

Changing Practices in Promoting, Preserving and Supporting Breastfeeding in the Neonatal Intensive Care Unit

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BREASTFEEDING THE PRE-TERM INFANT

Imagine the disappointment the mother of a premature infant faces when she has been pumping her breasts for perhaps ten or twelve weeks, only to discover that her milk supply is inadequate for her infant. Learning that you may never be able to exclusively breastfeed your premature infant is a harsh reality for some mothers who, in many cases, have not been given the correct information from the beginning to be successful.

Mothers and families that deliver prematurely often go through a wide range of emotions. Understanding this, as health care providers, we do not want to add to their stress. Asking them about breastfeeding their newborn does not always seem appropriate when the infant is just hours old and in critical condition. However, the issue of feeding must eventually be discussed.

NICU BREASTFEEDING PAST-PRACTICE

In the past, our Developmental Follow-up Clinic reported to us repeatedly that infants were doing well, but their mothers had to give up breastfeeding because of a real or perceived lack of breast milk.

What were we doing, or more importantly not doing, as NICU nurses and Lactation Consultants that led to such poor breastfeeding outcomes? We as a multidisciplinary team in NICU have had to take a critical look at our practice and be willing to make changes in order to improve.

Typically, mothers were instructed to pump every three hours during the day. Some nurses knew that a hospital grade electric pump was necessary while others did not, thus instructions were not consistent. None of the NICU nurses were aware of how much milk a mother should be making. Typically, nurses would ask mother how pumping is going. As long as a mother had no complaints and was keeping up to her premature infant's requirements, all was considered to be going well. However, our

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Lactation Consultants were meeting with mothers who were about four weeks into pumping only to find that they were complaining about low milk supply (they were unable to keep up to their babies needs), or that their infants were not growing once orally feeding at the breast. Many of these mothers were also on domperidone as a galactagogue to try to increase a failing milk supply. As a result, Lactation Consultants were spending more time counseling mothers about feelings of inadequacy than about breastfeeding itself.

ACCEPTING THE NEED FOR A CHANGE

As a start, we needed to accept that our breastfeeding failure rate was unacceptable. With such poor breastfeeding duration rates among our premature infants, we could not assume that this was somehow the fault of the mothers. Perhaps the mothers were not receiving the correct information to be successful.

Our approach had to be based on evidence:

- Premature birth, in itself, is not a reason to have inadequate volumes of milk. A woman can develop a milk supply after a 16-week loss. Prolactin levels are highest immediately after birth, but gradually decrease over the first month post delivery. (Riordan, Auerbach 1998)
- A woman's anatomy and physiology does not vary, all make milk the same way. (Riordan, Auerbach 1998)
- Expert NICU nurses cannot be expected to educate mothers about breastfeeding when they have not been educated themselves. (Martens PJ 2000)

In response to the above, we have developed a multidisciplinary feeding team consisting of a neonatologist, nurse practitioners, physiotherapists, nutritionists, NICU bedside nurses, and lactation consultants who were NICU nurses as well. We have developed a care map that is entitled, Progression of Oral Feeding in NICU©, (pg 7) and we have focused on the following four phases:

- Preparation/Initiation for Oral Feeding
- Early Oral Feeding Experience

- Progression of Oral Feeding
- Demand Oral Feeding

In each phase, we listed several desired outcomes, and then busied ourselves preparing an education day for staff.

INITIATING CHANGE

We are very fortunate in our NICU to have developmental care experts and a staff that has had many opportunities for education in developmental care. We felt that formal education in NICU about feeding was long overdue, thus were also thankful to receive funding for education. An education day was established and facilitated by the feeding team and developmental care experts. The education day was repeated four times, providing an opportunity for all staff to be able to attend one day. Attendance was mandatory, and nurses were paid for the day. It was felt that the only way to be consistent in educating the parents was to ensure that the nurses have accurate and current information. Parents do not look to us for our opinions; rather, they look to us for information and it is up to them to use this information appropriately for their individual situations. As health care professionals, we must provide accurate information in a timely fashion so parents can decide how they want to use it. Feeding is not about ourselves and our goals or choices: it is about the parents, their infants, and their own goals and choices.

