



## PRENATAL SCREENING

### *Combined First and Second Trimester Risk Assessment for Specific Genetic Abnormalities*



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Dr. Kent Dooley  
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The IWK Health Centre has recently introduced new early biochemical screening for the assessment of risk for specific genetic abnormalities including Down syndrome. A period of surveillance was undertaken for quality assurance purposes and we are now ready to embark on a new prenatal screening protocol that utilizes Early Maternal Serum biochemistry, nuchal translucency and the standard Maternal Serum blood test. **Women who are 35 at their due date and a select group of high risk women** (Table 1) are eligible for this Combined First and Second Trimester Risk Assessment protocol.

Women meeting the eligibility criteria are currently seen in the Fetal Assessment and Treatment Centre for an Early Pregnancy Review (EPR) between 11 and 13 6/7 weeks. During that visit a current and past pregnancy/medical history will be reviewed. An EPR ultrasound will be performed at which time a nuchal translucency (NT) measurement will be taken. If the woman's NT measurement

is less than 3 mm and the ultrasound is otherwise normal, the woman will be advised that the ultrasound is reassuring. The woman will not be given specific risk information at this time. If an Early Maternal Serum blood test (EMST) has not been previously drawn the woman will be offered an EMST and given the appropriate requisition (blue in colour). This blood test can be drawn between 10 and 13 6/7 weeks gestation. She will also be given a Standard Maternal Serum blood test (SMST) requisition to have her blood taken at a later time (15-20 weeks; optimal 16-18 weeks). A final report will be issued following the 16 week MST. Women will be advised that if their First Trimester Risk Assessment (NT + EMST) result is:



1. **Screen Negative**; risk for Down syndrome is less than 1% or < 1:100 they **WILL NOT** be notified and a report will not be issued. This result is considered **preliminary or incomplete**. Please note the referring physician will receive a Meditech generated report stating that an EMST has been performed. This is a notification of testing only. This report will not contain any results.

*If your patient declines the subsequent Standard Maternal Serum blood test, please contact the Coordinator for Prenatal Screening*

*and Diagnosis at 902-470-8321 so an Early First Trimester Risk Assessment can be issued.*

2. **Screen Positive;** risk for Down syndrome is greater than 1% or  $> 1:100$  they will be called by the Coordinator for Prenatal Screening and Diagnosis. They will be counselled about their First Trimester Risk Assessment. They will have the option of chorionic villus sampling (CVS) at 12 - 13 weeks, amniocentesis at 16+ weeks or continuing with the screening process by having the Standard Maternal Serum blood test at 16 weeks. The First Trimester Risk Assessment report as well as the woman's decision will be faxed to the referring physician. This result is considered preliminary or incomplete for those individuals who are continuing on to have a Standard Maternal Serum blood test as the next step in the screening process.

Following the standard MST, a **combined First and Second Trimester Risk Assessment** report will be issued. Women will be advised that if their result is:

1. **Screen Negative;** risk for Down syndrome is less than a 35 year old or  $< 1:304$ , the results will be faxed to the referring physician. Reporting these results to the women will be the responsibility of the referring physician.

2. **Screen Positive;** risk for Down syndrome is greater than a 35 year old or  $1:304$ , the result will be telephoned to the woman by the Coordinator for Prenatal Screening and Diagnosis. The women will be counselled about their results and will be offered a detailed ultrasound +/- amniocentesis in the Fetal Assessment and Treatment Centre. The Combined First and Second Trimester Screening report along with the women's decision will be faxed to the referring physician.

### Booking of 18-21 Week Ultrasounds:

Following the EPR ultrasound the MFM physician, in discussion with the woman will:



1. Book the 18-20 week ultrasound in the Fetal Assessment and Treatment Centre if it is felt necessary to be re-seen in this unit.

