THE NEW AND REVISED NOVA SCOTIA PREGNATAL RECORD

Dr. Heather Scott
Obstetrical Co-Director
RCP

Annette Ryan
Perinatal Nurse Consultant
RCP

The NS Prenatal Record offers prenatal care providers a standardized format to document assessment, investigation and treatment during pregnancy. The prenatal record:

· Outlines a systematic, sequential approach to prenatal care
· Provides information regarding screening and testing at specific gestational ages
· Encourages documentation of the prenatal care provided
· Provides a format to share information with referring physicians and other care providers
· Is a medico-legal document
· Is a teaching and research tool and is a data source for the Nova Scotia Atlee Perinatal Database
· Is a source of information to assess quality of care
· Is a means of maintaining a pregnancy-related problem list/care plan
· Is a record that the woman should have the option to carry a copy of (many prenatal care providers offer a copy of the prenatal record to women after 36 weeks and some provide a copy for the entire pregnancy).

The RCP has been creating and distributing the prenatal record, free of charge, to prenatal care providers for over twenty-five years. The newly revised NS Prenatal Record was launched at the end of July. Prenatal care providers will recognize the format, which is very similar to the previous prenatal record. However, there are a number of changes which arose from the valuable feedback we received from prenatal care providers around the province, from changes to clinical practice guidelines, from the latest evidence and from expert consensus. In addition, information was gathered through piloting of a draft at three obstetrical clinics in the province.

In addition to a number of minor changes, four main topics have been modified, enhanced, or added to the new prenatal record. The new sections address:
1) race and ethnicity
2) pregnancy dating
3) genetic screening
4) prenatal screening

Race and Ethnicity
Individuals of certain ethnic groups have an increased risk of being carriers of inherited diseases and may have an increased risk of having a child with specific genetic conditions. Carriers of these conditions are generally healthy. Therefore, in order to perform appropriate carrier screening, asking each woman’s and her partner’s ethnic background is important. The choices for selection were carefully chosen using data from

This information may be gathered by asking the woman directly or by offering the top (demographic) portion of the Prenatal Record 1 to the woman to fill out.

**Pregnancy Dating**

Accurate pregnancy dating is necessary as there are a number of prenatal tests that are offered only during certain weeks of the pregnancy. The LMP is the first day of the last menstrual period and is felt to be an accurate method of dating the pregnancy if the woman is certain about the dates and her periods are regular with a normal cycle length. Ultrasound dating is only used if there is an uncertain LMP; cycles are irregular/long, the periods are abnormal and/or the woman was using oral contra-cepts during conception. Ultrasound dating may also be used if there is discordance between menstrual and ultrasound assessment. (i.e. > 5 days difference in the first trimester or >10 days difference at the 18-20 week U/S). Re-dating should be done cautiously if a patient is certain of the LMP and cycles.

**Genetic Screening**

Reasons for genetic screening may include:

- Family History: Consanguinity (if biological parents are related). This should be discussed if there is a family history of an autosomal disorder.
- Previous child with a genetic condition or congenital anomaly
- Predisposition to certain conditions
- Carrier screening related to certain ethnic backgrounds
- Abnormal ultrasound finding
- Exposure to chemicals or medications during pregnancy
- History of miscarriages, infertility or stillbirth

Some genetic conditions associated with specific ethnicities include:

- **Ashkenazi Jewish**: Canavan, Familial Dysautonomia, Tay-Sachs
- **Bas-St-Laurent French**: Tay-Sachs
- **Saguenay-Lac-St-Jean French**: ARSACS, COX-SLSJ, Cystic Fibrosis, HMSN, Tyrosinemia
- **Yarmouth County Acadian**: Alström, Niemann-Pick type C.

*See Diagram 1, page 4

Further information and definitions of the above conditions are available on the Maritime Medical Genetics website at [http://www.iwk.nshealth.ca](http://www.iwk.nshealth.ca) click on Care Services then M, choose Maritime Medical Genetics Service or call (902) 470-8754. A genetic counsellor is available Monday to Friday 8:30am-4:30pm.

