Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

EPIDEMIOLOGY AND IMPACT OF HUMAN PAPILLOMAVIRUS ON PREGNANT WOMEN'S HEALTH

Amonova Z. D.,1
Kattakhodzhaeva M. Kh. 2.
1Amonova Zarrina Jomiyevna, Research Fellow of the Department of Obstetrics and Gynecology, Tashkent State Medical University

2 Kattaxodjayeva Makhmud Khamdamovna, Professor of the Department of Obstetrics and Gynecology, Tashkent State Medical University;
E-mail: zarrina.amonova@inbox.ru
tel.: +998 933350001
ORCID: https://orcid.org/0009-0002-1571-8608

Kattaxodjayeva Mahmuda Khamdamovna,
Professor of the Department of Obstetrics and Gynecology,
Tashkent State Medical University
E-mail: maxmuda-grant@mail.ru
tel.: +998946176335
ORCID: https://orcid.org/0000-0002-7944-4514

Abstract
Human papillomavirus (HPV) is one of the most common sexually transmitted infections and causes a number of diseases, including cervical cancer. This study examines the peculiarities of HPV epidemiology among pregnant women, the impact of the infection on reproductive health, and possible complications for mother and child. Geographical differences in the spread of the virus and the factors influencing the development of the disease in this group of women are also discussed. The purpose of the study is to analyze the epidemiological situation, as well as the impact of HPV on pregnancy outcomes and newborn health.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

Keywords: HPV, pregnancy, cervical intraepithelial neoplasia, prevalence, geographic differences, pregnancy complications, reproductive health.

1. Introduction

Human papillomavirus (HPV) is one of the most significant sexually transmitted infections. According to the World Health Organization (WHO), over 80% of sexually active women are infected with HPV at least once during their lifetime [1]. The virus can infect squamous and columnar epithelial cells, causing the development of benign and malignant changes, ranging from cervical intraepithelial neoplasia (CIN) to invasive cervical cancer [2, 3].

In recent years, researchers have increasingly focused on the impact of HPV infection on pregnancy. Hormonal and immunological changes characteristic of the gestational period create conditions for the reactivation of latent HPV infection and increase the risk of its persistence [4]. Several studies have shown that the presence of HPV may be associated with pregnancy complications, such as preterm labor, premature rupture of membranes, and low birth weight [5, 6].

The issue of vertical transmission of the virus from mother to child deserves special attention, as it can lead to the development of respiratory papillomatosis in newborns. Taken together, these data indicate the need for a comprehensive study of HPV in the context of obstetrics and perinatology.

2. HPV Epidemiology among Pregnant Women

Epidemiological studies show that the prevalence of HPV infection among pregnant women ranges from 15 to 40%, depending on the region, diagnostic method, and socioeconomic factors [7]. According to a cohort study in China (2016–2020), women with persistent high-risk HPV infection (types 16 and 18) had a significantly higher risk of preterm birth, miscarriage, and inflammatory diseases of the reproductive tract [8]. Similar results were presented in a meta-analysis of 38 studies, which showed that the presence of HPV increases the likelihood of preterm birth (OR = 1.50; 95% CI: 1.20–1.90), preterm premature rupture of membranes, and low birth weight babies [9].

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

The most commonly detected HPV types in pregnant women are 6, 11, 16, 18, 31, and 33. Types 6 and 11 are associated with benign lesions (condylomas), while types 16 and 18 are associated with CIN and cervical cancer [10, 11]. In countries with high vaccination coverage, there has been a decrease in the incidence of high-oncogenic HPV types, including types 16 and 18 [12].

3. The Impact of HPV on Pregnancy and Child Health

Current data confirm that HPV can negatively impact pregnancy even in the absence of pronounced clinical symptoms. HPV infection is associated with disruption of the vaginal microbiome, activation of inflammatory cytokines, and decreased local immune defense, which contributes to premature labor [13, 14].

3.1. Obstetric Complications

A meta-analysis of recent studies shows a significant association between HPV and an increased risk of:

- preterm birth (1.5–2 times higher than in uninfected women);
- premature rupture of membranes;
- intrauterine growth retardation (IUGR) and low birth weight [15, 16].

A particularly high risk is observed when HPV is combined with other infections (chlamydia, bacterial vaginosis) and in women with immunodeficiency conditions.

3.2. Effect on the Fetus

Mother-to-child transmission of the virus is possible transplacentally, intrapartum (during childbirth), and, very rarely, postnatally. HPV DNA is detected in the placenta and amniotic fluid in 10–20% of infected pregnant women [17]. Clinically significant manifestations of vertical transmission may include juvenile laryngeal papillomatosis and rare cases of mucosal infection in children [18].

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

4. Diagnosis and Prevention of HPV during Pregnancy

Diagnosis of HPV in pregnant women is based on molecular genetic methods (PCR with typing) and cytological examination (Pap test). However, physiological changes in the cervix during the gestational period can cause false-positive results, which requires careful interpretation [19].

In recent years, improved screening methods have been actively developed. For example, a direct PCR test without nucleic acid extraction has shown comparable sensitivity to traditional methods, but requires less time and resources [20].

