

## Cambridge Midwives

### Informed Choice Information

#### **Prenatal**

Routine bloodwork in pregnancy is a community standard of care. It is offered in pregnancy in order to gather information about your health status. Several vials of blood are taken from just one needle. If you choose to decline a test we may require you to provide the information in another form. For example, if you are a blood donor you can provide evidence of your blood type.

The tests that are routinely offered are:

**CBC (complete blood count):** This test determines the type, number and size of cells you have in your blood. Midwives are interested to know how much hemoglobin (iron) you have, and how many platelets (for blood clotting) there are. A CBC can also tell us if you are fighting an infection.

**Group and Screen:** Determines your blood type and rhesus positive or negative, for example A+ or O-. It also tells us if antibodies are present in your blood. Knowing your blood type is important in pregnancy as a negative blood type (ie A -), or the presence of antibodies can potentially cause problems for the baby (or subsequent babies) if the baby's blood gets mixed with the mother's.

Public Health tests:

Rubella

Hepatitis B

Syphilis

HIV

Chlamydia and Gonorrhoea

**Rubella:** Most women are immune to rubella due to having had it in childhood, or having been vaccinated against it. It is usually a very mild disease, however in pregnancy it can cause serious congenital problems for the baby such as blindness, deafness and heart disease. It is unlikely you will contract Rubella during your pregnancy even if you are not immune, but you will be offered a vaccination after the baby is born in order to protect you in future pregnancies.

**Hepatitis B:** Hep B is a serious disease that affects the liver. It is a relatively rare disease but you can be a carrier without experiencing symptoms of the disease. It is contracted through blood, semen and other bodily fluids. Examples of practices that raise the risk of catching it include unprotected sex, sharing needles or home tattoo's. Sometimes women who have immigrated to Canada contracted it before they came here due to unsafe healthcare practices in their home country. It can be passed from mother to baby whilst pregnant.

**Syphilis:** A rare sexually transmitted disease that can cause congenital and very severe problems in the baby. Treatment before the 16<sup>th</sup> week of pregnancy can stop syphilis from passing to the baby. It is also vital for the woman to get treatment.

**HIV:** Human Immunodeficiency Virus is the virus that leads to AIDS (Acquired Immunodeficiency Syndrome). HIV can be passed from mother to baby during pregnancy, labour, birth and breastfeeding. The risk of transmission to the baby can be significantly reduced with treatment during pregnancy.

The results of public health tests are reportable in order to stop outbreaks, or the spread of a disease.

The HIV test in particular is not confidential, as information that you have had the test is available to agencies such as insurance companies. If you wish to take the HIV test anonymously you may do so through the Public Health Unit.

#### Other blood tests

Your midwife may also suggest bloodwork for infections such as parvovirus, vitamin or mineral deficiencies such as B12 or a random glucose test to see how you metabolize sugar.

#### **PAP**

A PAP test or PAP smear is a sample of cells taken from your cervix to see if any changes are taking place. It is used to see if there is infection, abnormal cells or cervical cancer. An instrument called a speculum is placed in your vagina to open it so that your midwife can visualize your cervix and use a special brush to take cells. In pregnancy it is most accurate until 10 weeks. After that you may still have a PAP but the results are less likely to be accurate. There is no harm to your baby if you have a speculum exam during pregnancy.

During a speculum exam it is common to take swabs that test for yeast and bacterial infections such as bacterial vaginosis which is not a sexually transmitted infection and chlamydia and gonorrhoea which are sexually transmitted. The swabs can also be done without the speculum exam as some women choose to wait until their discharge visit to have a PAP.

**Chlamydia and Gonorrhoea:** Chlamydia and Gonorrhoea are sexually transmitted infections (STIs) caused by bacteria. They are the most common STIs in Canada. It is common to have both at the same time and they can lead to complications such as pelvic inflammatory disease and infertility. During pregnancy Chlamydia can cause infection in the cervix and in the uterus after the baby is born. It can also cause blindness in babies if they get the bacteria in their eyes during birth. Gonorrhoea during pregnancy can be passed to the baby. You can be tested in pregnancy either with a swab or by giving a urine sample, and infections are treated with antibiotics. If you have either Chlamydia or gonorrhoea it must be reported to the Public Health Unit.

#### **Urine testing**

##### **Routine urine dipstick**

At each prenatal visit you will be offered the opportunity to check your own urine for protein and glucose. These are tests that are the community standard of care, but there is no good evidence to support their usefulness.

Significant amounts of protein in your urine in conjunction with rising blood pressure, may be an indication of pre-eclampsia, an extremely serious disease that occurs only in pregnancy. Small or trace amounts of protein are normal in pregnancy because of the increased vaginal discharge that is experienced.

Glucose in your urine is a sign that you may not metabolize sugar well, but this is not a test that is well supported by evidence, and is probably not beneficial in pregnancy. Most likely you just ate or drank something with sugar in. Unfortunately it comes on the stick with which we are testing for protein.

2. Saudan PJ, Brown MA, Farrell T, Shaw L. Improved methods of assessing proteinuria in hypertensive pregnancy. *Brit J Ob Gyn* 1997;104:1159–1164.

