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TOGTM ANC CHECKLIST



PREFACE

Antenatal care (ANC) refers to the care provided to women during pregnancy. The main goal of ANC is to ensure health and well-being of both the mother and her unborn baby throughout the pregnancy, ultimately resulting in a healthy mother and a healthy baby at the end of the pregnancy.

Routine vaccination is an essential preventive care for pregnant women and should not be delayed. Preventing and reducing the severity of influenza illness, as well as reducing outpatient illnesses, hospitalizations, and intensive care unit admissions through influenza vaccination can also alleviate stress on the healthcare system.

It is important to assess the vaccination status of women consulting for antenatal cases and avoiding missed opportunities for vaccination to ensure timely vaccine catch-up. All vaccines that are due or overdue should be administered according to the recommended immunization schedules during each visit, unless there is a specific contraindication. Influenza vaccination is a crucial part of prenatal and postpartum care, serving as the safest and most effective method to prevent influenza infection and decrease its associated maternal morbidity and mortality.

In this document, we provide a checklist for antenatal care and vaccination to protect women against infectious diseases, with a particular focus on influenza.



ANTENATAL CARE CHECKLIST: KEY PRACTICE POINTS

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ROUTINE ANTENATAL CARE CHECKLIST'

Starting antenatal care

- Ensure antenatal care initiation based on women's needs
- Offer health and well being information

HISTORY

- Medical, surgical, obstetric, family, and mental health
- Allergies, addictions

EXAMINATION AND INVESTIGATIONS

First visit

- Measure height and weight, and calculate BMI at first visit
- Measure the weight and BP at every visit
- Hemoglobin and fetal heart rate in the first trimester
- Blood Group and Rh, CBC, HBsAg, HCV, VDRL, HIV, TSH, Urine R/M, HPLC, 2-hour post 75 gm glucose. If blood sugar done two hours after 75 gm oral glucose is less than 140 mg/dl, the test should be repeated at 24-28 weeks of pregnancy
- If Rh negative: Husband's blood group and typing should be done and ICT (Indirect Coomb's Test) should also be carried out
- Early ultrasound scan

Between 11 week to 14 weeks for gestational age

- Nuchal translucency (NT) Scan
- Dual marker test
- Inactivated Influenza Vaccine
- Inj. tetanus and diphtheria (Td)

Between 16 week to 18 weeks for gestational age

- Quadruple marker test (if dual marker not done)

Between 19 week and 21 weeks for gestational age

- Anomaly scan+ Cervical length
- Placental localization



At antenatal appointment of 24 weeks

- Symphysis fundal height

At antenatal appointment of 28 weeks

- CBC
- Anti-D prophylaxis for Rh-negative patients
- Symphysis fundal height
- Inactivated influenza vaccine and Tdap vaccination (if not administered in second trimester)

At antenatal appointment of 34 weeks

- Symphysis fundal height
- Growth scan with Doppler

At antenatal appointment of 36 weeks

- CBC
- Symphysis fundal height

At antenatal appointment of 38 weeks

- Symphysis fundal height

At antenatal appointment of 40 weeks

- Symphysis fundal height
- SOS repeat ultrasound and BPP
- Offer induction at 40 to 41 weeks

ANTENATAL CARE FOR FETAL GROWTH AND WELLBEING

- Risk assessment for fetal growth restriction at first antenatal care appointment and again in the second trimester.
- Check symphysis fundal height measurement at each antenatal appointment after 20 weeks (in singleton pregnancy).

MATERNAL IMMUNIZATION AND ANTENATAL CARE

Vaccine-preventable diseases are major contributors to global child morbidity and mortality, especially in low- and middle-income countries (LMICs).² Administering maternal vaccines to pregnant women during the second or third trimester has proven to be an effective strategy for combating these diseases. This approach offers newborns protection during their most vulnerable period by transferring maternal antibodies across the placenta.³

Influenza is a highly contagious disease, causing 3–5 million severe cases and 250,000–500,000 deaths annually worldwide. Pregnant women are at a higher risk, leading to significant morbidity and



mortality. Both pregnant women and neonates are particularly susceptible to severe complications and death from influenza.⁴

- Globally, the hospitalization rate for influenza in pregnant women is approximately 42.1% (IQR, 22.5–60.4%), with around 8% (IQR, 5.9–12.7%) experiencing severe disease requiring intensive care or resulting in death.⁵
- A review of eight Indian studies reported a maternal mortality rate of 25%–75% in pregnant women with influenza as compared to non-pregnant women.⁶

