



**DR. WILLIAM SCHAFFNER:** Good morning, everyone. I'm Dr. Bill Schaffner, Medical Director of the National Foundation for Infectious Diseases (NFID). On behalf of NFID, I'm pleased to welcome you all here this morning. I'm also professor of preventive medicine and infectious diseases at the Vanderbilt University School of Medicine in Nashville.

We're here today to talk about flu. If you're tweeting, please use the hash tag #FightFlu.

It's an honor to have with us today Dr. Tom Frieden, Director of the Centers for Disease Control and Prevention, as our keynote speaker.

In addition, I'd like to welcome our distinguished panelists: Dr. Kathy Neuzil, professor of medicine and director of the Center for Vaccine Development at the University of Maryland School of Medicine and Dr. Wendy Sue Swanson, pediatrician, author of the *Seattle Mama Doc* blog, and Executive Director of Digital Health at Seattle Children's Hospital. She's also here as a representative of the American Academy of Pediatrics.

My colleagues here are all experts in their fields and are as passionate as I am about the importance of public health and disease prevention through vaccination. We're pleased to have a strong showing of support from public health, medical, government, industry, and consumer organizations, representing physicians, pharmacists, nurses, public health experts, and parents, as we prepare the public for the upcoming influenza season.

Dr. Frieden will update us on what we need to know for the upcoming flu season and report on the progress we're making to ensure that all individuals – all individuals six months and older – are vaccinated each year, according to CDC recommendations. He'll provide an overview of the final 2014/2015 vaccination season – that's last year – and the vaccination coverage estimates for the general population, as well as for pregnant women and healthcare personnel.



In addition to the importance of vaccination, we'll also hear more about other aspects of flu prevention, including the CDC Take 3 approach, to remind everyone about the role of everyday actions in preventing the flu from spreading and the use of antivirals in treating influenza.

I'd also like to mention that healthcare professionals have access to more advanced rapid testing tools that can be used to quickly diagnosis and subsequently treat flu. NFID will be hosting a free webinar on the role of rapid diagnostic testing in influenza treatment in late October. Check [www.nfid.org](http://www.nfid.org) for details.

Last season reinforced that every flu season is a unique experience. We track flu viruses as they travel across the globe all year long to help us prepare the best vaccines for the coming US season. But influenza is unpredictable. As I like to say, flu is fickle. During most flu seasons, flu vaccines offer good protection against circulating viruses. Last season was unusual. Not only did we have one strain of influenza that caused almost all of the reported flu cases, but it was different; it had mutated. It was different than the strain that was represented in the vaccine. And that's because the flu virus changed and, as a consequence, quickly became the predominant strain.

That said, the best defense against flu is to get vaccinated each and every year. And we remember that the vaccine contains protection against a number of different influenza viral strains. And I'm pleased to say that so far, as we track influenza viruses, this year the ones that are causing very early disease are exactly as was predicted. So it looks to me as though the vaccine is going to be well [protective].

We've had some steady improvements in vaccination rates in recent years, which Dr. Frieden will discuss. But we need to keep working to get even more people vaccinated. It's been about five years since the CDC began recommending annual flu vaccination for everyone six months

and older in the United States. Unfortunately, many people are still unaware of this universal recommendation.

Following Dr. Frieden, Dr. Neuzil will talk about why universal flu vaccination is important. She'll cover the direct benefits of vaccination, as well as the indirect benefits; that is to say, how getting yourself vaccinated also protects those who are around you.

Dr. Swanson will then expand on this from a pediatrician's perspective. She'll be addressing why vaccinating all children six months of age and older is so vitally important. And she'll also focus on the key role the healthcare community must play in order to make universal vaccination a reality. We need the rest of the medical community to get all of their patients vaccinated as well as the pediatricians already do.

Now it's time to get your flu vaccine. And for many of us, it's also the time to get a pneumococcal vaccine. This is not an annual vaccine that's recommended for everyone, as is the flu vaccine. So knowing who needs it and when can be a bit more complicated. We'll be talking about that just a bit later.

Following our panelists' presentations, there will be a question-and-answer session.

And now, it's my great pleasure to welcome Dr. Frieden. Tom? [applause]

**DR. TOM FRIEDEN:** Thanks very much, Bill. It's always a pleasure to be here with you. This is the beginning of flu season. There's plenty of flu vaccine out there. And the bottom line is that I hope that everyone does what I've done for myself and my family – get a flu shot to protect yourself, your family, and your community.

Now, flu is a potentially serious illness. We can think of it as something that may be mild, but all of us in healthcare have seen patients deathly ill with the flu. Even in a good year – good in quotation marks – flu will result, in this country, in millions of cases of illness, hundreds of thousands of hospitalizations, and thousands or tens of thousands of deaths.

Flu is also unpredictable. That's one of the things you can say with the most certainty about flu. We do whatever we can to predict it well by tracking it around the world and in this country. But that unpredictable nature means that we have a multicomponent way of responding: With flu vaccination. Encouraging the basics of covering your cough and not going out if you're sick. And, if you do get something that might be flu, see your doctor. And if the doctor recommends taking antivirals, that's something that can improve your outcome.

