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## Preterm Birth and First Trimester Cervical Length

**Prediction of preterm birth with progressive cervical measurements and first trimester PAPP-A levels**

**Author(s):** Karabulut A.; Oztekin O.; Gok S.; Sahin B.; Sariiz G.; Atakul T.

**Source:** Journal of the Turkish German Gynecology Association; May 2016; vol. 17

**Publication Date:** May 2016

Available in full text at [Journal of the Turkish German Gynecological Association](#) - from National Library of Medicine

Available in full text at [Journal of The Turkish German Gynecological Association](#) - from ProQuest

**Abstract:**Objective: Early prediction and taking necessary precautions are important to decrease morbidity and mortality in Preterm births (1). We aimed to assess the role of cervical shortening and decreased cervical volume in the prediction of preterm delivery. Material and Methods: This prospective case control study included women with singleton pregnancy. With use of data from a previous study (1), we estimated that approximately 9 preterm and 52 term pregnancies were needed to achieve at least 80% power to detect effect of sizes at least as large as 0.91 with use of a one-sided  $\alpha=0.05$  t test to compare mean lengths. A cross-sectional study including 66 singleton pregnancy (14 ended as preterm and 52 ended as term delivery) was conducted between March 2014 and March 2015. Cervical measurements were obtained beginning from 11 to 12 weeks and they were followed throughout their pregnancy. A standardized questionnaire was formed to gather information about the sociodemographic features. Physical activity of the participants was assessed according to modified Grimby scale in five categories [13]. Category 1 and 2 are classified as sedentary women, category 3 or higher are classified as active women. PAP-A and BHCG MoM levels of combined screening test were also recorded. Cervical thickness and volume were measured, and the shape was noted by transvaginal sonographic exam at four different gestational periods throughout the pregnancy. Measurements were obtained at 11 to 12 weeks, 15 to 16 weeks, 19-20 weeks and 24-25 weeks. Presence of regular uterine contractions combined with effacement of the cervix and dilatation of 2 cm or more and/or spontaneous rupture of the membranes before 37 weeks of pregnancy was diagnosed as preterm labor, and treatment was given to these patients for the risk of preterm delivery. Gestational week at delivery was noted, and the role cervical changes in prediction of preterm delivery were evaluated. Results: Eighty two women with singleton pregnancy were recruited for the study, but 16 patients disqualified from the study because of not attending regularly to the follow-ups. Fourteen cases ended by preterm, and 52 cases by the term delivery. Sociodemographic variables for the groups were shown on Table 1. No difference was detected between term and preterm delivered groups for cervical length and shape. On the other hand, cervical volume at 11-12 weeks was detected smaller in the preterm delivery group (22584 $\pm$ 13847 mm<sup>3</sup> vs. 28497 $\pm$ 10764 mm<sup>3</sup>) (p=0.02) (Table 2). Furthermore, PAP-A levels were detected lower in preterm delivery group (0.71 $\pm$ 0.27 MoM vs. 1.20 $\pm$ 0.54 MoM respectively). Progressive change in cervical thickness and volume with increasing gestational age was investigated with general linear model for the repeated measures, but no difference was detected between groups. Conclusion: Cervical length measurements at specific weeks between 11 to 24 weeks or progressive change in

serial measurements have no predictive effect for preterm delivery. On the other hand, cervical volume measurement and the PAPP-A levels at 12 weeks seems promising, but further studies with larger sample size are required to clarify the subject. (figure present).

**Database:** EMBASE

### **Early midtrimester serum insulin-like factors and cervical length to predict preterm delivery**

**Author(s):** Shin J.E.; Shin J.C.; Kim S.J.; Lee Y.; Park I.Y.; Lee S.

**Source:** Taiwanese Journal of Obstetrics and Gynecology; Feb 2016; vol. 55 (no. 1); p. 45-49

**Publication Date:** Feb 2016

Available in full text at [Taiwanese Journal of Obstetrics and Gynecology](#) - from Free Access Content

**Abstract:**Objective: To investigate which ultrasound findings or serum biomarkers, including insulin-like growth factor 1 (IGF-1) and insulin-like growth factor binding protein 1 and 3 (IGFBP-1 and IGFBP-3, respectively), in the first and early second trimesters are the best predictors for preterm delivery. Materials and Methods: This was a case-control study conducted between March 2011 and March 2013 with women presenting for routine antenatal care at 11-18 weeks. We collected serum samples from pregnant women and stored them at -80degreeC. All patients underwent cervical length (CL) measurement at 18-21 weeks. We retrieved frozen samples for analysis from women with subsequent preterm and term delivery. Prediction models were developed using multivariate stepwise logistic regression. Receiver-operating characteristics curves were used to determine the most useful cutoff point. Results: Of the 72 women recruited, 24 women underwent spontaneous preterm delivery, and 48 women with term delivery were randomly selected as the control group, in a 1:2 ratio. The maternal serum concentration of IGFBP-3 and CL were significantly associated with preterm birth. Conclusion: Among the various known ultrasound findings and serum biomarkers in the early midtrimester, only CL and IGFBP-3 are independent predictors for preterm delivery in asymptomatic women. Copyright © 2016.

**Database:** EMBASE

### **Cervical consistency index (CCI) evaluation at routine first trimester scan: Association with spontaneous preterm birth in low risk population**

**Author(s):** Parra Saavedra M.A.; Ramirez J.C.; Banos N.; Peguero A.; Fervienza A.; Gratacos E.; Palacio M.

**Source:** Journal of Perinatal Medicine; Oct 2015; vol. 43

**Publication Date:** Oct 2015

**Abstract:**Objective: To establish the association between cervical consistency index (CCI) in the 11 to 13.6 weeks ultrasound screening and spontaneous preterm delivery before 35 weeks. Methods: Prospectively, CCI and cervical length were measured in a cohort of pregnant women who had been evaluated at routine first trimester scan for aneuploidy screening (11-13.6 weeks). The association between CCI, cervical length and subsequent preterm delivery before 35 weeks was evaluated. In addition we recorded maternal age, parity, weight, height and body mass index (BMI). Women who had spontaneous preterm delivery before 35 weeks were selected as cases. Pregnancies with fetal malformations were excluded. Results: We evaluated 843 pregnant women and identified 23 cases (2.73%) with spontaneous preterm delivery below 35 weeks. No statistically significant differences were found in the variables: maternal age, parity, maternal weight, height, BMI between cases and controls. The CCI was lower in cases than in controls: mean 71.2% [range 67.3-77.6%] vs. 78.6% [range 72.4-84.5%]( $p < 0.001$ ), respectively. Cervical length did not differ between cases and controls: mean 37.2mm [range 34-40 mm] vs 39.1mm [range 35-42 mm] ( $p = 0.14$ ), respectively.