Influenza infection during pregnancy is associated with poor birth outcomes, including fetal loss (abortion or stillbirth), preterm birth, and low birth weight. Established potential complications of influenza during pregnancy include preterm delivery, pneumonia, hospital or intensive care unit admission, and maternal and fetal death.⁷

- In India, data indicate a significant burden of maternal and fetal complications due to influenza. Maternal influenza infection also raises fetal mortality rates by 5.5%–33%.⁸
- Despite the Ministry of Health and Family Welfare prioritizing pregnant women for influenza vaccination, maternal vaccination rates are very low, ranging from 0.0% – 12.8%.⁸

VACCINATION CHECKLIST IN ANTENATAL CARE⁹

Tdap vaccine

- Any Tdap vaccine product can be administered.
- Administer a dose of Tdap, preferably during early gestational weeks of 27 to 36, irrespective of the patients' prior Tdap vaccination history.

Influenza vaccine

- Administer only inactivated influenza vaccine to pregnant women during any trimester.

INFLUENZA WHILE PLANNING PREGNANCY, DURING PREGNANCY, AND POSTPARTUM PERIOD

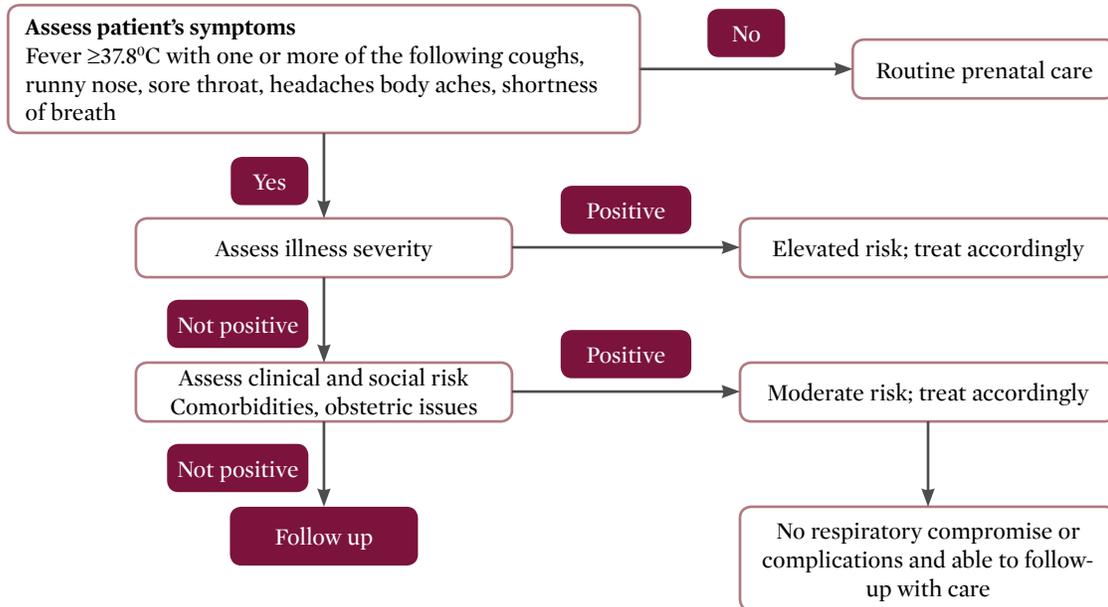
- Antenatal influenza higher the likelihood of adverse pregnancy outcomes.¹⁰
- Pregnant women are at increased risk for hospitalization due to influenza compared to non-pregnant women of reproductive age. Changes in the immune, respiratory, and cardiovascular systems that occur during pregnancy may increase the severity of certain infections, including influenza.¹¹
- Because pregnant women face a greater risk for complications from the influenza infection, pregnant women in any trimester, or planning to become pregnant should get influenza vaccination.¹²



ASSESSMENT OF PREGNANT WOMEN WITH INFLUENZA: ALGORITHM

According to the ACOG 2018 guidelines, patient should be triaged and treated, which are the acceptable measures to minimize disease transmission among pregnant patients in healthcare settings.¹³

Algorithm for assessing pregnant women during ANC for influenza vaccination¹³



INFLUENZA VACCINE: THE PROPHYLAXIS AGAINST INFLUENZA

The influenza vaccination is aimed at protecting both mothers and their infants from influenza. However, few studies have specifically assessed the link between maternal influenza vaccination and child mortality. In a study, researchers evaluated the effectiveness of influenza vaccination during pregnancy on reducing influenza-related hospitalizations and emergency department visits in infants under six months. Findings showed:¹⁴

- Highest vaccine effectiveness (52%) among infants was observed in mothers who were vaccinated during the third trimester.