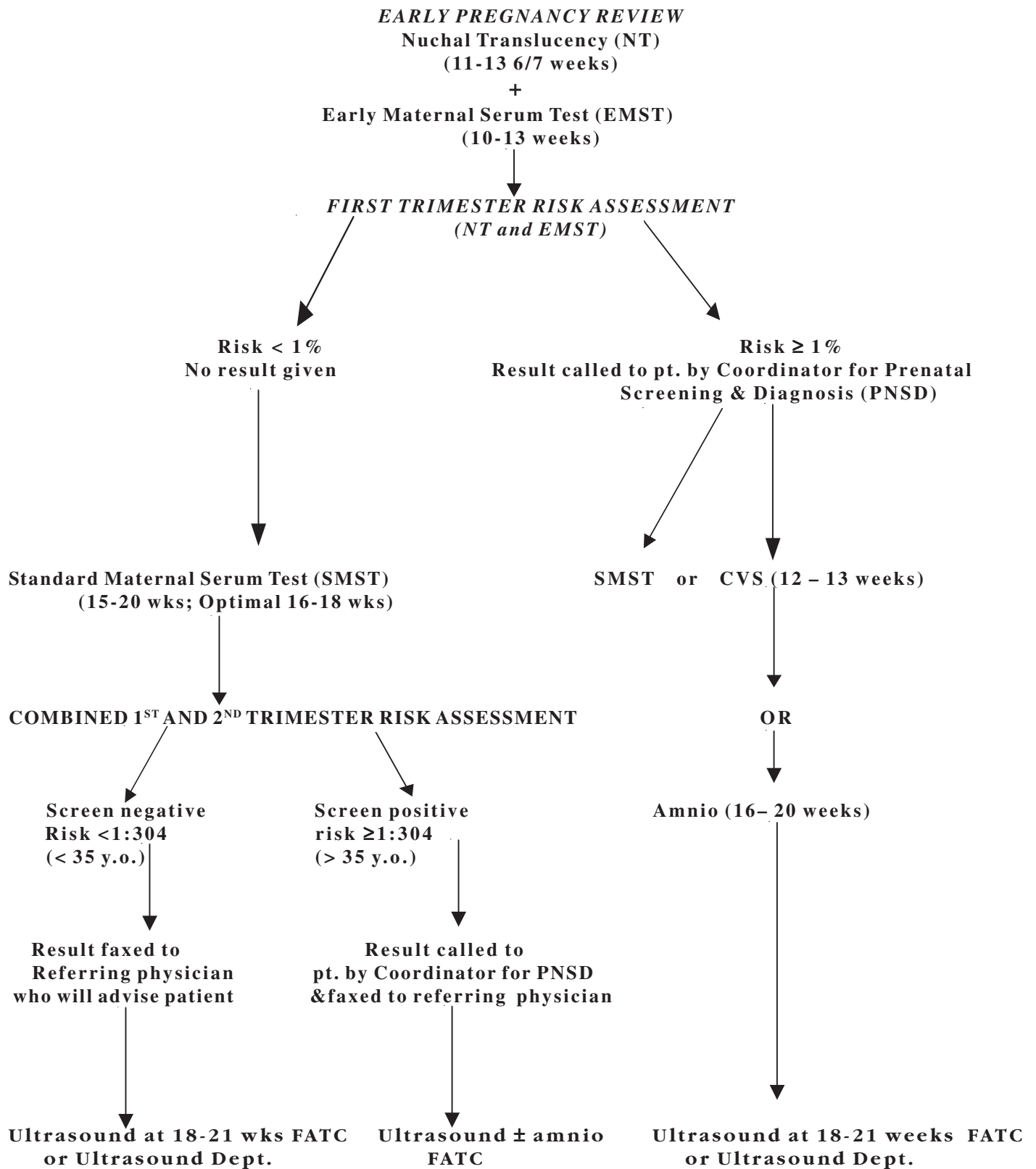
2. Advise the patient prior to leaving the Fetal Assessment and Treatment Centre that the subsequent ultrasound can be undertaken in the IWK Diagnostic Imaging Ultrasound Department or at a local hospital. Direction will be given to the referring physician in the consult letter and, in this circumstance, the referring physician will be responsible for booking the follow-up ultrasound.

This screening protocol continues to assess for other abnormalities:

open fetal defects; (ONTD), gastrochesis,  
Smith Lemli Opitz Syndrome (SLOS)  
Trisomy 18  
placental abnormalities

CMEs are planned - More information to follow. Any questions please contact Claire Blight at 902-470-8321 or Dr. Mike Van den Hof at 902-470-6605.