PREPARATION/INITIATION FOR ORAL FEEDING PHASE

First we reviewed anatomy and physiology of lactation. This brought about the first major change in information available to parents. If full-term, healthy newborns cluster feed, and are feeding 10 to 23 times each 24 hours during the first week of life, can pumping only 6 to 8 times each 24 hours possibly have the same effect? Now all mothers choosing to breastfeed their infant are instructed to use a hospital grade electric breast pump, pumping both breasts at once, 10 times every 24 hours (every two hours during the day, and every four hours at night, getting up once between one and five o'clock in the morning when prolactin levels are the highest).

Mothers are asked to keep a record of the volumes of milk they produce each day. They are reassured that in the first couple of days, they may only get a drop or two, but the stimulation is essential to keeping prolactin levels high. They are also instructed to start pumping as soon after birth as possible, within four hours of birth being the ideal. Mothers continue doing this for two weeks, and the nursing staff monitors their milk volumes. If there are special circumstances, such as a history of breast surgery, a mother that is very ill, or has been prescribed unfamiliar medications, a referral is made to the Lactation Consultant.

Some mothers want to know what their milk volume goal should be, others do not ask. Ideally, 750 to 1000 millilitres per day are recommended. Usually daily increases over the first two-week period are seen. Some mothers make much more than this. Monitoring a mother's milk supply has allowed us to intervene more quickly when things are not progressing as expected. A milk supply that meets the needs of a preterm infant may be 200 millilitres per day, but this is an inadequate supply for a full-term baby.

Mothers of preterm infants have the challenge of establishing and maintaining a milk supply for weeks and many times months without the benefit of their nursing infant. It is much easier to establish an adequate milk supply while prolactin levels are highest during the first two weeks after delivery. It is also easier to maintain these volumes with regular pumping, than to try to reestablish a supply when you take your premature infant home. After the first two weeks of pumping ten times per day, if adequate milk volumes are established, mothers are encouraged to start increasing the interval between pumping from two hours to perhaps two and a half hours. They continue to keep their milk records and they continue to pump during the night. Many mothers are able to reduce the number of pumpings per day, gradually, to between six and eight, and maintain a milk volume of 750 millilitres or more per day.

Other goals that are met in the initiation phase include skin-to-skin cuddling. This assists with attachment or bonding for the parents, as well as breast orientation for the infant. (Affonso, Bosque et al 1993, Ludington-Hoe Thompson, 1994). The only

requirement for skin-to-skin cuddling is that the infant be medically stable. Kangaroo Care, as it is often called, is routinely encouraged even with very small infants that are still being ventilated. Infants are provided with opportunities for non-nutritive sucking, which is an important part of their development. They may use their fingers or thumbs as they normally would in-utero, or an appropriately sized pacifier is offered. This also provides infants with positive oral experiences. At this time, full enteral feeds via naso-gastric tube are being established with weight gains of 15 to 20 grams per kilogram per day. The multidisciplinary team, including a nutritionist, monitors the nutritional requirements of the premature babies at St. Joseph's closely. Early initiation of enteral feeds and a Nurse to Manage Feeds guideline is used to ensure optimal nutrition. Human milk fortifiers are also used when needed to ensure adequate calcium, phosphate, and protein is provided. Appropriate total parenteral nutrition is also provided while full enteral feeds are being established. Also, a great emphasis is made to ensure that the care and handling given by health care providers is developmentally supportive.

