

Maternal Serum Screen

What is MSS?

The maternal serum screen is a test that involves drawing some of the mother's blood around 15-20 weeks gestation. Screening is most effective between 16-18 weeks gestation when dates are confirmed by ultrasound. This test screens for three conditions in the unborn baby. The three conditions are Down's Syndrome, neural tube defects (NTD), and Trisomy 18.

Down's Syndrome (DS)

Down's Syndrome is a genetic condition in which the child has an extra 21st chromosome. Around the world DS occurs in approximately 1 in 800 births. The child appears physically different. Facial features vary but may have slanted eyes, a prominent tongue, small ears, and a flat nasal bridge. Children with DS generally have some learning disabilities, and often have other conditions associated with the disease including heart defects, and visual and hearing impairments. Some individuals with DS will lead semi-independent lives while others will be completely dependent as the severity of this condition varies. The likelihood of delivering a child with DS increases with the age of the mother.

Neural Tube Defects (NTD)

About 3 to 4 weeks after conception, a structure known as the neural tube closes to form the brain and the spinal cord. If this tube fails to close, a neural tube defect occurs. This opening can affect the brain and the skull (Anencephaly) or it can affect the spinal cord (Spinal Bifida). Depending on the size and the location of the neural tube defect, some children may experience limited feeling and movement of the lower limbs, loss of bowel and bladder control, and be mentally handicapped. In Canada, approximately 1 newborn out of 750 will have a neural tube defect. Research has shown that if folic acid is added to the diet for a period of time before and during pregnancy, the risk of having a child with neural tube defect is reduced by at least 50%.

Trisomy 18

Trisomy 18 is a rare chromosomal disease. Often the baby does not survive through the pregnancy, or dies shortly after birth.

What the Test Results Mean

The MSS test itself will not tell you for sure if your baby has one of the above conditions. It does however tell you if your baby is more likely to have one of these conditions. The test does this by measuring certain markers in the mother's blood. These markers are alpha fetoproteins, unconjugated estroil, and human chorionic gonadotrophin. These measurements are compared and considered along with maternal age, weight, race and gestational age. The results you receive will be a numerical equation.

For example, the risk for Down's Syndrome is 1 in 800; for neural tube defects 1 in 750; and for Trisomy 18, 1 in 8000. If your screen has a lower number (1 in 100 for DS) the screen is considered positive and further investigation will be recommended. It is important to understand that with a positive screen the baby is usually normal. It is also possible to have a negative screen and still have an affected baby. The screen can detect approximately 75% of cases of DS, 85% of open spinal bifida, and 60% of Trisomy 18.

Should your results show a positive screening test, a more diagnostic test will be recommended. Follow-up can involve genetic counseling, ultrasound, or an amniocentesis (a hospital procedure where amniotic fluid is gathered and tested while under ultrasound).

What can be very difficult for the family is the waiting period for further tests, and awaiting further test results.

Advantages of Testing

- Having a negative screen may help some couples feel more relaxed that all is well,
- Learning that your baby has a certain condition may help the woman (and her partner) prepare more for the birth of a baby with special needs,

- In some circumstances a woman (and her partner) may decide that they would prefer not to continue with the pregnancy in the event that the child is to have disabilities, or is unlikely to survive.

Disadvantages of Testing

- A blood draw is required,
- There is up to a 2 week waiting period for results,
- Further investigation is recommended with a positive screen to confirm whether or not the condition actually exists,
- Amniocentesis has a risk of 1-2% of causing a miscarriage,
- Stress during the waiting period and especially after a positive screen can be draining.

When deciding whether or not to have this test, it is important to consider what you would do with the information you will receive.

Informed Consent or Informed Refusal for Maternal Serum Screening

I, _____ have read the information above regarding the maternal serum screen. I have also had the opportunity to discuss and ask questions about MSS with my midwife. I understand the information and have decided to:

CONSENT _____

NOT CONSENT _____

to have this test performed.

Client Signature _____

Date: _____

Midwife Signature _____

Date: _____