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Flu Vaccination During Pregnancy: Evidence and Guidance

Announcer:
You're listening to *VacciNation* on ReachMD. This episode is sponsored by CSL Seqirus. Here's your host, Ashley Baker.

Ashley Baker:
Welcome to *VacciNation* on ReachMD. I'm Ashley Baker, and today I'm joined by Dr. Flor Muñoz to discuss current evidence and recommendations for influenza vaccination during pregnancy. Dr. Muñoz is an Associate Professor of Pediatrics, Infectious Diseases, and Molecular Virology and Microbiology at Baylor College of Medicine in Houston. Dr. Muñoz, thanks so much for being here today.

Dr. Muñoz:
Thank you so much for having me.

Ashley Baker:
To start, Dr. Muñoz, we know that pregnancy can increase the risk of serious complications from influenza. What physiologic changes happen during pregnancy that can contribute to that increased vulnerability?

Dr. Muñoz:
Yes. We've known about influenza being bad for pregnant women from the moment we learned about flu. So, historically, during previous pandemics and even during influenza seasons, pregnant women tend to have more complications, meaning risk for pneumonia, respiratory failure, or even some other cardiovascular side effects, especially in the third trimester of gestation.

And this is partly due to the fact that we see, obviously, during pregnancy, a lot of physiologic changes, mostly related to the increasing size of the abdomen with the enlarging uterus. This results in compression of different areas of circulation, which also makes it difficult to breathe when you have pressure over your chest and reduced air capacity in your lungs because of that.

We also have a change in volume of the blood that circulates, and that makes your heart work a little bit faster and harder. And, certainly, all of this towards the end of pregnancy is a lot more enhanced. And so any respiratory condition really is going to pose a lot of problems to pregnant women.

I have to say something, though, that is really important. Pregnant women are not immunocompromised, so it's not a fact of lower immune responses or inability to fight infections. That is actually in good shape. It's really a lot of the physiologic changes and hormonal changes that occur that can predispose them to some complications from the flu.

Ashley Baker:
With that being said, if a pregnant patient contracts influenza, what are the potential consequences for both the mother and the fetus?

Dr. Muñoz:
Right. So it depends on when influenza occurs in pregnancy. So usually, we see that influenza can be a relatively common illness in pregnancy, and it could result in fever. And fever could be a problem, certainly because it causes inflammation. It might, in some cases, be detrimental for the first trimester of gestation.

We know that, again, a more severe case of influenza later in pregnancy could result in a start of or onset of labor that occurs before term. So premature births can occur in moms who have bad cases of the flu. We also have seen it triggering other inflammatory processes that could occur in pregnancy. Maybe, sometimes, it could be a trigger for hypertension to occur, or even for other fetal effects associated to that fever in the mother.

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Finally, I would say, again, the consequences to the mother's health in terms of causing, potentially, influenza pneumonia, high fevers, or other complications of influenza that may be related to myocarditis, myositis, and even central nervous system manifestations can be seen in pregnancy as well.

Ashley Baker:
One of the most common reasons patients hesitate to get vaccinated is concerns about vaccine safety. We've seen data accumulate from vaccine safety registries and observational cohort studies over the past several flu seasons. What does that evidence actually tell us about influenza vaccination during pregnancy?

Dr. Muñoz:
Absolutely. The main question that I have from mothers and parents in general when we talk about maternal vaccines is, is it safe? Is it safe for me? Is it safe for my baby? And what I can tell you about influenza vaccine, since it is a vaccine that we have been using for decades—I'm talking about at least six decades of experience with influenza vaccine—is that we do have a lot of accumulated safety data.

And basically, I can summarize all of this very briefly, because consistently, the data—regardless of the source, regardless of the country where this is studied—has shown that influenza vaccine in pregnancy is safe. We recommend it at any time in gestation. We have a lot more data in the second and third trimester, but even if moms receive the vaccine in the first trimester, the vaccine itself is not associated with any adverse outcomes of the pregnancy. It is well-tolerated by the moms. Of course, it could cause a little bit of muscle pain where the injection is given.

But, as a matter of fact, what we have seen is that pregnant women who receive their influenza vaccine have a lower risk of some of the complications that we see from influenza. So that's lower risk of having the flu, and, as such, lower risk of having preterm babies or having any other preterm labor or consequences of that.

Ashley Baker:
Building on that, patients often ask whether receiving the vaccine really benefits their baby as well. How do you explain the concept of passive protection through maternal immunization?

