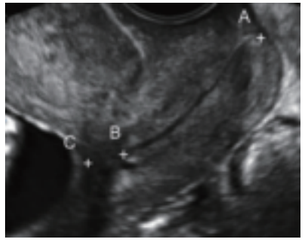
Assessing the Risk of Preterm Birth

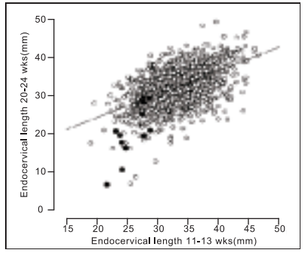
"If Only I Had Known!"

Understanding risks in advance and taking appropriate preventative measures can help prevent babies from entering this world prematurely. While preterm births may seem sudden, early warning signs do exist. Recognizing these signs during the early stages of pregnancy can promote the effective prevention of preterm birth.

Approximately 2% of premature births take place before 34 weeks of gestation, and premature births are the main cause of infant death and poor health prognosis. Preterm birth screening allows high-risk pregnancies to be identified for follow-up, progesterone treatment or even cervical cerclage, all of which can reduce the chance of preterm birth.



First trimester cervical length
is closely linked to preterm birth

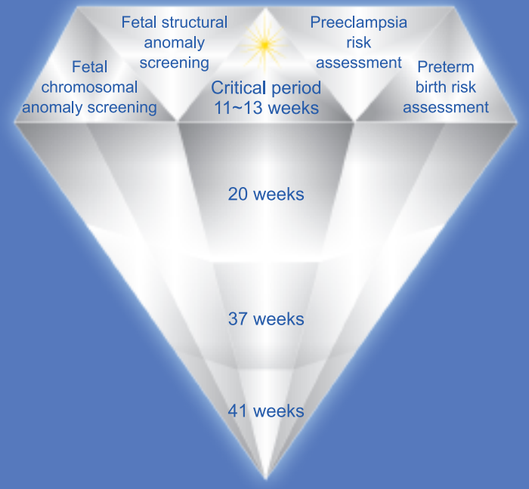


A positive linear correlation exists between
first trimester and second trimester cervical length

The First Trimester: A Critical Period for Prenatal Examination!

In 2011, British professor Kapros H. Nicolaides, an authority in fetal medicine, proposed a novel prenatal care model: Inverted Pyramid Model of Prenatal Care. The core concept of this model is that a comprehensive assessment, which includes fetal chromosomal anomaly screening, structural and congenital anomaly screening, preeclampsia risk assessment, and preterm birth risk assessment, should be performed at 11~13 weeks of pregnancy. The purpose of this prenatal model is to identify high-risk patients during the early stages of pregnancy. Medical professionals can then provide these patients with care, regular follow-up examinations, health education, consultation, and treatment. Conversely, mothers that are identified as being low-risk can feel more at ease throughout the pregnancy.

Inverted Pyramid Model of Prenatal Care



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Comprehensive First-Trimester Pregnancy Evaluation

Screening of pr**E**term birth, preecl**A**mpsia,
and **R**isk of **CH**romosomal anomaly,
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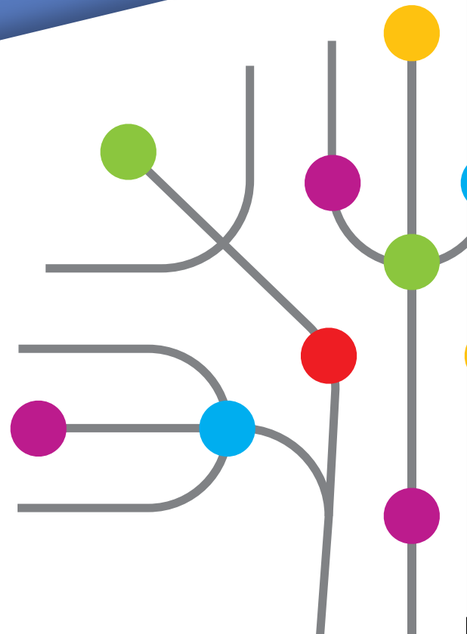


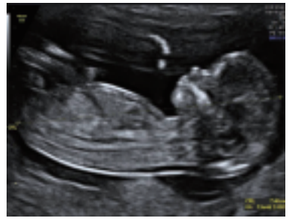
Screening Items in First-Trimester Pregnancy Evaluation

Eliminating Pregnancy-related Worries in One Go

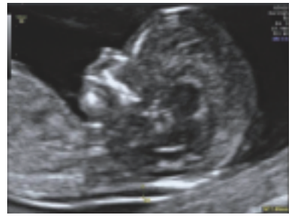
In recent years, the first trimester has been identified as a crucial time for prenatal care at numerous medical conferences. The occurrence of many pregnancy-related conditions can be determined during the first trimester, and with treatment, the chance of complications can be greatly reduced. The Comprehensive First-Trimester Pregnancy Evaluation features cutting-edge screening techniques which allow expectant parents to feel at ease throughout their pregnancy.