THE EARLY ORAL FEEDING EXPERIENCE

During this phase, non-nutritive sucking has been established, Kangaroo Care has become routine, and the infant is now tolerating tube feedings. It is important at this point to assess for readiness to orally feed. Breast orientation is encouraged when mothers allow the infant to lick, sniff, nuzzle, and perhaps latch on to the nipple as the infant is becoming familiar with their "favourite place to be". This also gives the infant a positive oral experience. However, this is only practice for the infant, as the entire feeding is still being given by tube. It is advised that the mother pump her breasts prior to these practice sessions. This ensures the baby does not get a large "let down" of milk that overwhelms the baby causing apnea, bradycardia and a very frightened and reluctant mother.

THE PROGRESSION OF ORAL FEEDING PHASE

Once the infant is showing the ability to latch and take a few sucks and is probably taking

enough milk that we can reduce the amount given by feeding tube, we begin to use pre-feed and post-feed weights (AC/PC). If the infant is displaying the desire to latch and feed, but is unable to remain latched, or latches and falls asleep, or is unable to get much milk, a nipple shield made of ultra thin silicone is introduced.

Pre-term infants, especially those born at less than 30 weeks, have had their development interrupted. An infant born at 24 weeks is unlikely to be able to feed at 35 weeks the way an infant born at 35 weeks can feed. Because of the interruption in development, and the medical hurdles these infants have had to overcome, they often do not have a strong enough suck to elongate the nipple and keep it in place during the normal pauses that take place during feeding (Meier, Brown 2000). They also are unable to suck long enough at the breast to initiate a let down. There is clinical evidence to support the use of nipple shields for the pre-term population, (Meier, Brown 2000, Elliot 1996, Wilson-Clay 1996, Brigham 1996) and we certainly have seen an improvement in the ability of "preemies" to breastfeed since we have introduced the use of nipple shields. Nipple shields, however, will not help with a mother that has low milk volumes. If a mother is producing only 200 millilitres per day in eight pumpings, it is impossible for a pre-term infant to get an entire feeding from the breast. If the total volume per day is 200 millilitres, one breast at any feeding may only contain twelve millilitres of milk. Pre-term babies are able to feed more effectively when the breast is full. This is another reason it is important to keep milk volumes high when the infant is very small. Using AC/PC weights helps us know how much of the feed was taken orally and if a supplement is needed.

It is important to ensure that growth is not compromised when infants are learning to breastfeed. This is quite different from the approach taken with a full-term infant who is learning to breastfeed. We expect a full-term baby to lose weight initially when his/her mother only has colostrum. A pre-term infant, on the other hand, that may have only weighed 600 grams at birth is expected to grow in order to go home. Parents very quickly become aware of the importance of growth and nutrition. It does not make sense to parents, who have had to wait weeks and

often months watching and waiting for their infant to grow, to have health care professionals telling them that is acceptable for their infant to lose weight while learning to breastfeed. Some of these infants may only be 1200 grams and do not have the reserves of stored fat and body fluids of a health full-term newborn. Pre-term infants are not the same as small full-term infants, and should not be treated as so.

THE DEMAND ORAL FEEDING STAGE

It has been our experience that mothers become very good at estimating volume because they are doing the AC/PC weights, as well as participating and observing all feedings at the breast. During this phase, bottles with straight brown nipples may be introduced. Being sensitive to the development of the infant, if he/she is cueing to be orally fed, but the mother is unavailable, a bottle will be offered. At this time, breastfeeding has been successful upon numerous occasions and the parents are involved in developing a feeding plan that works for their individual family.

Some mothers are able to stay in our unique Care by Parent facility so that they are available for all of their infant's oral feedings. Some mothers feel this is impossible because they have small children at home, or perhaps because they have returned to work during the infant's hospitalization. For some families, resources are running out. Paying for parking, pump rental, and the many other costs that add up during their infant's lengthy hospital stay make it necessary to have their infant discharged feeding with both bottle and breast. For these families, the transition to exclusive breastfeeding at home must be made with the help of Public Health nurses and Lactation Consultants in the community. Again, we must remember that feeding goals belong to the individual families.

