

COCA Conference Call
National Obstetric Grand Rounds Pandemic H1N1 2009
Influenza and Pregnancy
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[Alycia Downs] Good morning and welcome to today's COCA conference call - National Obstetric Grand Rounds: Pandemic H1N1 2009 Influenza and Pregnancy. We are very excited to have three presenters with us today. We have two CDC subject matter experts and a colleague from the Emory University School of Medicine. From CDC we have Dr. Sonja Rasmussen and Dr. Denise Jamieson. And we have Dr. Kevin Ault from Emory.

We are using a PowerPoint presentation for this call that you should be able to access from our Web site. If you have not already downloaded the presentation, please go to emergency.cdc.gov/coca. Again that's emergency.cdc.gov/c-o-c-a. Click on "Conference Call Information Summaries and Slide Sets." The PowerPoint can be found under the call in number and pass code.

After this activity, the participants will be able to list two physiologic alterations in pregnancy that affect response to infections; discuss the antiviral medication interim guidance to treat pregnant women; discuss chemoprophylaxis interim guidance for pregnant women; describe the recommendations for flu vaccines - seasonal and H1N1 - in pregnant women; list infection control measures to reduce transmission of H1N1 in the hospital setting; and describe one method to reduce the risk for birth defects in pregnant women with hyperthermia.

In compliance with continuing education credits and requirements, all presenters must disclose any financial or other relationships with the manufacturers of commercial products, suppliers of commercial services, or commercial supporters, as well as any use of unlabeled products or products under investigation use. CDC, our planners and our presenters wish to disclose they have no financial interests or other relationships with manufacturers of commercial products, suppliers of commercial services, or commercial supporters. This presentation does not involve the unlabeled use of a product or products under investigational use. There is no commercial support. I will now turn the call over to Dr. Jamieson.

[Denise Jamieson] Good morning. It is my pleasure to talk with you today about 2009 H1N1 influenza and pregnancy. I will start by presenting an overview of what we know about influenza and pregnancy and then I will briefly describe infection control guidance in labor and delivery settings. Dr. Rasmussen will then talk about testing, treatment, and vaccination issues. Finally, Dr. Ault will share his perspective on these issues as a practicing OB/GYN in Atlanta. Next slide please.

I'd like to start with some of the background information that we knew before the current outbreak about pregnant women as an at risk population. We know that pregnant women are at increased risk for influenza illness. Although there is no evidence that they are more susceptible

to influenza, we do know that once they acquire influenza, they are at increased risk for severe disease. During previous pandemics in 1918 and 1957, pregnant women had increased mortality rates. We also know that pregnant women are at increased risk for complications from seasonal influenza. Next slide.

This slide shows data from a population based cohort study in Nova Scotia for the years 1990 to 2002. The authors compared rates of hospital admissions for respiratory illness during the influenza season in each trimester of pregnancy, on the X axis, with rates during the year before pregnancy. The authors found an increased risk of hospital admissions during all three trimesters of pregnancy with a rate ratio of 1.7 in the first trimester, 2.1 in the second trimester, and 5.1 in the third trimester, meaning that women in the third trimester are five times more likely to be admitted to the hospital for respiratory illness during influenza season than during the year before pregnancy. This figure focuses on women with no comorbidity, such as asthma or heart disease that would increase their risks for complications from flu. When women with comorbidities were analyzed, the risks during pregnancy were even higher. Next slide.

So why are pregnant women at increased risk for severe influenza illness? There are various mechanical, hormonal, and immunologic alterations in pregnancy. There are changes in the respiratory and cardiovascular systems, including increased heart rates, stroke volume, and oxygen consumption. Lung volumes are decreased due to the expanding uterus. There are also immunologic changes with a shift away from cell-mediated immunity and toward humoral immunity. All of these changes render pregnant women more susceptible to and more severely affected by certain viral pathogens. Next slide.

There are also concerns about possible fetal effects of influenza. The effects of influenza on the fetus, in particular of a new influenza virus like H1N1, are unknown and difficult to predict. In seasonal influenza, viremia is believed to occur infrequently and placental transmission appears to be rare. But this may not be the case with novel influenza strains. We don't have data on this related to H1N1 but for H5N1 transmission across the placenta to the fetus has been demonstrated in a single case report. In addition, even when the virus is not transmitted across the placenta, the fetus can be affected. For example, hyperthermia or fever often occurs in influenza and has been associated with adverse outcomes, such as spina bifida and anencephaly when fever occurs at the time of neural tube closure. Fever later in pregnancy has been associated with some other adverse outcomes. Next slide.

There are also special healthcare delivery challenges for pregnant women. Non-pharmaceutical interventions refer to interventions to mitigate disease rates using such measures as isolation of ill persons, voluntary quarantine of households with ill persons, and social distancing techniques, such as avoiding crowded settings and closing schools and child care centers. Although these types of measures have not been currently widely applied, if applied, these measures may represent special challenges for pregnant women. Responsibilities of pregnant women as both members of the workforce and caregivers of their children and other family members may complicate their adherence to these types of public health recommendations.

Furthermore, because healthy pregnant women will continue to require both outpatient prenatal care, as well as inpatient delivery services, they might be more likely to be exposed to clinical

settings where ill persons are receiving care. Another challenge is that pregnant women may be reluctant to comply with recommendations because of concerns about the fetus. Next slide.

For example, we know that despite ACOG and ACIP recommendations that women who are pregnant during influenza season be vaccinated for seasonal influenza, very few pregnant women actually receive the vaccine. Here are data from the 1980 to 2005 National Health Interview Survey, which show self-reported levels of influenza vaccination among various groups for whom the vaccine is recommended. Persons age 65 and older, persons with high risk conditions, healthcare workers, pregnant women, and persons living in households with at least one identified person at high risk of complications from influenza infection. You can see that vaccination rates among pregnant women are among the lowest of any group with less than 15 percent of pregnant women receiving the vaccine. Next slide.

Next, I am going to focus on what we know about the 2009 H1N1 virus. This paper, published online on May 7, reported the first 642 confirmed cases of human infection with novel influenza in the U.S. Next slide.

Illness in these cases resulted from infection with a quadruple reassortment virus with genes from human, avian, and two types of swine. The viruses were susceptible to oseltamivir and zanamivir and resistant to amantadine and rimantadine and with only a few exceptions this continues to be the case. In the initial 642 confirmed cases described in the New England Journal of Medicine article, the mean age was 20 years with a range of three months to 81 years, with 60 percent of those infected being 18 years or younger. Next slide.

In the United States, most of these early cases were characterized by a self-limited, uncomplicated febrile illness similar to seasonal influenza. In addition to fever, patients had cough, sore throat, rhinorrhea, headache, and myalgia. One difference was that the rate of vomiting or diarrhea was higher than seasonal influenza with about 38 percent of these initial patients having vomiting or diarrhea. Next slide.

