

# NWT Clinical Practice Information Notice

UPON RECEIPT: (1) PLEASE FOLLOW THE DIRECTIONS BELOW  
 (2) FILE THIS NOTICE IN SECTION C, CLINICAL PRACTICE INFORMATION BINDER FOR FUTURE REFERENCE

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

- Hospitals     
  Community Health Centers     
  Public Health Units     
  Doctors' Offices     
  Social Services Offices     
  Other: CPG Manual

The information contained in this document is a Departmental:

- Policy     
  Standard     
  Protocol     
  Procedure     
  Guidelines

**Title: NWT Clinical Practice Guidelines for Primary Community Care Nursing  
 Chapter 12 - Obstetrics**

**Effective Date: August 27, 2007**

**Statement of approved clinical practice:**

The attached *Chapter 12 – Obstetrics of the NWT Clinical Practice Guidelines for Primary Community Care Nursing* dated August 2007 is recommended for use by the Department of Health and Social Services and the NWT Nursing Leadership Network.

This chapter is a revised version of the original chapter published by the Department of Health and Social Services in September 2004. Please discard Chapter 12 Obstetrics dated September 2004.

The revised guidelines were produced through consultation with Community Health Nurses, Hospital Registered Nurses, Nurse Practitioners, Registered Midwives, Nurse Educator Mentors, and Consultant Physicians.

An electronic copy of these guidelines is also available on the Department of Health and Social Services Public Website at: <http://hlthss.gov.nt.ca> Once you have accessed the site, see Manuals. The Clinical Practice Information Notice and Chapter 12 Obstetrics Chapter will be found under *NWT Clinical Practice Information* manual. The Chapter 12 - Obstetrics is also found in the *NWT Clinical Practice Guidelines for Primary Community Care Nursing* manual.

**Attachment:**

Chapter 12 – Obstetrics - *NWT Clinical Practice Guidelines for Primary Community Care Nursing*.

This clinical practice is approved. \_\_\_\_\_  
 (signature)

- Assistant Deputy Minister      
 Chief Medical Officer of Health      
 Director, Child & Family Services      
 Director, Adoptions

## Chapter 12 - Obstetrics

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## Acknowledge

We wish to acknowledge the generous time and effort made by:

Anna Bergen	Sonja Boucher	Elizabeth Cook
Dr. Bing Guthrie	Rachel Munday	Lesley Paulette
Faye Stark	Judy Wilson	

## References

The references for these topics are not meant to be inclusive. It is expected that the Community Health Nurse would consult with her nurse-in-charge, the visiting settlement physician, the various hospitals' emergency physicians, and/or the Northern Women's Health Program.

# Assessment of the Prenatal Client

## Prenatal Care: Initial And Subsequent Visits

Refer to NWT Prenatal Record and Reference Guide for completion of the NWT Prenatal Record (September 2005) and check references at the end of this topic.

### *Initial Visit*

#### History

##### Health History

- Cardiovascular
- Hypertension
- Genitourinary
- Renal
- Thrombosis/Phlebitis
- Asthma
- Diabetes
- Epilepsy
- Thyroid disease
- Bleeding disorder
- Transfusions –including the year
- Surgeries
- Psychiatric/Depression
- TB exposure
- Infections

##### Social History

- Nutrition- recall chart to ID women at risk for deficiencies. Can use Canada Food Guide.
- Special diet
- Alcohol –T-ACE tool
- Drugs –includes marijuana
- Substance abuse e.g. glue, hairspray
- Smoking-includes smokeless tobacco
- Second hand smoke
- Domestic violence: use SAFE or ALPHA tools
- Support systems –outside the Health Centre

##### Family/Genetic History

- Congenital Anomaly
- Neural tube defect
- Genetic disease
- Diabetes- including gestational
- Hypertension
- Bleeding Disorder
- Twins- and multiple births
- Anesthesia problem

- Psychiatric problem
- Other

##### Obstetrical History

- Number of pregnancies including abortions
- Dates and locations of previous pregnancies
- Perinatal complications – including antepartum, intrapartum, delivery, and postpartum
- Delivery history
- Infant sex, birth weight, condition
- Present health of children

##### Clinical Dating

- LNMP - Start and end dates of most recent normal menstrual period
- Was most recent period like others in duration and amount of flow? (if not, determine dates of previous period)
- Was there any bleeding after most recent normal menstrual period?
- Amenorrhea for how long. One or two periods missed (however, may be amenorrheic because of Depo Provera effect)
- Contraceptives: type, when last used
- EDD –by LNMP
- Ultrasound - Dating Ultrasound if dates are uncertain - do prior to 16 weeks gestation.

##### Present Pregnancy

- Bleeding -determine amount, any associated pain
- Nausea and vomiting in the morning
- Vaginal discharge or fluid leakage (colour, odor, amount)
- Infections or fever -urinary symptoms
- Depression
- Other

## Allergies/Medications

- Type, dosage, period of use
- Prescription, traditional, OTC
- Type of reaction to medications

## Physical Examination

Perform a complete examination of all systems on first visit.

### General

- Apparent state of health
- Appearance of comfort or distress
- Colour (e.g. flushed, pale)
- Nutritional status (obese or emaciated)
- Facial edema
- Tender/nontender thyroid enlargement may be present

### Vital Signs

- Temperature
- Heart rate: elevated (by 10%) in second half of pregnancy because of increased blood volume
- Respiratory rate
- Blood pressure (sitting)
- Fetal heart rate: 110-160 bpm (heard at 12-18 weeks gestational age)

### Breasts

- Enlarged; areolae and nipples darker and enlarged
- Signs of infection
- Masses, tenderness
- Nipples: shape (e.g. inverted), erosion, discharge
- Body piercing
- Augmentation surgeries

### Abdomen

- Striae
- Scars
- Measurement of fundal height, shape of fundus
- Agreement between fundal height and expected date of delivery
- Fetal lie, presentation and movements
- Engagement
- Uterine tenderness or hardness
- Contractions (e.g. Braxton-Hicks)

## Pelvis

- Perineal varicosities
- Previous tears, episiotomy
- Hemorrhoids
- Vaginal bleeding, discharge (colour, odor, consistency, amount)
- Cervix and vaginal walls have bluish color (8 weeks+)
- Uterus: palpable only on pelvic examination in first trimester and in obese women.
- Describe uterine size (e.g. average size, orange, grapefruit)
- Position of uterus (e.g. retroverted)
- Cervical assessment (position, appearance)
- Muscular support in the pelvic floor (e.g. cystocele, rectocele)
- Evidence of infections (e.g. warts, herpes)
- Body piercing

## Laboratory Tests

### Blood Work follow NWT Guidelines

- Complete blood count
- ABO grouping and Rhesus (Rh) type
- Antibody screening
- Rubella titre
- Syphilis testing
- Hepatitis Band C screening
- HIV test (opt out program in the NWT, required prior to infant BCG)
- Varicella antibody titre if no history of varicella infection or contact with infection

### Urine Testing

- At initial visit: urinalysis, routine and microscopy, culture and sensitivity

### Cervical and Vaginal Examination

- PAP smear unless the client is being followed in an abnormal pap schedule already.
- HSSA approved testing for *Neisseria gonorrhoea*, and *Chlamydia*. A cervical swab for culture and sensitivity or the first urine is used for this test.
- Vaginal swab for culture for trichomonas, bacterial vaginosis.

## ***Subsequent visits***

### **History**

- Identified risk factors from history each visit
- Headaches, edema
- Abdominal pain
- Vaginal bleeding or discharge
- Urinary complaints
- GI disturbances
- New stressors
- Signs of premature labour

### **Physical**

- SFH – Client lying down. Measure fundal height from top of symphysis to top of fundus with tape measure and record (in centimetres [cm])
- As a general rule, measurement in centimetres equals number of weeks of gestation after 20 weeks until 36-38 weeks (Table 1)
- Vital signs:
  - BP: a physiological drop usually occurs in second trimester
  - Heart Rate/Heart sounds: soft systolic ejection flow murmur may be present (because of expanded vascular volume)
- Weight: ideal 10-12 kg (2 kg in first trimester, about 4-5 kg in second trimester and 4-5 kg in third trimester)
- Assess: fetal lie, presentation and movements. At 34 weeks, if the fetal lie is not cephalic, consider referral to visiting physician.
- Assess fetal head for engagement in maternal pelvis later in pregnancy
- Fetal heart: rate and rhythm of heartbeat, location of heart tones (e.g. above umbilicus at term may mean breech)

### **Quickening**

- Advise client to record date of first perceived fetal movement (usually occurs at 20 weeks gestational age in primigravida and at 18 weeks in multigravida).

