood and whether they've developed antibodies. As much as 50 percent of children may get infected in a flu season and some of these children can pass the disease to others, as was already mentioned, without actually being ill. So we talked about how influenza spreads. There's another picture of a sneeze, so you have that permanently embedded in your mind, all those little particles. It's spread by droplets from coughing and sneezing and to a lesser extent by those droplets falling on to surfaces and being touched by others. So let's move to infection control. And by "infection control," I mean hand hygiene, surface cleaning, sanitizing, and disinfecting and cough and sneeze etiquette. These recommendations are covered extensively in *Caring for Our Children*, third edition, which is available online at that link that you see there. And also, it's a searchable database right now, so I'll put a plug in for that.

So the question is: How good is infection control in reducing respiratory illness, influenza in particular? I know that all of you in the childcare profession spend a lot of time and focus on this, so it is kind of an interesting question to look at. Infection control, hand hygiene in particular, works pretty well in children that are school-aged. And we can even reduce influenza and other respiratory illnesses by at least 50 percent in that age group, but it gets worse when we look at the younger children that you're caring for every day.

The one study that specifically looked at influenza-like illness, that's children who had fever and respiratory disease, we don't know for sure if they have influenza, but a lot of them probably do, was able to show a 35 percent reduction in this type of illness. That's with the children using alcohol-based hand sanitizer once per hour. And if they reduced it to two hours, there is no difference in the illness. The only difference in those two groups was the frequency of hand sanitizer use. Again, effective if it's done every hour, but not if it's every two hours. And there was no difference even in that group of hourly hand sanitizer use and the absence from school due to illness.

Another study looked at respiratory illness in general with an extensive education plan for childcare providers in hand-washing on arrival after meals and after using the bathroom. And that showed only a small 17 percent reduction in respiratory illness. And that was only in children under two years of age. And other studies have also looked at this using a variety of different regimens in terms of absence from

school and they've shown a small decrease of about 100 percent. So a little less than we would all like considering the amount of effort that we put into this, but I am not saying stop doing infection control. Continue doing it. You shouldn't change your regimen during influenza season despite the somewhat discouraging results. I want to point out to you that it does help in reducing other infections and it's also -- infection control is more effective at reducing diarrheal viruses than respiratory viruses, so that's another important reason to keep doing it. But you can consider doing more frequent alcohol-based hand sanitizers or hand-washing during flu season.

Part of the reason why it may not be as effective as we would like against influenza is because those droplets are spread in an airborne fashion that may infect children before they have a chance to get it on their hands or other surfaces. So let's talk a little bit about exclusion. And we'd like to recommend that exclusion should not solely be for the prevention of the spread of disease. And that's some of the points Dr. Bernstein already went over. We can't tell exactly who has influenza infection versus the common cold viruses, although influenza is more severe in some children with fever, and hospitalization, and pneumonias, and things like that.

Influenza virus can be shed. In other words, the child has a virus and there's secretions for after the child has recovered from the illness. And younger children may even shed the virus for as long as two weeks. And lots of children get infected or infectious, maybe more than half, and don't ever show symptoms. So the children that are shedding the most virus are the ones with fever, but they make up kind of a minority of all the children in the center at one time. And the ones with fever and that are ill are going to get excluded anyway, but there's still a lot of viruses being spread. And so excluding the ones that are the sickest is unlikely to have a large impact on reducing the spread of virus. But we should exclude children based on their behavior and we want to exclude all children that are unable to participate in normal activities or they require too much care for staff to be able to care for the ill child and attend to the needs of other children. And then any of the other exclusion criteria that are described in *Managing Infectious Diseases*, third edition.