Conclusions: Women who presented with preterm birth before 35 weeks had significantly lower values of CCI at first trimester than women who delivered at term. The measurement of CCI in ultrasound screening at 11-13.6 weeks may have clinical value for the early identification of women at risk of preterm birth before 35 weeks.

**Database:** EMBASE

### **The relationship between first-trimester subchorionic hematoma, cervical length, and preterm birth.**

**Author(s):** Palatnik, Anna; Grobman, William A

**Source:** American journal of obstetrics and gynecology; Sep 2015; vol. 213 (no. 3); p. 403

**Publication Date:** Sep 2015

**Abstract:**The objective of the study was to evaluate the association between a sonographically diagnosed subchorionic hematoma (SCH) in the first trimester and subsequent midtrimester cervical length and preterm birth. In this cohort study, 512 women with an SCH on their first-trimester ultrasound were compared with 1024 women without a first-trimester SCH. All women underwent routine transvaginal cervical length measurement between 18 and 22 weeks. Women with multifetal gestation, cerclage, or a uterine anomaly were excluded. A multivariable linear regression was performed to assess the independent association of SCH with cervical length, and a logistic regression was done to determine whether the presence of SCH was associated with preterm birth independent of the cervical length. In a univariable analysis, the presence of a SCH was significantly associated with a shorter mean cervical length as well as a cervical length less than the 10th percentile (4.27 cm vs 4.36 cm,  $P = .038$ ; 1.9% vs 0.5%,  $P = .006$ , respectively). Preterm birth also was more common in women with an SCH (12.5% vs 7.3%,  $P = .001$ ). Even after adjusting for potentially confounding factors, a significant negative association existed between the presence of an SCH and cervical length (centimeters) (linear regression coefficient, -0.08; 95% confidence interval, -0.17 to -0.005). In a multivariable regression, SCH remained associated with preterm birth, even with cervical length entered into the equation as a covariate (adjusted odds ratio, 1.58; 95% confidence interval, 1.09-2.32). First-trimester SCH is associated with both a shorter cervical length and preterm birth. Our data suggest, however, that mechanisms other than cervical shortening may be involved in preterm birth among women with SCH. Copyright © 2015 Elsevier Inc. All rights reserved.

**Database:** Medline

### **Longitudinal cervical length measurements in women with a preceding spontaneous preterm delivery may predict the risk of recurrence: A prospective cohort study**

**Author(s):** Hollander K.W.P.; De Boer M.A.; De Groot C.M.G.; Wouters M.G.A.J.; Twisk J.W.R.

**Source:** Reproductive Sciences; Mar 2015; vol. 22

**Publication Date:** Mar 2015

**Abstract:**INTRODUCTION: Aim: To evaluate the association between longitudinal cervical length measurements and time of delivery in women with a preceding spontaneous preterm delivery. METHODS: A prospective cohort study was performed in a single tertiary hospital (March 2004 - July 2014). Longitudinal transvaginal cervical length (CL) measurements were performed by ultrasound in women with a history of spontaneous preterm delivery in their subsequent, singleton pregnancy. Individual shortest cervical lengths were used to calculate the mean CL (+/- standard deviation, SD) at 4 time intervals. Pregnancies of women with an uterine anomaly or a history of cervical surgery (including conisation, trachelectomy, first trimester cerclage, or prepregnancy abdominal cerclage) were excluded, as well as pregnancies that ended preterm by iatrogenic means. Differences

between groups were analyzed by independent t-tests. RESULTS: Of 422 pregnancies with a preceding spontaneous preterm delivery, 72 were excluded. In 350 pregnancies, 2221 cervical lengths were measured (mean +/- SD, 6.4 +/- 2.9). Table 1. Cervical length (mm in means +/- SD) at 4 intervals by time of Delivery CONCLUSIONS: Women with subsequent spontaneous preterm deliveries have significantly shorter mean cervical lengths between 12 and 28 weeks of pregnancy as compared to those who deliver at term. Women who spontaneously deliver < 28 weeks have a significantly lower mean cervical length in early pregnancy compared to those who deliver at a later gestational age. Longitudinal cervical length measurements may predict the risk of recurrent spontaneous preterm birth and are possibly a useful tool in a prospective risk model. (Table Presented).

**Database:** EMBASE

### **Prediction of spontaneous preterm delivery in singleton pregnancies: where are we and where are we going? A review of literature.**

**Author(s):** Sananès, N; Langer, B; Gaudineau, A; Kutnahorsky, R; Aissi, G; Fritz, G; Boudier, E; Viville, B; Nisand, I; Favre, R

**Source:** Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology; Aug 2014; vol. 34 (no. 6); p. 457-461

**Publication Date:** Aug 2014

Available in full text at [Journal of Obstetrics and Gynaecology](#) - from Taylor & Francis

**Abstract:** Prematurity is the chief cause of neonatal morbidity and mortality. The objective of this study is to review the different methods for predicting preterm delivery in asymptomatic pregnant women and in situations of threatened preterm delivery. A search of the PubMed/Medline database was carried out for the years 1980-2012. We included studies for predicting preterm birth in asymptomatic and symptomatic patients. Models for predicting preterm delivery based on maternal factors, cervical length and obstetric history in first trimester of pregnancy is a valuable avenue of research. Nevertheless, prediction accuracy still needs to be improved. In the second and third trimesters, routine digital vaginal examination is of no value in asymptomatic women. Echography of the cervix is not useful except in patients with a history of late miscarriage or preterm delivery in order to offer them a preventive treatment. In symptomatic women, the combination of digital vaginal examination, cervical echography and fibronectin gives the best predictive results. Electromyography of the uterus and elastography of the cervix are interesting avenues for future research. Identifying patients at risk of preterm delivery should be considered differently at each stage of pregnancy.

**Database:** Medline

### **First trimester screening cannot predict adverse outcomes yet**

**Author(s):** Halscott T.L.; Ramsey P.S.; Reddy U.M.

**Source:** Prenatal Diagnosis; Jul 2014; vol. 34 (no. 7); p. 668-676

**Publication Date:** Jul 2014

Available in full text at [Prenatal Diagnosis](#) - from John Wiley and Sons

**Abstract:** The use of first trimester screening to detect aneuploidy has become an integral part of prenatal care. The application of similar screening algorithms to identify women at the highest risk

for other adverse pregnancy outcomes in the first trimester could potentially have a major clinical impact. There has been much investigation into the ability to identify patients early in pregnancy at high risk for adverse pregnancy outcomes who may benefit from further surveillance and/or intervention. For this to be the case, however, as is true of any useful screening test, effective interventions need to be available. Unfortunately, for fetal growth restriction and stillbirth, no such interventions exist short of delivery. For preeclampsia, low dose aspirin has been demonstrated to be of benefit in specific subgroups. For preterm birth, although there are efficacious treatments, first trimester serum markers or cervical length measurements do not add significantly beyond historical or demographic factors, in prediction of preterm birth. Given the current evidence, first trimester screening, via serum or ultrasound markers, does not have sufficiently high enough positive predictive values for the development of preeclampsia, fetal growth restriction, preterm birth or stillbirth. In order to develop effective screening algorithms for adverse pregnancy outcomes in the first trimester, understanding the heterogeneous phenotype of these complications and the underlying pathophysiology is needed. © 2014 John Wiley & Sons, Ltd.