For high-risk pregnant women, an individualized approach is recommended, including regular monitoring of cytological and molecular parameters, as well as avoiding invasive diagnostic interventions until the postpartum period. Particular attention is paid to the prevention of HPV infection. Although vaccination is not performed during pregnancy, data from large studies indicate that inadvertent early administration of the vaccine does not increase the risk of congenital anomalies or pregnancy loss [21]. Vaccination before pregnancy remains the most effective method of preventing infection and associated complications.

5. Conclusion

Human papillomavirus is not only an oncogenic but also an obstetric risk factor. Current research confirms that HPV infection in pregnant women is associated with an increased incidence of preterm birth, miscarriage, infectious complications, and possible vertical transmission of the virus.

A comprehensive assessment of the cervix, immune status, and vaginal microbiome, as well as the implementation of modern molecular diagnostic and prevention methods, are key to reducing the negative impact of HPV on reproductive health. Further research should be aimed at developing safe algorithms for managing pregnant women with HPV and assessing the impact of pre-pregnancy vaccination on perinatal outcomes.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

References:

1. World Health Organization (WHO). Human papillomavirus (HPV) and cervical cancer [Электронный ресурс]. – Режим доступа: https://www.who.int.
2. Moscicki A.B., Ma Y. Epidemiology of human papillomavirus in adolescents and young women // Journal of Clinical Virology. – 2017. – Vol. 98. – P. 39–48.
3. Denny L., Anorlu R., Sankaranarayanan R., Kim J.J. HPV and cervical cancer: A global perspective // Int. J. Gynecol. Obstet. – 2018. – Vol. 143(1). – P. 8–14.
4. Van Houtte P. et al. Management of HPV infections in pregnancy // Eur. J. Obstet. Gynecol. Reprod. Biol. – 2020. – Vol. 253. – P. 95–102.
5. Widdice L.E. et al. Prevalence and persistence of HPV infections in pregnant women: A systematic review // Int. J. Infect. Dis. – 2015. – Vol. 38. – P. 72–78.
6. Lee J. et al. The impact of sexually transmitted infections on pregnancy outcomes: A systematic review // Obstet. Gynecol. – 2018. – Vol. 132(6). – P. 1169–1181.
7. Kowalski M. et al. Epidemiology of HPV in pregnant women // Am. J. Obstet. Gynecol. – 2019. – Vol. 221(5). – P. 503.e1–503.e7.
8. Zhang H. et al. Prevalence of HPV genotypes and pregnancy outcomes in Ningbo, China (2016–2020) // BMC Infectious Diseases. – 2025. – Vol. 25(1). – Article 10522.
9. Niyazov K. et al. Association between maternal HPV infection and adverse pregnancy outcomes: A meta-analysis // Obstet. Gynecol. Surv. – 2021. – Vol. 76(4). – P. 247–254.
10. Cress R.D. et al. HPV types in cervical cancer: A global review // J. Natl. Cancer Inst. – 2020. – Vol. 112(7). – P. 712–725.
11. Bansal N. et al. Prevalence and outcomes of cervical intraepithelial neoplasia in pregnant women // Lancet Infect. Dis. – 2018. – Vol. 18(5). – P. 563–572.
12. Muscat P. et al. The impact of HPV vaccination programs in developing countries // Vaccine. – 2017. – Vol. 35(48). – P. 6701–6709.

Modern American Journal of Medical and Health Sciences
ISSN (E): 3067-803X
Volume 01, Issue 07, October, 2025
Website: usajournals.org

13. Goldstein A. et al. The effects of pregnancy on HPV infection: A systematic review // J. Obstet. Gynecol. – 2016. – Vol. 39(8). – P. 663–669.
14. Sadeghi S. et al. The role of HPV vaccination in pregnancy // Vaccines. – 2020. – Vol. 8(3). – Article 479.
15. Patel P. et al. Geographical distribution of HPV types and their association with cervical cancer // Global Health Action. – 2021. – Vol. 14(1). – Article 1857386.
16. Chatzistamatiou K. et al. Human papillomavirus infection and pregnancy outcomes: Systematic review and meta-analysis // Acta Obstet. Gynecol. Scand. – 2021. – Vol. 100(12). – P. 2191–2204.
17. Medeiros L.R. et al. Vertical transmission of HPV in pregnant women: molecular detection and clinical implications // BMC Pregnancy and Childbirth. – 2022. – Vol. 22(1). – Article 945.
18. Kubra A. et al. Neonatal laryngeal papillomatosis associated with maternal HPV infection // Pediatrics & Neonatology. – 2019. – Vol. 60(3). – P. 249–253.
19. Robinson C.P., Mylonakis E. HPV infection during pregnancy: Clinical significance and treatment options // Clin. Obstet. Gynecol. – 2017. – Vol. 60(2). – P. 349–356.
20. Liu F. et al. A new approach for detecting HPV DNA in cervical swabs: direct PCR vs nucleic acid extraction // Virology Journal. – 2024. – Vol. 21(1). – Article 85.
21. Hernandez C. et al. Safety of HPV vaccination during pregnancy: Systematic review // Vaccine. – 2024. – Vol. 42(17). – P. 2215–2223.