## PRENATAL RISK ASSESSMENT



**Table 1**

**Maritime Prenatal Screening and  
Diagnosis  
Increased Risk Criteria**

Maternal Age  $\geq 35$  @ EDD

Multiple gestation

Known parental risk factor for fetal or  
chromosomal abnormality

Increased risk for fetal abnormality through  
a know family or prenatal risk factors  
(ie. Duchennes Muscular Dystrophy)

Prior pregnancy affected with chromosomal,  
anatomic or syndromic abnormality

Teratogenic risk by infection or class D drug

Maternal disease linked to fetal abnormality  
(ie. IDDM, epilepsy)

IVF pregnancy



## **Yarmouth County Friendly Feeding Line**

**Shelley Wilson,  
Nutritionist, Public Health Services,  
Yarmouth, NS**

A community-based Baby Friendly Initiative Committee in rural South Western Nova Scotia used a participatory approach to develop and implement a telephone peer support program (Yarmouth County Friendly Feeding Line) for breastfeeding mothers. The aim of the 2003-2004 pilot project was to enhance

social supports for breastfeeding mothers and increase breastfeeding duration rates. Measures of success were breastfeeding rates at three months postpartum and maternal and peer supporter perceptions of breastfeeding telephone peer support. Peer volunteer retention, peer perceptions of quarterly volunteer support forums, and peer perceptions of a compensation model were also examined.

At three months postpartum 71.4% of mothers were feeding breast-milk exclusively, 28.6% were feeding a combination of breast milk and other milk, and no mothers reported feeding other kinds of milk. All mothers perceived that their peer listened, cared about how breastfeeding was going, showed concern, provided useful information, and they had a sense of trust with their peer. All mothers said if they had to do it over they would choose to have a peer again, and they felt all new breastfeeding mothers should be offered a peer volunteer.

Most (85.7%) volunteers felt the training prepared them for their role as a peer volunteer. Over 90% of volunteers felt that the forums helped them in their role as peer volunteers. Six of fifteen volunteers (40%) felt honorariums helped them attend training and forums because the money assisted with the cost of childcare, gas and parking.

The pilot project findings related to breastfeeding duration, peer compensation, volunteer training, and retention will provide community health leaders in Nova Scotia with increased understanding about how to enhance and improve community based supports for breastfeeding mothers and peer volunteers in rural communities.

For more information please contact Shelley Wilson  
swilson@swndha.nshealth.ca

## NEW NEONATAL HYPOGLYCEMIA GUIDELINES FROM CPS



There has been much interest and discussion regarding the new neonatal hypoglycemia guidelines released in December 2004 from the Canadian Pediatric Society. The recommendations are:

- **Routine screening of appropriate-for-gestational-age infants at term is NOT recommended.** It is recommended that IDMs (gestational or otherwise), preterm infants (less than 37 weeks) and SGA infants (weighing less than the 10th percentile) be routinely screened for neonatal hypoglycemia. Until further data are available, LGA infants (weighing higher than the 90th percentile) should be considered at risk.
- Blood glucose screening of asymptomatic, at-risk infants may be performed at 2h of age and every 3h to 6h after this, in keeping with breastfeeding practices. Testing may be discontinued after 12h in LGA infants and IDMs if blood glucose levels remain at **2.6 mmol/L or higher**, and after 36h in SGA and preterm infants if feeding has been established and blood glucose levels remain at 2.6 mmol/L or higher. **Symptomatic and unwell babies require immediate glucose testing.**
- It is recommended that, where possible, methods should be instituted to measure blood glucose that are quality-controlled, accurate and reliable in the range of 1 mmol/L to 3 mmol/L.
- **At-risk infants with glucose levels less than 1.8 mmol/L on one occasion (assuming one effective feed), or repeatedly less than 2.6 mmol/L, require intervention.** Symptomatic infants should be treated immediately for blood glucose levels less than 2.6 mmol/L; there should be concurrent investigation and management of the underlying cause.
- Enteral supplementation may be used in asymptomatic infants with blood glucose levels of 1.8 mmol/L to 2.5 mmol/L to augment caloric intake, rechecking levels in 60 min to identify persistent hypoglycemia.
- It is recommended that symptomatic, hypoglycemic infants (and asymptomatic infants who have failed to respond to enteral supplementation) be treated with intravenous dextrose solution. Consider investigation, consultation and pharmacological intervention if target blood glucose levels are not achieved by intravenous dextrose.