**Prenatal Tests**

There are two types of prenatal tests available: screening tests and diagnostic tests. Screening tests include the first and second trimester maternal serum tests, integrated maternal serum testing, early pregnancy review and integrated prenatal testing. These tests provide women and care providers with risk information about specific conditions.

**Maternal Serum Testing (MST):**

These are blood tests that measure naturally occurring substances that are produced during pregnancy. The tests are offered to all women.
The first is completed between 9-13+6 weeks gestation and the second is completed between 15-20+6 weeks gestation.

**Integrated Maternal Serum Testing (IMST):** This test incorporates maternal age, first trimester maternal serum test (MST) and second trimester maternal serum test (MST) into a combined or integrated assessment of risk for fetal chromosomal abnormalities (i.e. Down syndrome), open fetal defects such as spina bifida and placental abnormalities.

**Early Pregnancy Review (EPR):** Women with specific risk factors and all women over age 35 years at their EDD should be offered an early pregnancy review in the Fetal Assessment and Treatment Centre (FATC) at the IWK Health Centre. An EPR is an ultrasound that reviews viability, dates, early development and assessment of fetal abnormalities through specific markers, particularly a nuchal translucency. This test is best if used in conjunction with the maternal serum test for assessment of risk for Trisomy 21.

**Diagnostic tests include:**

- **CVS** (chorionic villus sampling) and amniocentesis. These tests provide absolute diagnostic information about certain conditions.

**CVS involves the removal of a small sample of placental tissue, chorionic villi, which contain cells of fetal origin. It is usually done between 11-13 weeks of pregnancy. The procedure is ultrasound-guided. Depending on factors such as the location of the placenta, this procedure may be done either by inserting a needle through the abdomen (like an amniocentesis) or by small biopsy forceps inserted through the cervical canal. CVS can detect a chromosome abnormality. In some circumstances it may also be used to detect other genetic conditions that have previously been identified in a family. The results of testing take 2-3 weeks for chromosome abnormalities. For other genetic conditions the results can sometimes take a bit longer. The chance of miscarriage for any woman at this stage of pregnancy without CVS, is about 4%. Women who have a CVS have an additional 1% (procedure-related risk) chance to have a miscarriage.

**Amniocentesis** is an ultrasound-guided procedure in which a needle is directed into the gestational sac and a sample of amniotic fluid is withdrawn. This fluid contains cells of fetal origin that are isolated and cultured in the lab. It is usually done between 16 to 18 weeks of pregnancy. An amniocentesis can detect a chromosome abnormality. It may also be able to detect other genetic conditions for individuals whose baby has a higher risk. It usually takes 2-3 weeks to obtain the results of chromosome testing. Results for other genetic conditions may take longer. The risk of miscarriage for any woman in the second trimester of pregnancy is about 2-3%. Women who have an amniocentesis have an additional 1/200 to 1/400 chance of miscarriage due to the procedure-related risk.

Women requiring additional screening or diagnostic tests beyond the maternal
serum testing should be referred to the Fetal Assessment and Treatment Centre (FATC) at the IWK Health Centre. For information about FATC please call (902) 470-6654.

If you have comments or questions about the Nova Scotia Prenatal Record please contact Annette Ryan at annette.ryan@iwk.nshealth.ca or (902) 470-6619.