Now, let me start with a wrap-up of last year's flu season. How did the flu do? How did the vaccine do? Well, this was a bad year for flu. The 2014/2015 season had the highest hospitalization rate among seniors that we've ever documented. There are many different types of flu, as some of you know, and the H3 type tends to be harder on seniors. So though we can't predict flu, we can say that more likely than not an H3-predominant year is going to be bad for seniors.

The hospitalization rate, as I said, was the highest since we have been monitoring. There were also 145 documented deaths from influenza among children last year. We know that the actual number is much higher, because not all flu deaths are diagnosed and detected as having flu. Last year, H3N2, what is sometimes referred to as the Switzerland variant, was the predominant strain. And that was very poorly matched with the H3N2 in last year's vaccine strain. That's why this year's vaccine strain has that particular substrain of flu in it. We saw that that strain, which only emerged as the vaccine had already been produced, that that strain was not much protected by the flu vaccination last year.

We study something called vaccine effectiveness. Vaccine effectiveness is our estimate of the proportion of people who are exposed to flu who will get it if they got vaccinated, compared to the proportion who will get [it] if they didn't get vaccinated. Overall, the flu vaccine is usually about 50-60% effective. So it's not nearly as effective as most of our other major vaccines, but it's far more effective than anything else you can do to prevent the flu.

Last year, the vaccine effectiveness of flu vaccine overall was quite low, and for H3N2 strains was very low; only about 13%. If you looked at the other strains that were circulating – the H1N1 and the B strains of flu – it was still in that 50-60% range. So you had a higher overall effectiveness.

Now, there are still benefits from flu vaccination, even at that lower effectiveness. And in fact, last year, about half of the population of the US got vaccinated. We now recommend that everyone over the age of six months gets vaccinated. The coverage was highest last year in those under five and those over 65. We saw increases in coverage among adults, pregnant women, and among healthcare providers, particularly pharmacists, 95%; and doctors and nurses, 89%. People who see how severe flu can be and who get that flu vaccine protects you are more likely to get vaccinated.

But there were definitely opportunities for improvement. We need to get more young and middle-aged people vaccinated. We're encouraged by the increasing opportunities for vaccination. There are many different types of vaccine offered, and you can get vaccinated at workplaces, at pharmacies, at drugstores, at many other places in the community.

And though we've had progress with some of the highest priority areas, there are still some concerning trends. Still, only about half of pregnant women are vaccinated against influenza. We know that influenza can be very severe for pregnant women, so we'd like to see that number

increased. And we're delighted at the partnership we've had with the American College of Obstetricians and Gynecologists, and other groups, to further increase that.

We're also concerned by the proportion of people vaccinated among those who work in long-term care facilities, such as nursing homes. Prior studies have suggested that if the people who work in nursing homes don't get a flu vaccine, the people who are living in the nursing home are much more likely to get the flu and become severely ill.

This year, we want to see a steady increase in the momentum on increasing flu vaccine, and there is more flu vaccine than ever being produced by manufacturers – at least 171 million doses of flu vaccine. And at least 40 million of those doses have already been distributed. So it's already available. Now's a good time to get a flu vaccine. But any time in the flu season is critically important. It doesn't matter which flu vaccine you get. Just get one.

Now, the vaccine has been updated to better match the H3N2 strain. Normally, as I say, the flu vaccine is about 50-60% effective. We try to tell how good the match will be. We predict that by two different means: First, there's a global collaboration. We work with countries all around the world, particularly in the Southern Hemisphere, to see what is spreading there, because that's usually, not always, but usually what spreads here the following winter. And what's spreading in the Southern Hemisphere are four strains that match the four strains in the flu vaccine this year; three to four strains in the flu vaccine this year.

And we also look around the US. Although flu is not common over the summer months, it does continue. And we track those trends, which also generally, though not always, predict what flu will be the following fall. We looked and there is an MMWR bulletin, produced today for this conference, that outlines the results of that. There were 199 analyzed specimens. Of those, most (118) were the H3N2 type that is closely related to this year's vaccine strain. Another 20 were the H1N1 that's still circulating from back in 2009; also, very closely related to what's in the vaccine

strain. And then there were 61 B strains, influenza-B, that were evenly matched between two different strains that are included in the quadrivalent vaccine.

Also, all of the strains analyzed were susceptible to the antivirals – oseltamivir, zanamivir and peramivir.

Flu vaccination reduces flu illnesses, doctor visits, missed work, missed school, and prevents serious complications. I will say that for healthcare workers, it's particularly important to get vaccinated yourself. And also to ensure that all of your patients above the age of six months are vaccinated.

As Bill Schaffner noted, we're also emphasizing pneumococcal vaccination. There are two types of pneumococcal vaccination. We recommend the pneumococcal vaccination for everyone over the age of 65, and for some people under the age of 65, who have chronic health conditions, such as diabetes or chronic lung disease.

So when you get your flu vaccination, be sure to make sure that you're up to date on other vaccines.

We have a call to action with three steps: First, get vaccinated. That's the best way to protect yourself, your family and your community against flu.

Second, take every day preventive actions. Cover your cough and sneeze. And if you're sick, stay home.