**Database:** EMBASE

**Prediction of preterm deliveries by cervical length measurement with catheter before embryo transfer in ICSI pregnancies**

**Author(s):** Aydin T.; Yucel B.

**Source:** Human Reproduction; Jul 2014; vol. 29

**Publication Date:** Jul 2014

Available in full text at [Human Reproduction](#) - from Oxford University Press ; Collection notes: To access please select Login with Athens and search and select NHS England as your institution before entering your NHS OpenAthens account details.

Available in full text at [Human Reproduction](#) - from Highwire Press

**Abstract:** Study question: Can cervical length measurement by catheter before embryo transfer predict preterm deliveries? Summary answer: Cervical length measurement with embryo transfer catheter can identify the high-risk group for preterm delivery before conception, and this will expose which pregnancy outcome would improve with single embryo transfer by avoiding from multiple pregnancies that also increases preterm deliveries. What is known already: Preterm delivery (PTD) defined as birth before the completion of 37 weeks' of gestation. Several studies suggest that cervical length (CL) measurement in mid-trimester (22-24 weeks) is a useful method for the prediction of PTD. Additionally, it has realized that the risk for PTD is inversely related to CL at first trimester (11-13 weeks) in high risk pregnancies. No study has performed to evaluate the prediction of PTD by analyzing measurements of CL, preconceptionally. Study design, size, duration: We analyzed data of 494 pregnant women resulting from ICSI treatment during the years 2011-2013 at IVF center, Acibadem Kayseri Hospital, Turkey. Exclusions (multiple pregnancies, miscarriages, PTD history, progesterone use after 12 weeks, cerclage) comprised 250 patients. This study is a retrospective case control study of 244 singleton pregnancies. Participants/materials, setting, methods: Spontaneous preterm delivery occurred in 22 (9.1%) cases. Median cervical length of term delivery and preterm delivery groups were 4.0 mm and 3.3 mm, respectively. The difference between cervical length measurements is statistically significant ( $p = 0.019$ ). Main results and the role of chance: The median maternal age for the women involved in this study was 30.00 (range, 21-45) years. There was no statistically significant difference. ICSI cycle rank, previous parity and type of delivery were statistically similar between the group which delivered at term and preterm. Preterm delivery rate in the occurrence of first trimester bleeding is significantly higher than non-occurrence of first trimester bleeding ( $p = 0.008$ ). Regression analyses demonstrated that, a 1 mm decrease in cervical length a 1.96 times increase in the probability of having a preterm delivery ( $B = 0.51$ ,  $p = 0.032$ ). In addition, there is a three-fold increased risk of preterm birth when first trimester bleeding occurs ( $B = 3.35$ ,  $p = 0.009$ ). Limitations, reason for caution: Area under the ROC curve (AUC) was

calculated as 0.65 (95% Confidence Interval; 0.59-0.71,  $p = 0.012$ ) and sensitivity and specificity values were found as 73%, 52% respectively for the cut-off value of cervical length measurement at 3.5 mm. Wider implications of the findings: There are two advantages of measuring cervical length, before conception in ICSI pregnancies. First of all, single embryo transfer should be considered as the preferred approach when a patient has short cervical length. Secondly effectiveness of prophylactic administrations (progesterone, cervical cerclage etc.) may be initiated at most effective time.

**Database:** EMBASE

### **Is there a role for cervical assessment and uterine artery Doppler in the first trimester of pregnancy as a screening test for spontaneous preterm delivery?**

**Author(s):** Parra-Cordero, M; Sepúlveda-Martínez, A; Rencoret, G; Valdés, E; Pedraza, D; Muñoz, H

**Source:** Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology; Mar 2014; vol. 43 (no. 3); p. 291-296

**Publication Date:** Mar 2014

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from Wiley-Blackwell Free Backfiles NHS

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

**Abstract:** To evaluate the role of cervical length (CL) and uterine artery pulsatility index (UtA-PI) at 11+0 to 13+6 weeks as predictors of spontaneous preterm delivery (sPTD) in a Chilean population. This was a prospective study of asymptomatic women with singleton pregnancies attending for a nuchal translucency scan at 11+0 to 13+6 weeks' gestation and who underwent a transvaginal scan for evaluation of CL and UtA-PI. Exclusion criteria were fetal and pregnancy complications (other than sPTD) and iatrogenic delivery at <34 weeks. Measurements of CL and UtA-PI were adjusted for fetal crown-rump length and maternal characteristics and expressed as multiples of the median (MoM) of the unaffected group. Prediction of sPTD using maternal and pregnancy characteristics was studied using logistic regression analysis. A total of 3480 women were recruited into the study and, after application of exclusion criteria, 3310 were included in the analysis. The rate of sPTD at <34 weeks was 0.9% ( $n=31$ ). A previous PTD had occurred in 7.4% of parous women. Patients with sPTD in the index pregnancy were characterized by a significantly higher prevalence of previous PTD (12.9% vs 3.7%,  $P<0.05$ ). No significant difference was found in either CL or UtA-PI between pregnancies with and without subsequent sPTD. Logistic regression analysis showed that smoking and previous PTD were significantly associated with sPTD at <34 weeks. The combination of these characteristics provided a detection rate of 26% with a false-positive rate of 8%. Neither UtA-PI nor CL during the first trimester was shown to be a useful predictor of early sPTD. However, a combined model that includes smoking and previous PTD predicts approximately one-quarter of those women destined to deliver at <34 weeks, with a false-positive rate of 8%. Copyright © 2013 ISUOG. Published by John Wiley & Sons Ltd.

**Database:** Medline

### **Prediction of spontaneous preterm delivery in the first trimester of pregnancy**



**Author(s):** Sananes N.; Gaudineau A.; Aissi G.; Boudier E.; Fritz G.; Viville B.; Nisand I.; Langer B.; Favre R.; Meyer N.