Next, I'd like to focus on what we know about pregnant women with 2009 H1N1. This paper, published online on July 29th, summarized cases of infection in pregnant women that were reported to the CDC during the first month of the outbreak and deaths during the first two months of the outbreak. Next slide.

There were 34 confirmed or probable cases of 2009 H1N1 influenza in pregnant women during the first month of the outbreak in the U.S. This represented about 0.62 percent of the total number of reported cases. Of those 34 women, 11, or 32 percent, were admitted to the hospital. There were six deaths among pregnant women with 2009 H1N1 flu in the first two months of the outbreak. This represented 13 percent of total deaths in the U.S. Next slide.

In general, pregnant women with flu had very similar presenting signs and symptoms compared with the general population with one notable exception. Pregnant women were more likely to report shortness of breath. Next slide.

Most women presented in the second or third trimester. Nine percent of women were in the first trimester; 56 percent in the second trimester; and 26 percent in the third trimester. Next slide.

Admission rates for pregnant women were higher than the general population. Pregnant women were four times more likely to be hospitalized compared to the general population. Next slide.

This slide summarizes the data on the six deaths that were reported in the Lancet paper. Key points here are that the women were generally healthy. You can see that many had no underlying medical conditions. And the medical conditions that were observed were mild in nature, mild asthma not requiring medication, psoriasis, obesity, and Factor V Lieden deficiency. The women's ages spanned from 20 to 33 years and women who died were infected in all three trimesters of pregnancy, ranging from 11 to 36 weeks gestation. Next slide.

All patients developed primary viral pneumonia with subsequent acute respiratory distress syndrome requiring mechanical ventilation. All five patients with viable pregnancies underwent cesarean delivery. In three cases the pregnant woman or her fetus was not stable enough to transport to the labor and delivery unit and the cesarean delivery was done in the emergency department or ICU. The length of time from symptom onset to receipt of antiviral medication was 6 to 15 days with a median of nine days. The length of time from presentation for medical care until receipt of antiviral treatment was 2 to 12 days with a median of four and a half days. Next slide.

Since publication of the Lancet paper, we have updated numbers in terms of deaths among pregnant women. Among 484 deaths reported to the CDC by August 20th, 24, or about five percent, were among pregnant women. It's important to note that pregnant women make up only about one percent of the general population. So this continues to suggest an increased risk for death. Next slide.

I want to shift gears now and briefly talk about general principles of infection control in obstetric settings. The first issue is that pregnant women, whether outpatients or inpatients, should be separated from ill and potentially ill patients. This requires a system for rapidly assessing influenza-like symptoms and triaging patients appropriately. Next slide.

On July 6, CDC posted this guidance regarding 2009 H1N1 in obstetrics settings. In developing this guidance, an external panel of experts was consulted. This current guidance has generated tremendous attention and public inquiry. Therefore, we are currently reviewing this guidance and considering possible revision. The portion of the guidance that has been most controversial is how to handle ill mothers during labor and delivery. Currently, we recommend that an ill mother wear a mask during labor and delivery, if tolerable. Following delivery, the mother should consider avoiding close contact with the infant until she has taken antiviral medication for 48 hours, her fever has resolved, and she can control coughs and secretions. After that, when in contact with her infant, the mother should do the following until seven days after symptom onset and symptom free for 24 hours: wear a mask, change to clean clothing, and adhere to strict hand hygiene and cough etiquette.

I would now like to turn this over to my colleague, Dr. Sonja Rasmussen, who will talk about testing, antiviral treatment, and vaccination issues.

[Sonja Rasmussen] Thank you, Denise. Next slide please. Today, I will be discussing the current CDC guidelines in three areas: testing for 2009 H1N1 influenza, antiviral treatment and prophylaxis, and seasonal and 2009 H1N1 influenza vaccination. Next slide please.

First, testing. Four types of diagnostic tests are available. Rapid influenza diagnostic tests, based on antigen detection methods, can provide results within a few minutes, but their sensitivity for 2009 H1N1 virus is poor, ranging from 10 to 70 percent. In addition, these tests are unable to distinguish between 2009 H1N1 influenza and other influenza A viruses. Direct and indirect immunofluorescence assays performed in some hospital labs are also based on antigen detection and typically take two to four hours for results. While the sensitivity of these tests is somewhat better than the rapid tests, sensitivity is still not 100 percent, and these tests are also unable to distinguish 2009 H1N1 virus from other influenza A viruses. The low sensitivity of these tests means that a negative test result does not exclude 2009 H1N1 virus infections. Just to repeat this key message, it is critically important that treatment is not delayed based on a negative rapid test.

Tests that can distinguish 2009 H1N1 virus infections from other viruses include nucleic acid amplification tests, including real-time reverse transcriptase-polymerase chain reaction (or rRT-PCR), which depends on detection of influenza-specific RNA, and viral isolation in tissue culture. Results from these tests are not available in time to guide clinical decision-making. For rRT-PCR, processing time from specimen collection until results are available is typically 48 to 96 hours, and for viral isolation, processing time is 2 to 10 days. CDC recommends that rRT-PCR testing be reserved for special situations, for example, with severely ill patients.

The next slide should say testing and treatment at the top. Because of the severity of illness described by Dr. Jamieson, treatment with an antiviral medication is recommended for pregnant women with suspected or confirmed influenza, regardless of trimester of pregnancy. Treatment should not be delayed because of a negative rapid influenza diagnostic test or inability to test or while awaiting test results. Next slide please.

The drug of choice for pregnant women with confirmed or suspected 2009 H1N1 influenza is oseltamivir, or Tamiflu, because of its systemic absorption. The dose is 75 milligrams by mouth twice a day for five days. Based on data from studies of seasonal influenza, benefits are expected to be greatest if the medication is started within 48 hours of symptom onset. However, studies of seasonal influenza indicate benefits for hospitalized patients, even if treatment is started more than 48 hours after onset. Thus, antiviral medications are recommended for high-risk persons, including pregnant women, who present for care more than 48 hours after illness onset. Oseltamivir (Tamiflu) and zanamivir (Relenza) are FDA pregnancy Category C medications, meaning that there are no adequate and well-controlled studies in pregnant women. However, available data on these medications suggests they are not human teratogens. Given the severity of 2009 H1N1 influenza in pregnant women, we believe that the benefit of treatment outweighs the potential risk. Fever during pregnancy has been associated with adverse pregnancy outcomes in some studies. Thus, fever should be treated and Acetaminophen appears to be the best option for treatment of fever during pregnancy. Next slide please.

Rapid access to antiviral medications for pregnant women is essential. Healthcare provider actions that might reduce delays in treatment initiation include: informing pregnant women of signs and symptoms of influenza and of the need for early treatment, ensuring rapid access to telephone consultation and clinical evaluation, and in some cases, considering empiric treatment of patients at higher risk for influenza complications based on telephone contact. Next slide please.