The most common one in flu season is going to be children with fever and behavior change. Those children would need to be excluded and they also happen to be the most infectious. So going back to immunizations, that's what the remainder of the talk is going to be on because that's the most effective way of reducing influenza. So we're going to spend the most time here talking about that. And we have two groups of people, we have staff and children, and our strategies are going to be somewhat different for each group. Okay, so with adults, I know some of you are directors and have kind of a more global or programmatic view, but some of you are taking care of children directly. And so for those of you that are at the front lines in the classrooms, it's not just an individual decision that you're making for yourself. You have a duty to protect the children that you care for, especially for those children under six months. Those children are not -- they have the least developed immune system and they have not received the flu vaccine, so they're the most vulnerable. And the concept of cocooning or protecting everybody around those children is very important, and that involves you getting the immunizations yourself.

Now, we already heard that some healthcare systems require employees to get influenza vaccine, and I saw one of you write in that whether it was a requirement for childcare providers to get influenza

vaccine. And it certainly makes sense because healthcare workers get those vaccines as a requirement because they take care of people who are vulnerable that could be severely affected by getting influenza from a worker in a healthcare system setting. We assume we go there and we're going to be cared for and we're going to be safe. That's a very similar paradigm to where you're working in the childcare setting. We want those young children who are vulnerable to be safe. So it certainly makes sense, but I'm not aware of any large childcare organizations require that for their employees yet, but it makes a lot of sense. Also, for yourself, you want to think about preventing illness and lost work. We'll go over the statistics in a second, but if you're on an hourly wage and you get sick, you lose those wages or you end up having your colleagues have to make up for your absence, which is difficult. And then we also want to prevent the spread of influenza into the community. So another responsibility that you have to get yourself immunized to form a first defense for influenza coming out of the childcare centers. So how do we increase staff influenza rates? Well, first, I think it's important to understand the barriers and the reasons why adults don't get immunizations.

There is a strong belief that healthy people don't need it or a lack of awareness that it's a requirement. Sometimes physicians don't recommend it. So we know when we see people in our offices, we need to recommend that and promote it. People are afraid of vaccine side effects and sometimes they don't ever go and see their doctor, so there isn't that chance for a reminder. People are afraid of needles. And probably the biggest one is the cost and the inconvenience to take time out from work to get the flu vaccine. What we know is that the top methods to improve influenza immunizations are to improve the access and to eliminate costs or provide incentives. And so we'll talk about that a little bit here. So what you can do in your settings, especially if you're at the director or programmatic level, is to inform staff about the influenza vaccine recommendation.

Some people just simply are not aware, although I was happy to see on the earlier survey that it looked like over 80 percent, 85 percent of you all did get your yearly flu vaccinations. We want to arrange for and advertise influenza vaccinations, and if possible, want to do that on site at the site of employment. I know that's not easy for everybody to do, but it's worth exploring to see if that can be accomplished. We want to try to reduce barriers such as the fear of side effects, the cost, and the inconvenience. And it should be a big deal every year, the flu campaign. Establish the habit of yearly influenza vaccines, and just that kind of routine and that expectation enhances immunization rates. We really want to make that the fabric of what happens every fall right around this time of year. But certainly education is very important, and we point you to the Centers for Disease Control materials, and the URL is listed there. And we also want to try to address the barriers and the health beliefs. Some people think that they, especially adults who don't ever get the flu, and that's true, you could go five, seven years without getting the flu, but then you do get it, there's a 10 percent to 20 percent chance every year for an individual to get sick with the flu. And that could be four, five, six, seven days of absence, in bed with a fever. So that's a risk that you're taking and you can avoid that by getting either a flu shot or an intranasal vaccine. Some are worried that the flu vaccine causes people to become sick. Again, the injection, the shot, can cause a little local soreness, but it doesn't give people flu. The intranasal vaccine can cause a little stuffiness and achiness, but it does not cause people to become, you know, significantly ill.

And then there's some folks that distrust the flu vaccine and I think they also distrust the government. I worked in the government for 21 years and I swear to you, I never heard that there was a secret plot to cause people to become ill by getting the flu vaccine. Actually, vaccines are made by private companies, and if the vaccine caused a lot of side effects, they wouldn't be able to, you know, make money. So they have an incentive to make a good product. We watch very closely for any side effects and we're required to report them if there are. And in a few cases in the past with other vaccines, we've had to halt vaccines while we investigate matters further. So I believe the flu vaccines are very safe. All right, so let's discuss on-site immunizations. The one avenue that you have is the local health department.