### **Lightening**

- Occurs when the fetal head engages in maternal pelvis.
- Usually occurs by 37 weeks gestational age in primigravida.

- Timing variable in multigravida
- Fetal head engages in maternal pelvis
- May produce urinary and musculoskeletal disturbances e.g. ligamentus pain

### **Laboratory tests**

#### **Swabs and Cultures**

- Group B streptococcus (GBS) screening at 35-37 weeks –recto/vaginal. (If multiple gestation consider at 32 weeks).
- Repeat *Neisseria gonorrhoeae* and *Chlamydia* culture at 35-37 weeks gestational age

#### **Urine testing**

- Urinalysis at each visit (dipstick)
- Microscopic examination and culture and sensitivity as required
- There is increased risk of asymptomatic bacteriuria in pregnancy that could cause premature labour).

#### **Maternal serum screening (MSS)**

- Offered to all women with sufficient information and appropriate discussion to allow informed consent. At 15-20 weeks, optimally at 16 weeks gestational if at risk, and if requested by mother
- Based on identified risk and individual clinic situations.

#### **Amniocentesis**

- Offered to clients over the age of 40 (singleton) or 32 (twins) at the time of delivery, and/or clients with first degree relatives with neural tube defects/spina bifida.
- Offer to clients if MSS is positive.
- All women should receive appropriate counseling first, and offered genetic counseling.

#### **ABO+Rh**

- If Rh-negative, repeat antibody screen per Blood Services recommendation

#### **Hemoglobin:**

- Screen once during each trimester (a drop in hemoglobin is expected in the second trimester because of increased blood volume)
- If low, closer monitoring each trimester
- Consider pharmacological/nutrition intervention.

**Diabetes Screening**

**GCT** – refers to oral 50-g glucose challenge test

**GTT** –refers to oral 75-g glucose tolerance test. If woman is not at high risk, perform 50-g glucose challenge test (GCT) at 24-28 weeks gestational age.

If woman is at high risk (morbid obesity, strong family history, previous stillbirth), give the initial oral GCT at 16-20 weeks. May consider oral GTT on consultation with physician.

- Oral GCT value of greater than or equal to 7.8mmo/L at 1 hour is considered positive and

f/u by oral GTT of 75G for proper diagnosis and treatment.

- If the oral GCT is greater than or equal to 10.3mmol/L, the patient is diagnosed with GDM and does not need further testing
- If the oral GCT was given at 16-20 weeks, and if negative, then f/u by a second one at 24-28 weeks. May consider oral GTT on consult with physician.

**Table 1: Approximate measurements of fundal height \*\*\*SFH is equal to the GA after 20 weeks plus or minus 2 cm If there is no change in SFH over 3 weeks, then refer to MD or referral centre for follow-up.**

Weeks of gestation	Fundal height	Fundal height as measured with fingers
8	Not palpable in abdomen (still in pelvis)	Size of an orange (bimanual examination)
12	Variable	At symphysis
16	Variable	Halfway between symphysis and umbilicus
20	20	At umbilicus
24	24	3 or 4 fingers above umbilicus
28	28	Halfway between umbilicus and xyphoid process
32	32	3 or 4 fingers below xyphoid
36	36	At xyphoid process
38-40	Variable	2 fingers below xyphoid

\* Measurements differ between primigravida and multigravida

**Screening (Anatomical) Ultrasound**

- Recommend ultrasound between 16-20 weeks (optimal time 18 weeks) for anatomy and confirmation of dates (if not already done).
- Follow-up screens are not routine, and are at the discretion of the referral midwife, nurse practitioner or physician. May need to consult one if soft markers are present or abnormalities are identified.
- If the dates are uncertain, then a first trimester ultrasound is recommended. In this case a

follow-up ultrasound is recommended at 18 weeks gestation.

**Management: Antenatal Care Goals**

- Identify problems and complications early and seek appropriate interventions to contribute to healthy pregnancy
- Ensure maternal and fetal well being
- Provide reassurance and education

### **Appropriate Consultation**

Arrange a consultation with the physician once per trimester if possible and as necessary if an abnormality is identified or suspected.

### **Client Education**

- Encourage adequate dietary intake of protein and fiber
- Recommend avoidance of overeating and excessive weight gain
- Recommend smoking cessation if appropriate
- Encourage abstinence from alcohol and any drug substances
- Advise client to avoid use of over-the-counter (OTC) drugs
- Counsel client on initial visit re expected laboratory/radiology tests
- Recommend daily exercise to maintain physical and mental health.
- Recommend proper daily personal hygiene
- Teach client about signs of preterm labour
- Recommend loose fitting, comfortable clothing and avoidance of restrictive clothing around legs (e.g. knee socks, "knee highs")
- Counsel client about infant nutrition options early in pregnancy, promote breastfeeding
- Teach proper breast care: cleaning, proper support for breast-feeding
- Advise client that sexual intercourse may be continued if she feels comfortable and there are no specific contraindications (bleeding)
- Encourage attendance at prenatal classes if offered in the community

*Instruct client to return to clinic if any of the following develop:*

- Severe continuous headaches or visual disturbances
- Edema of face and hands
- Recurrent vomiting
- Abdominal pain
- Bleeding -vaginal
- Rupture of membranes
- Decrease in or lack of fetal movement
- Fever, chills or infection in any area

### **Pharmacologic Interventions**

*Prenatal vitamins (A class drug), 1 tab PO daily throughout pregnancy*

If hemoglobin < 100 g/L, start iron:  
*ferrous sulfate (C class drug), 300 mg PO 1-3 times per day throughout pregnancy*

*Rhogam (B class drug)* should be given to Rh-negative women at 28 weeks gestational age. If given earlier, another course should be given 12-13 weeks after the first course.

Remember to give Rhogam if pregnancy is terminated spontaneously or therapeutically.

### **Usual Schedule for Monitoring and Follow-Up**

- Up to 28 weeks gestational age: every 4weeks
- 28-36 weeks gestational age: every 2 weeks
- 36 weeks until delivery or evacuation: weekly
- If clinical situations require it, schedule visits more frequently.
- Additional visits at 34 and 35 weeks are recommended in communities from where the patient will eventually need to be transported.

### **Referral**

- Refer to physician as soon as possible if high risk identified
- In client's third trimester, consult with NIC and receiving centre to determine appropriate elective travel date for client.
- Consult the HSSA's Policy for elective travel for confinement.

### **References**

National Institute on Alcohol Abuse and Alcoholism, October 2004

Midmer et al. (1996). The "ALPHA" tool. LAMP and Women's Habitat, Ontario: The SAFE Tool.

SOGC Fetal Health Surveillance 2002

Meltzer, Donna (November 2005). Complications of Body Piercing, American Family Physician.

Dynacare Kasper Medical Laboratories. (February 2004). Memorandum on Testing available for GC and Chlamydia.

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BC Reproductive Care Program (June 2003) Antenatal Screening and Diagnostic Tests Guideline #17.

SOGC. Screening for Gestational Diabetes Mellitus. (November 2002). #121

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Martin, E. Jean (2002) Intrapartum Management Modules. Lippincott Williams, Philadelphia.

SOGC. CPG Exercise in Pregnancy and the Postpartum Period. (June 2003). #129.

# Common Obstetric Problems and Emergencies

## Bleeding In Pregnancy

A variety of conditions or problems may cause bleeding during pregnancy (Table 4). Many of

these are obstetric emergencies and are discussed in detail below.

**Table 4: Differential diagnosis of bleeding in pregnancy**

Gestational age < 20 weeks	Gestational age ≥ 20 weeks
Implantation bleeding Delayed normal menses Cervical lesions (erosion, polyp, dysplasia) Ectopic pregnancy Spontaneous abortion (threatened, inevitable, incomplete) Missed abortion	Placenta previa Abruptio placentae Premature labour Hydatidiform mole Intrauterine death Cervical lesions "Show"

## Spontaneous Abortion

### Definition

Loss or impending loss of pregnancy before 20 weeks gestation.