For more information please see the Canadian Pediatric Society website at [www.cps.ca](http://www.cps.ca).



## Coding Connection

Irene Gagnon  
Health Information Co-ordinator



We at RCP hope everyone had a wonderful summer and got in some well deserved vacation, rest and relaxation time.

### **Babies born en route to a hospital, at home or in a facility without Obstetrical services.**

Recently, it was brought to light there was some question as to how RCP captures cases where a baby is born outside of a hospital with active obstetrical services then admitted to a facility where there is active Obstetrical Services. These babies might be born en route to a hospital, at home planned or unplanned or in a facility where there are no obstetrical services.

There had been a directive in early 2004 to capture these cases as a postpartum admission for the mother and a neonatal admission for the baby. We are now asking all coders to capture these cases as a delivery admission for RCP. I do realize in CIHI they are serviced to postpartum and neonatal but for our purposes we would like them captured as delivery admissions.

When a baby is born at a hospital not offering obstetrical services and is transferred with Mom to a hospital offering obstetrical services, the receiving hospital should enter the case as a delivery and enter the appropriate facility number of where the delivery actually took place in the delivery hospital field. For example, a mom delivering en route would have a delivery hospital as -1 unplanned out of a hospital. For example, if she delivered at Eastern Memorial in Canso without an OBS

service and went to St. Martha's in Antigonish, the case should be entered at St. Martha's as a delivered case and the delivery hospital would be entered as #22.

Once a hospital number that signifies a facility that does not provide obstetrical services is entered in the delivery hospital field, the normal edits of birth time before admission time etc. **will no longer trigger.** The dates and times can be entered as they actually took place. You will not get the error messages you would normally get if coding in your own facility because the delivery hospital will note the delivery took place in a facility without obstetrical services and will not fire the applicable triggers.

*We want to send a BIG THANK YOU out to all of you who have helped us complete our linkage with the 3M data. We appreciate your working through the backlog we had accumulated during the process to achieve this linkage. Thanks so much for taking the time to do this for us.*

If anyone has any further questions or concerns about this matter, please email me at: [irene.gagnon@iwk.nshealth.ca](mailto:irene.gagnon@iwk.nshealth.ca)



## Conferences



The AWHONN  
(Association  
Women's Health  
Obstetrical  
Neonatal

**Nurses) Canada** national conference will be held November 16th -19th, 2005 in Montreal, QC. For additional information please see the website at : <http://www.awhonn.org/awhonn>



The next **Advanced Life Support in Obstetrics** course will be held **October, 29th & 30th, 2005** at the IWK Health Centre, Halifax, NS. Please check the RCP website for more information.  
<http://rcp.nshealth.ca>

The last ALSO course was held in April at the IWK Health Centre with great success (see photos below).



**ALSO participants from across the country, April 2005**



**ALSO Faculty April 2005. From left to right: Back row: Dr. Peter MacKean, Dr. Dianne Edmonds, Dr. Paul Murphy, Dr. Susan Lappin. Front row: Dr. Lisa Graves (Course Director), Annette Ryan, RN. Absent: Dr. David Young.**

## **Midwives in the Balance: Partnership and Practice for Normal Birth**

**HALIFAX, NOVA SCOTIA**

**NOVEMBER 9, 10TH AND 11TH, 2005**

**@ the LORD NELSON Hotel & Suites**

**1515 South Park Street**

**Halifax, Nova Scotia B3J 2L2**

**902-423-6331 / 1-800-565-2020**

**Please see website for further details:**

**<http://ca.geocities.com/canadianmidwives@rogers.com/home.html>**

### **Having trouble reaching RCP?**

Please check your telephone directories to ensure you have the correct contact information for RCP. If you continue to use the 420 extension, you are no longer being transferred to our new (902) 470-6798 number.