**Source:** European Journal of Obstetrics Gynecology and Reproductive Biology; Nov 2013; vol. 171 (no. 1); p. 18-22

**Publication Date:** Nov 2013

**Abstract:**Objective To develop a model for predicting premature delivery before 37 weeks' gestation based on maternal factors, obstetric history and biomarkers in the first trimester of pregnancy. Study design Cohort study based on data collected prospectively between 1 January 2000 and 30 November 2011. Multivariate logistic regression was used to construct a model of the risk of premature delivery. Results 31,834 pregnancies were included, of which 1188 cases were spontaneous premature deliveries before 37 weeks (3.7%). We built a predictive model based on maternal age, body mass index, smoking status and previous obstetric history. This could identify 23.3% of premature deliveries in our study population, with a false positive rate of 10%. In the group of patients who had already had at least one pregnancy at or beyond 16 weeks, the detection level increased to 29.7%. The positive predictive value was 7.4 and 7.3% respectively, while negative predictive value was 97.2 and 97.9%. Conclusions Predicting preterm delivery on the basis of maternal characteristics and obstetric history needs to be further improved. PAPP-A levels and ultrasonographic measurement of cervical length could not be integrated in the model but require further investigations. © 2013 Elsevier Ireland Ltd.

**Database:** EMBASE

#### **What is predictive of preterm delivery in the first trimester: isthmus or cervical length?**

**Author(s):** Sananès, Nicolas; Schuller, Elodie; Gaudineau, Adrien; Kohler, Monique; Guerra, Fernando; Weingertner, Anne-Sophie; Fritz, Gabrielle; Viville, Brigitte; Langer, Bruno; Nisand, Israël; Favre, Romain

**Source:** Prenatal diagnosis; Sep 2013; vol. 33 (no. 9); p. 894-898

**Publication Date:** Sep 2013

Available in full text at [Prenatal Diagnosis](#) - from John Wiley and Sons

Available in full text at [Prenatal Diagnosis](#) - from John Wiley and Sons

**Abstract:**This study aims to evaluate the utility of first trimester cervical ultrasonography in predicting preterm delivery by separate analysis of measurements of cervical and isthmus length. This is a cohort study based on data collected prospectively on singletons between 1 July 2011 and 1 February 2013. Mean cervical, isthmus and cervico-isthmus complex length were measured for deliveries before and after 37 weeks. A total of 1494 pregnancies were analysed, including 51 cases of spontaneous preterm delivery (3.4%). The cervico-isthmus complex in the first trimester was significantly shorter in patients who delivered before term (43.8 mm vs 47.5 mm,  $p = 0.04$ ). This difference is related to differences in length at the isthmus (10.7 mm vs 14.1 mm,  $p = 0.005$ ) rather than at the cervix proper (34.5 mm vs 35.0 mm,  $p = 0.56$ ). Measurement of the cervico-isthmus complex enables detection of a number of patients who will go on to deliver before term. Further studies are necessary to confirm that isthmus length and not cervical length is predictive of preterm delivery. © 2013 John Wiley & Sons, Ltd.

**Database:** Medline

#### **First-trimester screening for spontaneous preterm delivery with maternal characteristics and cervical length**

**Author(s):** Greco E.; Gupta R.; Syngelaki A.; Poon L.C.Y.; Nicolaides K.H.

**Source:** Fetal Diagnosis and Therapy; Apr 2012; vol. 31 (no. 3); p. 154-161

**Publication Date:** Apr 2012

Available in full text at [Fetal Diagnosis and Therapy](#) - from ProQuest

**Abstract:**Objective: It was the aim of this study to examine the potential value of cervical length at 11-13 weeks' gestation in the prediction of spontaneous preterm delivery. Methods: This was a screening study for spontaneous preterm delivery in singleton pregnancies from cervical length measured by transvaginal ultrasound at 11-13 weeks' gestation. The performance of screening for preterm delivery by cervical length alone and with maternal characteristics was estimated. Results: In the 9,974 pregnancies included in the study, spontaneous delivery before 34 weeks occurred in 104 (1.0%) cases. Multivariate regression analysis in the term delivery group demonstrated that for the log<sub>10</sub> cervical length, significant independent contributions were provided by fetal crown-rump length, maternal height, age, racial origin and parity. The median cervical length multiple of the median (MoM), corrected for maternal characteristics, was significantly lower in the preterm (0.892 MoM, 95% CI 0.829-0.945) than in the term delivery group (0.994 MoM, 95% CI 0.919-1.082;  $p < 0.0001$ ). In screening by a combination of maternal characteristics and cervical length, the estimated detection rate of preterm delivery was 54.8% (95% CI 44.7-64.6), at a false-positive rate of 10%. Conclusions: Effective first-trimester screening for spontaneous early preterm delivery can be provided by a combination of maternal characteristics and cervical length. © 2012 S. Karger AG, Basel.

**Database:** EMBASE

### **First trimester cervical length measurement predicts preterm delivery in IVF patients**

**Author(s):** Vincent-Boulay O.; Mahutte N.G.; Bissonauth V.; Ouhilal S.

**Source:** Fertility and Sterility; Sep 2011; vol. 96 (no. 3)

**Publication Date:** Sep 2011

**Abstract:**OBJECTIVE: Cervical length measurements in the second and third trimester have been shown to predict preterm delivery. We sought to examine the relationship, if any, between first trimester cervical length measurement and preterm birth in both singleton and twin IVF pregnancies. DESIGN: Retrospective study. MATERIALS AND METHODS: All first trimester cervical length measurements in IVF pregnancies between July 2007 and 2010 were reviewed. Transvaginal cervical length measurements between 6 and 12 weeks gestation were recorded as well as gestational age at delivery. Singleton and twin pregnancies were analyzed separately. Most pregnant IVF patients had had cervical length measurements recorded at each weekly ultrasound between 6 and 10 weeks. Predictive value of worst, average and 10th week cervical length measurements was assessed. RESULTS: Serial first trimester cervical length measurements were available for a total of 139 patients (92 singleton and 47 twin pregnancies). Patients with a cervical length less than 4 cm in the first trimester had a significantly higher chance at preterm delivery than patients whose cervical length was always measured greater than 4 cm ( $P=0.015$ ). Interestingly, important differences were noted between twin and singleton pregnancies. First trimester average cervical length measurements in twins correlated much more dramatically with preterm delivery than with singletons. In singletons, the only significant predictive factor was a cervical length measurement less than 4 cm, whereas in twins gestational age at delivery declined significantly once the cervical length was less than 5 cm ( $P=0.007$ ). The cervical length measurement at 10 weeks gestation was predictive of preterm delivery in twins but not in singletons ( $P=0.008$ ). CONCLUSION: Average, worst and 10th week gestation first trimester cervical length measurements are predictive of preterm delivery in twin pregnancies, whereas in singleton pregnancies, the only predictor of preterm delivery was a cervical length below 4 cm.