### Threatened Abortion

- Early symptoms of pregnancy may be present
- Mild cramps with bleeding
- Cervix long and closed
- Uterus appropriate for gestational age
- Progresses to inevitable abortion in approximately 50% of cases

### Inevitable Abortion

- Persistent cramps and moderate free bleeding
- Cervical os is open
- Should not be confused with incompetent cervix, which is not associated with cramping and is potentially treatable; incompetent cervix is associated with painless cervical dilatation

### Complete Abortion

- Entire conceptus expelled, followed by decrease or cessation of cramps and bleeding
- On examination, uterus is firm and smaller than would be expected for gestational length of pregnancy

### Incomplete Abortion

- Symptoms the same as for inevitable abortion but some products of conception are retained in

the uterus (where blood clots may be mistaken for tissue) or cervical canal, a situation that causes ongoing cramping and excessive bleeding

- Speculum examination reveals dilated internal os and tissue within the endocervical canal or vagina.
- Bleeding may be heavy.

### Missed Abortion

- Products of conception retained 3 or more weeks after fetal death
- Signs and symptoms of pregnancy abate; pregnancy test becomes negative
- Brownish vaginal discharge (rarely frank bleeding) occurs
- Cramping rare
- Uterus soft, irregular and smaller than gestational age
- Ultrasonography rules out live fetus

### Septic Abortion

- Any of the above scenarios and temperature > 38°C without other source of fever
- Associated with intrauterine device or instrumentation during therapeutic abortion procedure
- Abdominal and uterine tenderness are present, as well as purulent discharge and possibly shock

## Causes

Spontaneous abortion occurs in 15% to 25% of clinically recognized pregnancies and perhaps closer to 50% of all conceptions.

- Fetal abnormalities incompatible with life (chromosomal and other)
- Defective implantation
- Maternal infection
- Uterine and cervical anomalies

## History

- Symptoms and signs suggestive of pregnancy (missed period or periods, nausea, vomiting, breast tenderness)
- Cramping pain
- Vaginal bleeding often with passage of tissue

All clients with bleeding sufficient to soak one pad per hour or symptoms of orthostatic drop in blood pressure (dizziness upon standing, faintness) need to be examined.

## Physical Findings

Examination should include stability of vital signs, orthostatic vital signs, pelvic examination to look for open or closed cervical os, presence of tissue and other causes of vaginal bleeding (such as cervical erosion, polyp, infection, vaginal lesion or ectopic fetus). The uterus should be measured. Fetal heart tones should be checked carefully with Doppler scanning.

- Heart rate may be elevated
- Blood pressure may be low
- Postural blood pressure drop may be present
- Oxygen saturation may be abnormal if in shock
- Client appears anxious

## Pelvic Examination

- Keep to a minimum
- Only use gentle speculum exam on advice of physician
- Threatened abortion: cervical os closed, bleeding from os may be seen
- Inevitable abortion: cervical os open, some products of conception bulging through os, bleeding from os can be seen

- Incomplete abortion: cervical os open, bleeding from os can be seen, mild suprapubic tenderness present, uterus may be small for dates

## Differential Diagnosis

- Ectopic pregnancy
- Hydatidiform mole
- Other common causes of vaginal bleeding (e.g. cervical erosion, polyp, cervicitis, local trauma)

For other entities, *see Table 4, above, this chapter.*

## Complications

- Severe hemorrhage
- Hypovolemic shock
- Retention of products with or without endometritis
- Cervical shock (vasovagal hypotension due to dilatation of cervix by tissue)
- An infection

## Diagnostic Tests

- Pregnancy test positive in 75% of cases, so negative result does not rule out spontaneous abortion.
- Measure hemoglobin level
- Urinalysis

## Management

### Goals of Treatment

- Prevent complications
- Control blood loss
- Maintain blood volume

In an outpatient setting it is often difficult to determine if a spontaneous abortion is complete or incomplete. It is probably prudent to manage all spontaneous abortions as incomplete abortions if there is significant, active vaginal bleeding associated with abdominal pain.

### *Threatened, Incomplete or Inevitable Abortion without Hemodynamic Compromise*

If there is no hemodynamic compromise, threatened, incomplete or inevitable abortion should be managed as outlined in Table 5.

### ***Inevitable or Incomplete Abortion in Hemodynamically Unstable Client***

#### **Appropriate Consultation**

Consult a physician as soon as client is stabilized.

#### **Nonpharmacologic Interventions**

- Nothing by mouth
- Bed rest
- Trendelenburg position (prn) to aid venous return
- Insert urinary catheter if client is in shock
- Monitor intake and output hourly
- Aim for urine output of 50 mL/h

#### **Adjuvant Therapy**

Initial aggressive fluid resuscitation is needed if client is in hypovolemic shock:

- Start IV therapy with normal saline
- Start two large-bore IV lines if client is hypotensive
- Give 20 mL/kg normal saline as a bolus over 15 minutes
- Reassess for signs of shock
- Repeat 20 mL/kg boluses until systolic blood pressure stabilizes at >90 mm Hg, then adjust rate according to severity of vaginal bleeding and vital signs
- Oxygen to keep saturation  $\geq 97\%$

Refer to protocol for managing hypovolemic shock, under "Shock," in chapter 14, "General Emergencies and Major Trauma."

#### **Pharmacologic Interventions**

*oxytocin drip (D class drug), 20 units in 1 L normal saline or Ringer's lactate, 50-100 mL/h*

If you cannot start IV therapy and bleeding is significant:

*oxytocin (D class drug), 5-10 mg IM and consult physician.*

Verify Rh status and give Rh immune globulin (RhIG) within 48 hours, if indicated (available from the Laboratory Department of Regional Hospitals).

#### **Monitoring and Follow-Up**

- Monitor vaginal bleeding, cramps, passage of tissue or clots, vital signs, intake and output
- Save all products of conception passed and send to hospital with client

#### **Referral**

Medevac as soon as possible.

#### **References**

websites and references: (last accessed 18 September 2006)

<http://www.emedicine.com/med/topic3241.htm>

Early Pregnancy Loss; Petrozza, J.C. et al

<http://www.emedicine.com/EMERG/topic3.htm>

Abortion, Complete; Valley, V.T., et al

<http://www.emedicine.com/EMERG/topic5.htm>

Abortion, Incomplete; Valley, V.T., et al

<http://www.emedicine.com/emerg/topic6.htm>

Abortion, Inevitable; Valley, V.T., et al

<http://www.emedicine.com/emerg/topic7.htm>

Abortion, Missed; Valley, V.T., et al

<http://www.emedicine.com/EMERG/topic11.htm>

Abortion, Threatened; Gaufberg, S.V.

<http://www.emedicine.com/EMERG/topic10.htm>

Abortion, Septic; Gaufberg, S.V.

**Table 5: Management of threatened, incomplete or inevitable abortion without hemodynamic compromise**

Threatened abortion	Incomplete or inevitable abortion
<ul style="list-style-type: none"> <li>• Rest has traditionally been advised however, there is not enough evidence to suggest that increased rest has any effect on the outcome. <a href="http://www.cochrane.org/reviews/en/ab003576.html">www.cochrane.org/reviews/en/ab003576.html</a> accessed 18 Sept 2006</li> <li>• <b>acetaminophen (A class drug) 500mg 1-2 tabs PO q4h prn for discomfort</b></li> <li>• Nothing in the vagina (no tampons, douches, intercourse)</li> <li>• Consider ultrasonography to visualize gestational sac and cardiac activity or to rule out ectopic pregnancy and multiple pregnancy. (Cardiac activity predictive of continued pregnancy in &gt;90% of cases)</li> <li>• Consider monitoring quantitative <math>\beta</math>-HCG (human chorionic gonadotropin) for prognosis (increase of &lt;66% in 48 hours predictive of abortion or ectopic pregnancy)</li> <li>• Provide emotional support</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Rest is not indicated as it is not expected to save this pregnancy</i></li> <li>• <b>acetaminophen (A class drug) 500mg 1-2 tabs PO q4h prn for discomfort</b></li> <li>• Nothing in the vagina (no tampons, douches, intercourse)</li> <li>• Tissue visible in os should be gently removed with ring forceps to allow contraction of uterus; minimize manipulation to minimize risk of infection</li> <li>• Consider pharmacologic interventions as above</li> <li>• Clients with incomplete abortion (tissue passed with continued bleeding) often require suction curettage or dilatation and curettage</li> <li>• Provide emotional support</li> </ul>

## Ectopic Pregnancy

### Definition

Implantation and growth of fertilized ovum outside of uterus. Commonly occurs in a fallopian tube, but may also occur in the abdominal cavity, on an ovary or in the cervix. The following applies to tubal ectopic pregnancies.