In a trial involving 340 pregnant women who were randomly assigned to receive an influenza vaccine during the third trimester, researchers reported **63% reduction in laboratory-confirmed influenza cases in infants, along with a 29% decrease in febrile respiratory illnesses among infants and a 36% decrease among mothers.**^{6, 15}

According to researchers, **maternal influenza vaccination significantly reduced the risk of influenza-related hospitalizations and emergency visits** in infants under the age of 6 months, especially when their mothers were vaccinated during the third trimester.¹⁴

In a study, researchers examined how maternal vaccination influenced birth outcomes in 3,693 pregnant women aged 15–40 who received either an inactivated influenza vaccine or a placebo. They measured outcomes such as birth weight, pregnancy duration, low birth weight, preterm birth, and small-for-gestational-age births. The data indicated that **maternal influenza vaccination may contribute to higher birth weights, particularly during times of increased influenza virus circulation.**¹⁶



In study, Omer et al. reported that pregnant women and their infants experienced disproportionately high morbidity and mortality associated with influenza and that **maternal vaccination during pregnancy can potentially contribute to a reduction in global neonatal and infant morbidity and mortality associated with influenza.**¹⁷

Maternal influenza vaccination protects both pregnant women and their infants against influenza illness. Research aimed at assessing how long infants are protected by maternal immunization and its link to the transfer of antibodies across the placenta found that maternal immunization protects infants from infection for a limited time early in life.¹⁸

A systematic review and meta-analysis of 19 studies involving 5,742 participants, conducted in 2020, shown that maternal influenza vaccination was associated with an overall reduction of laboratory-confirmed influenza in infants by 34% (95% confidence interval 15–50%). Maternal influenza vaccination also demonstrated protective effects on infant with confirmed influenza, reducing hospitalization and clinic visits due to influenza or influenza-like illness and other respiratory illness in infants ≤6 months old.¹⁹

SAFETY

Immunization with inactivated influenza vaccines during the second and third trimesters has been extensively researched and deemed safe. It does not increase the risks of adverse birth outcomes such as preterm birth, low birth weight, or small-for-gestational-age births associated with maternal influenza vaccination.²⁰

In a cohort study based on population data with an average follow-up of 3.6 years, maternal influenza vaccination during pregnancy was not associated with increased risks of adverse early childhood health outcomes.²¹

The benefits of vaccination of a pregnant woman outweigh potential risks when the likelihood of exposure to infection is high and poses a risk to the mother or fetus, especially when the vaccine is unlikely to cause harm.²²

Immunizing with inactivated influenza vaccines in the second trimester protects the pregnant woman, while vaccinating in the third-trimester can also protect her infant for up to 6 months after birth.²³

Timing of vaccination (CDC)

Balancing the timing of vaccination considering the unpredictability of time of onset to influenza is important. The World Health Organization (WHO) advises vaccinating pregnant women at any point during pregnancy to safeguard both the mother and her newborn.²¹

It is recommended that all pregnant women be immunized as early as possible during pregnancy. If not, the pregnant women should be vaccinated during their third trimester to enable the transfer of maternal antibodies to the newborn. In a study, researcher reported that the optimal timing for influenza vaccination during pregnancy, for those who are already vaccinated, should be later during pregnancy. This timing results in a greater immune response to the vaccination and increased antibody transfer to the fetus.²³

- To avoid missed opportunities for vaccination, healthcare provider should offer vaccination during routine health care visits and hospitalizations.²⁴



PRACTICE POINTS

- Influenza vaccine should be offered to pregnant women and to those who are planning pregnancy.
- A pregnant woman should be immunized in any of the trimesters, to avoid any missed opportunity to vaccinate.
- Unvaccinated pregnant women should be immunized atleast in the third trimester to ensure protection to the baby until they receive Influenza vaccination.

Dosage and administration²⁴

- Inactivated influenza vaccines are administered intramuscularly (IM)
- **The adult full dose volume for inactivated influenza vaccine is 0.5 mL per dose**
- **Vaccinated women need not repeat the dosage till the next antigenic shift**

EXPECTED PROTECTION AFTER VACCINATION

Reduction in infant influenza

- Maternal immunization provides most of the infant's protection against influenza.²⁵

Reduction in infant hospitalization rates

- Maternal influenza vaccination during pregnancy provides protection for the infant in the first few months of life before infants are eligible for vaccination.¹¹ Infants whose mothers received the influenza vaccine during pregnancy experienced about a one-third reduction in hospitalizations and emergency department visits.¹⁴

Reduction in adverse fetal outcomes (preterm birth, low birth weight, and stillbirth)