To order Nova Scotia Prenatal Records and the associated materials please contact RCP at (902) 470-6798 or check out the website at http://rcp.nshealth.ca

Diagram 1

Genetic Screening Based on Ethnicity

Either biological parent's ethnicity is:
- African, Asian, Hispanic, Mediterranean
- Middle Eastern

Either biological parent's ethnicity is:
- Ashkenazi Jewish, Yarmouth County Acadian
- Bas-St-Laurent French
- Saquenay-Lac-St-Jean French

Screen both biological parents for hemoglobinopathies such as sickle cell or thalassemia
Completed by Family Physician with CBC and hemoglobin electrophoresis

Both biological parents offered carrier screening for specific genetic conditions such as Tay-Sachs or Niemann Pick C. Referral to Maritime Medical Genetics suggested

A detailed reference list can be found in the Nova Scotia Prenatal Record Companion document (sent out to all prenatal care providers) or on the web at http://rcp.nshealth.ca

Addendums to NS Prenatal Record Companion document

Page 5: Definition for Para should also state "or stillbirths which are greater than or equal to 500g or 20 weeks gestation."
Example of parity of twins should read "For twins there is one pregnancy but two fetuses..." and it should be G₁P₁

Page 22 Disregard text "Type title here" in Rubella diagram
Healthy Pregnancy Weight Gain
Information about healthy pregnancy weight gain from Clinical Nutrition Services at the IWK Health Centre is included as an insert.

New Canadian Hyperbilirubinemia Guidelines

The Canadian Paediatric Society (CPS) published a new position statement in June 2007. “Guidelines for detection, management and prevention of hyperbilirubinemia in term and late preterm newborn infants (35 or more weeks’ gestation)” outlines new recommendations for screening and provides guidance for follow-up of infants at risk for developing severe hyperbilirubinemia. The statement also provides recommendations for laboratory investigations and treatment of infants in this population. The CPS position statement can be downloaded from the Canadian Paediatric Society’s website: [http://www.cps.ca/english/statements/FN/fn07-02.pdf](http://www.cps.ca/english/statements/FN/fn07-02.pdf)

In Nova Scotia we have formed a Hyperbilirubinemia Guideline Implementation Working Group. This group will develop a plan to implement the CPS hyperbilirubinemia guidelines in Nova Scotia, including the screening recommendations and treatment components of the position statement. A larger Reference Group with representatives from each District Health Authority and the IWK will review the materials produced by the Working Group and add provincial context to the plan. Good communication across the continuum of care and strengthening the primary health care system for new families has advantages that extend beyond prevention and treatment of hyperbilirubinemia. As a province, we are looking at implementation of the CPS position statement as an opportunity to refocus our energy on this important time period. Many aspects of our provincial guidelines for postpartum and postnatal care, “Healthy Babies, Healthy Families: Postpartum & Postnatal Guidelines” will be helpful in developing a comprehensive plan for transition of newborns and new mothers from hospital to home and community ([http://rcp.nshealth.ca/files/PostpartGuideBooklet.pdf](http://rcp.nshealth.ca/files/PostpartGuideBooklet.pdf)).
The Rh Program of Nova Scotia is about to get a database upgrade. Both the Rh Program and the Reproductive Care Program of NS are excited about the benefits the new upgrade brings.

The Rh Program focuses on the prevention of alloimmunization and the management of problems caused by antibodies during pregnancy. The program also provides an education and consultation service to health caregivers throughout Nova Scotia and when asked, the Maritimes. Maternal alloimmunization occurs when a woman’s immune system is sensitized to foreign red blood cell surface antigens, stimulating the production of immunoglobulin G (IgG) antibodies. The Rh factor, an inherited characteristic, is an antigen found on the red blood cells of about 84 percent of the North American population. Those who carry this factor are Rh “positive” while the remaining 16 percent who do not are called Rh “negative”. While prevention of Rh alloimmunization is only possible for Rh negative women, any woman who is pregnant can develop antibodies that are harmful to her baby. Antibodies cross the placenta to the fetus and destroy fetal red blood cells, potentially causing fetal anemia during pregnancy and jaundice (hyperbilirubinemia) in the newborn. To prevent antibody production, candidates are given injections of a blood product called Rh (D) immune globulin (WinRhoSDF™ or “WinRho”).