Post-exposure antiviral chemoprophylaxis can be considered for pregnant women who are close contacts of persons with suspected or confirmed 2009 H1N1 infection. The drug of choice for prophylaxis is probably zanamivir because of its limited systemic absorption. However, respiratory complications that may be associated with zanamivir because of its inhaled route of administration need to be considered, especially in women at risk for respiratory problems. For these women, oseltamivir is a reasonable alternative. Recommended duration of chemoprophylaxis is 10 days after the last known exposure. Close monitoring and early treatment is an alternative to chemoprophylaxis after a suspected exposure. And it's important to note with all of these treatment and chemoprophylaxis decisions that clinical judgment is an important factor. Next slide please.

For post-exposure chemoprophylaxis purposes, close contact is defined as having cared for or lived with a person who is a confirmed, probable, or suspected case of influenza or having been in a setting where there was a high likelihood of contact with respiratory droplets and/or body fluids of such a person. Examples of close contact are sharing eating or drinking utensils, physical examination, or any other contact between persons likely to result in exposure to respiratory droplets. Next slide please.

Now I will discuss issues related to influenza vaccines. Seasonal influenza vaccine is recommended for people at increased risk of severe infection, including women who will be pregnant during the influenza season. The Advisory Committee on Immunization Practices, or ACIP, as well as the American College of Obstetricians and Gynecologists, have recommended seasonal influenza vaccine for pregnant women for a number of years, and this includes all pregnant women in any trimester of pregnancy. Next slide.

The need for seasonal flu vaccine is based on the fact that pregnant women who get seasonal influenza are at increased risk for serious complications. In addition, influenza vaccine given during pregnancy has been shown to prevent febrile respiratory illness in pregnant women and infants and lab-proven influenza in infants up to six months of age - infants who are not able to get the vaccine themselves. Next slide please.

The ACIP has recently released guidance for use of the 2009 H1N1 vaccination. As part of that guidance, the Committee listed five initial target groups for vaccination efforts. These include pregnant women, persons who live with or provide care for infants less than six months of age, healthcare and emergency medical services personnel, children and young adults aged six months to 24 years, and persons age 25 to 64 years who have medical conditions that put them at higher risk for influenza-related complications. In addition, the ACIP has established priority for a subset of persons within the initial target groups in the event that the initial vaccine availability

is unable to meet demand, and pregnant women are also included in this list of priority groups. Next slide please.

The need for the 2009 H1N1 vaccine is based on the data presented earlier by Dr. Jamieson. The pregnant women who get 2009 H1N1 are at higher risk for hospitalization, severe illness, and death. Of note, seasonal flu vaccine is not expected to protect against 2009 H1N1 influenza. Next slide.

There are three different vaccine types. The live attenuated vaccine (or nasal spray) is not licensed for use in pregnant women. The inactivated vaccine (the flu shot) is available in two different formulations, as a multi-dose vaccine or as a pre-filled single dose vaccine which is preservative free. Either of the formulations of inactivated vaccine are recommended for use in pregnant women. Although there is no evidence that the preservative used, thimerosal, is harmful, a thimerosal-free formulation will be available as an alternative for pregnant women. Next slide please.

H1N1 vaccine can be given at any time during pregnancy. In addition, women who are postpartum are also recommended to receive the vaccine, as are all household contacts and caregivers for infants younger than six months of age. The H1N1 vaccine is recommended even for women who have had influenza-like illness previously, as many different infections can cause influenza-like symptoms. In addition, infection with one strain of influenza virus will not provide the protection against other strains. Next slide please.

Seasonal flu in 2009 H1N1 vaccines may be administered on the same day but given at different anatomic sites (one shot in the left arm, the other shot in the right arm, for example). However, pregnant women and others at increased risk of influenza complications are encouraged to get seasonal flu vaccine now or as soon as it is available in their communities and then get the H1N1 vaccine when the inactivated formulation becomes available. Along with the 2009 H1N1 vaccine, the Federal Government will provide ancillary supplies for vaccine administration, including needles, syringes, sharps containers, alcohol swabs, and a vaccination record card. The U.S. Food and Drug Administration has approved the use of one dose of 2009 H1N1 flu vaccine for persons 10 years of age and older. Next slide please.

2009 H1N1 vaccine is expected to be available in October. CDC will allocate vaccine to states based on population size. States will determine where vaccine will be shipped; this will be to a mix of public and private settings, and healthcare providers who are interested in distributing vaccines should contact their state health department. Information on state contacts is available on the CDC website. Next slide please.

The 2009 H1N1 vaccine is available at no cost for providers. Providers cannot charge a fee for vaccine since it is being provided free of charge by the federal government. However, providers can bill insurance or charge the patients the vaccine administration fee. Next slide please.

Providers are encouraged to vaccinate under- or uninsured patients. However, if they are unable to do so, providers should refer these patients to public health settings for vaccinations. Next slide.

Seasonal influenza vaccine has been used for many years in pregnant women with an excellent safety record. The 2009 H1N1 influenza vaccine will be made using the same processes and same facilities that are used to make seasonal influenza vaccines. Therefore, safety is expected to be similar to seasonal flu vaccine. In addition, clinical trials of the 2009 H1N1 influenza vaccine in pregnant women being conducted by NIH are underway. Next slide please.

All of the information discussed in today's session is available on the CDC website. It should be noted that as we receive additional information about the 2009 H1N1 virus, we incorporate that information into our guidelines. Thus, guidelines should be considered to be interim and healthcare providers should check CDC's websites for updates on a regular basis. Next slide.

So in summary, during an influenza pandemic, pregnant women are expected to be a high-risk population, based on experience with previous pandemics and with seasonal influenza, and the data available thus far for 2009 H1N1 influenza suggests that pregnant women are at increased risk for complications and death. Next slide.

Pregnant women should be informed about signs and symptoms of 2009 H1N1 influenza and those who present with symptoms consistent with influenza should be treated empirically with oseltamivir, or Tamiflu. Testing should not be used to inform treatment decisions. Post-exposure prophylaxis with zanamivir or oseltamivir can be considered for pregnant women. Next slide.

And regarding the vaccine, both seasonal and 2009 H1N1 influenza vaccines are recommended for pregnant women. 2009 H1N1 vaccine safety is expected to be similar to that for the seasonal influenza vaccine, and providers should contact state health departments to express interest in obtaining 2009 H1N1 vaccine. Now I'd like to turn the microphone over to Dr. Kevin Ault.

[Kevin Ault] Good morning. Can we go to the next slide please? In Atlanta, Georgia our experience has been a little bit unique because we've had a widespread distribution of influenza-like illness. At the same time, we had our American College of OB/GYN State Section meeting at the end of August. So, right as the influenza activity was starting to pick up in Georgia, all the OB/GYNs were at their annual meeting. And so, in the past month, anticipating this talk, I've tried to come up with some of the most troublesome issues, not just in Atlanta, but everywhere for obstetricians dealing with this. A lot of the data that I'm going to present has been alluded to previously.