## **BALD IS BEAUTIFUL**



**Kudos to Dr. Heather Scott, RCP Obstetrical Co-Director (2<sup>nd</sup> from left) and Dr. Krista Jangaard, RCP Neonatal Co-Director (2<sup>nd</sup> from right) who joined colleagues from the IWK Health Centre to raise money for breast cancer by having their heads shaved. The event raised over \$16,000!**



## Powdered infant formula Practice implications and care providers' advice for families

Submitted by:

Dr. Krista Jangaard, Neonatologist and Neonatal Co-director RCP; Joyce Ledwidge, Neonatal Dietitian, IWK Health Centre; Kathy Inkpen, Core Program Coordinator, Public Health, NS Department of Health/Health Promotion; Dr. Joanne Langley, Pediatric Infectious Diseases/ Infection Prevention and Control Services, IWK Health Centre; Dr. Richard Gould, Medical Officer of Health Districts 1-3; Sue Daniels, Nurse Manager Obstetrics & Pediatrics, Valley Regional Hospital; Martha Nutbrown, Clinical Resource Nurse, Valley Regional Hospital; Becky Attenborough, Co-ordinator RCP

### Introduction

Health care providers became aware of feeding-associated infections caused by *Enterobacter sakazakii* (ES) in 2002. Between 2002 and 2004, Health Canada's Food Program, the US Food & Drug Administration - Center for Food Safety & Nutrition, the Food & Agriculture Organization of the United Nations and the World Health Organization all released advisories warning of serious infections among infants caused by this organism. These infections have been associated with the presence of *E. sakazakii* in various brands of powdered infant formulas. The warnings and advisories have led to a significant amount of alarm and confusion about the risks posed to infants by the use of powdered formulas and about the advice that should be provided to parents. On June 27, 2005 the authors of this article met to review the information available and synthesize the key points for Nova Scotia care providers.

### What is *Enterobacter sakazakii* (ES) and why is it in formula?

ES is a bacterium found in the environment. It is considered an "opportunistic pathogen", that is, a bug that infects humans when their defenses are down, as is the case with cancer patients or those in intensive care units. After ES infections occurred in newborns, an investigation traced the source to formula. The manufacturers withdrew the implicated product from the market. However, it is important to understand that some bacteria may be present at low levels in various brands of powdered infant formulas. Although powdered formulas are made with great care, these products are not sterile. Very low levels of environmental bacteria may, on occasion, be present in powdered formula. In certain situations their presence could pose a risk for infection. The presence of ES in formula has not been associated with any one particular brand.

### Are all infants at risk for infection with *E. sakazakii*?

ES seems to be an opportunistic pathogen that poses a risk primarily to infants who are <37 weeks gestational age or <2500 gm birthweight, or are immuno-compromised by serious medical problems. The risk of ES infection is extremely low for term infants. Most outbreaks have been described in neonatal intensive care units where the infants were fed with powdered infant formula and a variety of formula preparation and handling practices were used.



Reported infections included meningitis, sepsis, and necrotizing enteritis, all of which have been associated with high rates of mortality or severe residual damage among survivors. Most, but not all, of these case reports were from developing countries.<sup>1,2,3,4</sup>

Nova Scotia care providers should be aware of the recommendations below. These recommendations were developed to assist care providers making feeding decisions for hospitalized infants and for counseling parents of healthy infants about their choices at home.

**For preterm infants (< 37 weeks gestation\*), low birthweight infants (< 2500 grams), and immunocompromised infants (usually those with complex medical conditions):**

- Breast milk is the best feeding choice.
- For those who cannot breastfeed or be fed breast milk exclusively, commercial fortifiers and infant formula products are available.
- Liquid preparations, when labeled as being sterile, are preferable to powdered products, if available and if determined to be the most appropriate choice for the individual infant.
- Powdered additives may be most appropriate for infants receiving adequate volumes of breast milk but who require increased caloric and mineral fortification.
- The risks and benefits of using powdered fortifiers or formula products must be considered when making individual feeding decisions.
- Parents should receive accurate information and education in the safe preparation & use of infant formula and proper mixing according to the manufacturer's instructions).
- formula (i.e. attention to cleanliness and proper mixing according to the manufacturer's instructions).

\* These infants are not at increased risk once they reach term gestation.