And third, if your doctor prescribes antiviral medications, take them. They're a second line of defense. The analysis that CDC scientists have done suggests that these medications, particularly

if given promptly, can reduce the duration of illness by about a day, and can reduce the severity of illness.

The bottom line: Flu is unpredictable, but you can predict that the single-best thing you can do to protect yourself is to get a flu vaccine. Make getting a flu vaccine a norm for yourself and your family this year, and every year, just as I do.

Thank you very much. [applause]

**DR. WILLIAM SCHAFFNER:** Thank you, Tom. Dr. Neuzil?

**DR. KATHLEEN NEUZIL:** Thanks, Bill, and thanks, Tom. I am passionate about influenza, as you heard from Bill. I've studied influenza vaccines for most of my career. I'm also a practicing physician, and unfortunately I've seen too many patients with influenza. We heard from Dr. Frieden the figures on influenza. I've seen people who have died from influenza. And while most deaths do occur in older persons in the US, young, healthy people die from influenza every year. Children die from influenza every year. And we'll hear a little bit more about that from Dr. Swanson.

People get sick with flu, and people also just feel bad. If you talk to people with influenza, it's not a cold, it's not a sniffle. They'll say, "I feel as though I've been hit by a truck." That's one quote I've heard from a patient. Or, "I feel like I've been beaten up."

So flu also makes us miss work, makes our children miss school, and makes us feel bad in general.

So the news is that more people are getting vaccinated. But far too few are getting vaccinated. And as Dr. Frieden said, we need to try to improve that.

So where can a lot of the gains be made? And a lot of the gains can be made in the young and middle-aged adult population. So let me tell you another story about a medical story. When I was asked to see an older patient, who had been in the chronic care portion of our facility, had been there for about six months. We were called to see him and we diagnosed him with a pretty severe influenza pneumonia.

Then we started to ask the question, well, he's been in this facility for six months. And pneumonia circulates every year, between about November and March. And of course it changes; many years it doesn't circulate till January. How did he get the flu? He's not out there going to the store.

The only way he could have gotten influenza is because somebody brought it to him. That could have been a healthcare worker. It could have been a family member or a friend visiting him.

And so, for young and middle-aged healthy adults, protecting others should be as compelling a reason to get the influenza vaccine as protecting yourselves. And if everybody thinks about it, there would be very few people in this room who don't mix every day with young children, with older people, with people with cancer, people with serious lung disease.

We are walking around. We are the transmitters in the community. And so, it's quite important that we get influenza vaccine for that reason.

So I think the public health and the medical and the research communities have been listening. So why don't people get influenza vaccine? And what can we do?

Well, first there's the "we didn't know we needed it." Which is one reason that we're here today. You do need it. We strongly recommend influenza vaccine for everyone six months and older.

The second reason is, "I'm kind of invincible. I'm young and healthy. I run every day. I eat right." You can still get flu. And importantly, you can certainly transmit that flu to people who aren't as young and healthy as you are, and are much more vulnerable to the complications.

None of us have time, right? We're all busy, we're all rushing around. "I don't have time to get the flu vaccine." So we've really tried to listen there, too. And vaccine is now available in the workplace. It's available at pharmacies. It's available earlier than it used to be, and it's available later than it used to be. So we really need to make it a priority.

And the number of flu vaccines and choices we have is much greater as well. So if I don't like needles, I can get the nasal spray. I can get the intradermal vaccine, which is a tiny, tiny needle. If I have a patient with a really severe egg allergy, we now have an influenza vaccine that's recombinant, totally egg-free, that I can use in those patients.

So we do have many, many more options now, both as individuals and as healthcare workers promoting influenza vaccine.

So thank you. [applause]

**DR. WILLIAM SCHAFFNER:** Thank you, Kathy. That's a stirring affirmation. Dr. Swanson, please.

**DR. WENDY SUE SWANSON:** Hi, I'm so glad to be here, and share my opinions and ideas. I come about this as a practicing pediatrician, but I also come about this as a mom, as a daughter to people with chronic illness. And I come about it as a blogger. We live in a really different time with how we get information, and how we build partnerships with evidence and with science. And the great news is, is that parents and families who are making decisions about vaccines, they

trust their pediatrician and their healthcare provider most. They lean on their spouses and partners when making vaccine decisions. But they're certainly online and connected.

So we know without hesitation that the three tiers of washing your hands, staying home when you're ill, and of course being vaccinated are essential. But we also know now, too, that all children over six months of age should get a flu shot every year. We know that there's continuing build of immunity over the years, and we know that children who are under age five are more likely to be hospitalized than older children.

So there's a group that's more vulnerable. And those are the kids that go to preschool, that go to daycare, that go to kindergarten. They swap spit and snot and saliva. These are the kids that are exploring the world with their curiosity and advancing. They're also the ones who can get so sick from influenza.

There's no question that in my practice as a pediatrician, I've seen kids not have their parents make the decision to be vaccinated and get influenza. I've seen children who've had febrile seizures during a course of influenza. I've seen children with wheezing and asthma have serious cases of influenza, lose ten pounds, be out of school for 13 days because they're scared of a needle. Just like we're learning, we've got so many choices now, particularly for kids over age two, who can choose the nasal spray as a great option.