### **Midstream urine culture (MSU)**

An MSU is a test where urine is collected in a sterile bottle and tested in a laboratory for bacteria. It is done routinely at about 20 weeks of pregnancy, or if you have signs of a urinary tract infection. The routine MSU is done because some women have an asymptomatic urinary tract infection, ie there are bacteria present but they do not cause symptoms. Although the bacteria is not currently causing any harm it may lead to bladder infections, or more seriously kidney infections. Kidney infections in pregnancy can lead to pre-term labour. Both bladder and kidney infections can be extremely painful. If you catch a kidney infection you may be hospitalized for IV fluids and antibiotics. Treatment for either an asymptomatic or symptomatic urinary tract infection is with antibiotics. Once the infection has been treated, another test is done to be sure the bacteria have gone.

Some women are concerned about using antibiotics in pregnancy and in general. We always prescribe the safest and most effective antibiotics possible, but we do know that antibiotic use is leading to antibiotic resistant bacteria. If you are prone to urinary tract infections, you can help to prevent them by drinking large amounts of fluids and taking cranberry capsules.

Symptoms of a urinary tract infection are being unable to urinate, frequently needing to urinate but little coming out, cramping above the pubic bone or low in the abdomen.

Kidney infections are usually accompanied by fever, chills, and pain in the back.

### **Genetic screening**

Prenatal screening is optional. It is the community standard of care to offer it to all women. There are two different types that you can choose from. The most common is the integrated prenatal screen which consists of a blood test and an ultrasound between 11 and 13+6 weeks of pregnancy, then a further blood test between 16-20 weeks. Maternal serum screening is a blood test done at 16-20 weeks. Prenatal screening determines if your baby has an increased risk of Down's Syndrome, trisomy 18 or open neural tube defect. It is not a definitive test. If the results come back positive you will be offered counselling with a geneticist, very detailed ultrasound and amniocentesis to determine if in fact your baby has the condition. If the results of this are positive you will be offered an abortion.

Women over 40 can choose to have amniocentesis or chorionic villi sampling (CVS) without first doing the prenatal screen.

Amniocentesis and CVS carry a risk of causing miscarriage or potentially causing damage to the fetus.

The benefits of prenatal screening are the ability to prepare for abnormalities, continue or discontinue the pregnancy or plan for delivery at a high risk hospital. The risks of doing the screen include getting false positive or false negative results, not knowing the results until 18-20 weeks into your pregnancy, increased stress and delivering outside of the community.

The benefits of not screening include promoting pregnancy as a normal, non-medical event. Some people think it is unethical to abort a fetus on the grounds of disability. Prenatal testing cannot predict the extent of a person's disability.

Risk factors for having a baby with a genetic anomaly include maternal age >40, obesity, substance use, medication use, family history. However, the majority of infants with a genetic anomaly are born to women without risk factors.

If you choose not to do prenatal screening, you may have an ultrasound between 18-20 weeks that is also screening for anomalies. Please see the information on ultrasound below.

## **Ultrasound**

Ultrasound is a technology that uses sound waves to create a picture of your baby on a computer screen. The soundwaves are bounced from a transducer through your skin, onto the baby and back to the transducer. The transducer may be held on your abdomen, or be put into your vagina depending on the information that is required and how far through the pregnancy you are.

Taking an ultrasound of the baby may be suggested at various points in your pregnancy. The Society of Obstetricians and Gynecologists Canada recommends one routine ultrasound between 18-22 weeks as the standard of care in all pregnancies. This 18-22 week ultrasound is called a morphology ultrasound and is a detailed look at your baby's body and internal organs to see that it has no anomalies. Examples of anomalies the ultrasound can detect are cleft lip and palate, heart defects, Down's Syndrome. Ultrasound cannot predict if the baby will have mental disabilities or learning disabilities.

Amongst other things ultrasound can be used to estimate your due date, see where your placenta is, see how many babies you are expecting and what position the baby is in, monitor the health of your baby through watching the baby's growth and amniotic fluid level.

The benefits of using ultrasound are: accurately dated pregnancies, which reduces the rate of intervention for a post-dates pregnancy; it is 85% accurate in detecting anomalies both with the baby and with the position and function of the placenta; it may be possible to determine the gender of the baby.

The risks include insufficient evidence to say that ultrasound is safe for the fetus. It may increase stress if an anomaly is identified (either accurately or inaccurately). Anomalies may be missed. As ultrasounds get better it is possible to see more on them and because of this you may receive information that is concerning but that may or may not indicate a problem. We are obliged to tell you all the findings on the ultrasound report.

We know that most women are excited to have an ultrasound and see their baby, but please understand that you might receive information that you did not want to have, for example if you declined prenatal screening and then are told that the baby has Down's Syndrome.

You may wish to decline ultrasound. This can help to promote pregnancy as a normal and healthy part of a woman's life. In a low-risk pregnancy outcomes are rarely changed by routine ultrasound, but your perception of your pregnancy and your baby may be. Your midwife will advise you if an ultrasound is clinically necessary.