**For healthy full-term and near term\* infants:**

- Breast milk is the best feeding choice.
- For those who cannot breastfeed or be fed breast milk exclusively, commercial infant formula products are available.
- Parents should receive accurate information and education in the safe preparation & use of infant formula (i.e. attention to cleanliness and proper mixing according to the manufacturer's instructions).
- Most manufacturers suggest that a 24-48 hour supply of infant formula can be prepared in advance and stored in the refrigerator. If powdered formula is used, parents may wish to prepare only the required amount of formula immediately before feeding.
- The risk of ES is extremely low for term infants. Nevertheless, health care providers should be able to discuss the issues with parents who are seeking more information about contaminants in powdered infant formula products. This includes confirming that rare cases of ES infections have occurred among full term infants. However, it should be reinforced that these infections are extremely rare and that the most effective prevention is proper formula preparation, storage and use.

\* After a thorough review of risks and benefits, it may be reasonable to use powdered infant formula products for healthy near term infants (i.e. 35-36 weeks gestation). Individual feeding decisions should always include discussion with the infant's parents.

**Selected discussion points for guiding parents regarding formula preparation:**

- Careful hand washing and clean supplies are the best protection against formula contamination. Feeding supplies do not need to be sterile but should be thoroughly cleaned with hot, soapy water.
- Reconstituted formula should not be left standing at room temperature for prolonged periods.
- If well water is the domestic water source, it should be checked regularly for bacteria (every 6 months) and for chemical quality (every 2 years). More frequent checking may be needed if there are any concerns. Although it is possible to test water for farm pesticides, routine testing is probably not necessary and would be prohibitively expensive. Unless there is a specific concern, testing for heavy metals and nitrates should suffice.
- For general information about food safety, visit the website of the Food Safety Network at <http://www.eatwelleatsafe.ca/>
- In Nova Scotia nearly half of the population use a dug or drilled well for their private water supply. It is very important to ensure that wells and on-site sewage treatment systems are well maintained. Recommendations about well and sewer maintenance and testing can be obtained from NS Environment and Labour (NSL) at: <http://www.gov.ns.ca/enla/water/privatewells.asp>

<http://www.gov.ns.ca/enla/water/wastewater.asp>

In summary, parents should be advised that:

***Breast milk is the ideal food for infants and has significant health and psychosocial benefits for both mother and baby. If infant formula is the only option, it should be prepared according to the manufacturer's instructions and in keeping with the important safety considerations noted in this article.***

**References**

1. [http://www.hc-sc.gc.ca/food-aliment/mh-dm/mhe-e/enterobacter\\_sakazakii.html](http://www.hc-sc.gc.ca/food-aliment/mh-dm/mhe-e/enterobacter_sakazakii.html)
2. <http://www.who.int/foodsafety/publications/micro/Summary2.pdf>
3. [ftp://ftp.fao.org/codex/ccfh35/fh03\\_13e.pdf](ftp://ftp.fao.org/codex/ccfh35/fh03_13e.pdf)
4. <http://www.cfsan.fda.gov/%20~dms/inf-ltr3.html>

**RCP OFFICES ARE MOVING!**

Please be advised that the RCP offices are moving to the Professional Centre on the corner of Spring Garden Road and Robie Streets in Halifax. We do not have a confirmed moving date as of yet but it will be sometime mid-November. Our telephone and email contact information will remain the same. We will inform you of our final move date and our new address as soon as possible.

### Infant Feeding Assessment Tool(s) Working Group

In October 2004 a multidisciplinary, provincial working group came together to develop an infant feeding assessment and care planning tool(s). This work is in response to feedback from provincial perinatal care providers from the impact analysis of the *Postpartum/Postnatal Guidelines* completed last year. After much discussion, the group has developed a rough draft of two infant feeding assessment tools—one for breastfeeding and one for bottlefeeding. The group is now travelling throughout the province conducting discussion forums with all perinatal care providers to receive feedback about the tools. We value your input and feedback so stay tuned for a meeting near you!!!

## ATTENTION Addendum to Labour Analgesia document



There has been much valuable feedback regarding the RCP Labour Analgesia document released earlier this year. Some of the discussion related to dosages of analgesics, (particularly narcotics) as dosages vary between hospitals. The dosages found in Table One of the document are **suggested dosages only**. It is best for practitioners to choose dosage regimes that are within safe, therapeutic limits and work best for their specific patient populations. Few sites are using fentanyl regularly as a labour analgesic. One Nova Scotia hospital using fentanyl has found that the suggested dosages in the document are not efficacious for labouring women.