So certainly, based on our initial experience, the isolation of mothers with illness that was referred to before has been challenging. So, I think certainly we want to do everything we can to keep mothers and babies together. But as some of the data I'm going to show you, influenza is certainly dangerous to newborns. We know that about the seasonal version of influenza and there's no reason to think that the H1N1 won't be any different.

Masks during labor, our guidelines that one of our hospitals in the Emory network says "when feasible". I'm just not sure how feasible that is for somebody who's going through contractions and having a baby to have a mask on. So, think about that as your patients come in with febrile

illnesses. So certainly a majority of the questions I've been fielding and Pat Cota, our Executive Director for the Georgia OB/GYN Society, has been fielding have to do with the idea of vaccinating pregnant women and certainly this is on our minds as we're preparing for this flu season. So can I have the next slide?

Some of you probably saw Dr. Jamieson and some of her colleagues here had a publication from just a few weeks ago in the MMWR. This is PRAMS data as you can see on this slide, Pregnancy Risk Assessment Monitoring System in Georgia, this is our state and Rhode Island, have data about influenza vaccinations. The methodology for this study is a questionnaire is mailed to women two to six months postpartum. And as I said previously, Georgia and Rhode Island collect influenza vaccine information for the seasonal influenza starting in 2004. Next slide.

And this is the graph directly from that publication in the MMWR just a few weeks ago. So, as you can see, not very good uptake in either state, really, this vaccine. So - and to the credit of Dr. Jamieson and some of the other authors, they dug a little deeper and tried to find out why, which is on the next slide I believe.

So here are the reasons for not receiving a flu vaccination in this recent report. And I think all of these are - probably - can be overcome by educational efforts such as the one we're engaged in today. So "I usually don't get the flu vaccine" was the number one reason, and certainly healthy young people usually don't get the seasonal influenza vaccine. As you heard from the previous speakers, even women without underlying illnesses are at risk for serious complications from both seasonal and for H1N1 flu. So that's a good point of education for providers and their patients. So, "My physician did not mention anything about flu vaccine during my pregnancy." Certainly this has been in the news enough, you would think over the past few weeks. We have also received two broadcast emails from our national organization The American College of Obstetricians and Gynecologists, directly from our President of the organization, that have tried to anticipate this problem and you heard about some of the planning for vaccination, again, with the previous speaker. "I was worried that flu vaccination might harm my baby." We have recently analyzed the publications concerning flu vaccine that date back almost 40 years, a little longer than 40 years, actually, and those results will be published soon in the American Journal of Obstetrics and Gynecology, but they can really be summarized on one slide, one of my slides that is coming up earlier.

The last reason I have up there for a quarter of the patients was, "I was in my first trimester during the flu season." As you heard previously, that was a recommendation several years ago to avoid giving the vaccine during the first trimester. And that went away at least two or three flu seasons ago. So give the vaccine, as said previously, in any trimester. Can I have the next slide please?

There have been several interventions, as far as provider education and interventions to increase vaccination rates in healthcare workers and pregnant women, and that type of thing. And the group at Baylor has been at the forefront in presenting some of this information. So I have summarized, in my own version, of what's going on here - of what's going on and what might help you increase vaccination rates. Standing orders in the office and hospital settings have

always been useful for vaccination. In other words, for all your postpartum patients, if you have the seasonal influenza vaccine right now there should be a standing order to give that vaccine to them or to give it in your office without having to do extra paperwork. And that will increase your compliance as far as getting these people vaccinated.

I mentioned the broadcast email that the American College of Obstetricians and Gynecologists has already put out. There's also been information and we've received several broadcast emails at Emory, and I'm sure you all have, concerning the availability of flu vaccine - where it's going to be given, when it's going to be given, and that's always a useful way to communicate within an office or within a multi-specialty clinic. One of the interesting things, I think, about this data from Baylor, is that professional education really starts at the ground up. So, office personnel and basically anybody who's interacting with patients really should be aware of the benefits of flu vaccination and that's one of my last slides that I'd like to talk about. So it's really a bottom up effort.

So one of the, again, recommendations from this group is best practices. And within the Emory system we have an OB/GYN who's head of our Quality Assurance Program and she has certainly taken the lead as far as making this a patient safety, quality assurance type of issue. So in her role as that - as that person within our system at Emory, that is the best practice. And so that has been advocated as a way to increase individual providers providing this vaccine.

Most OB/GYN offices are single practice specialty groups. If you have a person in the office who's assigned to give the vaccine, to know everything about the vaccine, to know where the VIS statements are about the vaccine, that certainly makes things smoother, and we have personal experience with that at Emory and that's one of the things we did several years ago and really has helped us in our own practice. Next slide.

I mentioned this previously. The first publication that we could find about influenza vaccine in pregnancy was in 1964; it was in the Journal of Obstetrics and Gynecology. It was a reaction to the pandemic of flu that happened in the late 50s and subsequently there have been multiple other publications about the safety of influenza vaccination during pregnancy. The good news for all of the providers who are on the line is that none of these studies have identified any maternal or fetal problems with influenza vaccination and most of these studies are a very reasonable size to detect common problems. So - but a very consistent finding over four or five decades, has been that this vaccine appears to be safe in the published literature.

So, I'm going to finish with a couple of slides from the New England Journal of Medicine here. This prospective randomized trial about the benefits to mothers and to babies has been mentioned previously. That was in the New England Journal of Medicine approximately one year ago. So let's go to the next slide.

This is why one of the - I wanted to introduce this concept of cocooning to finish up here. So, these are data from an earlier publication in the New England Journal of Medicine and some of the authors for this study are on the line. This is seasonal flu from a few seasons ago. But basically, you can see the lack of protection - these, especially young children as far as influenza associated mortality, and this is the reason to give the postpartum patients and the other

caregivers, people that'll be around the newborn baby less than six months old, this vaccine. And you saw that reflected in the ACIP recommendations but dramatic data again here from some colleagues at the CDC.

And then my final slide is a slide from the perspective randomized trial that was in the New England Journal of Medicine about a year ago. So, you can see this would be an obvious way to prevent what's happening on the previous slide, as far as vaccination. Half the women in this group data got the seasonal influenza vaccine, the trivalent vaccine, and the other half got a different vaccination. And so the babies were followed and you can see this reduction over the length of the trial that these authors from Hopkins and from Emory reported.

There's certainly other graphs within this article and I would encourage you, if you're curious about this, to look this up because the data is pretty dramatic plus it's very consistent. If you look at maternal illnesses, you would have the same graph. If you look at any respiratory illness in a baby, you would have a very similar graph. So the protection we know from the influenza vaccination goes into other areas as far as illness to protect the babies and newborns from some of the respiratory things, not just the influenza illness, but some of the common pulmonary and cardiac complications that go along with the flu season. We usually think of those I think in the elderly population but certainly this very nice study that was in the New England Journal of Medicine makes those benefits clear for the pregnant patient, as well as the newborn infant. I think that is my final slide.

[Alycia Downs] OK. Great. I think we can open up the lines for the question and answer session now.