In the financial climate associated with health care today, realistic goals regarding discharge readiness must be made. The health care system cannot afford to keep pre-term infants in hospitals until they are breastfeeding exclusively. The transitional stage into exclusive breastfeeding may take until the infant is 46 weeks post conception. Mothers are instructed to continue to pump as well as breastfeed until their infant is about seven pounds, feeding eagerly at the breast,

becoming more demanding about feeding (rather than having to be wakened and offered the breast every three hours), and perhaps starting to suck the nipple to the end of the nipple shield. The best place for an infant is at home with his/her family. At St. Joseph's Health Care in London, Ontario, NICU, the requirement for discharge, is that the infant must be taking all feedings orally and must have gained 15-20 grams per day for the three days prior to discharge. The mother is encouraged to continue to pump after every other feed, or more, to ensure that she maintains her milk supply. There is no hurry to stop using the nipple shield, but ultimately weaning from its use is the goal. It may be possible to stop using the shield when the infant has developed a strong enough suck to pull the nipple to the end.

CONCLUSION

The feeding team at St. Joseph's Health Care in London has done follow up surveys with staff to gather information regarding adequacy of learning six months following the education session. The results were very positive. The Lactation Consultants are now seeing very few mothers with milk supply problems and these mothers are being identified much sooner. There is now a continuous record of how much milk mothers are making, which is a major improvement to finding out just prior to discharge that she is not making enough. The most satisfying part of the changes has been infants now returning to the Developmental Follow-up Clinic breastfeeding and doing well. The Feeding team now is ready to collect data to see if the changes we made by providing the mothers with the correct information have made an improvement in breastfeeding duration rates. Our early sense is that our changes are creating positive results.

The information upon which these practice changes have been made is not new. Much of the research has been published in the 1990s. Experience told us that what we were doing before was not working. Sometimes having the courage to alter our practice, based on available evidence, is the most difficult step. It involves taking a critical and honest look at current practice, and willingness and commitment to making the necessary changes.

For more information, contact:

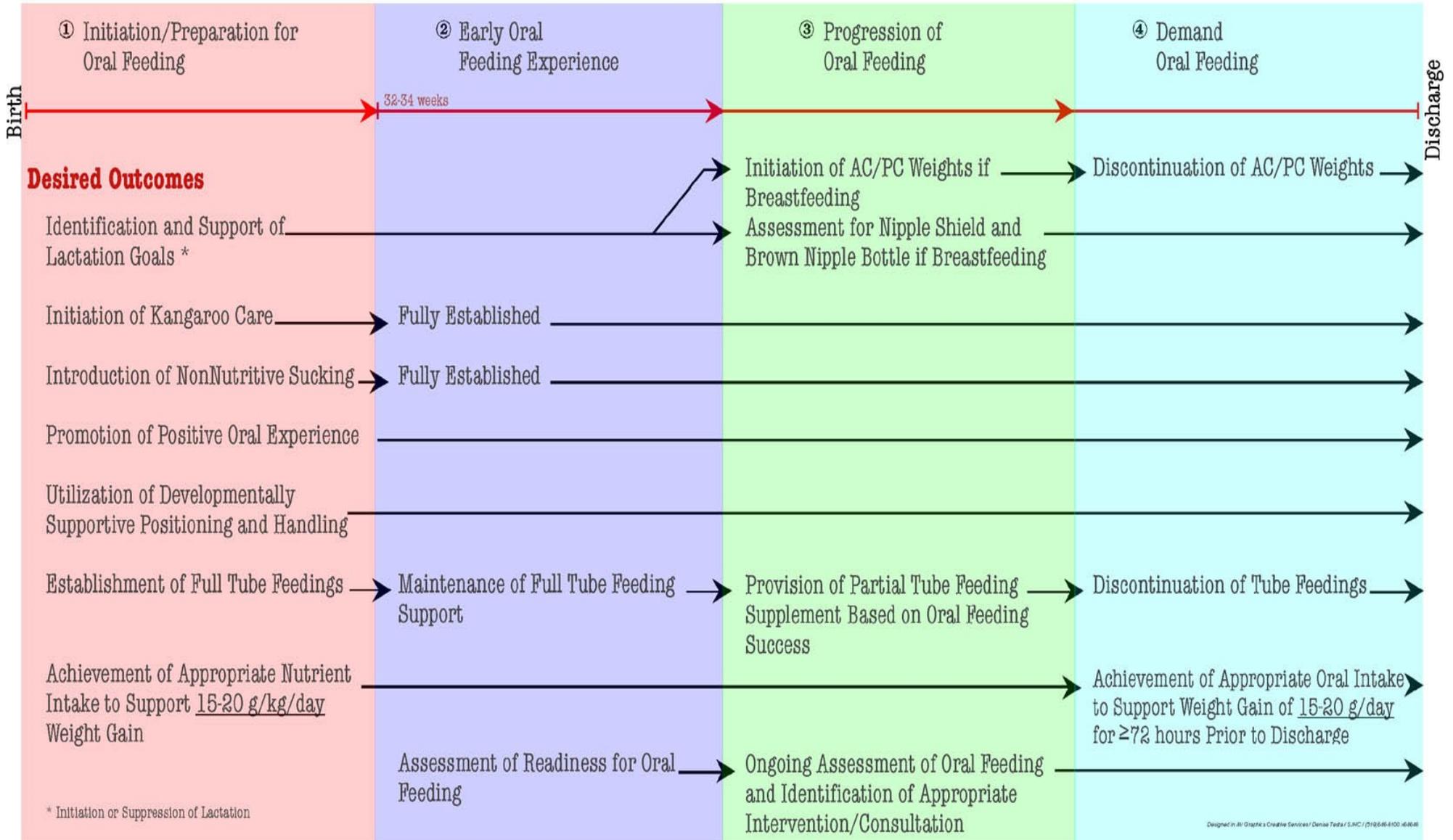
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Progression of Oral Feedings in NICU