**Database:** EMBASE



### **First trimester cervical length and preterm delivery in pregnancies conceived through in vitro fertilization**

**Author(s):** Al-Safi Z.A.; Shavell V.I.; Roberts R.P.; Singh M.; Puscheck E.E.; Diamond M.P.

**Source:** Fertility and Sterility; Sep 2011; vol. 96 (no. 3)

**Publication Date:** Sep 2011

**Abstract:**OBJECTIVE: To determine the utility of first trimester cervical length in the prediction of preterm delivery in patients who conceived through in vitro fertilization. DESIGN: Retrospective cohort study. MATERIALS AND METHODS: Women who delivered at >20 weeks' gestation after undergoing in vitro fertilization from January 2008 through December 2009 were identified, and charts were reviewed for demographic and clinical information. Cervical length measurements were extracted from first trimester obstetric ultrasound reports. Preterm delivery was defined as delivery prior to 37 weeks' gestational age. Data were analyzed using Pearson's chi-square test for categorical variables and Student's t-test for continuous variables. Using Receiver Operator Curve analysis, the optimal cervical length cutpoint for the prediction of preterm birth was determined. RESULTS: The rate of preterm delivery was 31.5% (17/54). Mean gestational age at delivery was 34.7 weeks in the preterm delivery group vs. 39.3 weeks for those who delivered after 37 weeks' gestation ( $P < .001$ ). Compared to women who delivered full term, women who delivered preterm were not statistically different with respect to age, gravidity, parity, or the presence of multiple gestations. A shorter cervical length on first trimester ultrasound was found to be significantly associated with preterm delivery (39.1 vs. 42.4 mm,  $P = .034$ ). For women who delivered preterm, those with multiple gestations did not have a significantly shorter cervical length compared to those with singleton gestations ( $P = .760$ ). Using a threshold of 38.5 mm, cervical length conferred 47% sensitivity and 81% specificity in the prediction of preterm delivery. CONCLUSION: First trimester cervical length may be useful in the prediction of preterm delivery in pregnancies conceived through in vitro fertilization.

**Database:** EMBASE

### **Cervical length changes from the first to second trimester of pregnancy, and prediction of preterm birth by first-trimester sonographic cervical measurement**

**Author(s):** Souka A.P.; Papastefanou I.; Michalitsi V.; Salambasis K.; Chrelias C.; Salamalekis G.; Kassanos D.

**Source:** Journal of ultrasound in medicine : official journal of the American Institute of Ultrasound in Medicine; Jul 2011; vol. 30 (no. 7); p. 997-1002

**Publication Date:** Jul 2011

**Abstract:**The purpose of this study was to examine the evolution of cervical length from the first to second trimester of pregnancy and the value of first-trimester cervical measurement in the prediction of preterm delivery. We conducted a longitudinal prospective study. Cervical length was measured by transvaginal sonography at 11 to 14 weeks (Cx1), 16 to 19 weeks (Cx2), and 20 to 24 weeks (Cx3). Eight hundred singleton pregnancies were studied. The median cervical lengths were 33 mm for Cx1 and 31 mm for Cx2 and Cx3. Significant independent predictors for cervical length were maternal weight, height, and history of cervical surgery for Cx1, maternal height, history of cervical surgery, and history of preterm delivery for Cx2, and history of cervical surgery, history of first-trimester miscarriage, and history of spontaneous preterm delivery for Cx3. Mean cervical length shortening was 2.36 mm between Cx1 and Cx3. In the subgroups of women with previous cervical surgery and history of previous preterm birth, cervical shortening was significantly more prominent. The median Cx1 was significantly shorter in the women who subsequently delivered preterm; Cx1 predicted preterm delivery before 34 weeks (odds ratio, 0.746; 95% confidence

interval, 0.649-0.869) and preterm delivery before 32 weeks (odds ratio, 0.734; 95% confidence interval, 0.637-0.912). Cervical length in the first trimester depends on maternal characteristics and a history of cervical surgery. The cervix exhibits minimal changes from 11 to 24 weeks for most women, although the shortening is more prominent in women with a history of cervical surgery or preterm delivery. First-trimester cervical length measurement can predict preterm delivery.

**Database:** EMBASE

**Ultrasonographic assessment of cervix size and its correlation with female characteristics, pregnancy, BMI, and other anthropometric features.**

**Author(s):** Londero, A P; Bertozzi, S; Fruscalzo, A; Driul, L; Marchesoni, D

**Source:** Archives of gynecology and obstetrics; Mar 2011; vol. 283 (no. 3); p. 545-550

**Publication Date:** Mar 2011

Available in full text at [Archives of Gynecology and Obstetrics](#) - from Springer Link Journals

**Abstract:** Cervical length during the first trimester of pregnancy has not been completely investigated yet. The objective of our study is to compare cervical size in the first ten gestational weeks with that of non-pregnant women, and to determine its correlation with maternal factors, including age, anthropometric features, and reproductive history. We collected retrospective data about women who applied to the Obstetrics and Gynecology Outpatients Facility of Udine between February and June 2009, selecting both pregnant and non-pregnant women possessing a transvaginal ultrasonographic measurement of their cervix, and focusing on their age, parity, BMI, cervical, and uterine size. Data were analyzed by R (version.2.8.0), considering significant  $P < 0.05$ . 135 women were recruited. By multivariate linear regression, both cervical length and width result independently influenced by pregnancy status, and among non-pregnant nullipara, cervical length results to be significantly lower in women younger than 20 ( $P < 0.05$ ). During the first ten gestational weeks, cervix results to be longer and wider than in non-pregnant women, suggesting the possible existence of early gestational, morphological, uterine, and cervical modifications. Women under the age of 20 have a significantly shorter cervix, suggesting an incomplete cervix maturity in this group of women, which may justify the higher prevalence of pre-term births in teenage pregnancies.

**Database:** Medline

**The role of cervical length measurement at 11-14 weeks for the prediction of preterm delivery**

**Author(s):** Antsaklis P.; Daskalakis G.; Pilalis A.; Papantoniou N.; Mesogitis S.; Antsaklis A.

**Source:** Journal of Maternal-Fetal and Neonatal Medicine; Mar 2011; vol. 24 (no. 3); p. 465-470

**Publication Date:** Mar 2011

Available in full text at [Journal of Maternal-Fetal and Neonatal Medicine, The](#) - from Taylor & Francis

**Abstract:** Objective. To determine whether cervical length (CL) measurement at 11-14 weeks is predictive of preterm delivery (PTD). Methods. This was a prospective study of a low-risk population of 1113 women, who underwent CL measurement at 11-14 weeks. Mean CL was calculated for deliveries at  $>37$ , 37 weeks ( $p = 0.001$ ). Receiver operating characteristic analysis showed small predictive value of CL for PTD  $<37$  weeks (sensitivity = 63.3% and specificity = 51.1%, area under the curve (AUC) = 0.60, 95% CI: 0.54-0.66) ( $p = 0.001$ ) and did not show any predictive value for PTD  $<35$  weeks (AUC = 0.55, 95% CI: 0.43-0.67,  $p = 0.355$ ) or PTD  $<32$  weeks (AUC = 0.51, 95% CI: 0.30-0.74,  $p = 0.851$ ). Conclusion. CL at 11-14 weeks does not appear to be predictive of PTD. Statistical analysis of CL did not show any predictive value for PTD  $<35$  weeks, or  $<32$  weeks and although it showed a predictive value for PTD at  $<37$  weeks, the sensitivity was very low. © 2011 Informa UK, Ltd.