RCP has managed the Rh database since 1988 when it was in SIR (Scientific Information Retrieval), a database management system popular among researchers in the 1980’s. RCP moved the database to the Oracle platform in 2002, adding a graphical interface. This brought benefits such as easier data entry and data searching but due to insufficient resources to reorganize the data, the system retained many of its original limitations. The Rh Program uses their database daily to monitor patient care and provincial standards for care of pregnant women with Rh negative blood.

In this, the system’s third incarnation, the RCP database team has completely overhauled both data structures and data entry forms to more closely reflect how the Rh Program fulfills their role. Data are now organized around pregnancy events rather than around the clinical procedures triggered by those events. Examples of such events are antepartum bleeding, amniocentesis, 28 week milestone and delivery.

Marg Parsons, Coordinator of the Rh Program says, “it will now be easier to assess how different events may impact pregnancy”. The new data format also makes it easier to monitor care for women with unusual complications. The development of anti-D antibodies, for example, may be related to a previous antenatal bleeding event where fetomaternal hemorrhage (FMH) testing or WinRho administration was omitted. A Kleihauer-Betke (“Kleihauer”) test is performed routinely on Rh negative women to determine the presence and volume of fetal red blood cells in the mother’s circulation, a condition that may require additional WinRho beyond the standard dose. The ability to more easily track unusual complications will help to improve clinical care.

The new system is more flexible for data entry. The antibody status of a patient can be changed and records of multiple births can be input more readily. Both of these situations required re-entry of data in the previous system. All old data have been migrated
Public Health Services (Capital District Health Authority) is pleased to offer families a new option to learn about their children’s development. The Healthy Beginnings Program (formerly the Family Health Team) is using The Ages & Stages Questionnaires® (ASQ): A Parent Completed, Child Monitoring System (2nd Ed.) (Bricker & Squires, 1999) to provide families with this learning opportunity.

The Ages & Stages Questionnaires® are a series of 19 questionnaires that are written for families to complete on their children. Originally developed in 1980 at the University of Oregon, the tool has been well researched. The questionnaires are grouped into the five domains of development: communication, problem solving, fine motor, gross motor, and personal-social. Each domain has six items which are responded to as yes, sometimes, or not yet. Prematurity (37 weeks gestation or younger) is corrected for until (not including) the 24 month old questionnaire. The questionnaires have predetermined cut off points for the scores (two standard deviations below the mean score). Concurrent validity studies comparing a child’s score on the ASQ with other diagnostic tools (Bayley, Gessell, McCarthy Scales, and Stanford-Binet) averaged 84% across questionnaires.

The Developmental Screening option will be introduced in the Healthy Beginnings Program in two phases. Families who are screened at birth to be ‘at risk’ and are already being seen by an Enhanced Home Visiting Initiative Public Health Nurse are now being told of the Developmental Screening option. Many of these families will participate in the Enhanced Home Visiting Initiative.

For further information or questions about the Rh Program, please contact Marg Parsons at (902) 470-6458 or by e-mail marg.parsons@iwk.nshealth.ca.

Reference

MUMPS VACCINE is a live vaccine and should not be administered in pregnancy. Women should be asked about pregnancy or offered a pregnancy test prior to being vaccinated.
Changes to Fetal Health Surveillance Guidelines

The Society of Obstetricians and Gynecologists of Canada (SOGC) released new and updated guidelines for Fetal Health Surveillance in Labour in September 2007. A national working group met in October 2007, prior to the AWHONN conference, to discuss revisions to the Canadian Perinatal Regionalization Coalition manual that was created using information from the SOGC’s previous guidelines on Fetal Health Surveillance in Labour released in 2002. Changes to Fetal Health Surveillance workshops provided by the nurses at RCP will be made throughout the fall and a new Fetal Health Surveillance education program will be offered in the spring of 2008. We encourage care providers to check out the SOGC website (www.sogc.org) for a copy of the new Fetal Health Surveillance guidelines.

Reference