- Immunizing in the second and third trimesters is safe and protects the pregnant woman and her infant for about first 6 months of life.²⁶
- Antenatal influenza immunization in the second and third trimesters has shown reduced frequencies of both preterm and small-for-gestational-age (growth-restricted) newborns in mothers with influenza.²⁶
- Influenza-vaccinated mothers had almost half the incidence of fetal death compared with unvaccinated mothers.²⁷

Special considerations

- Contraindications
 - » Anaphylaxis following a previous dose of any influenza vaccine
 - » Anaphylaxis following any vaccine component
- Comorbid conditions (autoimmune disease or immunocompromised state)



SUMMARY PRACTICE POINTS

- ANC should be initiated based on a woman's needs and health and well being information should be provided.
- A detailed history should be taken including vaccination.
- All examination and investigations should be carried out as per the ANC checklist.
- Influenza vaccine should be offered to pregnant individuals in any trimester and to women who are planning pregnancy.
- The vaccine should be administered annually to maintain immunity and to provide protection against new strains.
- To avoid missed opportunities for vaccination, healthcare provider should offer vaccination during routine health care visits and hospitalizations.

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ANTENATAL CARE CHECKLIST

Investigation and examination checklist

First Visit

- Measure height and weight, and calculate body mass index (BMI) at first visit
- Weight and blood pressure (BP) measurements at every visit
- Hemoglobin and fetal heart rate in the first trimester
- Blood Group and Rh, CBC, HBsAg, HCV, VDRL, HIV, TSH, Urine R/M, HPLC, 2-hour post 75 gm glucose. If blood sugar done 2 hours after 75 gm oral glucose is less than 140 mg/dl, the test should be repeated at 24–28 weeks of pregnancy
- If Rh negative: Husband's blood group and typing should be carried out and ICT can be performed
- Early ultrasound scan

12 to 14 weeks

- NT scan
- Dual marker test
- Inactivated influenza vaccine
- Injection Td

16 to 18 weeks

- Quadruple marker test (if dual marker not done)

19 to 21 weeks

- Anomaly scan + cervical length
- Placental localization

24 weeks

- Symphysis fundal height

28 weeks

- CBC
- Anti-D prophylaxis for Rh-negative patients
- Inactivated influenza vaccine (if not administered in second trimester)
- Tdap vaccination



34 weeks

- Symphysis fundal height
- Growth scan with Doppler

36 weeks

- CBC, symphysis fundal height

38 weeks

- Symphysis fundal height

40 weeks

- Symphysis fundal height
- SOS repeat ultrasound and BPP
- Offer induction at 40 to 41 weeks

Identification of high-risk pregnancy

Obstetric risk factors	Medical risk factors	Others
Previous miscarriage	Cardiac disease	Addictions
Previous preterm	Hypertension	Obesity
Previous HDP	Diabetes	
Previous uterine scar	Thyroid disease	
Hemorrhage in previous pregnancy	Anemia	
Puerperal psychosis	Epilepsy	
Grand multipara (>4 parity)	Hematological disease	
Previous stillbirth or neonatal death	Autoimmune disease	
Baby weighing below 2.5 kg or more than 3.5kg	Asthma	
Primipara	HIV	
Baby born with a congenital anomaly (structural or chromosomal)	HBV	



Checklist for vaccination in antenatal period

- Review existing vaccination activities (e.g. maternal tetanus toxoid or other vaccination) in the antenatal period.
- Educate the patient regarding the importance of vaccine introduction plan, advantages and disadvantages of maternal influenza vaccination.
- A single-dose injection is sufficient for protection against influenza virus infection in pregnant women for the period of the influenza season, which will protect the mother and the newborn.
- Start vaccination in those planning pregnancy.
- Vaccination in second trimester:
Inactivated influenza vaccine, Inj. tetanus and diphtheria (Td).
- Vaccination in third trimester:
Inactivated influenza vaccine (if not administered in 2nd trimester) and Tdap vaccination.

ABBREVIATIONS

BPP: biophysical profile; CBC: complete blood count; HBsAg: hepatitis B surface antigen; HCV: hepatitis C virus; HDP: hypertensive disorders of pregnancy; HIV: human immunodeficiency virus; HPLC: high-performance liquid chromatography; ICT: Indirect Coombs test; NT Scan: Nuchal translucency scan; Rh: Rhesus factor; Tdap Vaccination: Tetanus, Diphtheria, and Pertussis vaccination; TSH: thyroid-stimulating hormone; Urine R/M: urine routine/microscopy; VDRL: Venereal Disease Research Laboratory (a test for syphilis).



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