\* Any woman of reproductive age who presents with abdominal pain, cramping and/or vaginal bleeding – ectopic pregnancy should be considered. This is a medical emergency\*

### Causes

Unknown but accounts for 2% of all pregnancies.

### Risk factors

- Previous STI and/or pelvic inflammatory disease
- Current use of intrauterine device
- Previous tubal or abdominal surgery
- Previous ectopic pregnancy
- Relative infertility
- Use of fertility drugs or assisted reproductive technology
- Increasing age – most common in women aged 35-44
- Smoking (may alter tubal/uterine motility, or altered immunity)

### History

- Amenorrhea of 6-8 weeks
- If amenorrhea not present most recent period may have been lighter and represent an implantation bleed
- Symptoms of pregnancy, followed by abnormal vaginal bleeding, may be only scanty spotting (Vaginal bleeding is present in ~ 50% of cases)
- Lower abdominal pain: crampy, may be unilateral
- May have had previous positive pregnancy test

### Acute (Ruptured) Ectopic Pregnancy

- Accounts for 40% of cases
- May be hemodynamically unstable
- Sudden onset of unilateral lower abdominal pain
- Pain usually severe
- Pain may be constant or intermittent

- Pain may be severe enough to cause fainting
- Pain may become generalized or remain localized in one quadrant
- Pain may radiate to shoulder tip (in cases of massive hemorrhage). This is usually noted in a supine position and/or on inspiration
- Nausea and vomiting frequently present
- Backache may be present

### Chronic (Unruptured) Ectopic Pregnancy

- Accounts for 60% of cases
- Slight, persistent vaginal spotting over several days
- Lower abdominal discomfort (often mild)
- Attacks of sharp pain and faintness occasionally present
- Distension may be present

### Physical Findings

- Hemodynamically unstable if ruptured (elevated heart rate, hypotensive)
- Postural blood pressure drop may be present as an early sign of blood loss
- Client in moderate-to-acute distress
- Pale, sweating
- Client walks carefully, bent slightly forward, holding lower abdomen (guarding)
- Abdominal distension may be present
- Bowel sounds may be decreased
- Lower abdominal tenderness
- Rebound, guarding, rigidity may be present and are suggestive of rupture

### Pelvic Examination

- Caution –pelvic exam should be gentle so as not to rupture an unruptured ectopic.
- Unilateral adnexal tenderness
- Tender adnexal mass or fullness may be present
- Cervical os closed
- Bleeding from os, but no tissue present
- Pain on movement of cervix
- Uterus may be soft, enlarged, nontender

## Differential Diagnosis

- Acute appendicitis
- Acute pelvic inflammatory disease
- Ruptured ovarian cyst or torsion of ovarian cyst
- Other acute abdominal pathology
- Spontaneous abortion

## Complications

- Shock
- Future ectopic pregnancy
- Risk of maternal mortality if not treated

## Diagnostic Tests

- Pregnancy test: result may be positive or negative
- Hemoglobin
- Chronic ectopic: increased WBC
- Ultrasound is the definitive test to rule out ectopic.

## Management

Maintain a high index of suspicion for this diagnosis in a sexually active female who has pain and vaginal bleeding.

### Goals of Treatment

- Manage complications
- Rule out differential diagnoses and treat appropriately (Secondary level assessment may be needed to differentiate – i.e. ultrasound)

### Appropriate Consultation & Referral

**\*\*Consult a physician as soon as possible for Medevac as urgent surgical intervention may be required.\*\***

### *If Pain Severe or Client Hemodynamically Compromised*

Severe pain or hemodynamic compromise suggests possible rupture.

## Nonpharmacologic Interventions

- Bed rest
- Trendelenburg position (prn) to aid venous return if client is in shock
- Nothing by mouth
- Monitor vital signs
- Insert urinary catheter

## Adjuvant Therapy

- Oxygen to keep saturation  $\geq 97\%$
- Start 2 large-bore (14 or 16-gauge) IV lines with normal saline or Ringer's lactate
- Reassess for signs of shock

***See protocol for managing hypovolemic shock, under "Shock," in chapter 14, "General Emergencies and Major Trauma."***

## Monitoring and Follow-Up

- Monitor vital signs closely q5-15min
- Monitor intake and urine output hourly

## References

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<http://www.cmaj.ca/cgi/content/full/173/8/905>

Tenore, J.L. Ectopic Pregnancy, American Family Physician. Feb. 2000. Accessed Oct. 9, 2006. <http://www.aafp.org/afp/20000215/1080.html>

## Hydatidiform Mole

### Definition

Mass of vessels resulting from cystic proliferation of chorionic epithelium. May be benign or malignant. Forms part of the spectrum of tumours termed Gestational Trophoblastic Disease

### Causes

Most complete hydatidiform moles are 46XX and all the chromosomes come from the male; 10-15% are 46XY, (2 sperm, 1 carrying an X and the other a Y fertilize an empty egg). Partial hydatidiform moles are 69 XXY and 2 sets of chromosomes are of paternal origin.

### History

- Bleeding during late first trimester, early second trimester
- Vaginal blood dark brown to bright red
- Spotting or profuse bleeding
- Passage of cysts (in grape-like clusters)
- Absence of quickening
- Pre-eclampsia may be present
- Exaggerated signs of pregnancy
- Excessive nausea and vomiting (may present as hyperemesis gravidarum)

### Physical Findings

- Blood pressure may be elevated
- Fundal height may be greater than expected for dates
- Examine all material passed per vagina for presence of cysts
- Uterus larger than expected for dates
- Mild uterine tenderness may be present because of over-distension
- Fetal parts not felt
- Fetal heart not heard

Most clients are symptomatic before 17th week of pregnancy.

Suspect this diagnosis in clients with the following signs and symptoms:

- Pregnancy-induced hypertension during first half of pregnancy
- Hyperthyroidism
- Bleeding during pregnancy, accompanied by no detectable fetal heartbeat and uterine enlargement after 12 weeks gestation by dates

### Differential Diagnosis

- Threatened or inevitable abortion

For differential diagnosis of bleeding in pregnancy, see "*Bleeding in Pregnancy*," above, this chapter.

### Complications

- Hemorrhage
- Sepsis
- Choriocarcinoma (typically occurs later)

### Diagnostic Tests

- Urine pregnancy test
- Urinalysis: routine and microscopic
- Measure hemoglobin level if client is bleeding
- Quantitative serum HCG. Any level >100,00mIU/ml should arouse suspicion of molar pregnancy.
- CBC, RFTs, LFTs, Thyroxin
- Ultrasound to rule out hydatidiform mole.

### Management

#### **Goals of Treatment**

- Identify condition early
- Prevent complications

#### **Appropriate Consultation**

Consult a physician if this diagnosis is suspected.

#### **Client Education**

- Because of the small but real potential for development of malignant disease, and because these malignancies are absolutely curable, the importance of consistent follow-up care (after uterine evacuation) must be emphasized.
- The patient must avoid pregnancy until HCG levels have remained normal for 6 months
- Effective contraception should be used. If a pregnancy was to occur, the elevation in beta-

HCG levels could not be differentiated from the disease process.

- Future pregnancies should undergo early sonographic evaluation because of the increased risk of recurrence of a molar gestation.
- The risk of recurrence is 1-2%.
- Regular pelvic examinations
- CXR is indicated if HCG levels rise

### **Referral**

*Refer for definitive assessment, which requires ultrasonography and measurement of serum human chorionic gonadotropin (HCG) as soon as possible. Definitive treatment is surgical evacuation.*

### **Long-Term Follow-up**

Follow up after surgery is critical.