Fetal Chromosomal Anomaly Screening

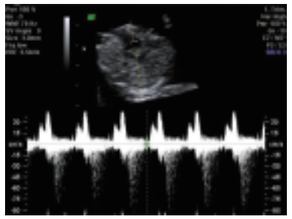
At 11~13^{+6} weeks of pregnancy, the risk of chromosomal anomalies can be calculated according to crown-rump length (CRL), nuchal translucency (NT), and the levels of pregnancy-associated plasma protein A (PAPP-A) and free β-subunit of human chorionic gonadotropin (β-hCG) in maternal blood serum. The detection rate of these combined screening tests is between 82~87%. NT thickness provides an index for chromosomal anomalies, and a thickened NT has been associated with fetal heart abnormalities, chromosomal microdeletions, and congenital infections. Therefore, measuring the NT can be recognized as a high-level ultrasound in early pregnancy.



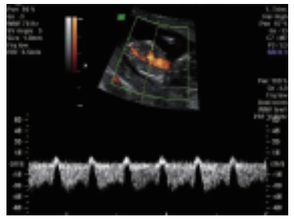
Crown-rump length (CRL)



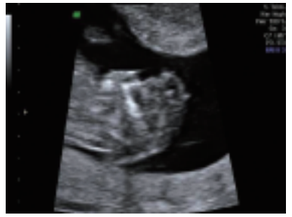
Nuchal translucency (NT) and nasal bone



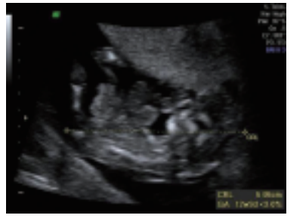
Tricuspid regurgitation



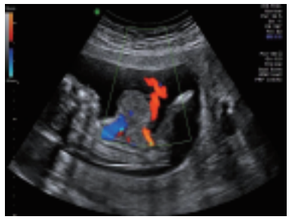
Ductus venosus regurgitation



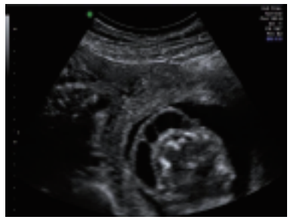
Acrania



Gastroschisis



Acromphalus



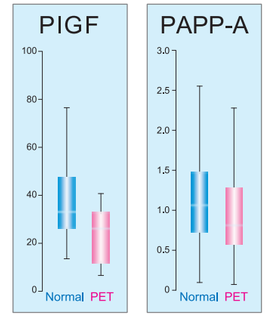
Nuchal edema

Fetal Structural Anomaly Screening

Most major fetal anomalies can be detected via ultrasound at 11~13^{+6} weeks of pregnancy, thereby allowing for earlier and safer termination. However, some anomalies do not occur until the second or third trimester, such as brain abnormalities, microcephaly, agenesis of the corpus callosum, achondroplasia, and pulmonary lesions. Therefore, if you have been assessed as low risk population of first trimester, we advise you to take high-level ultrasound when meet in 20~24 weeks of pregnancy.

Risk Assessment for Preeclampsia and Poor Fetal Growth

Preeclampsia is one of the primary causes of maternal and fetal death, so early screening is critically important. During the first trimester, integrates the medical history inquiries and uterine artery pulsatility examinations with biochemical testing for placenta growth factor (PIGF) and pregnancy-associated plasma protein A (PAPP-A) can identify 95% of early-onset preeclampsia cases that occur within 34 weeks of gestation. Preeclampsia risk assessments that are performed in conjunction with regular ultrasound blood flow measurements, fetal heart monitoring, adequate health education, and appropriate drug treatments can improve placental blood flow and reduce the occurrence of complications by 80%.



Crucial roles of maternal PIGF and PAPP-A in reducing preeclampsia occurrence during the first trimester

Vessel diameter 1X

Vessel diameter 2X

Arteries which are highly resistant to expansion can cause the fetus to receive 16 times less blood compared to normal arteries