**Database:** EMBASE

### **Prediction of spontaneous preterm delivery from endocervical length at 11 to 13 weeks**

**Author(s):** Greco E.; Lange A.; Ushakov F.; Calvo J.R.; Nicolaides K.H.

**Source:** Prenatal Diagnosis; Jan 2011; vol. 31 (no. 1); p. 84-89

**Publication Date:** Jan 2011

Available in full text at [Prenatal Diagnosis](#) - from John Wiley and Sons

Available in full text at [Prenatal Diagnosis](#) - from John Wiley and Sons

**Abstract:**Objective: To define the potential value of endocervical length at 11 to 13 weeks' gestation in the prediction of spontaneous early delivery. Method: The lengths of the endocervix and cervico-isthmus complex were measured by transvaginal ultrasound at 11 to 13 weeks in singleton pregnancies, including 1492 that subsequently delivered after 34 weeks and 16 (1.1%) who had spontaneous delivery before 34 weeks. In 1320 of the cases, the measurements were repeated at 20 to 24 weeks. Results: There were significant associations in the length of the endocervix and cervico-isthmus complex between 11 to 13 and 20 to 24 weeks ( $r = 0.548$ ,  $p < 0.0001$  and  $r = 0.194$ ,  $p < 0.0001$ ), and the respective median lengths were 32.4 and 32.2 mm for the endocervix and 45.3 and 40.4 mm for the cervico-isthmus complex. At 11 to 13 weeks in the early delivery group, compared to unaffected pregnancies, the median endocervical length was shorter (27.5 vs 32.5 mm,  $p < 0.0001$ ), but there was no significant difference in the length of the cervico-isthmus complex (41.4 vs 45.4 mm,  $p = 0.054$ ). Conclusion: In the measurement of cervical length, the endocervix should be distinguished from the isthmus. The endocervical length at 11 to 13 weeks is shorter in pregnancies resulting in spontaneous delivery before 34 weeks than in those delivering after 34 weeks. Copyright © 2010 John Wiley & Sons, Ltd.

**Database:** EMBASE

### **T.V. sonographic assessment of cervix during 1st and 2nd trimester and preterm labour**

**Author(s):** Alexandridis P.; Dafopoulos A.; Zografou C.; Psyllaki A.; Mantratzis T.; Ammari A.; Tsikouras P.; Galazios G.; Liberis V.; Tsigga E.

**Source:** Archives of Gynecology and Obstetrics; Oct 2010; vol. 282

**Publication Date:** Oct 2010

Available in full text at [Archives of Gynecology and Obstetrics](#) - from Springer Link Journals

**Abstract:**Objective: Preterm labour, its recurrence and preterm delivery are probably the largest problem in the area of modern perinatology. The past 20 years have seen many advances in perinatal medicine but, unfortunately, the 11-12% of total pregnancies complicated with preterm delivery. Our purpose was to assess the accuracy of cervical measurements by transvaginal ultrasonography during 1st and 2nd trimester in the prediction of preterm labour. Materials and methods: In a retrospective study, between 1995 and 2005, 500 high-risk women with singleton pregnancies underwent transvaginal sonographic examination to assess the cervical length and the presence of cervical funneling as a screening test for spontaneous preterm delivery. Results: Of 500 women with transvaginal sonographic cervical assessment, 216 (43.2%) had abnormal cervical length during the 1st and 2nd trimester. Abnormal dilatation of the internal cervical os was observed in 169 (33.8%) women during the 1st trimester and 170 (34.0%) women during the 2nd trimester. 110 (22%) women had abnormal cervical length and abnormal dilatation of the internal cervical os at the same time. In fact, logistic regression analysis showed that risk of spontaneous preterm delivery was 6 times higher at women with abnormal cervical length compared to them with cervical length within normal limits (cOR 6.1, 95% CI 4.0-9.2 for both trimesters) and more than 30 times higher at

women with abnormal dilatation of the internal cervical os compared to women with normal findings (1st trimester: cOR 34.5, 95% CI 20.6-58.0; 2nd trimester: cOR 33.5, 95% CI 20.0-56.1).  
Conclusions: Our data confirm that sonographic assessment between 9 and 12 weeks is the best cut-off period for predicting preterm labour.

**Database:** EMBASE

### **Could we associate low levels of first-trimester PAPP-A and short cervical length to predict preterm delivery**

**Author(s):** Carrillo A.P.; Maldonado Del Valle M.D.; Alonso J.J.M.; Palomo M.L.C.; Diaz C.M.M.; Parrado M.V.P.; Gomez O.R.

**Source:** Journal of Maternal-Fetal and Neonatal Medicine; May 2010; vol. 23 ; p. 181

**Publication Date:** May 2010

Available in full text at [Journal of Maternal-Fetal and Neonatal Medicine, The](#) - from Taylor & Francis

**Abstract:**Brief Introduction: Preterm birth is the leading cause of perinatal death in the developed world. The aim of this study was to determine the association between low levels of first trimester maternal serum pregnancy-associated plasma protein A (PAPP-A) and cervical length measured at 28-30 weeks' gestation to implement preventive actions. Materials and Methods: This was a descriptive, prospective study including 83 patients with singleton pregnancies that had undergone screening for chromosomal abnormalities in the first trimester. We measured cervical length at 18-22 weeks gestation and at 28-30 weeks'. Clinical Cases or Summary Results: The analysis of the results was performed with MS Office Excel and econometric programme Eviews. We analyzed four risk factors for preterm delivery: low levels of PAPP-A, short cervical length, low maternal weight and being primigravid. We registered 12 deliveries before the 37 week (14.5% of the total), 6 of them (50%) had representative low levels of PAPP-A (50.79 Mom) and 4 also presented a short cervical length at 30 weeks. Conclusions: Our study showed that low levels of PAPP-A in the first trimester are associated with a shorter cervical length as well as its strong reduction and lead to an increased likelihood of preterm delivery. Further research on this task could allow us to create a diagnostic algorithm to detect those pregnancies at high risk for preterm delivery and establish a stricter vigilance from the first trimester.