So we have all sorts of choice. We have all sorts of data. And we want families to know this is just a part of being a kid. Like I always say, snot's a part of being a kid in the winter time, a flu vaccine in the fall is also a part that we want for every family. And we know that parents' intention to immunize really is driven by protection of their own children. But we also know the great and profound benefit—that kids who go to schools or live in communities that are better immunized are less likely to get infections that are protected by their immunizations.

So we've got this kind of bold and new task to make sure that all families understand that this is an every-year thing. We know that patients and families have really good trust, particularly when they're vaccinating their children. We know nine out of ten families in America follow the guidelines and recommendations for getting vaccines on time. It's few who actually choose to delay or space them out. And when we look at influenza vaccine, we know parents really want to protect their babies and toddlers. In fact, 75% of infants and toddlers were immunized against influenza last year.

And just like Dr. Frieden mentioned, we know that children die from influenza every year; last year, over 140 children. And the harsh reality is that it isn't only children with underlying risks – being very young, having things like asthma or wheezing, having chronic conditions like diabetes or neurologic conditions. We know on average about half of the pediatric deaths happen in healthy, well children who get exposed to a virus and have a bad course of that illness.

So as my job as a pediatrician, a mom to two little boys, we get immunized early. I want to partner with patients and families to get them information in arm's reach. So I use Twitter. I use Facebook. I use my blog. I partner with the [American] Academy of Pediatrics. And I listen to what people say online and try to get them the science that we have, that we know can protect them.

The other thing that we should mention is that we do, of course, want all healthcare providers to be immunized. We used to wear buttons that said "I got my flu shot today." Now I recommend that all of our physicians, staff, medical assistants, and receptionists go online to Facebook when they get their flu vaccine and tell the world that they've done it.

And we know that so many organizations across the United States in healthcare facilities are even asking all workers if they're going to choose to take the privilege of caring for children who

are ultimately a vulnerable population, that if they're going to do that and work in a hospital, they have to be immunized against influenza.

So we have great protection, and we have just great opportunity to prevent illness, missing work, high fever, discomfort and pain with a great vaccine. [applause]

**DR. WILLIAM SCHAFFNER:** So let's just say a few words about pneumococcal vaccine.

You know, pneumonia is the major complication of influenza and the principal bacterial cause of that pneumonia are the pneumococci, the bacteria. As Dr. Frieden said, pneumococcal infections can affect anyone, but are particularly deadly in older persons. And as you would expect, those at highest risk are the same people recommended for pneumococcal vaccination.

These are somewhat more complex recommendations, so it bears emphasizing briefly who these groups are:

Everyone age 65 and older is eligible for pneumococcal vaccine. Adults 19 to 64 with certain chronic illnesses, such as diabetes, heart disease, lung disorders, and smokers. Infants and toddlers are also at highest risk, but they tend to be well vaccinated because pneumococcal vaccine is part of the routine immunization series for children.

There are two types of pneumococcal vaccine recommended for adults: Conjugate; we call that PCV13, Prevnar®. And polysaccharide vaccine, PPSV23, called Pneumovax®. The specific recommendations about which vaccine or vaccines to get depends on a person's age and medical conditions, or their risk factors.

What we want people to know is, if you're in one of those groups that I mentioned, ask your healthcare professional which vaccines you need to protect yourself from pneumococcal disease.

These vaccines work. In March of this year, a new study in the *New England Journal of Medicine* reported on the effectiveness of PCV13, the conjugate vaccine, in those age 65 years and older. There was a significant reduction in vaccine-type pneumococcal community-acquired pneumonia in those vaccinated with PCV13. The study was large. It included 85,000 adults, age 65 years and older, with no prior pneumococcal vaccination history. It's quite a definitive study.

Together, these two pneumococcal vaccines give adults broader protection against pneumococcal disease than either vaccine alone.

Medicare will pay for both types of pneumococcal vaccine in full – no copay or deductible – as long as they are given one year apart. You do not get both pneumococcal vaccines at the same time. However, you can and should get flu and pneumococcal vaccines at the same visit if both vaccines are recommended for you. And then you can get the other pneumococcal vaccine next year when you come back for your annual flu vaccine. So this one-year timing interval works well both scientifically and practically.

And finally, if you're an adult who was vaccinated with one type of pneumococcal vaccine, once again, talk to your healthcare provider to see if you need the other type as well.

So at this point, thanks again to all of our panelists. It's great to hear that nearly half of the US population is making flu vaccination an annual event. More is better. We're clearly making progress, and we still have a way to go.

The National Foundation for Infectious Diseases is, again, inviting healthcare professionals, business, and community leaders to lead by example and make influenza prevention a public health priority. And our friend Dr. Frieden will be the first to lead by example by getting his flu vaccine today, right now. [laughter] Tom? [applause]

[Dr. Frieden receives his flu vaccination] [applause]

**DR. WILLIAM SCHAFFNER:** So thank you, Dr. Frieden, and thank you BK Morris, the nurse who was here with the MedStar Visiting Nurse Association. And you know you're all invited after the news conference; we will have influenza vaccine available for all of you. And MedStar Visiting Nurse Association is happy to provide it.

