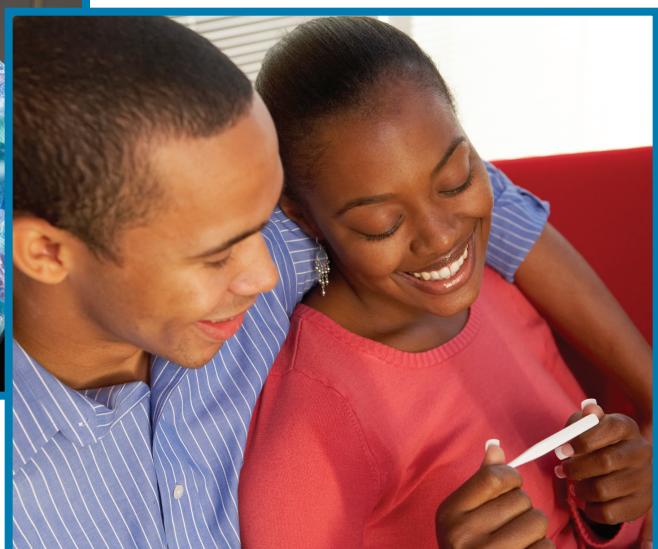


Responding to Influenza

A Toolkit for Prenatal Care Providers



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention

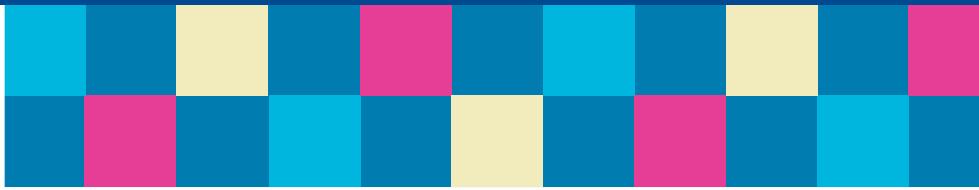


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Responding to Influenza: A Toolkit for Prenatal Care Providers

The purpose of “Responding to Influenza: A Toolkit for Prenatal Care Providers” is to provide basic information and communication resources to help prenatal care providers implement recommendations from CDC’s guidance at <http://www.cdc.gov/flu/professionals/>

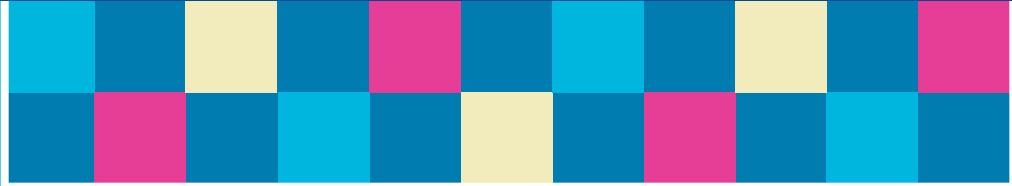
The toolkit includes the following information, as well as tools to use with patients.

Background Information about Influenza and Pregnancy

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Background Information About Influenza and Pregnancy

Main Messages

These are the important points for clinicians to know about pregnant women and influenza. <http://www.cdc.gov/flu/professionals/>

Encourage influenza vaccinations for pregnant women.

To prevent influenza, encourage your pregnant patients to get the trivalent inactivated seasonal influenza vaccination during any trimester. Pregnant women who get influenza illness are at high risk for complications. The 2011–2012 seasonal influenza vaccine protects against 2009 H1N1 influenza.

Treat influenza-like illness quickly.

Treat pregnant women who have influenza-like illness as soon as possible with antiviral medications based on the sensitivities of the current circulating viruses. Symptomatic women who are postpartum—or have lost a pregnancy—within the past two weeks should also be treated immediately with antivirals. Oseltamivir (Tamiflu[®]) is currently preferred rather than zanamivir (Relenza[®]) to treat 2011–2012 seasonal influenza.

Don't wait for test results to initiate treatment.

Treatment should not be withheld pending results of testing for influenza or based on results of a rapid influenza diagnostic test because the test can be falsely negative. Treat if the woman has influenza symptoms.

Use updated treatment recommendations.

The current influenza antiviral treatment and chemoprophylaxis recommendations for pregnant women are consistent with CDC recommendations for treatment and chemoprophylaxis for high risk groups. <http://www.cdc.gov/flu/professionals/antivirals/index.htm>

Treat fever.

Fever can increase the risk of some types of birth defects so it's important to treat fever. Acetaminophen is the best option for treatment of fever in pregnancy.