Regional Perinatal Services Project

Bulletin #1 – May 28, 2002

What is the Project About?

Access to perinatal services in Southwestern Ontario is being challenged, primarily due to the increasing shortage of medical, nursing and allied health human resources. The inability of a number of hospitals to provide birthing services at all times is resulting in changes in referral and delivery patterns throughout the region. Increasingly, prospective mothers and their families are being referred to secondary and tertiary care centers for their deliveries. As a result, the role of hospitals in providing perinatal care is changing, largely on an ad-hoc basis. It has been recognized that there is a need to coordinate efforts, not only in response to immediate problems, but also with a view to defining the future role of hospitals in providing perinatal care. The Regional Perinatal Services Project is seen as being a vehicle through which this service delivery issue can be addressed.

WHO IS INVOLVED?

Southwestern Ontario has a long history of coordinating perinatal care in order to ensure excellence in the delivery of care. On August 10, 2001, a teleconference was held among key stakeholders representing perinatal care from across Southwestern Ontario to talk about current challenges.

Individuals met over the fall and winter to draft a strategy to address the issues of perinatal access.



As discussions evolved, this took the form of a project proposal and additional people were recruited to become part of these meetings. As a result of the support received, steps have been taken to implement a Regional Perinatal Services Project.

A Coordinating Committee will be overseeing this project and has broad representation from health care providers across the region. Participants include the Regional office of the Ministry of Health and Long Term Care and the three District Health Councils in the Southwest.

⇒ **Purpose** - To ensure access to appropriate perinatal services throughout Southwestern Ontario.

⇒ **Goal** - To identify viable and practical strategies to ensure on-going access to appropriate perinatal care throughout the region, using a collaborative partnership approach.

PROJECT WORK PLAN

The following steps have been developed to guide the work that will be undertaken. It should be seen as a draft that may change.