Now, health departments as well as, I know, Head Start are going through some significant financial difficulties right now. So I called our local health department to see if they ever do outreach and they don't. But you might have different experiences in different counties. And I think it's worth calling and seeing if they would do outreach and come and do immunizations on site. There is actually a corporation, there may be more than one, but I was able to find this one on the Internet called Passport Health, and they have, I think, over 200 locations in every state in the United States. And they will come out and immunize employees in various companies, obviously for a fee, and I know that's probably not possible, but it's worth looking into and seeing how costly that would be. If on-site vaccination can't be procured, then we want to make it convenient for staff to get immunizations. And so as a director, you want to find information about local sites where influenza vaccine can be obtained, and employees need to have scheduled time off to get it.

It makes sense to give a childcare worker an hour off to get a vaccination, rather give actually five workers an hour off rather than one of the five of those folks getting sick and potentially being out for, you know, five or seven days. So you can see how the math works out to get it. And corporations have figured that out. Almost all studies show that influenza immunization is cost-effective for a business, and some businesses even pay for the vaccine. In other words, they make it free to the employees because they know that when they look at the whole population of their workforce, they end up saving money by immunizing everybody and paying for it themselves. In addition to giving free and on-site vaccination, one study showed that adding a \$5 gift card, which is not much, or being able to choose whether folks got the shot versus the nasal vaccine significantly increased the immunization rate. Just giving people a little bit of choice makes a difference.

So I realize you may not have financial resources at your disposal and you can't necessarily do all those wonderful strategies that I just discussed, so what should you do? What should you adopt in your childcare setting? Well, as an individual, again, I want to promote that you get the vaccine. As the director or administrator, you want to do as many of those recommendations as I just mentioned as you can. And you also want to keep in mind the immunization rates. The only study that I could find on childcare center employees, the immunization rates were quite poor. Now, it's much higher in our audience here, obviously, 85 percent, but maybe I'm preaching to the choir and you guys are all on this call because you believe in the importance of it, so that's great, but we can do better for sure. And, you know, keep in mind, in corporations, only 37 percent and 42 percent of healthcare workers. I think Dr. Bernstein showed more updated data that was higher than that. So switching from adults to children, let's talk about that. How do we increase the immunization rates of children in our care? And that's

challenging because we have to go through the parents and we have to get the parents to go to a medical site to get the immunization.

I really want to emphasize that we should approach influenza immunization just the same as we approach immunizations for all the other diseases like measles, varicella, diphtheria, tetanus, and pertussis. All of those we have no problem saying, "You have to get your child immunized." Influenza recommendation is just the same. In other words, it's just as required as the other immunizations. And we just need to keep pounding on that drum and increasing the rates and the expectations of the parents of our children to get their children immunized. Now, we do have some special higher risk groups. Immunization rates are lower in minority children, in black and Hispanics. So there are unique challenges in that group. We know that limited English proficiency is one of those issues. Younger parents, less interaction with the medical home they have. They might not have a regular doctor or healthcare team. And as a result, they don't get the reminders that some medical homes have instituted to remind their patients to -- the parents to bring their children in for immunizations. But we can educate parents about the influenza vaccine and we want to inform them that this should be looked at as a requirement. For some parents, that may be new information, but we've actually recommended this for a number of years now.

We can refer them to information at the Centers for Disease Control. There are Spanish versions of the instructions there. We want to remind parents that the younger children are at higher risk and older children and adults up to the age of 65. We want to use multiple methods of communication, verbal, written, translated. You want to send messages home; you want to post them in centers. You can even try social media if you have that, or texting. And you want to talk about the chances of the individual child getting influenza in a given year. And you don't want to scare people, but it is an effective technique to remind them that the reason why we're recommending influenza vaccination is that some healthy children can die every year and we want to avoid that. We want to avoid hospitalization. Even one is too many.