We do not recommend having ultrasounds just to see the baby. Although they are fun, ultrasounds in a private business are not done by licensed medical professionals, so they cannot tell you if your baby is healthy or not. The frequency of the ultrasound they use is not regulated. In fact they use higher

frequencies for longer periods of time to get a good picture.

## **Doppler Ultrasound**

Doppler ultrasound is a technology we use in clinic with which we can listen to the baby's heartbeat prior to 28 weeks gestational age. It enables us to assess it for rate and rhythm, and allows you to connect with your baby. After 28 weeks we can use a fetal stethoscope. Most women do choose to listen to the baby's heart with the doppler, however there is no research evidence that it is safe, or beneficial to do so and some of our clients prefer to wait until we are able to hear the baby without.

## **Glucose screening for gestational diabetes**

Gestational diabetes mellitus (GDM) is high sugar levels in the blood that occurs only in pregnancy. Sometimes women have pre-existing diabetes which is only discovered in pregnancy. Most cases of GDM do not have any signs or symptoms. Insulin is a hormone that makes glucose travel into the cells in your body. Resistance to insulin leaves the glucose in your bloodstream. This is normal after the second trimester of pregnancy because the growing baby needs the extra glucose in your blood. However, a few women have too much resistance to insulin, and too much sugar in their blood. This can lead to problems for the baby who has to produce a lot of their own insulin to cope. They can become 'macrosomic' or unnaturally large, which might cause problems at the time of birth. It is also a problem immediately after birth when they no longer have a steady stream of glucose from mom, but have a lot of insulin in their system. Instead of having high blood sugar, they may suddenly develop very low blood sugar (hypoglycemia) which can also lead to health problems. Women who have GDM have a significantly higher risk of developing type 2 diabetes during their lifetime.

Risk factors for GDM include high blood pressure, a body mass index (BMI) of 30 or over (being obese), age 25 or older, other close family members who have type 2 diabetes, having a previous baby who was macrosomic or had hypoglycemia, or having had an unexplained stillbirth. Some ethnic groups are more prone to diabetes than others. However, a significant number of women who develop GDM have no risk factors at all.

The test is usually done between 24-30 weeks, although if you have risk factors for gestational diabetes, we may recommend you do it earlier in pregnancy. There are two tests to choose from. The 50g glucose challenge test (GCT) consists of drinking a sugary drink, sitting still for an hour and then having blood taken. You do not have to fast. The GCT is not a very accurate test, but it is simple to do and the least time consuming. If the result is positive you take the fasting test to prove that you definitely have GDM.

The 75g oral glucose tolerance test (OGTT) is the gold standard of testing. The OGTT is a fasting test and requires blood to be taken three times over two hours. It is more time consuming than the GCT but another test is not needed after doing it. In this community the OGTT is recommended over the GCT.

If you test positive for GDM or have what is called a glucose intolerance, we talk to your family doctor and refer you to a specialist who will help you to change your diet and monitor your blood sugar throughout your pregnancy. Most women with GDM remain under midwifery care. Some women require treatment with insulin. This would lead to a transfer of care to an obstetrician as insulin dependent diabetes makes a pregnancy and labour high risk.

The theoretical benefits of testing are preventing a macrosomic infant who may be more prone to shoulder dystocia (when the baby gets stuck in the pelvis), reducing maternal and infant injury during the birth and preventing infant hypoglycemia. Some evidence supports testing for this reason and some studies show no difference in outcomes if the test is not done.

The greatest benefit of testing is that it enables women to make diet and exercise changes that help to prevent the onset of type 2 diabetes later in life. Also of interest is the fact that breastfeeding significantly reduces the risk of type 2 diabetes for women, as well as their infants in later life.

We recommend regular exercise in pregnancy as it helps to control blood sugar. We can also make suggestions for healthy food options, or refer you to a nutritionist.

### **Group B streptococcus (GBS)**

Group B streptococcus is a bacteria that normally lives in our intestines without causing any problems. It is transient and seems to come in cycles. When it is present it remains for about 5 weeks. During pregnancy 15-40% of Canadian women will carry GBS when their baby is born. At the time of birth babies are colonized with all the bacteria that they will carry for the rest of their life. This may include GBS if it is present and 40-70% of colonized mothers pass it to their infants. In very rare cases (1-2% of those infants colonized) GBS can cause serious newborn illness (for example meningitis, pneumonia or septicaemia). The chance of this happening is highest if additional risk factors are present. These are: GBS present in the mother's urine during pregnancy, if a mother has had a baby previously infected with GBS, a preterm baby (born before 37 weeks), waters having broken for a long time before the baby is born or maternal fever in labour. To provide an idea of the number of women and babies who might be affected; in a group of 1000 women who do not know whether or not they have GBS and don't take antibiotics, around 198 will be GBS positive, 98 babies will be colonized and 1-2 babies will develop an infection.

The community standard of care, and that recommended by the Society of Obstetricians and Gynecologists is to do a swab at about 36 weeks of pregnancy to see if GBS is present. If the swab is positive for GBS it is advised that antibiotics be given through an IV during labour. It is not possible to treat GBS prior to birth. If a woman has GBS in her urine, or has had a previously infected infant antibiotics are recommended without doing the swab.

