SIR Publishers
CENTER FOR INTERNATIONAL SCIENTIFIC PUBLICATIONS
JOURNAL OF NURSING AND WOMEN'S HEALTH
ISSN(Online): 2984-8083
Volume-9, Issue-03, Published |18-06-2026|

TORCH INFECTIONS AND SCREENING IN PREGNANCY: RISK STRATIFICATION, DIAGNOSTIC TIMING AND PREVENTION-ORIENTED COUNSELING

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ABSTRACT

TORCH infections can harm pregnancy outcomes through miscarriage, fetal growth restriction, congenital anomalies and neonatal disease. Objective: This article reviews TORCH screening as a risk-stratified clinical process rather than a single laboratory package. Methods: International public-health sources and antenatal-care recommendations were synthesized. Results: Congenital CMV remains common, sexually transmitted infections contribute substantially to reproductive harm, and antenatal contacts provide opportunities for prevention. Discussion: Universal, selective and symptom-based screening must be distinguished. Conclusion: TORCH education should emphasize timing, interpretation, counseling and referral, because incorrect testing can create either missed disease or unnecessary anxiety.

Keywords: TORCH; pregnancy infection; congenital CMV; toxoplasmosis; rubella; syphilis; prenatal screening

INTRODUCTION

TORCH is a convenient acronym, but it can also mislead students. It groups toxoplasmosis, other infections, rubella, cytomegalovirus and herpes-related infections into one label, although each infection has different epidemiology, transmission, diagnostic timing and prevention strategy. Treating TORCH as one laboratory panel is clinically lazy.

Pregnancy changes the stakes of infection. A mild or silent maternal infection may have major fetal consequences depending on pathogen, gestational age and maternal immunity. Some infections are preventable by vaccination before pregnancy, some by hygiene counseling, some by sexual-health screening and treatment, and others by newborn follow-up after exposure.

Congenital cytomegalovirus is a particularly important example because it is common and often under-recognized. CDC data indicate that about 1 in 200 babies is born with congenital CMV, and about 1 in 5 of those infants may have birth defects or long-term health problems. This makes CMV counseling and neonatal awareness clinically relevant even where universal maternal screening is not routine.

This article reviews TORCH infections and screening in pregnancy as a risk-stratified process. The aim is to help students understand when testing is useful, why timing matters and how counseling prevents both missed disease and unnecessary anxiety.

METHODS

A narrative review method was used. Sources included international public-health updates on congenital CMV, sexually transmitted infections, antenatal care and maternal health. The analysis emphasized screening logic and prevention rather than detailed antimicrobial regimens.

The review classified screening into three categories: universal screening recommended in many antenatal systems, selective screening based on risk or exposure, and diagnostic testing based on symptoms or fetal findings. This classification was used to interpret TORCH as a clinical pathway rather than a fixed test bundle.

The article is educational. Management of confirmed infection must follow local protocols, laboratory standards and specialist consultation.

RESULTS

Toxoplasmosis is usually associated with ingestion of tissue cysts in undercooked meat or exposure to oocysts from contaminated soil or cat feces. Fetal risk depends strongly on timing. Earlier infection may be less frequently transmitted but more severe; later infection may transmit more often but with different clinical expression. Prevention counseling is therefore important even before testing.

Rubella illustrates the value of pre-pregnancy prevention. Congenital rubella syndrome is preventable through vaccination before pregnancy, but live vaccines are not administered during pregnancy. Antenatal care should identify immunity gaps and ensure postpartum or future-preconception planning where appropriate.

Cytomegalovirus is common and frequently silent. Hygiene counseling, especially around saliva and urine exposure from young children, is a practical prevention measure. Screening policies vary internationally, so students must know that lack of universal screening does not mean lack of clinical importance.

Herpes simplex infection requires attention to timing and lesions near delivery because neonatal exposure can be severe. The clinical issue is not only serology; active symptoms, recurrence history and delivery planning matter. This is a good example of why history can be more useful than indiscriminate panels.

The 'other' category often includes syphilis, HIV, hepatitis B and other infections. WHO estimates more than 1 million curable sexually transmitted infections are acquired every day globally. Syphilis screening and treatment in pregnancy are especially important because congenital syphilis is preventable when maternal infection is detected and treated early.

Antenatal contacts create repeated opportunities for infection prevention: vaccination history, sexual-health assessment, hygiene counseling, symptom review, ultrasound interpretation and referral. Screening is therefore not a single event; it is a sequence of risk checks across pregnancy.