Also, appeal to the pocketbook. Days missed from -- care for the child leads to lost work for the parent and that leads to lost hourly income for some of the parents, especially low-income parents. They're just, they're just barely making it or not making it, and some of them are trying to get out of welfare and start new jobs, and absences can sometimes lead them to lose their job. So that's a really important issue to stress, I think. And also, to review your center's exclusion criteria, fever with behavior change, which is likely to happen with influenza infection. That's going to lead to that child being excluded. And you can also try to stress a duty to society. It's interesting that vaccinating children reduces infection rates in household contacts.

So by immunizing kids that are in daycare, we've shown that we can reduce flu-like illness in household contacts, especially the school-aged contacts, by 80 percent. 40 percent in all household contacts and 80 percent in school-aged. Also, vaccinating children has an interesting effect on reducing the flu spread in the oldest adults. So one study showed that vaccinating just 20 percent of school-aged children was more effective than vaccinating 90 percent of adults in reducing the mortality of the older adults that are older than 65 years of age. So that's kind of interesting, and that's probably because children are so

efficient at spreading the virus through coughing and sneezing and not, you know, putting their head in their elbow when they sneeze in their sleeve.

The other thing, like I mentioned earlier, is that we should really be aggressive about requiring and mandating influenza vaccine. It's just as required as the other immunizations we give. It's just newer. We had trouble getting chickenpox vaccine to be initially accepted, and then gradually we got most rates up. And we need to do the same thing with influenza.

Now, you may notice that your state childcare policies or codes or licensing regulations might not have influenza as a requirement. That's not a reason why you shouldn't adopt that in your own rules. You just have to meet those rules, but you're allowed to exceed them. And so I encourage you to incorporate influenza vaccine requirement into your requirements. And also, the other way that you can encourage influenza vaccination is by requiring health visits and really keeping track of that. And I know you already do, but just getting them in front of the doctor during flu season increases the odds of influenza vaccine for the children. So keep doing that.

The other thing that you could consider doing is some different types of reward techniques. We talked about getting on-site vaccination programs for the employees and potentially for the children. It's worth exploring. Also, you might consider doing a voucher toward reduced fees for children who are immunized. I don't know if this is very possible within Head Start operating guidelines, but it's an idea that I thought would be worth exploring, say \$5 less or a weekly fee for three or four weeks or something like that for kids who are immunized. So I put out some ideas there.

What I'm really interested in hearing is what are any effective strategies that you've experienced in the last few years. So in addition to writing the questions that you've been doing well, we've been talking, I also encourage you to briefly write successful programs that you've had, and AAP staffers will be looking at your responses and we can potentially share your innovative program as we answer other questions. So I just want to conclude with some take-home points, and that's that influenza is the most common cause of vaccine-preventable deaths in children. That point really needs to be hammered home. We think about how bad it is to get, you know, measles, chickenpox, all these vaccinations, these diseases that we're routinely vaccinating against, but now we're left with influenza as being the highest cause of mortality in the United States, and we need to -- it's now time for us to step up the game and knock that one out.

Children spread influenza into the families and communities, and so our encouragement to increase those immunization rates will help the whole community. And immunization is by far the best influenza prevention tactic, but infection control is also important and exclusion is important but should be focused on the behavior of the child. And the primary reason for exclusion should not be to reduce the spread but to ensure the well-being of the child. And childcare programs have an important role and a very good opportunity to improve immunization rates. So have at it and good luck this year. I hope you have a lot of success. So the two last slides, just some contact information that we want to make you aware of should you have any further questions or need further information, Healthy Child Care America contact information and the National Center on Health. So all the information is there and you should

have access to this after the call. All right, that concludes my talk and we're ready for the question-and-answer session.

Lisa: Okay, great. Thank you very much, Dr. Shope for all that great information. And I'm just going to pull us back to the take-home point slide while we go through some of the questions that we received from the audience. So, Dr. Shope, if you could respond to this question: Would it be as effective to wash hands with soap and running water instead of using hand sanitizer?