[Coordinator] Thank you. At this time if you'd like to ask a question, please press star one on your touchtone phone. You will be prompted to state your name so please check your mute button. Again, to ask a question, please press star one. To withdraw your question, press star two. One moment. [PAUSE] Miss Kilborn, your line is open.

[Kilborn] Yes. I have a question about the mask use in the laboring woman. My concern is if the woman is in the labor and delivery area, why would she be wearing a mask? Why would not the providers be wearing the mask and then save the woman the discomfort of trying to struggle with a mask? [PAUSE] Hello. [PAUSE]

[Coordinator] I'm sorry. Did you get your question answered?

[Kilborn] No. I got cut off. Can you hear me okay?

[Coordinator] I show your line is still connected. Can you - Alycia, can you hear her? Actually, Alycia's line has disconnected. One moment.

[Kilborn] Oh, okay. [PAUSE]

[Coordinator] Excuse me. Alycia's line is connected again.

[Kilborn] Okay. Can I just repeat the question?

[Alycia Downs] Yes, please.

[Kilborn] Okay. Once the woman's in the labor and delivery area and she's away from the public, why would we require that *she* wear a mask? Why not just the people providing the care? Because if the mom already is suspected or has it, it's kind of late for her. I'm not sure the - if I understand the rationale for the mother doing that if she's in a room by herself or just with the healthcare providers.

[Denise Jamieson] The rationale was to protect not only the other people in the room but also to protect the baby during the labor and delivery process.

[Kilborn] Okay. But my point is, you know, during - I mean the healthcare workers can protect themselves by putting on a mask during the delivery process, so why would we require the mom?

[Denise Jamieson] Right. The idea was to protect not only the other people in the room but also to protect the infant during the process of birth. So you're - I think you heard Dr. Ault say earlier we recognize that there may be problems with a mask being comfortable for the mom during the interpartum process and that's why there's a caveat that, you know, if tolerable. The idea is to decrease the amount of secretions, you know, during pushing and so forth, decrease the amount of secretions that are in the room and sort of contaminating everything and to try and protect again, not only the healthcare workers and visitors who are in the room, but also to protect the baby once the baby's born.

[Kilborn] I can understand the baby...

[Denise Jamieson] ...and virus from contaminating surfaces and so forth.

[Kilborn] Okay. Thank you.

[Coordinator] Our next question comes from Phil Camerly. Your line is open.

[P. Camerly] I have a question about this idea of cocooning and should pregnant healthcare workers be cocooned? And then the other related one is what about visitation rights to either the OB ward or to the OB clinic? Should children or are there some people that should be - not be allowed in?

[Kevin Ault] This is Kevin Ault. I was trying to introduce that idea with the slides. So the - my concept of cocooning is that we vaccinate the people around the newborn - the siblings, the other people in the household, the partner of the pregnant patient so to try to protect the baby because certainly we're not going to vaccinate babies less than six months old. So - but I'm not sure that really answers the points that you're bringing up. Before the call started, we were trying to hunt around for guidance about keeping siblings out of the hospital and really couldn't find anything solid. That is being commonly implemented I think in some of the Georgia hospitals

and certainly, you know, from personal experience, I've seen that during RSV season so I don't think that's that unusual, as far as hospital infection control policies. Then what was your first question?

[P. Camerly] Pregnant healthcare workers.

[Kevin Ault] So, they would be vaccinated and be under all the same precautions for both groups really. There are a fair number of people that fall into several groups on that grid, so.

[Denise Jamieson] This is Denise Jamieson. Just to follow up on the visitation restrictions. So that is, as Dr. Ault mentioned, that is not something that CDC specifically has guidance on but it may be a measure that hospitals implement and are implementing in order to reduce the risk of transmitting disease in the hospital. So limiting young visitors to the hospital and different age limits have been set. But again, CDC doesn't have any specific guidance on that.

[P. Camerly] On the pregnant healthcare workers, you have a slide near the end that showed those who were vaccinated versus controls. Kind of lower rate - I think it was about a third the rate of influenza. So it's obviously not a guarantee - a better offer but it's not a guarantee. So even in healthcare workers who've been vaccinated if they're pregnant, should they have different duties? Should they be reassigned to reduce exposure?

[Denise Jamieson] I think you're getting at the issue that has come up several times is whether pregnant healthcare workers in the hospital settings whether different infection control procedures should apply to them versus non-pregnant healthcare providers. And the current guidance is obviously for precautions to be taken by all healthcare providers and for those women who are pregnant and in performing particularly high-risk procedures that they may consider reassignment, such as suctioning, you know, an intubated viremic patient that hospitals may consider reassigning those women to lower risk activities.

[P. Camerly] Thank you.

[Coordinator] Our next question comes from Linda Green. Your line is open.

[L. Green] Thank you. My question relates to repeated exposure of a pregnant woman and recommendations for chemoprophylaxis. Our obstetrical group was concerned with women, for example, who might be teachers, who might have repeated exposures. Do we recommend a course every time they have an exposure?

[Sonja Rasmussen] This is Sonja. I think that's a difficult question to answer. I think that it's important to recognize chemoprophylaxis can be considered; it's not a must. And that it's really clinical judgment based on the type of contact. And close contact - you saw the definition of close contact was pretty specific. And it was pretty close contact. Maybe a childcare worker with a child in their lap might have that kind of close contact. A teacher with a child in the room that was using appropriate hand hygiene would be likely to be of less risk. So it's going to be a situation I think where clinical judgment is going to have to come into play. I think the other

thing is that there is an alternative to chemoprophylaxis for close monitoring of that pregnant woman and early treatment.

[L. Green] Thank you.

[Coordinator] Our next question comes from Michael Cooper. Your line is open.

[M. Cooper] Thanks. I'd like to thank you all for a really great presentation. Lots of good information. My question is kind of basic. Does H1N1 confer any more or less risk for pregnant women compared to seasonal flu?

[Denise Jamieson] We don't have great data to say definitively that this 2009 H1N1 is more severe in pregnant women. Those comparisons are hard to make. But anecdotally it certainly seems like these women have a more severe and rapid deterioration than compared with seasonal influenza. So my qualified answer is yes I do think that it's fundamentally different than seasonal influenza in terms of morbidity among pregnant women. But again, our data is somewhat limited because we don't have great data about seasonal influenza in pregnancy given that most of what we know about it is based on hospitalizations during influenza season. But not - there's not a lot of testing, not specifically. Can't specifically compare rates of seasonal influenza versus novel or 2009 H1N1.

[Kevin Ault] The way I've been answering that question is neither is good. So, you know, that's why we're trying to get everybody vaccinated for both.

[M. Cooper] No. No. Certainly neither is good. But it kind of speaks to the issue of how you use your personnel. I work for the Army and there's been much talk of, you know, keeping pregnant women who are working in the hospital setting giving them different duties. And then the question comes up well, if we don't do that during the normal flu season, should we be doing that during the normal flu season? Is that something that you can do? I mean you really - you don't have - you really have difficulty replacing people every few months because it's a different season, if you know what I mean.