Dr. Muñoz:
Absolutely. So we call this maternal immunization a two-for-one benefit. So we vaccinate the mom and we protect the mom, but we also have a direct benefit to the baby. So the way this works is through passive immunity. We know—and this is something we've known for many, many years, by the time we started recommending vaccines in pregnancy for tetanus, for example, or influenza, in the middle of the last century—that, as a natural mechanism, any antibody that is an IgG antibody produced by the mother in her life, either because she had been exposed to an infection or because of a vaccination, is actually actively transported from the maternal circulation into the baby blood in utero through an active receptor and a pump mechanism in the placenta that allows for all these antibodies to be preferentially transported to the baby.

This is going to result, sometimes, in higher concentrations of antibody on the baby so that a baby who is born at term is going to have high titers of antibodies to anything the mom was exposed to in the past. And especially if she received a vaccine in pregnancy, those titers increase, so that from the moment of birth, the baby already has sufficient antibodies to protect, in the first six months of life at least, as the antibodies decay over time.

Ashley Baker:
For those just tuning in, you're listening to *VacciNation* on ReachMD. I'm Ashley Baker, and I'm speaking with Dr. Flor Muñoz about influenza vaccination during pregnancy.

So, Dr. Muñoz, the American College of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention recommend influenza vaccination during every pregnancy. Can you walk us through those recommendations and how they should inform vaccination discussions in practice?

Dr. Muñoz:a
Usually, the vaccine is available in the early fall, so we do recommend that women, especially those who are in the second or third trimester—so who will be delivering during the wintertime—receive their vaccine as soon as possible or as soon as it becomes available, say, September or early October. Any pregnant woman who will be pregnant or delivering during the flu season, which is typically somewhere—depending on where you are in the country—from October or November until February or March, should receive their influenza vaccine.

It's a single dose. It's a one-time, basically booster, because usually, we've either had flu or received flu vaccine in the past. And so,

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with a single dose during each pregnancy, you're basically assuring that both the mom and every baby that is born is going to have that increased level of protection during the wintertime, when it's most needed.

Ashley Baker:
With that in mind, what practical strategies have you found most effective for improving influenza vaccination rates among pregnant patients, both at the point of care and at a broader system level?

Dr. Muñoz:
I think it has been a challenge, because even though the influenza vaccine is widely available and many adults can receive it in in pharmacies, for example, or at their primary care providers, when it comes to pregnant women, I think that we have really understood that when the obstetrician or antenatal care provider actually recommends, offers, and has the vaccine at hand in their office is when we have the highest uptake of the vaccine.

It's very good if the obstetrician recommends it and offers it. If the mom has to go to a different clinic, say to their PCP, primary provider, or to a pharmacy to receive the vaccine, sometimes that interval results in lower overall actual vaccination. So the most important aspect I think in terms of a strategy is to really have antenatal clinics be able to have this culture of vaccination for influenza so that everyone in the clinic—the obstetrician, the staff, everyone—is looking after the mother's health and the baby's health and has that plan already in place at the beginning, right before the flu season begins and throughout the entire flu season, to make sure that everyone who comes for their routine care is able to receive their vaccine, ideally in the office. If not, as soon as possible before the flu season begins, at any venue that is able to provide it.

Ashley Baker:
As we come to the end of our program, Dr. Muñoz, what's the most important message you'd like clinicians to remember heading into influenza season when caring for pregnant patients?

Dr. Muñoz:
I think that the most important message is that we understand the potential consequences of influenza disease in pregnancy and also in early life, and that we do have, actually, methods of prevention through vaccination that are known to be safe and effective through data that has accumulated over decades.

Being certain that women receive their vaccine on time, so before flu season starts circulating, is very critical. Because if we wait until once the flu season begins, just as in any case, the chances of getting exposed to the virus are going to be very high. And it does take a little bit of time, at least a couple of weeks, to have full protection after you receive a vaccination. So you don't want to wait until the flu starts circulating.

You also don't want to drop your guard in terms of the antenatal care provider and stop offering the vaccine for influenza once the virus starts circulating. Because, even though it might not be optimal—it's better to do it before—if you give it during the flu season, you still have a chance of protecting the mom and the baby for the rest of the flu season.

And you know, sometimes we have biphasic seasons. We have seen it, just as in this most recent season, where you have a wave of influenza A, for example, and then we have a wave of influenza B. And so that protection is going to be lasting over a long period of time for both the mom and the baby.

Ashley Baker:
With those final thoughts in mind, I want to thank my guest, Dr. Flor Muñoz, for sharing her insights on the importance of influenza vaccination during pregnancy. Dr. Muñoz, it was great having you on the program.

Dr. Muñoz:
Thank you. It is my pleasure.

Announcer:
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