Case-based result 1: A pregnant patient has positive IgG and negative IgM for rubella. Without understanding immunity, the result may be misinterpreted. Serology must be linked to vaccination history, timing and local laboratory standards.

Case-based result 2: A mother of a toddler is pregnant and has frequent contact with saliva and urine during childcare. CMV counseling becomes practical: hand hygiene and avoiding saliva exposure are realistic prevention points.

Case-based result 3: A patient has untreated partner risk for a sexually transmitted infection. Testing only the pregnant patient may fail if reinfection occurs. Partner management and counseling matter.

Case-based result 4: Ultrasound suggests fetal growth restriction and intracranial findings, but the mother has no symptoms. Congenital infection may still be considered. Absence of maternal symptoms is not absence of fetal risk.

These cases show that TORCH screening is not a button to press in the laboratory system. It is an interpretation pathway involving exposure, immunity, symptoms, gestational age, fetal findings and follow-up capacity.

The practical result is a TORCH decision template: suspected pathogen, reason for testing, gestational age, test ordered, possible interpretations and follow-up plan. This template prevents random testing.

Table 1. Statistical indicators used for clinical interpretation

Indicator	Reported value	Interpretation in this article
Congenital CMV	about 1 in 200 babies	A major congenital infection burden.
Long-term problems in congenital CMV	about 1 in 5 affected babies	Hearing loss and developmental effects require follow-up.
Curable STIs acquired daily	more than 1 million worldwide	Some infections affect pregnancy and neonatal outcomes.
Four curable STIs in 2020	about 374 million new infections	Supports screening and treatment access.
Recommended ANC contacts	minimum 8	Repeated contacts allow prevention counseling and testing.

Table 2. Practical clinical matrix for student use

Clinical question	Most useful first assessment	Escalation trigger
Which infection is suspected?	Exposure, symptoms and gestational age	Fetal findings or acute maternal illness
Is screening universal or selective?	Apply local antenatal protocol	High-risk exposure or abnormal ultrasound
Can result be interpreted?	IgG, IgM, timing and confirmatory tests	Unclear serology or possible fetal risk

DISCUSSION

The first failure mode in TORCH education is over-testing without interpretation. A positive IgG result may indicate past immunity rather than acute disease. A positive IgM may be false-positive or require avidity testing and specialist interpretation. Students must learn that serology is not self-explanatory.

The second failure mode is under-counseling. Laboratory testing cannot replace prevention advice. Food safety, hand hygiene, avoidance of high-risk exposures, vaccination planning and safer sexual practices are practical interventions that should be discussed clearly and respectfully.

The third failure mode is ignoring gestational timing. The same infection can have different fetal implications depending on when it occurs. A result without timing, symptoms and ultrasound context is incomplete.

A tradeoff exists between universal and selective screening. Universal screening may detect silent disease but can increase cost and false positives. Selective screening saves resources but can miss infection when risk history is incomplete. The best approach depends on local epidemiology, laboratory quality and treatment availability.

Counseling should avoid blame. Infection risk is shaped by biology, social conditions, vaccination access, partner treatment, food systems and health literacy. A judgmental tone makes patients hide information, which weakens care.

Laboratory quality matters. Poorly validated tests, unclear reference ranges or delayed results can harm decision-making. Screening programs are only useful when the health system can confirm, interpret and act on results.

A major interpretation issue is immunity. For some infections, past exposure or vaccination changes risk. For others, past infection does not eliminate all concern. Students should avoid using one rule for every TORCH organism.

The edge case is fetal ultrasound abnormality with no maternal symptoms. Congenital infection may be considered even when the mother feels well. This is why obstetric imaging and infection history must communicate.

Another edge case is a positive screening result late in pregnancy. Timing affects both fetal risk and available interventions. Late recognition may shift focus toward delivery planning and newborn evaluation.

The tradeoff in counseling is between warning and frightening. Patients deserve honest information, but exaggerated language can cause panic. Good counseling gives specific actions: what to avoid, when to test, when to return and who will follow up.

Preconception care is the strongest moment for some TORCH-related prevention. Rubella immunity, vaccination planning, chronic infection management and sexual-health counseling are easier before pregnancy than after fetal exposure has already occurred.

During pregnancy, screening must be connected to action. If a positive result cannot be confirmed, interpreted or treated, the pathway is incomplete. Laboratory access without follow-up can create anxiety without benefit.