The evidence to support antibiotics in labour to prevent GBS infections in infants is limited. Penicillin is the only antibiotic proven to reduce colonization. The number of infected babies may be reduced by taking antibiotics, unfortunately the number of babies who die is not. The other important factor to note is that 70% of babies who die were born to moms who swabbed GBS negative, either because their result was an error, or their GBS status changed prior to labour. Please be assured that GBS infection in babies is very rare, and it is even rarer that babies die from it. A study was done in Manitoba that stated 68,966 women would have to do the swab to prevent one death. We watch all babies very closely for signs of infection and would refer you to a paediatrician immediately if necessary.

If your water breaks prior to contractions starting and you have a positive GBS swab, it is recommended that an oxytocin induction takes place after two hours. If you are GBS unknown or declined to swab an induction is recommended after 18 hours. If you are GBS negative, the evidence

supports waiting up to 3 days before induction, however, an induction after 18 hours is the community standard of care in Cambridge. A first time mom, having an oxytocin induction has a greater risk of a c/s than a baby infected with GBS.

Some women do not want to do the swab and the evidence supports that it is equally acceptable to provide antibiotics based on risk factors alone to women who did not do the swab, or do not know their result. We recommend that if you are planning a hospital birth and do swab positive that you have the antibiotics in labour because of hospital protocols. If you prefer to decline the antibiotics, it is better not to do the swab. If you are planning a home birth and swab positive we can provide antibiotics at home if you require them. We do not carry antibiotics routinely, so if risk factors developed during the course of your labour you would have to transfer to hospital.

The most effective way to avoid your baby getting a GBS infection is to have a waterbirth. It reduces the chance of an infected baby to 1/4500. Unfortunately we cannot offer this in hospital but please talk to us about a home birth.

#### Bibliography

[http://www.sogc.org/health/pregnancy-groupb\\_e.asp](http://www.sogc.org/health/pregnancy-groupb_e.asp)

<http://www.sogc.org/guidelines/public/149E-CPG-September2004.pdf>

Konrad G, Katz A. Epidemiology of early-onset neonatal group B streptococcal infection: implications for screening. *Can.Fam.Physician* 2007 Jun;53(6):1055, 2001:e.1-6, 1054.

[http://www.aom.on.ca/files/Communications/Professional\\_Guidelines/CPG\\_GBS\\_July\\_2010\\_FINAL.pdf](http://www.aom.on.ca/files/Communications/Professional_Guidelines/CPG_GBS_July_2010_FINAL.pdf)

#### **Cord blood banking**

Some parents wish to bank the stem cells from their baby's cord blood in a private blood bank. Parents who wish to collect cord blood make the arrangements with the blood bank of their choice during the pregnancy and bring the collection kit to the birth. Cost of blood banking depends on the company you choose, but generally consists of one initial payment and then yearly payments to keep the blood in storage. The midwives can collect cord blood both at home and in the hospital. It is done by clamping and cutting the cord immediately after the baby is born and taking blood from the cord before the placenta is born. It is not painful for either the woman or the baby.

**Benefits:** The stem cells are a perfect match for your baby, and may also be used by other family members. They can be used in the treatment of certain diseases such as leukaemia, immune disorders, metabolic disorders and some genetic disorders.

**Risks:** Evidence suggests that immediate clamping of the cord reduces the amount of blood in the baby's body by up to 40%. In an adult this amount of blood loss would be fatal if untreated with blood transfusions. Immediate cord clamping is known to cause anemia (lack of iron) in some infants, and it may have neurological effects because heme (iron) is essential in the developing brain of your baby. Little research has been done on full-term babies but studies show that pre-term babies who have immediate cord clamping have significantly poorer health. There is no research about the long-term effects of depriving the newborn of their normal amount of stem cells.

Until recently immediate clamping of the cord has been standard of care and babies usually tolerate it

well. By 1 year old, the hemoglobin supplies of most babies are normal. However, if you are not banking the cord blood midwives routinely practice delayed cord clamping because it allows your baby to gently transition to life outside the womb, gives them 100% of their blood and provides a steady supply of oxygen in the event that they need a little help to breathe.

### **Infant feeding**

**Breastfeeding:** The most healthy, beneficial and cheapest (free) way to feed your baby is breastfeeding. It is recommended that all babies be breastfed for a minimum of six months and preferably for at least two years in Canada. We highly recommend that you breastfeed your baby because it is better for the babies health and yours. Breastmilk always contains the perfect amounts of vitamins, minerals, protein, fat and sugar for your baby. It also contains antibodies to prevent your baby getting sick. As your baby grows your milk changes day by day to provide what they need. Even the taste of it changes depending on what you have eaten. Breastfed babies/children have the lowest rates of infections, diabetes, SIDS, obesity and other diseases. The very first feed you give your baby, called 'colostrum' helps their intestines to grow stronger and develop properly. The skin to skin contact that comes from breastfeeding increases the child's IQ, helps them to form strong bonds of attachment to you and regulates their breathing, heart-rate and temperature. For the mom, breastfeeding significantly reduces rates of postpartum depression, diabetes and cancer. Your body is programmed to return to normal faster if you breastfeed. Breastfeeding is a skill that you have to learn even though it is a natural thing. We spend a great deal of time after the baby is born helping you to do it correctly, and we have a lactation consultant at the clinic.