Now, let's have a little question-and-answer. The Q&A portion of the event is reserved for questions from you all in the media. We have two roving microphones. Please indicate if you have a question, and one of our staff will get it to you. And if you would, identify yourself and the media outlet when you make your comments.

For the media participating via the webcast, please email your questions as indicated on the webcast. And if you're on the teleconference, the operator will come on the line momentarily to advise you about how to submit your question.

And finally, if you would like to speak with one of the panelists one-on-one, we can arrange that after the Q&A session.

So thank you very much. I'd like to now open the question-and-answer session. Is there somebody here who would like to ask a question? Lauren?

**LAUREN NEERGAARD:** Lauren Neergaard with the Associated Press. I have two questions. First of all, I'd like to get all of you to address the autism in vaccine statements that were made at last night's Presidential debate. What do parents actually need to know about that? And then after that, I do have a flu-specific question, I promise.

**DR. WILLIAM SCHAFFNER:** So let's deal briefly with the autism issue. I think everyone in this room knows that there is an abundance of scientific evidence indicating that there is no connection between the administration of vaccines and autism. Likewise, the currently recommended schedule immunizing children, recommended by the CDC, the American Academy of Pediatrics and the American Academy of Family Physicians, clearly is effective and it is safe.

I think we can talk about that a little bit more offline, but let's go to your flu question now.

**LAUREN NEERGAARD:** Could Dr. Frieden address that?

**DR. WILLIAM SCHAFFNER:** Wendy Sue? We might take this opportunity. You're here on behalf of the American Academy of Pediatrics, and they actually have a brief statement on this issue.

**DR. WENDY SUE SWANSON:** We do. And just to respond, certainly there's lots of chatter about comments that have been made. And this comes in waves in some ways. Because we share sometimes scary anecdotes that may not reflect what science actually brings to the table. The great, wonderful benefit of living in a time of science is that you can aggregate all sorts of anecdotes together and come closer to truth.

So I think what we know is that there were comments that were made about the purported link between vaccines and autism. We know that no science has ever proven that link, including an Institute of Medicine report that studied over 1000 studies, and came out on the side that vaccines are certainly far more beneficial than the risk, and no link was purported.

The other really, I think, follow-up point that came in sound bites is really that somehow an alternative or spaced-out schedule is a good idea. What we know about that is that's an untested

schedule. We have not a single study that demonstrates spacing out or delaying vaccines provides any benefit. In fact, it's the same amount of risk, the same vaccines, and more risk, because the window of time that children and those in their community could be exposed to illness is bigger.

So I'd love to read the statement from the American Academy of Pediatrics that was released today in response to the comments from last night that addresses both your question about the purported link between vaccines and autism, and alternative schedules.

The American Academy of Pediatrics would like to correct false statements made during the Presidential debate last night regarding vaccines. Claims that vaccines are linked to autism, or are unsafe when administered according to the recommended schedule have been disproven by a robust body of medical literature. It is dangerous to public health to suggest otherwise.

There is no "alternative" immunization schedule. Delaying vaccines only leaves a child at risk of disease for a longer period of time; it does not make vaccinating safer.

Vaccines work, plain and simple. Vaccines are one of the safest, most effective and most important medical innovations of our time. Pediatricians partner with parents to provide what is best for their child, and what is best is for children to be fully vaccinated.

**DR. TOM FRIEDEN:** Bill, I'll just say further that at the Centers for Disease Control and Prevention, one of our centers is the National Center for Birth Defects. And so, much of the nation's data on the trends in autism come from CDC. It's a serious problem and one that we're analyzing and helping to link parents to services. Study after study have concluded that there is

no risk between vaccines and autism. There is though a very serious problem of autism, and the discussion of vaccines and autism unfortunately has at times interfered with our ability to study further what is causing autism so we can both prevent it better and provide better services to the children and families who have autism.

**LAUREN NEERGAARD:** In light of what happened last year, with all of our pandemic preparations, what now could make us more nimble in responding, if we have a situation like that again, where you are able to see that a problem is brewing with a mutated strain?

**DR. TOM FRIEDEN:** Well, there are three things that we do to try to minimize the risk that if flu changes, we won't be adequately prepared. First, we are better tracking flu, in this country and around the world, so that when it changes, we identify that in as close to real time as possible. Unfortunately, last year it changed when the flu vaccine was already being made. So at that point, there was nothing really that could have been done practically.

The second thing we're doing, along with manufacturers and other entities, is cutting down the time it takes to make a flu vaccine, so that we can start making it later in the season, and still have, as we do this year, more than 171 million doses, enough for everyone who wants to get a flu vaccination.

The third thing that we do is have a second line of defense. Understanding that even in a well-matched year, flu vaccine, although the best way to protect you is only 50-60% effective, is particularly for those with underlying conditions or severely ill with something that may be flu, to encourage treatment with antivirals, which may keep you out of the hospital, reduce your duration of illness, and reduce your severity of illness as well.

**DR. WILLIAM SCHAFFNER:** Thanks, Tom. Questions? Wendy Sue, we didn't talk really about the importance of protecting pregnant women. Would you like to say a few words about that?