Dr. Shope: That's a great question, and I don't know if a head-to-head study has been done on that. We recommend using soap and water definitely whenever there's any particulate matter on your hands such as stool. And there's a lot of us who feel that soap and water is the most effective method if it's done appropriately. Hand sanitizer is more convenient. It's perhaps a little quicker. It does run the risk of -- it has very high alcohol content in it, so we have to be careful to make sure kids don't have access to that. Also, there's a concern that sometimes hand sanitizer can be vaporized and that may pose an environmental concern, especially if hand sanitizer is located directly above a diaper-changing table. So we're still looking into all that, and I'm not aware if one is more effective than the other. The most important thing is that you do one or the other as frequently as you can.

Dr. Bernstein: Your point is well taken, Tim. The idea about particulate matter really makes soap and water all that much more valuable when it's done for at least 20 to 30 seconds.

Lisa: Okay, thank you very much. Dr. Bernstein, if you could respond to this question: Is the nasal vaccine still contraindicated for those with asthma or other chronic health conditions?

Dr. Bernstein: Yes. Currently the vaccine is licensed by the FDA for healthy individuals two years through 49 years. We want to avoid giving it to people such as those with asthma because asthma is a problem with the lungs as is influenza being a disease of the lungs. And it really has not been studied adequately in people with different chronic health conditions. So currently it is only healthy children and adults two years through 49 years.

Lisa: Are there any vitamins or supplements that have been proven to help lessen the chance of getting the flu, or are there any that have been proven to help lessen the symptoms or shorten the duration?

Dr. Shope: Hmm, you want to take that, Hank?

Dr. Bernstein: Sure. Well, I mean, obviously, we all should have our vitamin C, but honestly, there are not specific supplements or vitamins that I'm aware of that either, A, prevent someone from being infected with influenza or, B, shorten the course of influenza should they come down with the disease. People have studied zinc and it's use with the common cold, but I'm not aware of it being effective for those with actual influenza disease.

Dr. Shope: Right. And I would just add vitamin D for breast-fed infants, but that's to prevent vitamin D deficient rickets, but not to prevent influenza.

Lisa: Okay, thank you. Why do we always hear that you shouldn't get the vaccine or you can't get the vaccine if you have an allergy to eggs?

Dr. Shope: I'll let Dr. Bernstein handle that one, too.

Dr. Bernstein: Sure. So as many people are aware, the vaccine for many years was produced and still is produced in eggs and there was always a concern that if the vaccine is produced in eggs that someone who is allergic to egg would not do well if they get the vaccine. But there have been an increasing number of studies in the last several years that actually debunk the need for people who are egg-allergic not to receive the influenza vaccine. In fact, in the past, it used to be that if you were egg-allergic, you had to go to an allergist to get the vaccine, and of course, that didn't happen, and so then a lot of egg-allergic people were not protected against the flu. But we now know that egg allergy is basically not a contraindication to getting the flu vaccine. And in fact, even those people that have had anaphylaxis to an influenza vaccine can still receive the flu vaccine in their healthcare provider's office. So we have an increasing amount of data that actually supports receiving the flu vaccine even if you carry the diagnosis of an egg allergy.

Lisa: Okay, thank you. Is there a difference in the effectiveness between getting the flu shot or getting the nasal spray?

Dr. Shope: Go ahead.

Dr. Bernstein: Yeah. Well, yeah, and that was one of the things that we talked about before, and Tim mentioned as well, we are looking at vaccine effectiveness both by types of vaccine and also in different populations from children on up to senior citizens. And there is some preliminary data that giving the live attenuated influenza virus to young children is more effective than giving the inactivated injection to children. That same type of finding is not consistent, though, with older children and adults. And so that people are looking at, frequently looking at details and figuring out which vaccine products in which groups of people are most effective. I mentioned also earlier that senior citizens, sometimes their immune systems are a little tired and they need a little bit more of a boost, and so that's where the high-dose influenza vaccine is recommended and that, in turn, would improve that vaccine effectiveness in that specific population. I don't know, Tim, if you wanted to add to that.