- Serial measurement of HCG (weekly) until three consecutive negative results, then monthly for 6-months
- Regular pelvic examinations
- CXR indicated if serum HCG rises.
- Emotional support

### **References**

[www.sogc.org](http://www.sogc.org) SOGC. Gestational Trophoblastic Disease. (May 2002). #114

<http://www.emedicine.com/med/topic1047.htm>  
Hydatidiform Mole; Moore, L., et al

<http://www.emedicine.com/med/topic866.htm>  
Gestational Trophoblastic Neoplasia; Hernandez, E.

## Hyperemesis Gravidarum (HG)

### Definition

HG is defined as excessive vomiting that leads to weight loss >5% of prepregnancy weight, with associated electrolyte imbalances and ketonuria (Occurs in about 1% of pregnancies). Will need a physician consult if this severe.

### Causes

Largely unknown. Can involve many contributing factors.

### History

- Persistent and excessive nausea and vomiting throughout the day
- Client unable to keep down any solids or liquids

If the condition is prolonged, client may also report:

- Fatigue
- Lethargy
- Headache
- Faintness
- Weight loss
- Anxiety
- Depression
- Signs of hypokalemia

### Physical Findings

- Heart rate may be elevated and weak (due to fluid loss)
- Blood pressure normal, but may be low if dehydrated
- Postural blood pressure drop may be present if dehydrated
- Weight may be reduced from previous measurement
- Client appears in mild-to-moderate distress (The nausea and vomiting in pregnancy (NVP) may be mild, moderate or severe but may not accurately reflect the distress it causes). The negative impact of NVP on relationships has major consequences on women's working abilities- 47% feel job efficiency is reduced, 35% lose work time, and 25% lose time from home life.

- Various degrees of dehydration may be present: skin may be pale, eyes may appear sunken, mucous membranes may be dry, skin turgor may be poor

### Laboratory Findings

- Urinalysis: urine concentrated; ketones may be present
- Oliguria
- Anemia
- Electrolyte imbalances.

### Differential Diagnosis (complete history taking and physical exam must be done)

- Hydatidiform mole
- Multiple gestation
- Other medical causes of vomiting (e.g. gastroenteritis, pancreatitis)
- Mood disorders
- Thyroid disorder
- Renal disorder
- Helicobacter pylori

### Complications

- Dehydration
- Electrolyte disturbances
- Nutritional deficiencies
- Intrauterine growth retardation (IUGR)
- Fetal death
- Maternal anxiety and depression

### Diagnostic Tests

- Urinalysis: routine and microscopic
- CBC, electrolytes
- Consider ultrasound for growth and to rule out multiple pregnancy, and molar pregnancy.

### Management

#### Goals of Treatment

- Recognize condition early to prevent progression and hospitalizations.
- Prevent complications

- Exclude organic causes (e.g. urinary infection, hepatitis, disorders of the gastrointestinal tract, gallbladder or pancreas)

**Appropriate Consultation**

- Consult a physician if nonpharmacologic interventions fail to control symptoms in milder cases
- Consult a physician immediately if the woman shows signs of dehydration

**Nonpharmacologic Interventions**

- Ginger supplementation
- Reassure client that condition improves with time, usually by end of first trimester
- Advise client to arise slowly and to keep soda crackers at the bedside (to be eaten before rising)
- Suggest that client eat small amounts, at frequent intervals, of whatever food and fluids appeal
- Emphasis is on intake, not on content, while client is symptomatic; see Table 3 for suggestions of foods that appeal to pregnant women because of their taste and texture. There is no evidence to prove that dietary changes relieve the NVP. SOGC recommends dietary and lifestyle changes should be liberally encouraged and women should be counseled to eat whatever appeals to them
- Suggest that someone else do the cooking at home, as food odors may initiate nausea
- Omit iron and vitamin supplementation until nausea resolves (the use of B6 complex is encouraged in pregnancy).
- Ask client to monitor intake and urine output at home
- Recommend increased rest, as fatigue seems to exacerbate symptoms; client may need help with other children in the home
- Arranging for leaves of absence from work early in the pregnancy may reduce the overall time lost from outside employment
- Psychotherapeutic measures (e.g. stimulus control, biofeedback, relaxation techniques and imagery) may be helpful
- Acupressure at the P6 (Neiguan) point has been demonstrated to be helpful. This point is on the

inner aspect of the wrists, just proximal to the flexor crease. (e.g. Seabands®)

**Table 3: Foods that may appeal to pregnant women**

Taste or texture	Food suggestions
Salty	Chips, pretzels
Tart, sour	Pickles, lemonade
Earthy	Brown rice
Crunchy	Celery sticks, apples
Bland	Mashed potatoes
Soft	Bread, noodles
Sweet	Sugary cereal
Fruity	Juicy, fruity popsicles
Wet	Juices, seltzer drinks
Dry	Crackers

**Pharmacologic Interventions**

Consult with physician for drug(s) of choice and dosage routine if medication needed to control vomiting. Patient prescription may be required.

*gravol (A class drug) can be used for short term relief.*

*dicloctin as per physicians order*

*Consider Esophageal reflux therapies (antacids and ranitidine)*

**Monitoring and Follow-Up**

Follow up weekly until symptoms resolve:

- Measure fundal height and compare with previous values
- Monitor fetal heart rate
- Monitor vital signs, urine output and ketones
- CBC and electrolytes
- Ultrasound for growth if needed
- Observe dental enamel for damage and encourage dental hygiene.

**Adjuvant Therapy**

If client is significantly dehydrated:

- Initially maintain nothing by mouth
- Bed rest
- Start IV therapy with normal saline
- Adjust rate according to state of hydration
- Transfer or medevac

**If hypovolemia is present, see protocol for managing hypovolemic shock, under "Shock," in chapter 14, "General Emergencies and Major Treatment"**

### ***References***

SOGC The Management of Nausea and Vomiting of Pregnancy. (October 2002) #120.

The Motherisk Nausea and Vomiting of Pregnancy (NVP) Forum.

<http://www.motherisk.org/women/forum.jsp>

## Multiple Gestation

### Definition

Presence of more than one fetus in a single pregnancy. While there are important considerations, this is a normal variation.

### Causes

- Fertilization of more than one ovum
- Splitting of one fertilized ovum into two separate fetuses
- Predisposing factors: familial history of multiple gestation, treatment of infertility with ovulatory drugs
- Older >30
- High parity or history of previous multiple birth

### History

Suspect multiple gestation in clients with family history of multiple gestation and in those receiving drug treatment for infertility.

- Discomforts of pregnancy may present earlier and are more pronounced
- Morning sickness, nausea and heartburn may present earlier and are more persistent
- Later in pregnancy, dyspnea and indigestion are more pronounced

### Physical Findings

- Fundal height greater than expected for dates
- Fetal movements may be seen over wide area
- Excessive number of fetal parts may be felt
- Two distinct fetal hearts may be heard
- Weight gain above the expected, especially early in pregnancy
- Elevated hCG and alpha-fetoprotein above expected levels.

### Differential Diagnosis

- Polyhydramnios
- Large single baby (macrosomia)

### Complications

#### **Maternal Complications**

- Preeclampsia (can develop sooner and be more severe)
- Anemia
- Premature labour and delivery

- Polyhydramnios
- Hyperemesis gravidarum
- Post-partum haemorrhage

#### **Fetal Complications**

- Intrauterine growth retardation (IUGR)
- Congenital anomalies (twice the risk)
- Intrauterine death
- Prematurity
- Twin to twin transfusion

#### **Diagnostic Tests**

- Ultrasonography is needed for definitive diagnosis and to confirm chorionicity.
- Serial Ultrasounds (i.e. every 2 weeks) beginning at 24 weeks gestational age to assess the growth of each fetus, rule out discordancy, anomalies and feto-fetal transfusion syndromes, and are also used to measure cervical length.
- GBS swab and STI screen at 32 weeks as delivery prior to 40 weeks gestation is common
- CBC – once a trimester at least, and more frequently if hemoglobin is below 10, nutrition is not adequate, or other concerns such as poor weight gain. There is an increased demand for iron in all pregnancies and this is intensified in a multiple gestation.
- MSS – at 15-20 weeks, optimally at 16 weeks.
- Amniocentesis – offered at maternal age of 32 years or more at time of delivery or if MSS is positive.

