NWT Clinical Practice Information Notice

Upon receipt, please file this notice in
Section C, Clinical Practice Information Binder for future reference.

The following clinical practice has been approved for use in the Northwest Territories Health and Social Services system, and has been distributed to:

X	Hospitals	**X**	Community Health Centres		Homecare		LTC		Pharmacists
X	Doctor's Offices		Social Services Offices	**X**	Public Health Units		Please list other(s):		

The information contained in this document is a Departmental:

	Policy	**X**	Clinical Standard		Protocol		Procedure		Clinical Practice Guideline

Title: Standard for Maternal Serum Screening (MSS) in pregnancy
Effective Date: September 2014

This Clinical Practice Information (CPI) Notice supersedes and replaces Standard for Maternal Serum Screening CPI # 80

Statement of approved clinical practice:

The NWT Maternal Perinatal Committee recommends that all pregnant women in the NWT be offered genetic testing in the form of the Maternal Serum Screening test (MSS) as a standard of prenatal care. An informed choice consent process should accompany all discussions with clients about MSS.

- The Maternal Serum Screen is a blood test that detects levels of four substances: alpha fetoprotein, human chorionic gonadotropin, estriol and inhibin-A (Quad test).
- The levels of all substances are used in combination with the woman's age, weight, ethnicity, smoking history and diabetic status to determine her risk of having a baby affected by one of three conditions: Down Syndrome, Trisomy 18 or Open Neural Tube Defect.
- The MSS is offered optimally between 15-17 weeks gestation, however can be completed between 15 and 20+6 weeks gestation.

Attachments: Maternal Serum Screening Clinician Fact Sheet (September 2014)
Maternal Serum Screening Client Information Sheet (September 2014)

An electronic copy of this notice is also available on the Department of Health and Social Services public website at: http://www.professionals.hss.gov.nt.ca/document-categories/clinical-practice-information-notices.

This clinical practice is approved. ORIGINAL SIGNED.

(signature) (date)

Minister ☐ **Deputy Minister** ☐ **Chief Public Health Officer** ☐

MATERNAL SERUM SCREENING CLINICIAN FACT SHEET

This sheet is intended for clinicians. A separate client information sheet is also available.

Maternal Serum Screening (MSS) is a prenatal screening test intended to detect fetuses with Trisomy 21 (Down syndrome), trisomy 18, and open neural tube defects. Down syndrome (an extra chromosome 21) is characterized by variable degrees of mental and physical handicap. Trisomy 18 results in significant physical and mental malformations that are usually lethal before or shortly after birth. Neural tube defects include spina bifida and anencephaly. Prenatal genetic screening should be discussed with all pregnant women. The main reason to identify a fetus with Trisomy 18, 21, or a neural tube defect is to offer women the option of interrupting a pregnancy with an abnormal fetus. If a woman **would consider** terminating a pregnancy with an abnormal fetus, then MSS should be offered.

MSS results are reported as either "screen positive" or "screen negative". The current MSS in use, the Quad screen, detects 75% of fetuses with Down syndrome. The majority of positive MSS results are false positives: the fetus is actually normal. The chance of a woman with a negative screen having an affected fetus is very low, but not zero. ("false negative" result)

The Quad screen is not a diagnostic test. Positive results must be confirmed with amniocentesis. Amniocentesis is invasive, with a risk of causing miscarriage of about 1/200. The vast majority of fetuses lost due to amniocentesis are normal. Therefore, except in unusual circumstances, MSS and amniocentesis are not recommended in women who would **not consider** abortion for an abnormal fetus. It is generally not advisable to perform a test that carries significant risk "just for information," if it will not change management.

Gestational dating at the time of testing is important. Optimally, MSS is done at 15-17 weeks gestation to allow time for amniocentesis and decision making. However, the test can be drawn from 15+0 to 20+6 weeks gestation. Women presenting between 17 and 20+6 weeks gestation should still be offered the test. Incorrect dating is a common reason for false positive MSS results - use the earliest U/S dates if available, or accurate menstrual dates.

MSS is not valid in women with multiple pregnancies. If twins are identified before 14 weeks gestation, a women can be referred to Edmonton for Nuchal Translucency screening. Please refer to the Stanton Dept. of Obstetrics as soon as the diagnosis of twins is made.

Women with positive MSS results should be referred to the Dept. of Obstetrics & Gynecology at Stanton Territorial Hospital for further counselling and diagnostic testing. Please record the woman's willingness to consider abortion for an abnormal fetus on the referral. An obstetrician will make arrangements for amniocentesis and further management, as needed.

Questions about the advisability or interpretation of MSS testing and results can be directed to the Stanton Dept. of Obstetrics & Gynecology at 867-669-4151.

Maternal Serum Screening (MSS) Client Information Sheet

Maternal Serum Screening is available to all pregnant women in the Northwest Territories. It is designed to detect whether a baby is at increased risk of having:

- **Down syndrome (trisomy 21)**: A baby with Down syndrome has an extra chromosome 21. This causes mental disability and sometimes other birth defects. There is no way to predict the severity of Down syndrome before birth. Down syndrome is uncommon – found in between 1/1000 and 1/50 births depending on a mother's age.
- **Trisomy 18:** A baby with Trisomy 18 (three copies of chromosome 18) will always have birth defects and will be severely handicapped. These babies almost always die during pregnancy or shortly after birth. Trisomy 18 is rare.
- **Open Spina Bifida (OSB):** Open Spina Bifida (OSB) is an abnormal development of the fetal spine that can affect the function of a baby's brain, bowel, bladder and legs. OSB is found in about 1/1000 births.

The Screening Test: A blood sample is taken between 15 weeks and 21 weeks gestation. The best time to have it done is between 15 and 17 weeks. MSS detects approximately 75% of babies affected with the above conditions. The test cannot be done if you are carrying twins.

The Test Result: The test result **will not** tell you whether a baby has one of the above conditions, only whether your baby is at higher risk for one of them. The result should be back within 10 days. **If you have not heard back within 10 days, call your doctor, nurse, or midwife for the result to make sure it was completed and is normal.**

A Negative Screen means that your baby is at very low risk of these three conditions. Rarely, a mother with a negative screen can have an affected baby – this is called a "false negative" result.

A Positive Screen: A positive screen means that that your baby's risk of one of these conditions is elevated. **It does not mean that your baby is affected**. Most women with a positive screen have a normal baby – this is called a "false positive" result. In order to find out whether the baby is affected or not, a diagnostic test called amniocentesis is needed.

Amniocentesis: Amniocentesis is performed by a specialist obstetrician in Yellowknife. A needle is inserted through your abdomen into the fluid sack around the baby. A tablespoon of amniotic fluid is removed containing cells that can be analyzed for the number of chromosomes.

Risk of amniocentesis: Amniocentesis causes a miscarriage in about 1 in every 200 procedures.

Should I have the test? The reason to have MSS is to find out if your baby has Trisomy 21, 18, or Open Spina Bifida. If you have a positive screen, amniocentesis is needed to find out whether your baby is affected. If your baby has one of these conditions, you will be offered the option to have an abortion. Since amniocentesis has a risk of causing miscarriage, if you ***would not consider*** an abortion for an abnormal baby, it is better not to have MSS in the first place. However, if you ***might consider*** having an abortion, then MSS is appropriate. Some women who would not have an abortion want to find out ahead of time whether their baby is affected. However, most mothers with a positive screen have a normal baby. Since amniocentesis can cause miscarriage of a normal baby, testing for information alone is not a good idea.

If you have further questions about MSS, please ask your nurse, midwife, or doctor.