Dr. Shope: No. I agree.

Lisa: Okay, great. After a child who is sick has been excluded, when should they be allowed to return?

Dr. Shope: Okay, so they should be -- the reasons for exclusion are if the child is unable to participate or requires too much care. So those two issues have to be resolved, and that's something that hopefully the parent makes a good judgment. But obviously, when you see that child during the morning check-in, you want to check children out and be sure that they're not, you know, laying in their parents arms with flushed cheeks and breathing fast or something like that. So those two exclusion criteria have to be resolved. In flu season, a lot of the children are going to have fever, so fever with behavior change is the reason for exclusion, and so that should be resolved. Now, what we have in Managing Infectious

Diseases, version 3 , and what is on the CDC website are just a little bit different. The CDC recommends fever resolved for 24 hours. The MID does not have that. And that's something that we're going to discuss in the next weeks and hopefully come out with a joint recommendation and hand-out that you can give to parents. For now you can use either the CDC materials or what's in Managing Infectious Diseases as, you know, to rely on. They're a little bit different. We recognize that. You can choose whichever one you like the best. But the main emphasis for exclusion and return to care should be on the behavior of the child.

Lisa: Great. Thanks for that clarification. I think we have time for just a couple more questions. One of them is: How long after you are sick do you need to wait to get a vaccination?

Dr. Bernstein: Really it depends upon what the definition of "sick" is. So there are many illnesses that people have that are relatively mild, so as opposed to being perfectly healthy, someone may have a mild illness of sorts and there's no reason that they cannot get immunizations, including the flu vaccine, while they have a mild illness. However, in general, when someone has a moderate to severe illness or their behavior is significantly off, frequently people will defer the vaccine, but usually it only needs to be for a few days at most and then there's not a problem in receiving the vaccine and people's immune systems will respond quite nicely to the vaccine when given under those circumstances.

Dr. Shope: Right. I think there's a popular belief that if you're sick you shouldn't get the flu vaccine because your immune system is already weakened, but we're bombarded by viruses every day, and an immunization is just one of the perhaps, you know, 20 or 100 viruses that we see every day. So mild illness is not a reason not to get the immunization.

Lisa: Okay, great. And for our final question: I you have already had the flu recently, should you still get a flu vaccine?

Dr. Shope: I say definitely yes. You don't know that the illness that you had was influenza. That's a very specific single virus, and there's a lot of other respiratory illnesses that look just like influenza. So even if you were sick with what everybody called "the flu" or what you called "the flu" yourself, you don't know for sure. Plus, the immunizations immunize against multiple strains of influenza, A and B, and you don't know what strain you were infected with, even if you were infected with influenza.

Dr. Bernstein: I agree totally with what Dr. Shope said. Absolutely you should still get it for the reasons that he outlined. And remember that in certain communities influenza A, remember we said that there are three or four strains in the vaccine this season, for example, and one strain, it could be A that causes a problem in December, but come March it could be one of the B strains that causes a problem. So it's important in your community. So it is important for you to receive it so that you can be optimally protected against all the strains in the vaccine.

Lisa: Thank you very much, Dr. Bernstein and Dr. Shope, for sharing your time and your expertise with us today. Just as a reminder, to all of those participating, we will be looking at all of the questions that came in through the question-and-answer box, and so if we did not have time to take your question on air, you will receive an answer via email. We will follow up with you. It may take us a week or two to get

all the answers together because we've gotten some really great questions, so please be patient with us, but we will get back to you. Flu season will be here before we know it, and the information and strategies discussed in today's webinar will help Head Start and childcare programs take steps to ensure the health and well-being of the children, families, and staff in their programs. If you have further questions about this topic, please contact Healthy Child Care America at childcare@aap.org, and the toll-free number is also on the screen right now. You can also contact the Head Start National Center on Health. The email address there is nthinfo@aap.org, and that toll-free number should be up on your screen now, as well.

[End video]