**Database:** EMBASE

### **Cervical length at 11-14 weeks as a predictor of preterm delivery in a low risk unselected population**

**Author(s):** Antsaklis P.; Souka A.; Pilalis A.; Papantoniou N.; Mesogitis S.; Antsaklis A.

**Source:** Journal of Maternal-Fetal and Neonatal Medicine; May 2010; vol. 23 ; p. 101

**Publication Date:** May 2010

Available in full text at [Journal of Maternal-Fetal and Neonatal Medicine, The](#) - from Taylor & Francis

**Abstract:**Brief Introduction: To determine if the measurement of the cervical length at 11-14 weeks, in an unselected population is predictive of preterm delivery Materials and Methods: This was a prospective study of an unselected population of 1113 women, who attended for the 11-14 week scan and underwent transvaginal cervical length measurement. The mean cervical length was calculated for women who delivered at >37, 37 and 37 weeks ( $p = 0.001$ ). The optimal-cut off length for the prediction of PTD at < 37 weeks was 38.4 mm, with a sens = 63.3% and spec = 51.1%. The area under the curve (AUC) was 0.60 (95% CI: 0.54-0.66), which significantly differs from 0.5 ( $p = 0.001$ ). ROC analysis showed that cervical length had no significant predictive ability for PTD <35 weeks (AUC = 0.55, 95% CI: 0.43-0.67,  $p = 0.355$ ) or PTD <32 weeks (AUC = 0.51, 95% CI: 0.30-0.74,  $p$

= 0.851). Conclusions: Cervical length measurement in the first trimester of pregnancy according to our analysis was not predictive of PTD. However, women who delivered at <37 weeks were found to have, in average, shorter cervix than women who had term deliveries.

**Database:** EMBASE

**Prevention of spontaneous preterm birth: the role of sonographic cervical length in identifying patients who may benefit from progesterone treatment.**

**Author(s):** Romero, Roberto

**Source:** Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology; Oct 2007; vol. 30 (no. 5); p. 675-686

**Publication Date:** Oct 2007

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from Wiley-Blackwell Free Backfiles NHS

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

**Database:** Medline

**Ultrasonographic cervical length measurement at 10-14 and 20-24 weeks gestation and the risk of preterm delivery**

**Author(s):** Ozdemir I.; Demirci F.; Yucel O.; Erkorkmaz U.

**Source:** European Journal of Obstetrics Gynecology and Reproductive Biology; Feb 2007; vol. 130 (no. 2); p. 176-179

**Publication Date:** Feb 2007

**Abstract:**Objective: To compare cervical length measurements at 10-14 and 20-24 weeks gestation in asymptomatic women with singleton pregnancies and to assess the measurements as a predictor of preterm delivery. Study design: In this prospective study, cervical length was measured in 152 asymptomatic women with singleton pregnancies using transvaginal ultrasonography at 10-14 and 20-24 weeks gestation. The primary outcome measure was spontaneous preterm delivery before 35 weeks of gestation. The mean cervical length was calculated at both stages, and lengths were compared between the term and preterm groups. Results: The rate of spontaneous preterm deliveries was 10.5%. The mean cervical length at 10-14 and 20-24 weeks was 40.5 and 37.1 mm, respectively. The cervical length at 10-14 weeks was not significantly different between those who delivered at term (40.9 mm) and those who delivered preterm (38.6 mm). By contrast, the cervical length at 20-24 weeks was significantly shorter in the group that had preterm deliveries (28.4 mm) than in those who had term deliveries (37.8 mm) ( $P < 0.001$ ). The cervical shortening was more apparent in the group that delivered prematurely (from 38.6 to 28.4 mm) than in that which delivered at term (from 40.9 to 37.8 mm). Conclusion: Cervical length measurement used to predict preterm delivery was found to be more predictive at 20-24 weeks. Cervical length measurement at 10-14 weeks was not reliable for predicting preterm delivery. The mean cervical length tapered gradually from the first to the second scan, and the more rapid cervical shortening was found to be associated with increased risk for preterm delivery. © 2006 Elsevier Ireland Ltd. All rights reserved.

**Database:** EMBASE

### **Does cervical length at 13-15 weeks' gestation predict preterm delivery in an unselected population?**

**Author(s):** Conoscenti, G; Meir, Y J; D'Ottavio, G; Rustico, M A; Pinzano, R; Fischer-Tamaro, L; Stampalija, T; Natale, R; Maso, G; Mandruzzato, G

**Source:** Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology; Feb 2003; vol. 21 (no. 2); p. 128-134

**Publication Date:** Feb 2003

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from Wiley-Blackwell Free Backfiles NHS

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

**Abstract:**To assess the role of early mid-trimester cervical length measurement as a predictor of spontaneous preterm birth in an unselected population. In this prospective study, unselected, asymptomatic, Caucasian women with singleton pregnancies underwent standardized transvaginal ultrasonographic (TVS) cervical length measurement at 13-15 weeks' gestation as a screening test for preterm delivery (PTD). Women with multiple gestations, iatrogenic PTD, and previous cervical conization were excluded. The primary outcome measures were spontaneous PTD at < 37 and < 34 weeks. The correlation between cervical length and previous obstetric history was evaluated. A total of 2469 patients met the inclusion criteria. The mean gestational age at cervical assessment was 14 + 2 weeks. The mean gestational age at delivery was 40 + 0 weeks. The rate of spontaneous deliveries before 37 weeks' gestation was 1.7%. In 0.2% the delivery occurred before 34 weeks' gestation. The mean +/- standard deviation cervical length for the entire population was 44.2 +/- 5.4 mm. No difference was observed between cervical length in women that delivered at term and those that delivered either before 37 or before 34 weeks' gestation. Previous obstetric history (prior preterm birth, previous miscarriages and terminations, and parity) did not affect cervical length at 14 weeks of gestation. Performed at 14 weeks' gestation, TVS measurement of the cervical canal length to predict spontaneous PTD is not a reliable screening procedure. Copyright 2003 ISUOG. Published by John Wiley & Sons, Ltd.