Managing Flu and Pregnancy

Use updated intrapartum and newborn guidelines.

Facilities should consider temporarily separating an infected mother from her infant. All feedings should be provided by a healthy caregiver if possible. Institute standard and droplet precautions.

Watch for updates.

Recommendations may change, based on new information.

<http://www.cdc.gov/flu/professionals/index.htm>



Background

Observations among pregnant women

- Changes in immune, respiratory, and cardiovascular systems during pregnancy result in increased risk for pregnancy complications from influenza.
- Evidence that influenza can be more severe in pregnant women and infants is available from observations and studies during previous pandemics, including 2009 H1N1, and from previous studies among pregnant women who had seasonal influenza.

Clinical Presentation

Respiratory symptoms

- Symptoms include cough, sore throat, runny nose, fever, body aches, headache, and chills.
- Fever is not always present.

Increased risk

- Pregnant women with influenza are at increased risk for severe complications from influenza.
- Women who have delivered or lost a pregnancy within the past two weeks are also at increased risk from influenza-related complications.

Complications

Severe influenza illness has been associated with maternal deaths and adverse pregnancy outcomes in some cases.

- For some pregnant and recently delivered women, illness might progress rapidly and might be complicated by pneumonia and acute respiratory distress syndrome requiring mechanical ventilation.
- Deterioration is often rapid and unexpected.
- Fetal distress associated with severe maternal illness can occur.
- Fever is a known risk factor for some birth defects.

Prevention

Vaccines

It's important to encourage your pregnant patients to get vaccinated against influenza. Give seasonal influenza vaccine to all pregnant women regardless of trimester. The 2011–2012 seasonal influenza vaccine protects against 2009 H1N1. Seasonal flu vaccination

- Reduces the risk for influenza in pregnant women.
- Has demonstrated no increased risks of maternal, fetal, or infant complications during decades of safety monitoring.
- Helps protect infants up to 6 months from influenza illness. These are infants for whom the vaccine is not effective because they do not mount an adequate immune response.
- Should be given to postpartum women who did not receive the vaccine while pregnant, reducing the risk for mother getting sick, thereby, helping to provide indirect protection for infants <6 months. Can provide a cocoon of immunity, protecting the baby from exposure, if other household contacts and caregivers are vaccinated, too.

Choose type of vaccine

- Inactivated vaccine (flu shot) is recommended for pregnant women. Live attenuated vaccine (nasal mist) is **not** licensed for use in pregnant women.
- Thimerosal, a preservative, is added in small amounts to multidose vials of influenza vaccine. Although there is no evidence that thimerosal is harmful, a thimerosal-free formulation is available for pregnant women in single dose syringes.
- At this time, vaccines made for the U.S. contain no adjuvants, such as squalene, even though they are not considered harmful.



Everyday Precautions

As with the general population, the risk for influenza infection can be reduced by encouraging a pregnant woman to take the following steps to protect herself and her unborn baby:

- **Wash her hands.** Wash hands often with soap and water, especially after coughing or blowing nose. If soap and water are not available, use an alcohol-based hand rub.
- **Use cough etiquette and hand hygiene.** Cough into elbow, or cover cough with tissue. Wash hands afterwards.
- **Carry alcohol-based hand rub.** If soap and water are not available to wash hands, use an alcohol-based hand rub.
- **Avoid touching her eyes, nose, and mouth.** Viruses spread that way.
- **Avoid sick people.** Make a plan for others to care for sick people who are suspected to have influenza in the household.
- **Encourage cough etiquette and hand hygiene among all close contacts.**



Treatment and Chemoprophylaxis

Treat with oseltamivir (Tamiflu®)

- Treatment with oseltamivir is recommended for pregnant women with suspected or confirmed influenza and can be prescribed during any trimester of pregnancy.
- Treat symptomatic women regardless of seasonal influenza vaccination status since the vaccine is not 100 percent effective.
- Currently, oseltamivir is preferred due to its systemic effect. Be aware that the influenza viruses at this time are resistant to amantadine (Symmetrel®) and rimantadine (Flumadine®).
- Post-exposure chemoprophylaxis can be considered for pregnant women who have had close contact with someone likely to have been infectious with influenza. Zanamivir may be the preferable antiviral for chemoprophylaxis of pregnant women 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.
- All pregnant women should be counseled about the early signs and symptoms of influenza infection and advised to immediately call for evaluation if clinical signs or symptoms develop while pregnant or in the first two weeks after delivery or pregnancy loss. Early treatment is an alternative to chemoprophylaxis for some pregnant and postpartum (including following pregnancy loss) women who have had contact with someone likely to have been infectious with influenza. Clinical judgment is an important factor in treatment decisions.
- Recommendations for antiviral treatment and prophylaxis of pregnant women also apply to women for at least 2 weeks following the end of pregnancy, regardless of pregnancy duration.