[Denise Jamieson] I mean I think - this is Denise Jamieson again. I mean I think the one thing that has been remarkable is that these women do seem to deteriorate rapidly without antiviral treatment. So the key is, once you suspect influenza to go ahead and treat with oseltamivir.

[M. Cooper] Thank you.

[Coordinator] Our next question comes from Joe Cruise. Your line is open.

[J. Cruise] My question was answered earlier. I'm good. Thank you.

[Coordinator] Our next question comes from Jeannine Yakavelli. Your line is open.

[J.Yakavelli] Hi. My question is about the protection for the infants after six months. So if a mother receives it during pregnancy, has there been any studies to show that it lasted that they will then again need the double dose of H1N1 if they're below nine years old?

[Denise Jamieson] I'm not sure if any of the vaccine experts on the phone have information about that. I don't believe that there are data available on that specifically. I would think that after six months they would need to get the vaccine.

[J.Yakavelli] Okay.

[Coordinator] Our next question comes from Elaine Landi. Your line is open.

[E. Landi] Hi. My question was answered from the previous discussion.

[Coordinator] Our next question comes from Dr. Goodwin. Your line is open.

[Dr. Goodwin] Thanks. Is there any evidence that women who - pregnant women who have been immunized during pregnancy can be handled a little bit differently in terms of chemoprophylaxis decision-making or isolation from their newborns. It would seem intuitive to me that, particularly for these iffy situations, if a pregnant woman has received vaccine then it might be easier to kind of forego some of these decisions that might not be quite acceptable to the woman, particularly after delivery, et cetera.

[Denise Jamieson] I think you're right. You bring up a good point that we're going to have to reevaluate the current guidance when the 2009 H1N1 vaccine is available. Right now, we don't even have the basic studies for effectiveness of vaccine in pregnancy. But once we do have some information about the vaccine in pregnancy then we will need to consider revising the guidance and decide how it needs to be revised in light of the fact that pregnant women will be vaccinated.

[Dr. Goodwin] Thank you.

[Coordinator] The next question comes from Jerome Rosenstein. Your line is open.

[J. Rosenstein] Hi. I saw that recommendation for the 2009 H1N1 vaccination program is to in addition to giving it during pregnancy to also give it in postpartum visit. I don't recall that being a recommendation in the past with the seasonal flu. Is the seasonal flu vaccine also recommended to be given in the postpartum setting?

[Kevin Ault] I believe caregivers are in the group for both seasonal and the H1N1. So that's a good time to capture people is the postpartum visit when they're in the hospital. But I'll defer to somebody else if they have better information than me.

[Denise Jamieson] Hi. Could you just clarify your question? Did you mean that women should get vaccinated twice? Is that - was that your question?

[J. Rosenstein] No. Whether they - if they had not already been vaccinated should they be vaccinated at their six-week postpartum visit? Or if they have been vaccinated during pregnancy should they be vaccinated again?

[Denise Jamieson] No. I don't think there's any recommendation to vaccinate again. So if they received a vaccine during pregnancy then you're okay. And then if they did not then you should vaccinate them at their six-week postpartum visit.

[J. Rosenstein] Okay. Thank you.

[Coordinator] Our next question comes from Tina Lewis. Your line is open.

[T. Lewis] Hi. My question is an infection control question about the infant in the postpartum. Once the baby has been in with the mother even if she has been wearing a mask, changed her gown, strict hand hygiene, do you allow the baby to return to the newborn nursery?

[Denise Jamieson] So this, as I mentioned, this guidance has been extremely - implementing this guidance we've heard from a lot of partners has been - and providers - has been extremely problematic in that what do you do with an infant that's potentially infected in terms of keeping it in the mother's room versus sending it back to the newborn nursery. As I mentioned, our current guidance suggests that mothers should avoid close contact with the infant until they have antiviral medication for 48 hours, their fever is resolved and she can control her cough and secretions, which means that up until that point the baby has to be housed somewhere. After that point it's a bit easier because then the baby can be in the room with the mother. And it's that period of time that we're trying to work out exactly how hospitals are implementing that guidance because you do have to consider that the baby is potentially infected.

[T. Lewis] So you're recommending that at that point the baby stay with the mother?

[Denise Jamieson] No. Currently we're recommending that until those conditions are met, 48 hours, fever resolved, controlling coughs and secretions, until that point the baby - you should consider - the mother should consider avoiding close contact.

[T. Lewis] After that point.

[Denise Jamieson] ...the baby can be housed with the - in the mother's room.

[T. Lewis] And should stay there?

[Denise Jamieson] And should stay there. Correct.

[T. Lewis] Okay. Okay. Thank you.

[Alycia Downs] Can we take one more question?

[Coordinator] Our next question comes from Dan Eller. Your line is open.

[D. Eller] Yes. Thank you very much. I enjoyed that - the talk. Actually had two quick questions if I could. One is for pregnant moms who are allergic to eggs. Are there any alternatives as far as vaccination is concerned? And the second is in the outpatient office setting when you've isolated somebody who may be infected, what type of protocol should there be for turning over the room for the next patient as far as how long does the - will the virus survive on surfaces and things of that nature?

[Suchita Lorick] Hi. I'm going to answer the first question about... ..egg allergies, sorry. So the egg allergy issue is the same as for seasonal flu. And I think we have to, you know, as clinicians try to do a good job of trying to establish if it's a real egg allergy and what sorts of symptoms they've experienced. But if they have a documented egg allergy with seasonal flu vaccine or just in general then unfortunately there is no alternative for vaccinations. And we have a good question and answer set for clinicians on vaccination on our CDC Web site, so I would refer you to that. And there's a more detailed explanation related to the egg allergy question on there.

[Kevin Ault] I'm not sure we know the answer between the people in this room about the how to turn over a room but I suspect you're local hospital has a respiratory and isolation protocol that the environmental engineering people follow. And I don't know why this would be any different than what you'd be doing any other time since it's a droplet-borne disease.

[Denise Jamieson] Is there anyone else on the line who can offer more details on that? All right. Thank you.

[Coordinator] This question is from Ken Rosenberg, your line is open.

[K. Rosenberg] What do we know about the Canadian study that just came out? I've seen the results but I have no idea what the actual content is about getting seasonal flue vaccine increases the risk of getting H1N1.

[Sangeeta Warren] This is Sangeeta Warren with the Vaccine Implementation team. What we know so far is that folks at CDC are looking at the data. As far as I know, those haven't been officially published so we haven't had a chance to look at the official published article. But we've also looked at data in-house and we do not see an association with data from the U.S. and also folks have looked at data from Australia and that association is also not there. So we're continuing to look at the data and once it's officially published, I'm sure we'll put out a statement. But at this point, CDC is recommending that folks get seasonal flu vaccination.

[K. Rosenberg] Thank you.

[Coordinator] Next question is from Leslie Stanfield. Your line is open.