If you are unsure if you want to breastfeed we recommend taking it one day or even one feed at a time at a time. The very first feed is the most important, so you could do the first feed and then decide if you want to carry on. Every breastfeed you do has a positive impact on the babies health and your own. Some women choose to pump their breast milk so that they can feed it from a bottle but give their baby most of the benefits of being breast fed.

**Artificial milk (formula):** Some of our clients do not wish to, or are not able to breastfeed/or breastfeed exclusively and choose to feed their baby with artificial milk. Artificial baby milk is usually made of dried cow milk proteins mixed with oils and with vitamins and minerals added. If a baby has allergies it may be made with goat's milk or soy. It mimics (but is not identical to) human breast milk between 1-3 months after the baby is born. It comes in different forms such as liquid or powder and is usually fed from a bottle, but can be fed through a tube at the breast for women who want to breastfeed but do not have enough milk (for example after a breast reduction surgery). Occasionally we use formula to supplement breastfeeding when things are not going so well. When we suggest this it is intended as a short-term measure until you can exclusively breastfeed.

### **Post-dates pregnancy**

The normal length of a pregnancy is between 37 and 42 weeks long. Your due date is set at 40 weeks but it is better to consider a 'due month' because very few babies are born on their due date. In fact the average length of a first pregnancy is 8 days past the due date. Only 3% of women will remain pregnant after 42 weeks. Once you reach 41 weeks of pregnancy your midwife will start to talk to you about options for continuing the pregnancy. There is a slightly increased chance that the baby may have problems prior to, or during the birth after this time. The standard of care is to order ultrasounds called 'biophysical profiles' every three days to monitor the baby's health. There is also a test called a non-stress test which listens to the heartrate. Monitoring the baby's health whilst waiting to go into



labour is called expectant management. It promotes a normal, healthy pregnancy, labour and birth because it limits interventions, however no test is perfect for assuring a healthy baby. Some women wish to encourage labour to start, and this can be done using homeopathic remedies, herbal remedies, nipple stimulation, manipulation of your cervix (called a stretch and sweep) and other things your midwife can discuss with you.

If you would like your labour to be started medically, or it is necessary because the ultrasound shows a risk to the baby you may have a 'medical induction'. After a consult with an obstetrician, medications can be used to prepare your cervix for labour if it is not ready, and then a drug called pitocin is given through an IV to create contractions. Pitocin is a synthetic hormone that mimics the natural hormone oxytocin. Whilst you are using pitocin your baby is monitored by electronic fetal monitor because occasionally the contractions become too strong and the baby's heart-rate may drop. Once you are having regular contractions and your cervix is starting to dilate your amniotic sac (around the baby) is artificially opened to let the amniotic fluid out. This is called an amniotomy. This usually makes the contractions stronger. Medical inductions do not always work on the first try, especially if your body is not ready to have a baby. Sometimes two or more attempts are made to start labour. There is an increased risk of needing forceps, vacuum or a cesarean section after an induction. It is also more common to have an epidural or narcotic pain relief.

## **During the birth**

### **Place of birth**

Midwives are the only care providers in Ontario who offer a choice of birthplace. We have hospital privileges at Cambridge Memorial Hospital where we have extremely good relations with the obstetricians and nursing staff. You may also choose to have your birth out of the hospital. This is usually in your own home, but can be in any place of your choosing. Previous midwifery clients in Ontario have given birth at the homes of friends and relatives, in hotels and motels, and in cabins in the woods. We bring all of our equipment to you. Choosing a place to have your baby is an important decision as your birth will go most smoothly in the place you feel safest.

### **Home birth**

Approximately 25% of midwifery clients in Ontario, and 15-20% in this community choose to have an out-of-hospital birth. Statistically, planned home birth in Canada is the safest place to have a baby, even compared to births with a midwife in hospital. It has the best outcomes for mom and baby, the fewest interventions, lowest c-section rates, low rate of pain relief, less need for resuscitation of the baby and the highest satisfaction rates. For women who planned a home birth but had to transfer to hospital, use of pain relief and interventions are still lower than planned hospital births.

The reason that planned home birth is so safe is because midwives train for four years to recognise when labour is not progressing normally and to deal with emergencies. We re-certify regularly to keep our emergency skills up-to-date. Two midwives are present at the time of birth. During pregnancy we discuss any risk factors that would make it unsafe to birth at home, we bring to your home virtually all the medications and equipment that is found in a hospital room and we transfer to hospital from home if it becomes clinically necessary. If a transfer is not possible for example because the baby is about to be born, we call EMS to come to your home and wait outside until we know if we need them or not. The vast majority of transfers to the hospital are for pain relief not for emergencies.