### Management

#### **Goals of Treatment**

- Identify multiple gestation early
- Identify complications early

#### **Appropriate Consultation**

- Consult a physician if this diagnosis is suspected as regular physician follow up will be required, and a referral to an Obstetrician/Gynecologist may be required for delivery. Thereafter, consult physician if complications are suspected or detected.
- Consult a nutritionist, or a dietician as nutritional demands are increased in a multi-

fetal pregnancy. This consult may be done as a teleconference.

### **Nonpharmacologic Interventions**

- Assess family support and readiness for multiple birth and possible prematurity. This should also include possible transfer of the client and/or infants to Yellowknife or Edmonton.
- Arrange earlier transfer (i.e. 34 weeks) to tertiary setting to await delivery as with most multi-fetal pregnancies delivery occurs at about 36 weeks of gestation
- Notify expected place of delivery of twin pregnancy. Due to staffing levels and gestation at birth the woman and infants may need to be transferred out of NT.

### **Client Education**

- Symptoms of preterm labour
- Prepare family for possible Cesarean section. Most twins if vertex can be delivered vaginally. Cesarean section is indicated under certain conditions determined by physician
- Instruct client about proper nutrition (including vitamin and iron supplementation): nutritional demands in a multi-fetal pregnancy differ from those of a singleton pregnancy, and an increase of 300 kcal daily over intake for a singleton pregnancy is recommended.

### **Pharmacologic Interventions**

*None for multi-fetal pregnancy – as per all other pregnancies, and pregnancy related complications.*

### **Monitoring and Follow-up**

- Follow up in clinic biweekly from time of diagnosis
- Regular visits as determined by physician

### **Referral**

As discussed refer to physician and dietician/nutritionist

### **References**

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## Polyhydramnios

### Definition

Accumulation of excessive amounts of amniotic fluid (>1500 mL).

### Causes

- In ~65% of cases of polyhydramnios the cause is unknown
- Gestational diabetes
- Multiple gestation
- Fetal anomalies (e.g. neural tube defect)
- Fetal infection (CMV, Toxoplasmosis, Rubella, Syphilis)
- Isoimmunization

### History

- Develops after 28-32 weeks of gestation
- Presence of predisposing maternal conditions (diabetes)
- Abdominal discomfort due to overstretching of uterus and abdominal wall
- Dyspnea and heartburn due to excessive elevation of diaphragm
- Leg and vulvar edema
- Excessive weight gain

### Physical Findings

- Weight increased by 2-4 kg in 4 weeks above weight gain expected for gestation without explanation
- Uterus larger than expected for dates
- Shape of abdomen is globular
- Skin over abdomen shiny, with prominent veins and marked striae
- Fundal height greater than expected for dates
- Fetal parts difficult to feel
- Uterus tense
- Fetal heart beat muffled or distant or may be inaudible

### Differential Diagnosis

- Multiple pregnancy

### Complications

- Premature labour
- Malpresentation
- Prolapse of umbilical cord with rupture of membranes
- Postpartum hemorrhage
- Preeclampsia
- Placental abruption
- Renal Dysfunction (maternal & fetal)

### Diagnostic Tests

- Anatomical Ultrasonography needed to confirm diagnosis and for detailed anatomy to rule out congenital anomalies.

### Management

#### **Goals of Treatment**

Identify condition early.

#### **Appropriate Consultation**

Consult a physician if this diagnosis is suspected.

#### **Nonpharmacologic Interventions**

Provide support and counseling as necessary to client and family.

Education re symptoms of preterm labour

#### **Pharmacologic Interventions**

None.

#### **Referral**

Arrange referral for investigation

### References

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<http://www.emedicine.com/ped/topic1854.htm>  
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<http://www.perinatal.nhs.uk/growth/example.htm>  
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## Gestational Diabetes

**NOTE: If client has pre-existing diabetes, it is an automatic referral to a physician for guiding care.**

### Definition

Gestational diabetes consists of both insulin resistance and diminished insulin secretion that develops during pregnancy. The mother has increased risks for gestational hypertension, polyhydramnios, UTI's, and operative delivery secondary to macrosomia and sequela. After the birth, blood sugars usually return to normal levels; however, research shows that the occurrence of gestational diabetes increases the future risk for progression of type 2 diabetes mellitus.

### Causes

- Genetic predisposition
- Increased tissue resistance to insulin during pregnancy, due to increased levels of estrogen and progesterone
- Preexisting diabetes

### Current Risk Factors 2

- Maternal obesity (BMI >40)
- Previous diagnosis of GDM or glucose intolerance
- Excessive weight gain during pregnancy
- Hyperlipidemia
- Hypertension
- Repeated glycosuria (> +1)
- Maternal age > 35 years
- Member of high-risk population (e.g. Aboriginal people, Hispanic, Asian or African descent)
- First degree relative with diabetes
- Past history of glucose intolerance
- Past adverse obstetrical history whose outcomes usually related to gestational diabetes (large baby > 4500 gm, shoulder dystocia)
- Recurrent miscarriages
- History of congenital anomalies (if poor glucose control during fetal organ formation)
- Polycystic ovary syndrome and / hirsutism
- Corticosteroid use

### History

Most clients with gestational diabetes are asymptomatic.

- Polydipsia
- Polyuria
- Polyphagia
- Weight loss
- Failure to gain weight
- Recurrent urinary tract infections or vaginal candidiasis
- Blurred vision
- Headaches
- Drowsiness
- Hyperpnea (deep respirations)
- Nausea
- Signs of hypoglycemia

### Physical Findings

- Fundal height may be greater than expected for gestational dates as per rule of plus or minus 2 cm after 20 weeks gestation.
- Polyhydramnios on ultrasound

### Laboratory Findings

- Urine: glucose or ketones may be indicated by dipstick test
- 24-28 week GCT > 7.8 mmol (see NWT Guidelines and Diabetes algorithm)

### Complications

#### Maternal

- Ketoacidosis
- Postpartum hypoglycemia
- Polyhydramnios
- Premature labour and delivery
- Complication in labor and delivery related fetal size (macrosomia is defined as > 4500 grams)
- Post partum hemorrhage

#### Fetal

- Intrauterine death
- IUGR

- Prematurity and Sequalea
- Neonatal hypoglycemia
- Congenital malformations
- Neonatal death

**Diagnostic Tests**

**Gestational Diabetes Screening**

*If woman is not at high risk*, perform 50-g glucose challenge test (GCT) at 24-28 weeks gestational age.

*If woman is at high risk* (morbid obesity, strong family history, previous stillbirth) or has symptoms suggestive of gestational diabetes, give the initial oral GCT at 16-20 weeks. May consider oral GTT on consult with physician.

- Oral GCT value of greater than or equal to 7.8mmo/L at 1 hour is considered positive and f/u by oral GTT of 75G for proper diagnosis and treatment.

- If the oral GCT is greater than or equal to 10.3mmol/L, the patient is diagnosed with GDM and does not need further testing
- If the oral GCT was given at 16-20 weeks, and if negative, then f/u by a second one at 24-28 weeks. May consider oral GTT on consult with physician.

**Two hour 75g Oral Glucose Tolerance Test (OGTT) PROCEEDURE**

- Determine fasting blood glucose level (draw venous sample)
- Give 75g oral glucose load
- Determine blood glucose levels at 1 and 2 hours after administration of glucose load (diagnostic levels given in Table 2) (draw venous samples)
- If any two values are met or exceeded, client has gestational diabetes (GDM)
- If only one value is met or exceeded, client has impaired glucose tolerance (IGT)

**Table 2: Diagnostic glucose levels in 2-hour glucose tolerance test**

Time after glucose load	Diagnostic glucose level
Fasting	AC ≥ 5.3 mmol
1 hour	≥ 10.6 mmol
2 hours	≥ 8.9 mmol

Source: guidelines screening for gestational diabetes (2003 clinical practice guidelines for management of diabetes in Canada)

**\*\*Referral to physician needed if the results fall within these values. (Done through regular referral procedure if no access to an MD in community)**

**Management**

**Goals of Treatment**

- Identify condition early
- Optimize control of blood sugar
- Prevent maternal and fetal complications
- Recommend glucose levels pre-prandial < 5.3

**Appropriate Consultation**

Consult a physician as soon as abnormal glucose tolerance is diagnosed in a pregnant woman. Internal Medicine specialist may be consulted by the GP. Thereafter, consult a physician if client fails to gain weight or loses weight, has discrepancies in fundal heights and if she is symptomatic.

