

## IMPROVING THE PREDICTION AND PREVENTION OF PRETERM BIRTH IN OBSTETRICS

*Temirova Naima Gayratovna*

*Master's Student, Department of Obstetrics and Gynecology  
Scientific Advisor: Dr. Shakhnoza Alimdjanovna Zufarova*

*Doctor of Medical Sciences, Professor*

### Introduction

Preterm birth continues to be one of the most pressing challenges in modern obstetrics. Globally, it affects more than 15 million pregnancies each year and is the leading cause of neonatal death. Survivors of preterm birth often face serious health consequences, including respiratory complications, neurological disorders, and long-term developmental issues. While many risk factors are known—such as a history of preterm labor, short cervix, multiple gestation, and infections—the ability to predict and prevent PTB remains limited in routine clinical practice.

Recent advances in perinatal medicine have enabled earlier and more accurate risk identification through cervical ultrasound, biochemical testing, and risk scoring systems. Alongside this, clinical interventions such as progesterone therapy, cervical cerclage, and the use of vaginal pessaries have demonstrated efficacy in reducing preterm birth rates among high-risk populations. This study aims to explore the most effective strategies for identifying and managing women at risk of PTB, with the goal of enhancing both maternal and neonatal outcomes.

### Methods

This study is a narrative literature review conducted using publications from 2015 to 2025 sourced from PubMed, Scopus, and Web of Science. The search terms included: “preterm birth prediction,” “cervical length,” “fetal fibronectin,” “progesterone for preterm labor,” “cerclage,” and “obstetric prevention.” Articles selected included randomized controlled trials, clinical guidelines, systematic reviews, and meta-analyses.

Only articles involving human participants, published in English, and directly related to the prediction or prevention of spontaneous preterm labor were included. Studies focused solely on neonatal outcomes or unrelated obstetric complications were excluded. Data were analyzed and grouped into two main categories: methods of prediction and types of intervention.

### Results

Evidence strongly supports the use of cervical length measurement via transvaginal ultrasound as a primary method for predicting preterm birth, particularly when cervical length is less than 25 mm before 24 weeks' gestation. In addition, fetal fibronectin testing from cervicovaginal fluid improves the specificity of prediction in symptomatic patients.

Among preventive strategies, vaginal progesterone has shown to significantly reduce the rate of spontaneous preterm birth in women with a short cervix. Cervical cerclage remains an effective intervention for women with a history of mid-trimester pregnancy loss or multiple preterm births. Emerging evidence also supports the use of vaginal pessaries as a non-invasive mechanical support in select patients.

Lifestyle modifications, infection screening and treatment, and public health efforts aimed at improving access to prenatal care are also important adjuncts in comprehensive PTB prevention programs.

### **Discussion**

The prediction and prevention of preterm birth require an integrated approach that combines clinical assessment with modern diagnostic tools. While cervical length measurement and fetal fibronectin remain the most reliable predictors, their effectiveness is enhanced when used together and interpreted in the context of obstetric history.

Preventive interventions such as progesterone supplementation and cerclage should be individualized based on the patient's risk profile. The role of health systems and socioeconomic factors is also critical, as disparities in access to care continue to impact preterm birth outcomes globally.

Further research is needed to refine predictive models, develop new biomarkers, and ensure that effective interventions are widely accessible, particularly in low-resource settings.

### **Conclusion**

Improving the prediction and prevention of preterm birth is essential to reducing neonatal morbidity and mortality. Through early screening, risk stratification, and the application of personalized preventive measures, obstetricians can make significant progress in managing preterm labor. Continued efforts in clinical research, public health policy, and maternal education are key to addressing this global issue effectively.