Managing Flu and Pregnancy

Agent, Adult Group	Treatment	Chemoprophylaxis
Oseltamivir (Tamiflu)	75-mg capsule twice per day for 5 days.	75-mg capsule once per day for 10 days
Zanamivir (Relenza)	Two 5-mg inhalations (10 mg total) twice per day for 5 days	Two 5-mg inhalations (10 mg total) once per day for 10 days

- Antiviral treatment for critically ill pregnant women with suspected or confirmed influenza should be the same as for other critically ill non-pregnant patients.
- The oral formulation of oseltamivir appears to be adequately absorbed with nasogastric tube administration.

Promote quick access

Rapid access to antiviral medications for pregnant women is essential. Best results occur when treatment is started within 2 days of symptom onset.

- Educate women and staff. Actions that support early treatment initiation include the following:
 - Inform pregnant women of signs and symptoms of influenza and the need for early treatment after onset of symptoms.
 - Ensure rapid access to telephone consultation and clinical evaluation for patients with onset of symptoms as well as patients who report severe illness.

Treat fever

Fever in pregnant women should be treated immediately because of the risk that it poses to the fetus. Acetaminophen is the best option for treatment of fever during pregnancy.

Watch for updates

Recommendations may change, based on new information.
<http://www.cdc.gov/flu/professionals/index.htm>

Infection Control

Control infection in Obstetric Settings: General Principles

- Make sure all staff have received influenza vaccination.
- Ensure adherence to recommended infection control measures.
- Identify and separate ill persons from healthy persons promptly.
- Institute droplet and standard precautions and isolation for ill pregnant and postpartum women.
- See updated guidance for acute care settings.
<http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>

Intrapartum and Newborn Considerations

If mother is ill with influenza virus infection

- Treat ill pregnant or postpartum woman with antiviral medications.
- Consider temporarily separating an infected mother from her infant. If separate facilities are unavailable, keep the newborn ≥ 6 feet from the ill mother, preferably with a physical barrier. Have a healthy adult present to care for infant.
- Monitor infant closely for clinical illness that might suggest influenza infection.

Infants are at high risk for severe illness from influenza infection. Infants who are breastfed are less vulnerable to infection and hospitalization for severe respiratory illness than infants who are not breastfed. Encourage breastfeeding early and often for all infants. Being on antiviral medications or recently having had a flu vaccination are not contraindications for breastfeeding.

- Eliminate unnecessary formula feedings so that breastfed infants receive most of their nutrition (and maternal antibodies) from breast milk.



Managing Flu and Pregnancy

- Recommend that healthy adult feed infant with ill mother's pumped breast milk, if possible.
- Instruct parents and caretakers about how to protect their infant from the spread of infectious agents, like influenza virus, that cause respiratory illnesses:
 - Practice hand hygiene and cough **etiquette** at all times.
 - Keep the infant away from persons who are ill and out of crowded areas.

If infant is ill, parents should be instructed to

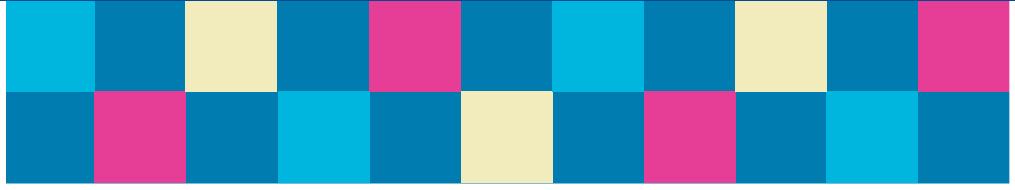
- Seek care immediately.
- Recognize signs of dehydration or other illness and when to seek care.
- Breastfeed early and often.

Watch for updates

Recommendations may change, based on new information.

<http://www.cdc.gov/flu/professionals/index.htm>





Materials for Pregnant Women

Print and give to your patients as needed.