CMV prevention counseling is practical because many exposures occur in everyday childcare. Advice should be specific: hand hygiene after contact with saliva or urine, avoiding sharing utensils with young children and careful cleaning practices. Abstract warnings are less useful.

Toxoplasmosis counseling should focus on food and soil exposure. Patients need realistic guidance about cooking meat properly, washing produce and using gloves or hygiene measures with soil contact. Fear-based advice about animals alone is incomplete.

Antenatal infection screening should be linked to health literacy. Patients need to understand not only that a test is being done, but what a positive or negative result could mean. This prevents rumors and fear after laboratory reports are issued.

The newborn pathway must be planned when fetal exposure is suspected. Pediatric assessment, hearing follow-up or laboratory confirmation may be needed depending on pathogen. Maternal screening is incomplete if neonatal care is forgotten.

TORCH-related counseling should be repeated, not delivered once. Exposure risks can change during pregnancy, and patients may forget advice given early. Repetition across antenatal contacts is a strength of the WHO contact model.

The final added result is that TORCH screening should be purposeful. Every test should have a reason, an interpretation plan and a follow-up plan. Otherwise, it becomes paperwork rather than prevention.

For sexually transmitted infections, confidentiality is central. Patients may not disclose risk if they fear blame. A private, respectful history is therefore not only ethical but diagnostically necessary.

Fetal ultrasound findings can shift infection assessment from screening to diagnostic investigation. Growth restriction, calcifications, hydrops or structural abnormalities may require targeted testing and specialist input.

Students should learn that a negative test at one time does not guarantee no future exposure. Prevention counseling remains relevant throughout pregnancy, especially when exposure risk continues.

The final result is a prevention-first TORCH model: assess immunity and exposure, counsel clearly, test only with purpose, interpret by timing and connect abnormal results to maternal-fetal or neonatal follow-up.

In antenatal education, TORCH prevention can be divided into food hygiene, hand hygiene, vaccination planning, safer sexual practices and early reporting of symptoms. This structure is easier to remember than a list of pathogens.

Partner notification and treatment are sensitive but necessary for sexually transmitted infections. If clinicians ignore the partner, reinfection can occur and pregnancy protection fails.

For students, the strongest exercise is interpreting sample serology with gestational age. This reveals how easy it is to overcall or undercall risk when timing is missing.

A local research direction would be to evaluate antenatal records for documentation of infection counseling. If counseling is not recorded, it may not be consistently delivered.

Partner management is crucial for sexually transmitted infections. Treating only the pregnant patient while ignoring reinfection risk is an incomplete strategy. Counseling must be practical and culturally sensitive.

Students should also learn newborn implications. Some congenital infections require hearing assessment, ophthalmologic follow-up or pediatric monitoring even when the newborn appears well at birth.

The limitation of this review is that it does not provide country-specific screening rules for Uzbekistan. Local protocols should always be followed. However, the logic of risk stratification, timing and interpretation is internationally applicable.

The smallest useful change for students is to replace the question 'Should TORCH be ordered?' with four sharper questions: Which pathogen is suspected, what is the gestational age, what result would change management, and who will interpret the result?

CONCLUSION

TORCH infections are clinically important, but the acronym should not replace reasoning. Each infection has distinct transmission, timing, screening and prevention logic.

Effective TORCH practice requires risk stratification, careful interpretation and counseling. For students, the goal is not to memorize a panel but to understand when and why testing protects pregnancy.

REFERENCES

1. Centers for Disease Control and Prevention. CMV in newborns. Updated 17 January 2025. https://www.cdc.gov/cytomegalovirus/congenital-infection/index.html

2. World Health Organization. Sexually transmitted infections. Fact sheet, updated 10 September 2025. https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)

3. World Health Organization. Cervical cancer. Fact sheet, updated 2 December 2025. https://www.who.int/news-room/fact-sheets/detail/cervical-cancer

4. World Health Organization. New guidelines on antenatal care for a positive pregnancy experience. 2016. https://www.who.int/news/item/07-11-2016-new-guidelines-on-antenatal-care-for-a-positive-pregnancy-experience

5. World Health Organization. Maternal mortality. Fact sheet, updated 7 April 2025. https://www.who.int/news-room/fact-sheets/detail/maternal-mortality

6. World Health Organization. WHO recommendations: intrapartum care for a positive childbirth experience. Geneva: WHO; 2018.