[L. Stanfield] Hi. CDC advises separation of the mother and baby but we're having trouble finding a place to put these babies. Do you have any examples of what other hospitals are doing and where they're placing these babies? And if you do place a mask on the mother can we put the baby into the regular nursery?

[Denise Jamieson] This is Denise Jamieson. As I mentioned in the talk, this has become a very problematic issue and we are looking at revising. We're reviewing this guidance and may revise this guidance in the near future. But basically you asked about how nurseries are separating potentially ill or exposed infants from well infants and there have been some creative examples like plexiglas in the middle of a nursery to divide a nursery into two parts. And as we said, once the following conditions are met - antiviral medication for 48 hours, resolution of the fever, and the woman being able to control cough and secretions - then the infant can be kept in the room with the mother.

[L. Stanfield] Okay. Thank you.

[Denise Jamieson] And again just to clarify, that guidance – the mother should consider avoiding close contact. So it's permissive and I know we have heard that different hospitals have handled this different ways.

[Kevin Ault] That's exactly what we're doing at the hospital that Dr. Jamieson and I practice at is "should" - a permissive statement. So we also have a little overflow area that we're going to reserve for isolation practices, and we have the luxury of having some extra room and it's certainly not the nicest part of the hospital but it will be functional for the next few months.

[Coordinator] The next question is from Elizabeth Campbell. Your line is open.

[E. Campbell] Yes. I actually have a patient currently that's pregnant that had Guillain-Barré back in 2002. Everything resolved, she's doing fine and really wants the vaccine and I'm really not sure what to tell her.

[Alycia Downs] Do we have somebody from the safety team on the line?

[Pedro Moro] Yes. This is Pedro Moro.

[Alycia Downs] I'm not sure if you heard that question Pedro. It was about GBS and vaccination, what our recommendation on those are currently.

[Pedro Moro] Well, that's one contraindication actually. The patient has had GBS previously then she should not be given [the vaccine]. That's what I know.

[E. Campbell] So, do I just not treat her at all and wait for her to have symptoms of either of these?

[Pedro Moro] Well, what I said is that if you follow those guidelines, the patient should not receive the vaccine.

[E. Campbell] Okay. Thank you.

[Coordinator] Next question is from Erin Morelli. Your line is open.

[E. Morelli] My question is regarding what the recommendations are for breastfeeding in moms who are infected with H1N1.

[Denise Jamieson] So again, the current guidance is that mothers should consider avoiding close contact, and that includes breastfeeding, until those three conditions are met. However, during this time, since it's a critical time for establishment of breastfeeding, it's critical that they try to pump if they're well enough during this time period. And then after those conditions are met, the woman should be encouraged and supported in breastfeeding. However, she should wear a mask, change to a clean gown or clothing before she breastfeeds, and of course, adhere to strict hand hygiene and cough etiquette. So we are promoting and supporting breastfeeding if the mother is well enough.

[E. Morelli] Does mom need to dump the milk while she is in the immediate phase?

[Denise Jamieson] No, the mother does not need to dump the milk and there's not evidence of transmission via breast milk.

[Erin Morelli] Thank you.

[Coordinator] Next question is from Dr. Skelton. Your line is open.

[Skelton] Hi. My question is how many courses of Tamiflu can you give? I'm an obstetrician gynecologist and we're concerned about people with multiple colds calling in for Tamiflu. My other is a research question and I want to know why we didn't consider doing a recombinant vaccine that included both seasonal and H1N1?

[Denise Jamieson] Multiple courses for treatment or for prophylaxis or both?

[Skelton] For both. The patient calls in, she says I have the flu and it's the fourth time she's called in.

[Denise Jamieson] Well, I think that would be an appropriate time to examine her and get an idea of whether you think she really has the flu. Of course you want to err on the side of caution, but no, I don't think there is any data to suggest repeated courses would be particularly a problem, but also I think that would be, you know, you'd have to use your clinical judgment as to the best course of treatment there, whether it's really flu or whether it's a cold. With regard to prophylaxis, for repeated exposures, of course for prophylaxis it is a permissive statement there, as well. It can be considered. It's not should receive prophylaxis. So another option with prophylaxis is close monitoring and early treatment. So that is a possibility for pregnant women, as opposed to prophylaxis. And the other thing to keep in mind is that the prophylaxis is recommended for close contact. And you saw that there were specific guidelines for what was close contact. And one would expect that perhaps the person could be put in a situation where she didn't need to be in that close contact with patients with known or suspected influenza in the future.

[Sonja Rasmussen] With regard to the recombinant vaccination, I assume you mean combining all four strains together. I'm not the expert on this but I think the main concern was that we wanted to keep the H1N1 separate from the seasonal because we wanted to make sure that in the trials and we wanted to ensure adequate safety. And we wanted to make sure that it was recommended once it had been tested through the trials. So I think that was one of the reasons. But to be honest, I'm not sure if there is anybody else on the line who can provide a better answer to that on the CDC end.

[Alycia Downs] As an inquiry you can also send your email to coca@cdc.gov. So if you send that inquiry to us we can also try to get a response to you.

[Kevin Ault] Well, I was ACOG liaison for the ACIP meeting at the end of July and I don't know much about flu vaccine manufacturing, but I got the feeling that the ball was already rolling for the trivalent vaccine when this was discovered. So there was no way to backtrack and have a trivalent vaccine that included...

[Sonja Rasmussen] I think - yes, it was considered but for the reasons Dr. Ault also stated we did not go that way.

[Skelton] That makes sense because wouldn't you think they'd just make one?

[Coordinator] The next question is from Thomas Spader. Your line is open.

[T. Spader] Yes. Hi. I just wanted to clarify. Is it correct that there is no adjuvante in any of the H1N1 vaccine that's going to be available in the U.S.?

[Sonja Rasmussen] That is true.

[T. Spader] Thank you.

[Coordinator] The next question is from Lisa Siemens. Your line is open.

[L. Siemens] Thank you. I'm inquiring about the incubation period if there's any suspicion of the babies having transplacental acquisition and then the subsequent need for isolation immediately after birth if we think they've been exposed.

[Denise Jamieson] So, to date we haven't - most - as I said in the talk, seasonal influenza is not commonly transmitted transplacentally. There has been one case report of a novel strain being transmitted transplacentally. So we think the bulk of the deed, if infants are infected, will be after birth. And in fact, to date, there have not been reports of infants being infected after delivery. However, you're right in that these - I didn't go into it, but these considerations for obstetrics settings, you do have to consider the infant potentially infected and the infant would need to be isolated, either in the mother's room if it can be in the mother's room, or in a place in the nursery where they're not around other well infants.

[Coordinator] Next question is from Donnie Peterson. Your line is open.

[D. Peterson] Hi there. I'm just wondering if there is a concern about there being a shortage of the Tamiflu? And also, if we have a patient who had a confirmed case of H1N1, is there any reason to vaccinate her again now?

[Denise Jamieson] So you had a laboratory confirmed case of H1N1?