The BC Reproductive Care Program has developed a protocol for fentanyl that provides higher dosages of drug.

For further information about this protocol please see the website at: [http://www.rcp.gov.bc.ca/guidelines/Master\[1\].OB4.PainManage.May2000.pdf](http://www.rcp.gov.bc.ca/guidelines/Master[1].OB4.PainManage.May2000.pdf)

A facility in Vancouver also has a protocol of fentanyl administration. For further information about this protocol please contact Annette Ryan at (902) 470 -6619.

In addition to the feedback regarding dosing we also want to clarify a point of discussion. In the section on naloxone (pg. 23, 30) please note that the recommendation with regards to meperidine may be misleading. The recommendation states to ...

“consider the effects of its active metabolite, normeperidine, in an effort to anticipate possible neonatal respiratory depressive effects beyond the half-life of the original drug. It may be necessary to administer several doses of naloxone”

Please note that, respiratory depression will be a result of the parent drug - meperidine and can be reversed by using naloxone. However, once the CNS depressant effects of the parent drug, meperidine, are reversed, the full excitatory effects of the metabolite, normeperidine may be expressed. Normeperidine gives CNS excitatory reactions such as agitation, twitching, myoclonus and seizures. If those occur then naloxone should not be used. It is not effective in reversing the CNS excitatory effects and it may in fact cause harm by precipitating seizure activity. The CNS depressant effects of the parent drug, meperidine are reversed and this allows the full excitatory effects of the normeperidine to be expressed.



## Hot Topics!

### FETAL FIBRONECTIN TESTING FOR SUSPECTED PRETERM LABOUR IN NOVA SCOTIA

BA Armson, L Dodds, K Dooley, A Howlett, A McPhee, H Scott

Departments of Obstetrics & Gynecology, Pediatrics, and Community Health and Epidemiology, Dalhousie University and IWK Health Centre, Halifax, Nova Scotia

#### OBJECTIVE:

1. To determine the diagnostic test performance of fetal fibronectin (FFn) for suspected preterm labour (PTL) in clinical practice.
2. To evaluate the impact on maternal transfers, hospital admission rates and health care costs.

**STUDY DESIGN:** A prospective, cohort design was used to evaluate rapid FFn testing for suspected PTL in five regional hospitals and one tertiary perinatal centre in Nova Scotia. Diagnostic test performance and maternal transfer/admission rates for a 12-month study period were evaluated.

**RESULTS:** After exclusions and invalid/ repeat tests, 354 women had FFn results, transfer and admission data for analysis. The FFn positive rate was 8% (29/354). The predictive value of a positive test was 24% for delivery within 7 days, 28% within 14 days, 31% < 34 weeks and, 48% < 37 weeks. Negative predictive values were 99.4% within 7 days, 98.8% within 14 days, 97.8% < 34 weeks, and 85.8% < 37 weeks. Maternal transfers/admission rates for FFn negative results at regional centres were 4% and 21%; the admission rate at the tertiary centre was 12 %.

**CONCLUSION:** A negative fibronectin test for suspected PTL accurately predicts those women not likely to deliver within 14 days and < 34 weeks, resulting in a reduction of maternal transfers, hospital admissions and associated health care costs.

## RCP Education Sessions

If you have clinical topics of interest and you would like more information please contact Ronda Smith at (902) 470-7154 or Annette Ryan at (902) 470-6619 to set up education sessions in your area.

***Congratulations to Rebecca (Becky) Attenborough, Coordinator, RCP and Cathie Watson, Nurse Manager, Obstetrics, Aberdeen Hospital--recipients of EXCELLENCE***



***in NURSING ADMINISTRATION awards from the College of Registered Nurses of NS (CRNNS)***



***and congratulations to Judy Cormier, Assistant Professor, School of Nursing, St. FX University, Antigonish, NS on receiving the EXCELLENCE in NURSING EDUCATION award. For more details please see the CRNNS website at: [www.crnns.ca](http://www.crnns.ca)***



To submit articles or photos for the next newsletter please contact Annette Ryan at (902) 470-6619 or [annette.ryan@iwk.nshealth.ca](mailto:annette.ryan@iwk.nshealth.ca) by November 30, 2005