The benefits of home birth include the family being the hosts. You invite the midwives and any other

guests into a place where you are comfortable and in charge. You may invite as many, or as few people to your birth as you wish including your other children. Partners often feel more involved at home because they too are comfortable in the space and know where and what is a comfort to the labouring woman. Birth at home is seamlessly integrated into normal life, and you can go about familiar routines and tasks until you are no longer able to. You get straight into your own bed once the baby is born. There is little risk of infection because you and the baby are immune to the bacteria present in your own home. The midwives have more time to focus on you and your labour without attending to charting, or following other hospital protocols. You may have a waterbirth with all the attendant benefits, including fantastic pain relief, reduced rates of GBS infection, reduced tearing, more peaceful transition for the baby. Above all, homebirth promotes the normalcy of a healthy pregnancy as a non-medical event. We even clean up after the birth. All that is left for the family to do is a load of laundry.

Things to consider when planning a home birth are the distance from your home to the nearest hospital, that electronic fetal monitoring is not available, that midwives cannot perform operative vaginal deliveries such as forceps and vacuum or c/s and there is no access to pharmacological pain relief other than entonox.

### **Hospital Births**

Hospital births with a midwife are not necessarily like those you see on TV, or even with an obstetrician. Once you are admitted to hospital your midwife stays with you for the duration of your labour, you may wear your own clothes and be as active as you wish. We try to keep the room quiet and peaceful so you are not disturbed as you labour. If all is well, you will not see the nurses or the obstetrician. At CMH all of the rooms have showers and two of the rooms have tubs (waterbirth is not available). If your midwife has not already assessed you at home most likely you will be assessed in one room and then moved to another when you are being admitted to the hospital in active labour. If you are staying after the baby is born, you will be moved to another room a couple of hours after the birth or you may choose to go home if you and the baby are well. Bloodwork is done when you are admitted and you sign some paperwork if you are able to. You may have two support people with you and other family or friends may wait in the waiting room. There is a small kitchen to get food and drink, and a Tim Horton's in the hospital. After the baby is born blood tests for the newborn screen and bilirubin (to predict if the baby may get jaundice) are done on the baby when he/she is 24 hours old. If you did not stay in the hospital you may go back the day following the birth to have the tests done.

The benefit of a hospital birth is not having to move to the hospital if a consult is required or in an emergency. Although your midwife takes the initial steps of managing the emergency, the nurses, and sometimes the obstetrician, paediatrician and anaesthetist are already present in the hospital. Narcotic and epidural pain relief is available although not necessarily immediately. You can have forceps or vacuum, and a c/s. If you stay in the hospital after the baby is born, you and the baby are monitored to be sure all is well and the nurses are available to help you with breastfeeding.

The downsides of a hospital birth include more interventions such as the use of oxytocin and greater use of pharmacological pain relief due to them being available, or due to the midwife having to follow hospital protocols. The obstetrician and anaesthetist are not obliged to be in the hospital at all times and you may have to wait up to half an hour in an emergency for them to arrive. Risk of infection to you and the baby is significantly higher. You are limited to two support people and children cannot be present. You may be able to hear other women in labour, or feel inhibited if you think they can hear you. Once the baby has been born, if you are staying in the hospital, your partner can only stay with you if you are in a private room. There is no guarantee of a private room. You also have to pay for parking.

## **Fetal Monitoring**

When you are in labour the heart rate of your baby is monitored. We listen to it with the doppler ultrasound every 15-30 minutes, and every 5 minutes when you are pushing. This is called intermittent auscultation. If there are any concerns; if you are having a vaginal birth after cesarean in hospital or if you are using oxytocin/have an epidural we use an electronic fetal monitor (EFM) to monitor the baby continuously. EFM is only available in the hospital. It may be put on temporarily and taken off again if all is well or left on until the time of birth. An EFM consists of two flat discs that are held onto your belly by belts which are connected with wires to a printer. One of the discs picks up the heartrate and the other measures when you are having a contraction. In a healthy, low risk, uncomplicated birth the outcome for the baby is the same with intermittent auscultation and EFM. Sometimes, if there are concerns about the baby and it is difficult to monitor the heartrate, a scalp clip can be applied directly to the top of the baby's head.

## **Management of the third stage**

The third stage of labour is between the birth of the baby and the birth of your placenta. (The first stage is when you are having regular strong contractions that are dilating your cervix. The second stage is pushing to the birth of the baby) There are two ways to manage the birth of your placenta and both are a good choice for healthy, well-nourished women with no risk factors for having a post-partum hemorrhage. The chance of having a hemorrhage after a normal birth is 5% in Canada. Most of these happen within four hours of the birth. A hemorrhage is defined as over 500ml of blood loss, which is the amount given when you donate blood. Risk factors for having a hemorrhage include having had one with a previous baby, a very fast labour, a very slow labour, any interventions such as oxytocin, forceps, vacuum, Most blood loss is tolerated well by the woman and no additional medical care is needed. Most placenta's are birthed within 10 minutes of the baby being born.