[Sonja Rasmussen] So right now the guidance that we have up says that any person who had H1N1 infection confirmed by RT-PCR is the only sets of persons that you should not consider vaccinating. But for all others, because you can't be sure if it was H1N1 or perhaps seasonal or another infection, you should go ahead and vaccinate them.

[Denise Jamieson] And with regard to the question about shortages, also Tamivere, CDC has been monitoring supplies of the medications closely. There have not been shortages of Tamiflu, of the adult formulation of Tamiflu. There have been some concerns about the suspension and this past week some information was released to - the suspension that is used for children - and this past week, some information was sent to pharmacists, through pharmacy organizations, about how the adult formulation can be made into suspension if there is a shortage in the area of suspension. So there has not been a shortage of Tamiflu. As you probably know, there is - the Strategic National Stockpile does have Tamiflu on hand and if shortages appear to be arising, the stockpile is available for release. I'm not sure if Dr. Peters or anybody else on the call wants to add anything to that.

[Phil Peters] No. I think that was an excellent summary and I guess I would just reiterate that the pediatric suspension is really the only formulation that's in lower supply. And there has been guidance given to pharmacies and really any retail pharmacy can compound the adult capsules into a suspension that could be given to children. But it is something for clinicians to be aware of as well, in case your patients are telling you that they're having trouble getting the pediatric suspension. You could call the pharmacies to advocate on their behalf and remind them that they can compound the pediatric suspension from the adult capsules.

[Denise Jamieson] Thanks.

[D. Peterson] Thank you.

[Coordinator] Dr. Steven Young, your line is open.

[S. Young] Yes. Thank you very much for an excellent presentation. My question has to do with patients who present and have not been vaccinated and then subsequently deliver. Should the - if the patient is infected at the time of delivery should the newborn be treated or just simply managed by isolation?

[Denise Jamieson] So if the infant - so the infant has been potentially exposed but has not shown signs of infection then they should be isolated and not treated.

[Steven Young] And not treated. Okay. Thank you.

[Coordinator] Next question is from Anita Holt. Your line is open.

[A. Holt] Thank you. I'm wondering if you can tell me when the clinical trials on pregnant women will be completed.

[Kevin Ault] Emory is part of the vaccine network that's doing that, that's an NIH-funded activity, and there are seven to ten sites around the United States and I think soon, within the next couple of weeks, would be the short answer for that. So relatively soon.

[A. Holt] Okay. Thank you.

[Coordinator] The next question is from Susan Grey. Your line is open.

[S. Grey] Hi. I've not seen any specific recommendations for management of the father-to-be when mom has potential H1N1 nearing delivery, at delivery, that timeframe. Anything to share on that how as far as prophylaxis and handling the baby, I mean assuming that he's been exposed.

[Kevin Ault] Well, if he's a close contact to the infected mother, then of course he would be a candidate for prophylaxis and he should be getting two vaccines, right? I'm looking for other people in the room shaking their heads, so he should be getting the H1N1 vaccine and the seasonal vaccine.

[S. Grey] Okay. All right. And to get prophylaxis, which seems obvious I've just not seen anything addressing that. So, all right. Thank you.

[Denise Jamieson] There are specific guidelines for that. I think you're right.

[S. Grey] Thanks.

[Phil Peters] This is Phil Peters. I would just say regarding chemoprophylaxis, we're really emphasizing its use on people who are close contacts and have high risk conditions themselves. So taking care of somebody who is a high risk person, like a very young baby, would not in and of itself be an indication, necessarily, for prophylaxis. But again, there's always lots of different potential situations and we really depend on clinical judgment really to make the best decision in individual situations.

[S. Grey] Okay. Thank you.

[Coordinator] Next question is from Joanne Ryan. Your line is open. [PAUSE] Joanne Ryan, your line is open. [PAUSE]

Next question is from Michelle Heavens. Your line is open.

[M. Heavens] Hi. I actually have two quick questions. The first, are there any specific guidelines out there for pregnant healthcare workers? I realize that one in making patient assignments should probably be mindful of the risk for a pregnant healthcare worker and should line [?] on the side of caution. However, some facilities may be reluctant to do that without any specific guidelines. And my second question is, earlier when you referred to the H1N1 vaccine, I believe you mentioned that there will be an inactivated and an activated version, similar to the seasonal flu vaccine. Will that also be the case for the H1N1 vaccine?

[Denise Jamieson] Yes. I'll just answer the vaccine question first. There will be a live attenuated nasal spray version that is not approved for use for pregnant women. And then there will be an inactivated version, a flu shot, that is approved for use in pregnant women for H1N1, just like there is for seasonal flu.

[M. Heavens] Okay. Thank you.

[Denise Jamieson] And the question about pregnant...

[Sonja Rasmussen] There is guidance in terms of pregnant healthcare workers. And in those cases, hospitals may consider reassigning pregnant women engaged in activities that they are at high risk of being exposed to lower risk activities.

[M. Heavens] Is there written specific information for pregnant healthcare workers or is it just specific to pregnant women?

[Sonja Rasmussen] No. There's specific guidance for pregnant healthcare workers that's posted on the web.

[M. Heavens] On the CDC web site?

[Alycia Downs] Yes. If you send an email to coca@cdc.gov we can send you that specific link.

[M. Heavens] Okay. Thank you.

[Alycia Downs] All right. If we can take one more question.

[Coordinator] Next question is from Carol Wilson. Your line is open. [PAUSE] Carol Wilson, your line is open.

[C. Wilson] Hello.

[Alycia Downs] Yes. Go ahead.

[C. Wilson] My question concerns the use of masks with pregnant women when they're in labor. If they are unable to tolerate the mask, what other precautions should we use? And also, has there been any further discussion about the type of mask? You are recommending surgical masks only?

[Denise Jamieson] So for the pregnant woman we are recommending a surgical mask should be adequate. And the idea is to just decrease the amount of secretions that are in and around the room to protect both the visitors and the healthcare providers, but as well to protect the baby once the baby is born. And again, the guidance that is if the mother can tolerate wearing the mask, it's a good idea again to cut down the amount of secretions that are contaminating surfaces and so forth. But if not tolerated, which we know can be problematic during labor, there's nothing additional that we would recommend other than the usual things of good hand hygiene and so forth.

[Alycia Downs] I'd like to thank our presenters for providing our listeners with this information today. I would also like to thank our participants for joining us. If you were unable to ask your question, please send an email to coca@cdc.gov. That email address again is c-o-c-a@c-d-c.gov.

The recording of this call and the transcript will be posted to the COCA web site: emergency.cdc.gov/coca within the next week. You have one year to obtain continuing education for this call. All continuing education credits and contact hours for COCA conference calls are issued online through the CDC Training and Continuing Education Online System, www2a.cdc.gov/tceonline.

We will be having another COCA conference call tomorrow afternoon at 2:00 PM Eastern on H1N1 vaccine safety. And the information for that conference call can be found on our web site as well. So thank you again for participating and have a wonderful day.

For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO, 24/7.