**What Pregnant (or Recently Pregnant) Women Need
to Know About Flu**

**What Pregnant Women Need to Know About
Flu Shots**

Posters (8.5" x 11") to print for display in your office

- 1. Flu Shots**
- 2. Everyday Precautions**

What Pregnant (Or Recently Pregnant) Women Need to Know About Flu

A pregnant woman who gets flu has a greater chance for serious problems for her unborn baby and herself. Some pregnant women have died. For this reason, CDC advises doctors to give antiviral medicines that treat flu right away to pregnant women who have the flu.

Prevention

- Get your flu shot! This is the best way to protect you and your baby.
- Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based hand rub. Have your family do the same.
- Stay away from sick people.
- Cover your coughs and sneezes with a tissue or your sleeve. Encourage others around you to do the same.
- Avoid touching your eyes, nose, and mouth. Germs spread this way.

Preparation

- Know the signs and symptoms of the flu.
- Talk with your doctor about a plan to get treatment quickly if you get sick with flu symptoms.

Close contact with someone who has the flu

- If you have close contact with someone who has the flu, talk with your doctor about whether any treatment is necessary.
- Call your doctor right away if you get sick.

Signs and symptoms of flu

The signs and symptoms include

- | | |
|---------------|------------------------|
| ■ Fever* | ■ Cough |
| ■ Sore throat | ■ Headache |
| ■ Body aches | ■ Runny or stuffy nose |

*You might not have fever with the flu.

If you have flu symptoms, call your doctor right away. Take the medicine your doctor prescribes.

Recently given birth or lost a pregnancy

Women who have given birth or lost a pregnancy in the past two weeks also can get sick very quickly.

- Be sure to use everyday precautions.
- If you get sick with the flu, call your doctor right away.
- Take the medicine your doctor prescribes.

Fever in a pregnant woman

- Be sure you have a thermometer, and know how to use it.
- Treat fever with Tylenol® (or store brand) right away. Fever can harm your unborn baby.

Antiviral medicines

- If you are pregnant and have the flu, call your doctor right away. Take the medicine your doctor prescribes.

Breastfeed, if possible

Breast milk is the perfect food for your baby. Babies who are breastfed get sick from infections like the flu less often and less severely than babies who are not breastfed.

- You can breastfeed even if you have just gotten flu shots.
- Talk with your doctor if you get the flu.
- If you get the flu, pumping your breast milk and having a healthy adult give your baby the breast milk is a good way to protect your baby. You can breastfeed if you are recovering and still taking Tamiflu® or Relenza®.
- Flu can be very serious in young babies. If your baby gets sick, call your baby's doctor right away.

Remember: Protect Yourself, Protect Your Baby

- ✓ Get your flu shots — pregnant women need the seasonal flu shot.
- ✓ Take everyday precautions (Wash hands, cover coughs).
- ✓ If you have been exposed to someone who likely had the flu, talk to your doctor and watch for signs and symptoms of flu in yourself.
- ✓ If you start to feel sick, call your doctor right away. Take the medicine your doctor prescribes.
- ✓ Treat fever right away.

For more information, go to

<http://www.cdc.gov/flu/protect/preventing.htm>

or call 1-800-CDC INFO (1-800-232-4636).

What Pregnant Women Need to Know About Flu Shots

Getting the flu shot is the single best way to protect against the flu. It's important to get the seasonal flu shot when you are pregnant. Pregnant women who are healthy have had severe illness from the flu. Some have even died. It's urgent for pregnant women to protect their unborn babies and themselves from the flu! Flu shots protect both mothers and their babies from getting the flu.

- **Types of vaccine.** Pregnant women should get the flu shot given with a needle. The nasal spray vaccine, FluMist®, should not be given to pregnant women.
- **Safety of the flu shot.** The seasonal flu shot has been given to millions of pregnant women over many years without problems for women or their babies.
- **Side effects of flu shots.** Flu shots might cause redness and soreness where the shot was given. They might also cause a slight fever and feeling achy as the body reacts and builds up immunity. They do not cause you to get the flu.
- **Different viruses.** Seasonal flu can be caused by different viruses each year. That's why new vaccines are made every year. The seasonal flu shot for each flu season will protect against the strains of flu most likely to occur during that season.
- **Timing for shots.** Seasonal flu shots can be given at any time during pregnancy.
- **Breastfeeding.** If you did not get the flu shot when you were pregnant, you can get the seasonal flu shot or the nasal spray vaccine while you are breastfeeding. Preventing flu in the mother helps her from spreading the flu to her infant and can reduce the chance that her infant will get the flu. All household contacts and caregivers of a newborn need to get the flu shot or nasal spray vaccine, too, to reduce the infant's chances of getting the flu.