## **Physiological management**

Physiological management involves waiting for the placenta to be pushed out naturally by maternal effort. It works best in a peaceful setting when the woman feels very safe and undisturbed. After you have given birth to your baby you naturally experience a large rush of the hormone oxytocin. This makes your uterus clamp down hard and the placenta to come out. It also makes you fall in love with your baby and signals your body to start creating milk for the baby. If there is any sign of increased bleeding or the placenta is not coming out easily by itself, the midwife will give synthetic oxytocin (Pitocin). The benefit of physiological management is that it promotes birth as natural and that your body is perfectly designed to do it's job, in the same way you gave birth naturally. No synthetic medications are given to interfere with your own hormones unless it is medically indicated. Unfortunately there is little research on physiological management in comparison to active management amongst healthy women, although some studies done by midwives in New Zealand appear to show that there are fewer serious hemorrhages with physiological management.

## **Active Management**

Active management is the community standard of care in Canada and is recommended by the Society of Obstetricians and Gynecologists to prevent hemorrhage. It involves clamping and cutting the umbilical cord, giving the synthetic hormone Pitocin either by injection or through an IV to mimic the natural rush of hormones, and then pulling the cord (called controlled cord traction) to encourage the placenta to come out. It reduces blood loss by approximately 80ml and hemorrhages by 50% (ie only 2.5% of women will lose more than 500ml of blood). Some studies show that there is a higher incidence of retained placenta's (a placenta that will not come out) with the use of Pitocin. The use of Pitocin stops the natural production of Oxytocin.

In the hospital protocol dictates that if the placenta is not born after 30 minutes we must start an IV and do a consult with an obstetrician. If the placenta has not been born within hour it is removed manually in the operating room. At home, as long as you are not bleeding and your vital signs are stable you can wait longer for your placenta. However, the risk of hemorrhage increases the longer the placenta is unborn and you may have to transfer to hospital to have it removed.

## **Pain relief**

### Pharmacological Pain relief

Entonox – Entonox is a mixture of nitrous oxide and oxygen. It is otherwise known as laughing gas. It is very effective in helping a woman relax and while it doesn't take away all the pain, it does make contractions more bearable. It is inhaled through a face mask. It is extremely safe to use and if you don't like it or don't find it effective, it is gone from your system in about 2 minutes. Occasionally it makes women feel nauseous. Entonox is brought to your home if you are having a planned homebirth.

Narcotics: The narcotics given at CMH are morphine and fentanyl. Morphine is given by injection. Fentanyl is given by IV. They have approximately the same effectiveness for pain relief and the choice of which one to give depends on where you are in your labour. For example, if you are in early labour morphine would be given so that you can go home. Narcotics are particularly effective in early labour, and help you to rest. Whilst your midwife must consult an obstetrician to get the narcotics you remain under midwifery care. On the downside, some women find that narcotics make them nauseous and very sleepy and it can take up to four hours for it to pass from your system. They are not always effective for relieving back pain. They do pass through your placenta and if the baby is born too soon after the narcotic is given they may have respiratory depression which is corrected by giving the baby a medication called Narcan. Another risk of using narcotics include problems with breastfeeding as they make babies very sleepy and can suppress the natural urge to latch.

Epidural: An effective epidural is the best pain relief available and is extremely safe. It gives a loss of sensation and a loss of pain. A tiny amount of narcotic is injected into the 'epidural' space in front of your spinal cord. (A spinal injection is narcotic injected directly into the fluid around the spinal cord. Sometimes an epidural-spinal combination is given). Once an epidural has been given you are confined to the bed and an electronic fetal monitor (EFM) is used to listen to the baby's heart-rate. It is relatively safe for the baby (compared to narcotic injection) as it takes a long time for the narcotics to pass into your bloodstream and then through the placenta. It does not interfere as much with breastfeeding, and an epidural alone does not lead to an increase in cesarean sections (although the increased need to use oxytocin and the use of EFM are known to do so, as well as care provider impatience). The most common risks of an epidural are that it doesn't work effectively, may cause a fever, it usually cause itchiness, it may cause your blood pressure to drop and therefore the baby's heart-rate to also drop; it can cause a spinal headache that may last for about 3 weeks; it increases the chance of forceps or vacuum delivery and it increases the risk of shoulder dystocia (a problem getting the baby out). Far less common (very, very rare in fact), but more serious side effects are paralysis and death. At CMH once an epidural is given you care is under an obstetrician who will be the person to catch your baby. Your midwife will return to the hospital when you are pushing to receive the baby. The nurses will take care of you until six hours after your epidural is removed.

## **Vaginal Birth After Cesarean (VBAC)**

We have many clients who have had a previous cesarean birth and wish to have a vaginal birth in their current pregnancy. The SOGC guidelines recommend giving birth in hospital using continuous fetal monitoring (EFM), but not all women feel that is appropriate for them. Midwives support VBAC both in hospital and at home, and we will discuss with you the best place for your birth.

One of the concerns with having a VBAC is that the cesarean scar will tear (uterine rupture) causing serious complications for both mom and baby. In Canada this is a very rare occurrence and happens in about 4/1000 VBAC births. There are two kinds of uterine rupture. One is a tear in the muscle of the uterus which causes pain to the woman and stops the uterus contracting. This is called a dehiscence. The baby remains within the uterus and continues to get its blood supply from the placenta. The other, more serious type of uterine rupture is a complete rupture where the wall of the uterus tears through and the baby is no longer in the uterus. This increases the risk of severe bleeding for the mother and the baby is no longer getting the blood needed from the placenta. The risk of each is 2/1000. Both types require an emergency cesarean section. Although very rare, uterine rupture can also occur prior to labour if a woman has had a previous cesarean, and in women who have never had a cesarean birth.