**Database:** Medline

### **Does transvaginal sonographic measurement of cervical length before 14 weeks predict preterm delivery in high-risk pregnancies?**

**Author(s):** Berghella, V; Talucci, M; Desai, A

**Source:** Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology; Feb 2003; vol. 21 (no. 2); p. 140-144

**Publication Date:** Feb 2003

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

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Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from Wiley-Blackwell Free Backfiles NHS

Available in full text at [Ultrasound in Obstetrics and Gynecology](#) - from John Wiley and Sons

**Abstract:**To determine whether high-risk patients manifest cervical length < 25 mm on transvaginal ultrasound before 14 weeks of gestation, and if this finding is predictive of preterm delivery. Asymptomatic pregnancies at high risk for preterm birth were followed prospectively from 10 + 0



weeks to 13 + 6 weeks with transvaginal sonographic measurement of the cervix. A cervical length < 25 mm was considered a short cervix at this gestational age and at the follow-up ultrasound examinations, performed between 14 and 24 weeks. The primary outcome was preterm birth at < 35 weeks of gestation. One hundred and eighty-three pregnancies met the study criteria and were included in the analysis. Only 10 (5%) patients had a cervix < 25 mm before 14 weeks. The sensitivity, specificity and positive and negative predictive values of a short cervix were 14%, 97%, 50%, and 82%, respectively (relative risk, 2.8; 95% confidence interval, 1.4-5.6). The mean transvaginal sonographic cervical length before 14 weeks of gestation was 33.7 +/- 6.9 mm in pregnancies which delivered preterm (n = 36), and 35.0 +/- 6.8 mm in those delivering at term (n = 147) (P = 0.3). Follow-up transvaginal ultrasound examination of the cervix to 24 weeks revealed that the average gestational age at which a short cervix was detected was 18.7 +/- 2.9 weeks. A cervical length < 25 mm on transvaginal sonographic assessment rarely occurs before 14 weeks even in high-risk patients destined to deliver preterm; in these patients cervical changes predictive of preterm birth develop mostly after this gestational age. Copyright 2003 ISUOG. Published by John Wiley & Sons, Ltd.

**Database:** Medline

### **Early cervical length, preterm prelabor and gestational age at delivery: Is there a relationship?**

**Author(s):** Zalar Jr. R.W.

**Source:** Journal of Reproductive Medicine for the Obstetrician and Gynecologist; Dec 1998; vol. 43 (no. 12); p. 1027-1033

**Publication Date:** Dec 1998

**Abstract:**OBJECTIVE: To measure early cervical length by transvaginal ultrasound in the late first trimester, to examine its relationship to the occurrence of preterm prelabor diagnosis and to relate both to gestational age at delivery. STUDY DESIGN: In a cohort of 373 women with singleton pregnancies, early cervical length was measured transvaginally at the time of a routine dating ultrasound examination (11.3 +/- 1.9 weeks gestation). For measurements 40 mm were recorded but not used. Beginning at 20 weeks' gestation, all patients were regularly questioned, as part of normal prenatal care, for symptoms consistent with preterm cervical effacement with or without increased uterine activity. RESULTS: Early cervical length at or below the 10th percentile (40 mm) was significantly associated with an increased relative risk of preterm prelabor (P<.0001). Preterm prelabor diagnosis was significantly associated with earlier median gestational age at delivery: 38.7 vs. 39.9 weeks (P<.0001 by Wilcoxon-Mann-Whitney analysis). Kaplan-Meier survival analysis for gestational age at delivery was also significant (P<.0001). CONCLUSION: Measuring of cervical length in the late first trimester predicts the risk of preterm prelabor, and women with preterm prelabor deliver earlier than those without.

**Database:** EMBASE

## Strategy 92216

#	Database	Search term	Results
1	Medline	(cervi* ADJ2 length).ti,ab	1537
2	Medline	exp "CERVICAL LENGTH MEASUREMENT"/	323
3	Medline	(cervi* ADJ2 length).ti,ab OR exp "CERVICAL LENGTH MEASUREMENT"/	1569
4	Medline	((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab	27095
5	Medline	exp "PREMATURE BIRTH"/	8651
6	Medline	((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE BIRTH"/	30671
7	Medline	((cervi* ADJ2 length).ti,ab OR exp "CERVICAL LENGTH MEASUREMENT"/) AND (((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE BIRTH"/)	850
8	Medline	("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab	31560
9	Medline	exp "PREGNANCY TRIMESTER, FIRST"/	14115
10	Medline	("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab OR exp "PREGNANCY TRIMESTER, FIRST"/	36523
11	Medline	((cervi* ADJ2 length).ti,ab OR exp "CERVICAL LENGTH	44

		MEASUREMENT"/) AND (((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE BIRTH"/)) AND (("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab OR exp "PREGNANCY TRIMESTER, FIRST"/)	
12	EMBASE	(cervi* ADJ2 length).ti,ab	2345
13	EMBASE	exp "CERVICAL LENGTH MEASUREMENT"/	1808
14	EMBASE	(cervi* ADJ2 length).ti,ab OR exp "CERVICAL LENGTH MEASUREMENT"/	2604
15	EMBASE	((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab	35424
16	EMBASE	exp "PREMATURE LABOR"/	40891
17	EMBASE	((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE LABOR"/	54529
18	EMBASE	("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab	42758
19	EMBASE	exp "FIRST TRIMESTER PREGNANCY"/	35595
20	EMBASE	("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab OR exp "FIRST TRIMESTER PREGNANCY"/	50377
21	EMBASE	(((cervi* ADJ2 length).ti,ab OR exp "CERVICAL LENGTH MEASUREMENT"/) AND	118

		((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE LABOR"/)) AND ("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab OR exp "FIRST TRIMESTER PREGNANCY"/)	
22	EMBASE	((cervi* ADJ2 length).ti,ab OR exp "CERVICAL LENGTH MEASUREMENT"/) AND ((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE LABOR"/)) AND ("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab OR exp "FIRST TRIMESTER PREGNANCY"/)) [English language]	106
23	PubMed	(cervi* ADJ2 length).ti,ab	7208
24	PubMed	(cervi* ADJ2 short*).ti,ab	10508
25	PubMed	(cervi* ADJ2 length).ti,ab OR (cervi* ADJ2 short*)	16185
26	PubMed	((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab	7545
27	PubMed	("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab	32794
28	PubMed	((cervi* ADJ2 length).ti,ab OR (cervi* ADJ2 short*).ti,ab) AND ((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab) AND ("first trimester*" OR "1st	7

		trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab	
29	PubMed	((cervi* ADJ2 length).ti,ab OR (cervi* ADJ2 short*).ti,ab) AND ((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab	93
30	Medline	(cervi* ADJ2 short*).ti,ab	972
31	Medline	((((preterm OR premature OR "pre term") ADJ2 (birth* OR labour OR labor)).ti,ab OR exp "PREMATURE BIRTH"/) AND ("first trimester*" OR "1st trimester*" OR "1 st trimester*" OR "early pregnancy").ti,ab OR exp "PREGNANCY TRIMESTER, FIRST"/)) AND (cervi* ADJ2 short*).ti,ab	21