For more information, go to
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Pregnant?

**Flu can harm
or kill a pregnant
woman and
her baby.**

**Flu shots are
the best way
to protect you
and your baby.**

Get your flu shot.



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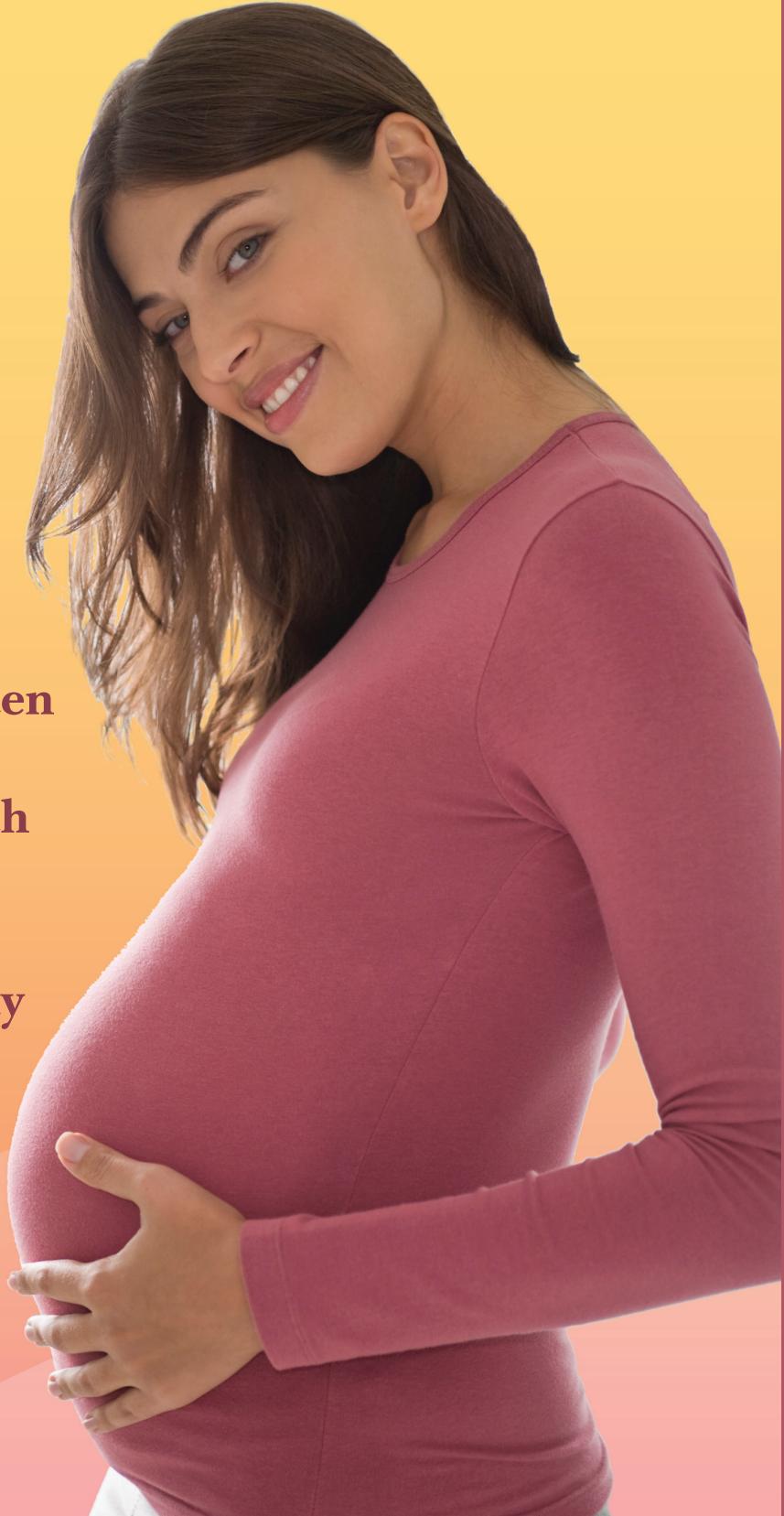
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Pregnant?

**Protect yourself
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from the flu.**

- Get your flu shot
- Wash your hands often
- Avoid touching your eyes, nose, and mouth
- Stay away from sick people
- Treat fever right away with Tylenol® (or store brand)

If you get sick with the flu, call your doctor right away.



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