**DR. WENDY SUE SWANSON:** I would. So I think one of the things every expecting parent does is get really excited about a long life for their child. And we know, without question, that pregnant women are at higher risk for complications from influenza because of their immunocompromised state during pregnancy. We also know when moms immunize themselves they do two things. They protect themselves, and they also provide protection for their baby after their baby is born.

So we know that in addition to providing the cocooning – if mom is immunized against influenza, if dad is immunized against influenza – after the baby's born, much less likely to bring it home.

But secondarily, when moms get immunized during pregnancy, any time during pregnancy, they start to develop antibodies that go through the placenta and transfer to the baby, so that in the first six months of life, when babies are at high risk, but also too young to be immunized, they're better protected.

**DR. WILLIAM SCHAFFNER:** Excellent. Actually, we have partners here from the American College of Obstetricians and Gynecologists. Dr. Riley, why don't you stand up for a moment, let the people see you, and I know you would like to reinforce those messages. Go ahead.

**DR. RILEY:** Absolutely. Thank you for the opportunity. I'd love to reinforce that we really encourage all pregnant women to be vaccinated at any trimester – first trimester, second trimester, third trimester. Get the vaccine. You'll protect your baby as it's growing inside, and,

importantly, you'll protect your newborn in the first six months of life, before that baby can get its own vaccination.

The other thing I think is really important, as many have said, is that there's tons of data to suggest that this is a safe vaccine. And I think all pregnant women, particularly pregnant women and their families are always worried about the safety of anything, any medication any vaccine, but we have great data to suggest that this is a safe vaccine, and certainly it is offering great protection.

Thank you.

**DR. WILLIAM SCHAFFNER:** Thank you, Dr. Riley. We have some questions on the phone.

**OPERATOR:** Yes, sir, the first of which is from the line of Liz Szabo with *USA Today*. Please go ahead.

**LIZ SZABO:** Hi, my question's been answered. Thanks.

**DR. WILLIAM SCHAFFNER:** Okay, thank you very much. And then I have some questions here. Let's see. Perhaps we could have some information about how many vaccines have been shipped already. We anticipate that we will have an abundance of vaccine. And vaccine is coming in. Tom, do you have some comments about that?

**DR. TOM FRIEDEN:** Simply that there are, we believe, more than 171 million doses of vaccine being produced this year. More than 40 million have already been distributed. As is usually the case, you may have situations where in some areas some of the vaccines may not be available for some of the time. But in general, there will be enough vaccine for everyone who wants it.

And as there were last year, and as we mentioned earlier, there are lots of options for different vaccination types – intradermal, a tiny needle. I will say the needle I just got wasn't intradermal, but I still couldn't feel it. [laughter] There's also the intranasal vaccine. And we don't have a preference for any of the vaccines from CDC this year.

**DR. WILLIAM SCHAFFNER:** I have another question here. This is from Anna Almendrala from *Huffington Post*. We're offering vaccines currently, Kathy, but she wants to know, is it too late to get vaccinated at any time during the influenza season?

**DR. KATHLEEN NEUZIL:** That's an excellent question, and a very common question. We heard from Dr. Frieden the total amount of vaccine available. But we know the availability at the local level can sometimes be quite different. So the short answer is, no, it's not too late to get influenza vaccine. In fact, if you sort of tease out some of those data that Dr. Frieden presented, it's interesting, for pediatricians and other providers of vaccine to children continue to give vaccine through the whole year. But adults tend to get vaccine by November, or not get vaccine.

So our message here is, the soonest you can get it, the better. But it's never too late to get influenza vaccine. There are years when influenza may not circulate till February. There are years where we may have a lot of flu in December and then it comes back again in March.

So give vaccine. Give it through the season. Continue to give influenza vaccine. And in fact, it's not too late to give influenza vaccine in October, November, December, January.

**DR. WILLIAM SCHAFFNER:** So we have a note here from Sonya Collins from *Pharmacy Today*. She's directed the question to Dr. Frieden. What guidance do we have to the public regarding the various members of what we call the immunization neighborhood? Where can we go to get vaccinated against flu, pneumococcal disease and indeed other vaccines. Tom?

**DR. TOM FRIEDEN:** Now in every state in the US, pharmacists can vaccinate against influenza. And in many states, against other diseases as well. The key about vaccination is making it easy for people, reducing the barriers to vaccination. And that means that if you're at your doctor's office, at your nurse practitioner's office, if the doctor or nurse provides a vaccine, or your pharmacist, these are all great options to get vaccinated.

What we're seeing is very interesting. We're seeing increasingly convenient vaccination options for Americans. Many Americans are now getting vaccinated in their workplaces by doctors or nurses or pharmacists. In fact, this is really important, and one of the reasons this is happening is that businesses recognize that vaccinating their employees is really good business. It means fewer sick days, more productivity, lower healthcare costs. Flu vaccination is a best buy for healthcare providers and for businesses.

We're also seeing more minute clinics, or small clinics in pharmacy, or freestanding, providing vaccinations. And these are all great options.

The key to remember is that the flu vaccine is the best way to protect yourself against the flu. You need this year's flu vaccine to protect yourself against this year's flu.