Despite the concerns about uterine rupture, VBAC in Canada is very safe and is comparable in safety and outcomes to having a baby for the first time. Women who wish to have a VBAC have a successful vaginal birth about 74% of the time. Just as in a first labour, occasionally a caesarean section is needed. Vaginal births are healthier than caesarean sections for mom and baby with less pain, faster recovery times, more successful breastfeeding and less postpartum depression.

Some women choose to have a repeat caesarean birth. The advantages are that it can be scheduled and there is less uncertainty about whether it will go well or not. Some women make a decision based on how many children they plan to have. If you want a large family repeat caesarean births place you at increasing risk of complications each time. Some women choose to have a tubal ligation if they know this is to be their last baby. However, caesarean sections do have serious disadvantages for both the woman and the baby. There is a greater risk of complications at the time of surgery such as severe blood loss, wound infection, need for hysterectomy or accidental injury to the bladder. The risk of complications for future pregnancies increases as having a uterine scar can cause abnormalities of the placenta and also may make it difficult to become pregnant or maintain a pregnancy. There is a four-fold increase in respiratory distress in infants born by caesarean section and they more often have to be admitted to the nursery.

## **Neonatal**

When your baby is born ideally we immediately put the baby skin-to-skin on your abdomen. We practice delayed cord clamping which means that we allow the cord to stop pulsing before cutting the cord. Whilst you are getting to know your baby we usually deliver the placenta, repair any tears you may have and get you cleaned up and cosy.

The midwives will check the baby's heart rate, breathing and temperature from time to time. We take your blood pressure and check your bleeding.

After you have had about an hour with your baby we will do a full assessment to make sure the baby is healthy. At this time we also offer erythromycin eye ointment and vitamin K.

## **Erythromycin**

Erythromycin is an antibiotic ointment that is put into the baby's eyes in order to prevent serious infection and blindness caused by chlamydia and gonorrhoea bacteria. It is the *law* that we must do this. Erythromycin does not hurt the baby, but it is sticky and makes it difficult for the baby to open their eyes. Very rarely, it may cause an allergic reaction.

Tests for chlamydia and gonorrhoea can be done during pregnancy.

## **Vitamin K**

Vitamin K is a blood clotting factor that is made by bacteria in our intestines, and is readily available in our food. Because babies are born without any bacteria they cannot make their own vitamin k for about 1 week. 1/10,000 babies are born (9999 are not) with a disease that causes them to bleed in the first week of life from places such as their nose, umbilical stump, skin, and in some cases internally. Pre-term babies, babies who have been oxygen-deprived or have had a complicated or instrumental delivery (ie forceps or vacuum) are at greatest risk. The bleeding seems to be remedied by the administration of vitamin k but there is no evidence that lack of vitamin K caused the bleeding. It has become a standard of care to give an injection of synthetic vitamin k to all babies at birth. Vitamin K is readily passed through breastmilk, and if the mother eats vitamin k rich food it is passed in higher doses. It is also added to formula.

Benefits: Virtually all, but not 100% of cases of this type of bleeding will be avoided by giving vitamin k at birth. There are no known long-term effects of giving vitamin k.

Risks: The vitamin k injection is painful to babies, it probably feels like having a vaccination. Most babies cry for a very short period of time. There is a rare possibility of an allergic reaction. Hyperbilirubinemia or jaundice may occur due to the injection. (Some jaundice in a newborn is completely normal). It is not a natural product and contains preservatives similar to those found in vaccinations. It only prevents one specific type of bleeding, there are others that may start immediately at birth or after one week that are not remedied by administration of vitamin k at birth.

## **New Born Screen (NBS)**

The NBS is a blood test done after your baby is 24 hours old (either before you leave the hospital, or at home). It is looking for 28 rare blood, metabolic and genetic disorders. For example, cystic fibrosis or congenital hypothyroidism. Many, but not all of the conditions can be treated. It is not a definitive test. If your baby has a positive result, they go for follow-up testing to determine if they actually have the disorder. The screen may miss a baby who does have a disorder. It is not a mandatory test, but it is the standard of care and highly recommended. Around 200 babies a year in Ontario are born with one of the disorders on the new born screen. Please visit this website for more information <http://www.newbornscreening.on.ca/bins/index.asp?lang=1>

**Bilirubin**

If your baby is born at the hospital it is the community standard of care to test the bilirubin levels in the babies bloodstream. Bilirubin is related to the breakdown of red blood cells and is responsible for making your urine yellow, and if there is too much, for causing jaundice. Some jaundice in a newborn is normal after day three, however before that or if the levels are too high it can indicate that the baby needs help to process the bilirubin. The blood test is used to predict if the level of bilirubin in your babies blood may get too high. Treatment for jaundice is with phototherapy.

We are unable to test for bilirubin at home at this time, and therefore baby's born at home are evaluated on risk factors or clinical signs alone. If we have concerns about your baby we will arrange for you to go to the hospital for testing.