PRE-PHASE WORK - FINALIZE COMPOSITION OF COORDINATING COMMITTEE TO ENSURE APPROPRIATE REGIONAL REPRESENTATION.
**completed*

PHASE 1 - INTRODUCTION OF PROPOSED INITIATIVE TO STAKEHOLDERS AND TASK GROUPS
 Letter to be sent to all hospitals advising them of proposed initiative. Co-chairs of Coordinating Committee and MOHLTC Regional Director will sign the letter. Presentations of Project to Regional Perinatal Nurse Managers meetings.
**completed*

PHASE 2 - SURVEY AND DATA GATHERING
Collection of data and information by Task Group Coordinator(s)
 Personal interviews with perinatal and related services by Task Group Members using a standardized interview tool. The interviews will occur in each of 26 centers currently providing perinatal and related services. During this phase there will also be information/opinion gathering from patients and families.
**to be completed August 2002*

PHASE 3 - DEVELOPMENT OF INVENTORY AND ISSUES REPORT
 Consolidation of all collected data and interview responses by Task Groups in Phase 2. An inventory and issues report will be written and will contain all data and information collected.
**to be completed October 2002*

PHASE 4 - VALIDITY CHECK WITH TASK GROUPS AND STAKEHOLDERS
 Ask Task Groups and stakeholders to review Inventory and Issues report (Phase 3) and validate collected information. Concurrent with validation of data by stakeholders, there will be a need to confirm how approvals for recommendations will be obtained
**to be completed December 2002*

PHASE 5 - ANALYSIS OF FINDINGS
 Development of report by Coordinating Committee based on collected data, interview results and Task Group input, containing: strategies to address immediate issues, discussion on sustainability and flexibility of programs, costing implications, recommendations, and discussion of next steps
**to be completed January 2003*

PHASE 6 - CONSULTATION PROCESS & PRESENTATION OF DRAFT REPORT
 Consultations, and presentation of draft report, with physicians, hospital and community-based services involved in the provision of perinatal services. Discussion of next steps / implementation planning strategy.
**to be completed February 2003*

PHASE 7 - APPROVAL / PRESENTATION PROCESS
 Development of implementation plan based on consultations (to include resource needs and impact analysis) Presentation of report and recommendations to management, medical staff, hospital boards for review and endorsement
**to be completed April 2003*

If you would like more information, or a copy of the Proposal, please contact Karen Davies at Karen.davies@lhsc.on.ca, or 519-685-8500 x 77820

FOR YOUR INFORMATION ...

Alarm Courses - 2002

Edmonton, AB Sep 28-29, 2002

Toronto, ON Nov 17-18, 2002

Toronto, ON Dec 8-9, 2002

Contact: SOGC
780 Promenade Echo Dr.
Ottawa, ON K1S 5R7
Tel: 1-800-561-2416
www.sogc.org

UPCOMING EVENTS:

Mark Your Calendar!

Conferences / Educational Opportunities –

16th Annual Regional Perinatal Outreach Conference

Friday, September 27, 2002

Perinatal Risk Management

Stoneridge Inn, London

Contact: Perinatal Outreach Office

(519) 646-6100, ext. 65859

"Women Abuse Implications for Health Care Providers"

Friday, November 22, 2002

Stoneridge Inn, London

Contact: Nancy watts, LHSC

(519) 685-8500 ext.52142

nancy.watts@lhsc.on.ca

UPCOMING EVENTS: CONT'D

Maternal Newborn Nurse Education Course 2002

London:

Tuesdays: Oct 1 – Nov. 12, 2002

**Strathroy Middlesex
General Hospital**

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Hanover:

Fridays: October 4 – Nov. 22, 2002

Hanover Hospital

Contact:

Vivian Niesen, Pt. Care Manager
Hanover Hospital
Phone: (519) 364-2340 x 239
Fax: (519) 364-6602
nursemanager@abmts.com

Fetal Health Surveillance In Labour Workshop - Woodstock:

Thursday: Oct. 3, 2002

Contact:

June Spruce
Director of Patient Care
Woodstock General Hospital
Phone: (519) 421-4211 x 2355
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This newsletter is a publication of the Perinatal Outreach Program of Southwestern Ontario.

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