**DR. WILLIAM SCHAFFNER:** Thank you, Tom. And to reinforce that, we have a representative of the American Pharmacists Association, PJ Agarwal. PJ, come on up here and say a few words about how enthusiastic pharmacists are to provide vaccines.

**PJ AGARWAL:** Thank you, Dr. Schaffner, for this opportunity. And just to reiterate what Dr. Frieden has shared here, all 50 states do allow pharmacists to administer vaccines. We've had a huge focus here on flu and pneumococcal, and your pharmacist can administer those.

Pharmacists are in a unique position to help overcome the obstacles and barriers to increasing immunization rates. We are in a unique position in that we are not only advocates for immunizations, we are facilitators, we are partners with the healthcare team. And finally, we are providers; we will administer that vaccine.

Also, just to put a final note, community pharmacies are open long hours. They're also open every day of the week. We are willing. We are ready. And we are able to administer both flu and pneumococcal vaccines.

Thank you.

**DR. WILLIAM SCHAFFNER:** Thank you, PJ. That's where my wife gets her flu vaccine. Wendy?

**DR. WENDY SUE SWANSON:** About convenience. We live in this very digital time, so we've had a couple of studies published in the last few years of how text reminders, for example, make it easier for families to get immunized in a really busy life.

For example, kids six months of age up through the age of eight, if they've not had two doses of flu vaccine before, they get two doses. So every infant in that six to 12 months age range, if they've not had flu before, they do two doses, separated by at least four weeks between them. And studies have looked at bidirectional text messages with education, text message reminders in general. And we have far increased uptake of parents coming back and getting that second dose if they have text reminders.

So I always say to families, when you go in for that first dose, ask them to schedule an appointment for follow-up before you leave. Put a message in your phone, or ask for a text message reminder.

So I think we have great new ways to make it not only convenient, but reminders to get us back and do the right thing. We know those babies who get those two doses aren't considered as ideal protected until about two weeks after they've received that second dose.

**DR. WILLIAM SCHAFFNER:** Thank you. Yes, please?

**KIMBERLY LEONARD:** Thank you. Kimberly Leonard with *US News & World Report*. I'm sorry if this is common knowledge, but I know for me it's very easy to get the flu shot because it's provided by my employer. And we mentioned earlier that school-aged and younger kids have a harder problem. Do any schools provide the flu shot? Is it something that the CDC would support? I just have no idea.

**DR. WILLIAM SCHAFFNER:** Wendy, how often is influenza vaccine given in school these days?

**DR. WENDY SUE SWANSON:** It's not. I think one of the complexities of convenience is that many pharmacies don't give vaccine to children, for example, under age four. But the good news is, we see kids at two, four, six, nine, 15, 18 months for regularly scheduled visits, and then annually. So families really know to come to our walk-in clinics. We advise them at every well-child check. And we're doing vaccines routinely starting at two months of age at all of those wellness visits.

So we partner in clinical offices with patients and families for children. But the school systems don't tend to be a place where vaccines are administered.

**DR. TOM FRIEDEN:** I will say that is 100% agreement. We've looked at schools as possible sites for vaccination if there were a pandemic and needed to be massive vaccination, because the kids are there. And in 2009/2010, some schools and school districts did that with good effect.

But other than that, in a normal year, except for where there are school-based health centers, which can provide vaccination for kids who have been consented in to be provided care, it tends to be the exception rather than the rule.

**DR. WILLIAM SCHAFFNER:** Yes, go ahead.

**DONNA MAZYCK:** Hi, I'm Donna Mazyck with the National Association of School Nurses. Good morning. There are some school-located vaccination clinics. And while they're not pervasive, there are also some school-based healthcare centers that are able to administer vaccines to that K-12 population.

So that is something that communities determine as a need and a value for them. And school-located vaccination does happen.

**DR. WILLIAM SCHAFFNER:** Thank you, Donna. We now have a call question.

**OPERATOR:** Yes, this is from the line of Suzanne Le Mignot with *WBBM Television*. Please go ahead.

**SUZANNE LE MIGNOT:** I actually have two questions. My name is Suzanne Le Mignot. I'm a reporter at CBS-WBBM. And I just want to get some clarification. Dr. Swanson, I want to make sure I understood something you had said during your remarks. You said something to the effect of, "we know there's continuing buildup of protection over the years for children." Is that if they've gotten that throughout their lifetime, or did you mean that if they get it, for example, just in that year, period, there's protection?

And then, a second question, and this can be for all of the doctors, whoever would like to answer, what do you say to people who are reluctant to get the vaccine, because there's this thought process among some people who say, "If I get the vaccine, I'm going to get sick. I'll get the flu."

**DR. WILLIAM SCHAFFNER:** No, no, no, if you get vaccine, you won't get the flu. The vaccine is 50-60% effective. That's a myth I think we can all sing this in harmony—you can't get flu from the flu vaccine. Thank you very much. And it's important to keep reminding people about that, because quite realistically it's one of the most common questions that we do get asked.

