BRIGHAM AND WOMEN'S HOSPITAL

The Sequential Integrated Screening Test

The Integrated Screening Test tells you what the chances are that your baby might have Down syndrome or open neural tube defects such as spinal bifida. There are different ways to test for Down syndrome screening but the Integrated Test is the most specific, has the highest detection rate and a low false-positive rate.

The test is performed at the Prenatal Diagnosis Center in two stages:

1. The first stage is ideally done between 11 and 12 weeks of pregnancy, but any time between 10 and 13 weeks is acceptable.
    - One of our genetic counselors will meet with you, review your medical history and explain the test.
    - We will perform an ultrasound to precisely determine how far along you are in your pregnancy and to measure the thickness of your baby's uncial translucency (NT), which is a fluid-filled space at the back of the baby's neck.
    - A nurse will take a blood sample to measure the amount of pregnancy associated plasma protein-A (PAPP-A).
2. The second stage is ideally performed at 15 or 16 weeks of pregnancy and no later than 22 weeks.
    - A nurse will take a second blood sample to measure the amount of four proteins in your blood – alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), unconjugated estriol (uE3), and inhibin-A (inhA).

We combine the results from the first and second stages into a single screening result. The NT measurement, the levels of the five substances in your blood and your age help us estimate your risk of having a baby with Down syndrome. We can also use the screening results to estimate the risk for other disorders including open neural tube defects (spina bifida) and Trisomy 18.

The integrated screening results are usually ready one week after the second stage. We send a copy of the test results to your physician and a genetic counselor will call you to discuss the results and schedule any necessary follow-up appointments.

What does a positive result for Down syndrome mean?
Your integrated screening results are considered "screen positive" if the risk for Down syndrome is one in 110 or greater (for example, 1 in 90 or 1 in 80). If your results are "screen positive," your baby has a higher risk for Down syndrome than other babies. We will then offer you an amniocentesis test to examine your baby's chromosomes.

It's important to note that five out of every 100 women who take the integrated screening test receive "screen positive" results but most will not have a baby with Down syndrome.

What does a negative result for Down syndrome mean?
Your integrated screening results are considered "screen negative" if the risk for Down syndrome is less than one in 110 (for example, 1 in 150 or 1 in 200).

Note that screening tests cannot diagnose or rule out specific conditions so a screen negative result does not mean your baby will not be born with Down syndrome, it means that the chances are low.

What is Down syndrome?
Down syndrome, also called trisomy 21, is the most common chromosomal abnormality in newborns, occuring in about one of every 700 births. Normally, a person has 46 chromosomes, each of which are made up of thousands of genes, which are located inside all cells in the body. Genes direct all the cells' activities, including growth, development and body functions. Each child inherits 23 chromosomes from the mother and 23 from the father, for a total of 46.

In most cases of Down syndrome, there is an extra copy of chromosome 21, giving that person 47 chromosomes instead of the usual 46. There are also rare cases when a parent carries a subtle abnormality on chromosome 21 that is passed to a child and causes Down syndrome. Children born with Down syndrome typically have moderate to severe intellectual disability, a characteristic physical appearance (flat face, slanting eyes), and other health problems. Life expectancy for a person with Down syndrome is about 50 years.

Down syndrome may affect any pregnancy but some women are at higher risk than others, including those who:

- Are older
- Have had a baby with Down syndrome already
- Have abnormalities involving chromosome 21