**DR. WENDY SUE SWANSON:** Do you want to answer that first question?

**DR. WILLIAM SCHAFFNER:** Go ahead, Wendy.

**DR. WENDY SUE SWANSON:** I'd love backup from both of the other docs here, too. Part of the reason we recommend, for example, the rules around kids age six months to age eight, if you haven't had two doses before—you get two doses, because you build immunity that way. We know even with drifted strains, there's still some partial protection. So even when there's not a well-matched vaccine, we know we get partial protection and are more likely to have more mild illness than more severe illness.

I don't know if, Dr. Frieden or Dr. Neuzil, you want to take some of the science on that, too.

**DR. KATHLEEN NEUZIL:** I would say that immunity to influenza is complex. But one of the reasons that we believe that children get more severe influenza than adults is exactly what you explained. Because by the time you're an adult, you've had exposure, you've built up some immunity to multiple strains.

We will also say that some of these universal recommendations and giving yearly influenza vaccine is new. And we understand that as you would with any other program, with any other health intervention, we will continue to follow this over time. And the CDC puts in significant resources to track these issues and understand these questions.

And we learn every year, and with time, what is best. And the wonderful aspect of our immunization program is we take that new information and change our recommendations based on it; for example, the two doses of influenza vaccine.

**DR. WILLIAM SCHAFFNER:** Thank you very much. Tom, we've had another question which is similar to one that Lauren asked earlier. This comes from *Modern Healthcare*, Michael Sandler. Is there an anticipation that there'll be another influenza mutation this year? And if there is, what would we do? You've had a chance to talk about that once, so summarize it again, if you don't mind.

**DR. TOM FRIEDEN:** Influenza is always changing. So far, what we've seen in the Southern Hemisphere and over the summer in the US suggests that this year's vaccine should be a good match against this year's circulating influenza. But only time will tell for sure.

What we do to track that is intensively look and characterize flu viruses during the flu season. And we're completely transparent about it. If we see a change, we let people know that. And that's important so that doctors can then think more seriously or consider giving antivirals to people who are seriously ill, or who have underlying conditions.

But so far, what we've seen is encouraging. And even in a year when the flu virus isn't well matched, it [vaccination] remains the single-best thing you can do to protect yourself, your family, and your community against influenza.

**DR. WILLIAM SCHAFFNER:** Thank you, Tom. Here's some questions, thank you very much. Joyce Frieden from *MedPage Today*: Can you clarify the schedule for the pneumococcal vaccine? Is it generally best for those who need the vaccine to alternate between the two types?

We don't alternate the two types. Some individuals require only one type. Others require two. There are issues with the sequence and the timing. It's a rather complex schedule. So ask your healthcare provider about that.

We have one more question from Miriam Falco, who's a freelancer and well known to many of us. And I think her question has to do with, beyond influenza, you've told us about children under the age of eight require two influenza immunizations, and then one annually, if they haven't had it, but I think her question goes to more, how is it that the CDC, the American Academy of Pediatrics, the American Academy of Family Physicians put together the entire childhood immunization schedule, and why is it the way it is?

**DR. WENDY SUE SWANSON:** It's a big question, and I will defer to Dr. Frieden on this. But I will say the philosophy is this: We want to immunize children as early as we can to protect them from vaccine-preventable illnesses. Take, for example, the measles/mumps/rubella vaccine. With our outbreak this past year or so that we've experienced here, we learned how we understand and feel about vaccines in a way. We don't immunize kids routinely in the United States against measles/mumps/rubella until age 12 months. That's a complicated algorithm based on how much maternal antibody is there, because most all pregnant women have been immunized against measles/mumps/rubella. They've passed on that immunity to their baby. And gradually through infancy that immunity fades away. And once it fades away to a certain degree, then you can immunize to create a child's own immune response.

So the vaccine schedule is created to immunize kids as early as we can, for as many vaccines that we can prevent. In particular, vaccines that help us protect kids from life-ending or life-threatening illness in that early childhood period.

**DR. TOM FRIEDEN:** I think Miriam was also asking about the process. And it's worth spending a minute about that process. There is an entity called the ACIP, the Advisory Committees on Immunization Practice. The ACIP is the body that sets the vaccine schedule. And it works in a completely transparent fashion. All of the meetings, all the documents are open to the public. There are individuals and entities represented on ACIP from all sectors of society, including patient groups.

And this is not just the most effective way of setting vaccine policy. It's a model for countries around the world. Because let's be frank. For most vaccines, there are some people who think that there's something bad about them. And there is hardly a vaccination program that's been run in any country, anywhere in the world, ever, that hasn't had some rumors circulating about it.

The best disinfectant for rumors is transparency. So what we've done with the ACIP is to ensure that all of the deliberations are completely open to the public, that all of the bases on which the decisions are made are according to the best science, and available to all to see.

**DR. WILLIAM SCHAFFNER:** Thank you, Tom. And thank you, all. I thank you for coming and joining us today. Let's hope for an uneventful flu season. But as we've heard from these experts, our best defense is a good offense. Get vaccinated. Please.

All of you wait until the panelists have all received their vaccines before lining up for the clinic at the back of the room. We have different vaccine options. If you desire it, I think the folks in the back of the room have it.



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Thank you all again for transmitting this very important information to the US public each and every year. Thank you very much. [applause]

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