**No pharmacologic Interventions**

Dietary adjustment is the mainstay of therapy  
Referral to diabetic clinic.

- Caloric intake should be 30-35 kcal/kg daily
- “Going on a diet” not encouraged.
- Client should avoid cakes, candy and other fast-acting carbohydrate foods
- Dietary composition should be 50% to 60% carbohydrate, 20% to 25% protein and 20% fat, with high fiber content
- Three meals and three snacks, one at bedtime, is recommended. Keep it simple. “NO powdered juice” diet
- Complex carbohydrates are recommended (e.g. bread, pasta, beans, potatoes). Portion size of fist

- Discourage excessive salt use
- Encourage exercise, which has been shown to be especially beneficial when used in combination with dietary therapy
- Encourage home glucose monitoring as per the diabetic clinic's recommendations
- Encourage use of a diabetic log, and review home monitoring at each visit
- Prevention of excessive weight gain is important
- Provide support and reassurance during pregnancy
- Follow diabetic clinic's recommendations on a patient specific basis.

### **Pharmacologic Interventions**

If fasting glucose remains >10.3. mmol/L, insulin therapy is indicated and will be prescribed by the physician.

Insulin requirement tends to rise as pregnancy progresses, so frequent dose adjustments may be needed. Woman may need to travel to see MD more often.

### **Monitoring and Follow-Up (unless ordered otherwise)**

Follow up every 2 weeks until 36 weeks gestational age and then weekly. Assess the following:

- Dietary compliance
- Weight gain or loss
- Peripheral edema
- Blood pressure
- Uterine size
- Fetal growth
- Home glucose monitoring results

Check patient's blood sugar log at each visit. Do finger poke with each prenatal visit. Recommended preprandial level < 5.3 mmol. Follow diabetic clinic and physician's recommendations. Consult with a physician if evidence of poorly controlled glucose levels or changes needed to treatment regime. May need to

travel to see an MD. Plan for early referral for delivery.

### **Ultrasonography**

- Ultrasonography should be done early in the pregnancy for accurate gestational dating.
- Follow up ultrasounds will be determined by the physician in consultation with OB/GYN. Growth may be monitored more frequently due to the diabetes.

### **Other Follow-Up**

- After 40 weeks of gestation, fetal surveillance is initiated, and delivery is recommended if there is any evidence of fetal compromise.
- Women with gestational diabetes should have a 75-g oral glucose tolerance test (OGTT) 6-12 weeks postpartum to rule out persistent carbohydrate intolerance.

Counsel the client that her risk of frank diabetes at some point later in her life is approximately 35%.

### **Referral**

- Referral to settlement physician to internal medicine for complex care is usually needed for all but the mildest cases
- Follow-up should be by a physician whenever possible
- Client would benefit from assessment and counseling by a dietician if this service is readily available

Consult with settlement physician about optimum time for transfer out of community for delivery.

### **References**

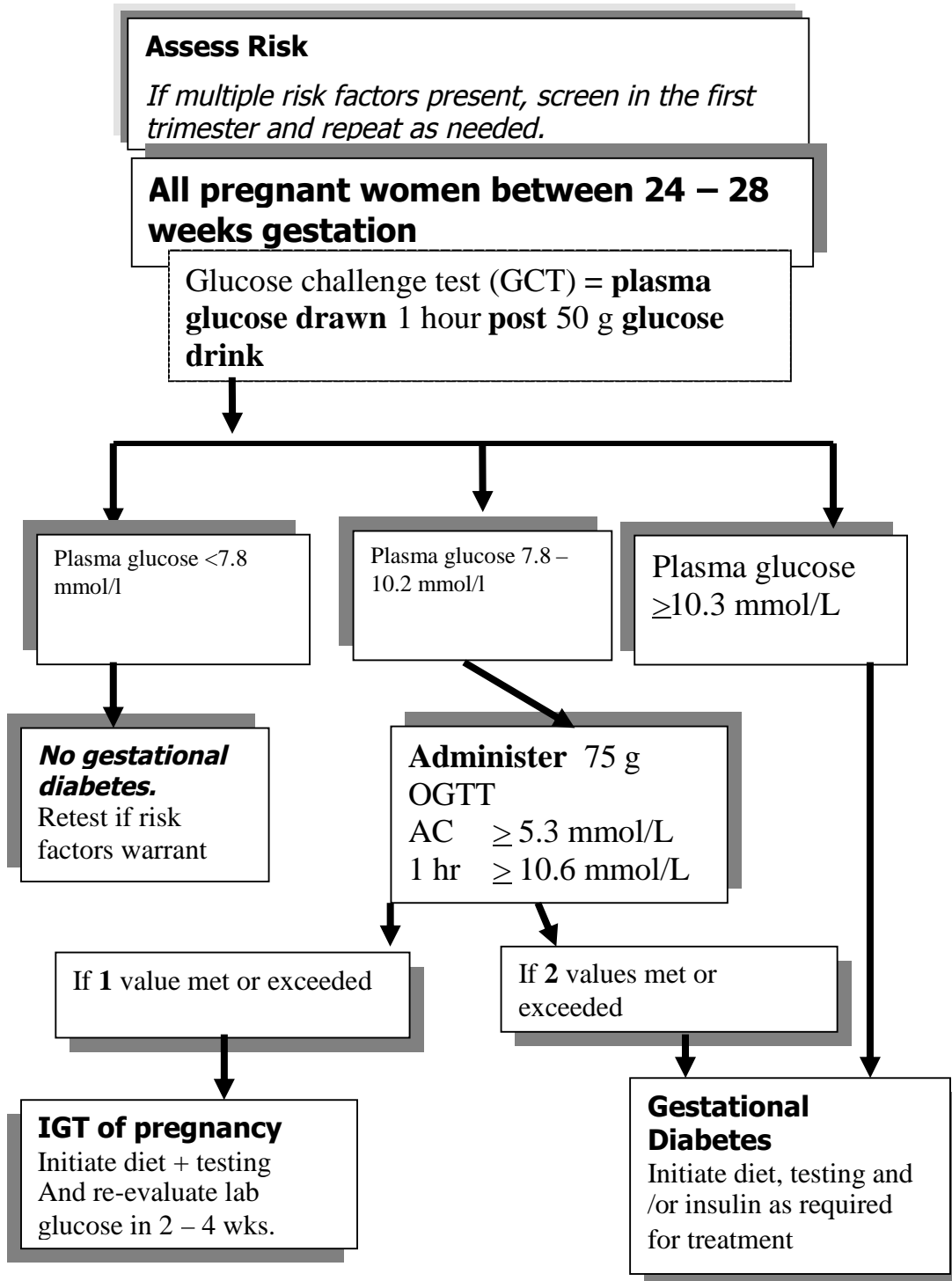
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## Gestational Diabetes

### Screening for Gestational Diabetes

Assess risk and screen early if multiple risk factors. All pregnant women should be screened for glucose abnormalities between 24 and 28 weeks gestation



## Hypertension in Pregnancy

### Definition

Hypertension in Pregnancy is found in 10% of cases and is classified in four categories:

1. Chronic or Pre-existing hypertension: Begins prior to pregnancy, or prior to 20 wks gestation, and BP >140/90 mmHg. Is not associated with proteinuria, end-organ damage, and persists after delivery.
2. Gestational hypertension with proteinuria, edema & sustained hypertension (a.k.a. Preeclampsia)
  - Mild: BP >140/90 mmHg <160/110 mmHg (or an increase of 30/15 mmHg respectively),
  - Proteinuria 1+ - 2+ (<300mg/24hr, on 24 hr urine), no end organ damage, no pathological edema, Severe: BP >160/110 mmHg,
  - Proteinuria 3+ - 4+ (>500mg/24hr on 24 hr urine), end organ damage present (HELLP\*, oliguria, IUGR), may have unexpected wt. gain (>1kg/week)
3. Pre-existing hypertension with superimposed gestational hypertension with proteinuria. (Patient's with pre-existing hypertension may develop significant proteinuria, end organ damage, pathological edema {preeclampsia})
4. Gestational Hypertension without proteinuria. Usually diagnosed in the latter half of the pregnancy, is transient in nature, no proteinuria, no end organ damage, may develop within 24 hours postpartum, but resolves approximately 2 weeks post partum. Hypertension that is diagnosed antenatally, but final classification to be made 6 weeks after delivery

\*HELLP syndrome – hemolysis, elevated liver enzymes, low platelets)

### Causes

- Unknown
- Predisposing factors: hypertension, primigravida, <20 years or >35 years of age, diabetes mellitus, chronic renal disease, multiple gestation, polyhydramnios, hydatidiform mole

- If father of this pregnancy is different than the previous pregnancy

### History

- History of pregnancies – often found in primigravida, or first pregnancy with new partner
- Age of client
- Thorough family history to rule out possible presence of one of predisposing factors listed above
- Excessive weight gain may be first warning signal
- Symptoms that range from minimal to severe (see physical findings)

### Physical Findings

- Physical findings depends on severity of disease (Edema is not a diagnostic criteria for Gestational Hypertension)
- Severity of the disease is determined by relative increase in blood pressure above client's normal readings, and presence of signs and symptoms.
- Hypertension in pregnancy requires preeclampsia to be ruled out (proteinuria, end organ damage), therefore the symptoms are related to end organ damage and are listed by system and from mild to severe:

CNS:

Headache, visual disturbances (mobile spots), hyper-reflexes, stuporous, unconscious, clonus, seizures (eclampsia – see following page on eclampsia), stroke, coma

CVS:

Increasing severe blood pressure, HELLP syndrome (hemolysis, elevated liver enzymes, low platelets)

Resp:

Dyspnea related to pulmonary edema

Abd:

Nausea and vomiting, RUG / epigastric pain secondary to liver damage, abruptio placentae,

GU:

Proteinuria (see definitions), oliguria,

Fetal:

Tachycardia >160bpm, IUGR secondary to placental insufficiency, fetal acidosis

## Recommendations On Criteria For Diagnosis

- See Definitions for clarity
- Except for very high diastolic readings ( $\geq 110$  mm Hg or more), all diastolic readings  $\geq 90$  mm Hg should be confirmed/repeated after 4 hours.
- A rest period of 10 minutes should be allowed before the blood pressure is measured. The woman should be sitting upright and a correctly sized cuff should be positioned at the level of the heart.

If any proteinuria present:

- Rule out other causes (UTI, vaginal discharge, etc.)
- See client again soon and reassess urine, BP and check for signs and symptoms
- If proteinuria present on consecutive visit with no other causes, or with elevated BP, or other symptoms, do a 24 hour urine collection
- Edema and weight gain should not be used as diagnostic criteria.

## Laboratory Findings

- Proteinuria on dipstick (consider 24 hour urine)
- May find low platelets (HELLP syndrome)
- Monitor for elevated liver enzymes

## Complications

- Preterm delivery (as definitive treatment for gestational hypertension with proteinuria is delivery)
- Abruptio placentae
- Baby small for gestational age (e.g. intrauterine growth retardation [IUGR])
- HELLP syndrome (Hemolysis, elevated liver enzymes, low platelet count)
- Disseminated intravascular coagulation (DIC)
- Aspiration or injury during seizure
- Maternal and fetal morbidity and mortality

## Diagnostic Tests

- CBC, PT, PTT
- Urinalysis and 24 hour urine, BUN & Cr
- Liver Function Tests

## Management

### Goals of Treatment

- Identify the condition early to prevent progression
- Prevent maternal and fetal complications (See 'physical findings')
- Prevent eclampsia

### Appropriate Consultation

- Consult a physician if hypertension in pregnancy is present.
- Do not delay consultation if proteinuria, or symptoms present. May require medevac if signs and symptoms present or progress.
- Urgent consultation with physician in referral centre if BP is 160/110 or more.

### Client Education

- Explain disease course and expected outcome.
- Stress the necessity of frequently monitoring condition for early detection of disease progression.
- Instruct client to return to clinic immediately if signs and symptoms occur and/or progress.
- Possibility of referral out with a prolonged stay in Community of Delivery.

### Non-pharmacologic Interventions

- Non-pharmacologic management should be considered for any pregnant woman with a systolic blood pressure of 140-150 mm Hg or a diastolic pressure of 90-99 mm Hg, or both, as measured in a clinical setting.
- A short-term stay in hospital may be required for definitive diagnosis (serial blood pressure, ultrasonography, lab tests)
- Management, dependent on blood pressure, gestational age, and presence of associated maternal and fetal risk factors, includes close supervision, limitation of activities and some bed rest.
- A normal diet without salt restriction is advised.
- Pre-existing hypertension should be managed the same way as before pregnancy. However, additional concerns are the effects on fetal well-being and the worsening of hypertension during the second half of pregnancy.

- There is, as yet, no treatment that will prevent exacerbation of the condition.

If severity increases:

- Bedrest in a quiet, dark room
- Position client on her left side
- Be prepared for possibility of eclampsia – oral airway, NPO, suction/ambubag, record seizure time, length, and type.
- Foley catheter and maintain urine output >25mL/hr, check proteinuria hourly.

### **Pharmacologic Interventions**

#### **For mild gestational hypertension with or without proteinuria:**

- Antihypertensives – if patient was on antihypertensive treatment prenatally, continue with this after consultation with physician. *methyl dopa (B class drug), as per physician prescription*

#### **Monitoring and Follow-Up**

- Monitor vital signs and general condition for progression of symptoms
- Monitor symptoms related to complications (headaches, abdominal pain, reflexes, etc.)
- Assess fetal heart, fetal movement and fetal growth
- Provide symptomatic support
- May require weekly prenatal assessments

#### **Referral**

Medevac to hospital for evaluation may be advisable if there are significant symptoms and risk.

#### **For severe gestational hypertension with proteinuria:**

Refer to your HSSA protocol.

Infuse over 15 minutes:

*magnesium sulfate (B class drug), 2-4 g in 100 mL of normal saline via a drip chamber*

Then reassess respiratory rate and reflexes.

Piggyback administration of this drug via a main line is required.

Magnesium sulfate is a cerebral depressant that reduces neuromuscular irritability. It can cause vasodilation and reduction in blood pressure.

Symptoms of magnesium sulfate toxicity: respiration rate of less than 8, respiratory depression or arrest, maternal sedation, reduced or absent deep tendon reflexes, cardiac arrest, coma. The antidote is

*calcium gluconate (B class drug).*

#### **Keep preloaded syringe of 10% calcium gluconate at bedside.**

After the loading dose of magnesium sulfate: *solution of 20 g magnesium sulfate in 1 L normal saline or Ringer's lactate, 1-2 g/h (50-100 mL/h)*

Transport may be commenced once the loading dose is complete and the maintenance dose has been started.

#### **Monitoring and Follow-Up**

- Monitor state of consciousness and respiratory rate constantly; monitor deep tendon reflexes (patellar) and blood pressure q15min; monitor fetal heart rate q30min.
- If respiratory rate 8-12/min, reflexes reduced or urine output < 100 mL in previous 4 hours, reduce infusion of magnesium sulfate by 50%.
- If respiratory rate < 8/min or reflexes absent, stop infusion of magnesium sulfate, then unclamp main line of Ringer's lactate and run at 100 mL/h. Consult a physician and then give antidote:

*10% calcium gluconate (B class drug), 10 mL(1 g) IV over 5-10 minutes*

If a seizure occurs:

- Suction nasopharynx prn
- Administer oxygen
- Position the client on her side and cushion appropriately
- Record length and type of seizure
- After seizure, assess uterine contractions, vaginal bleeding, uterine tenderness, abdominal pain and fetal heart rate
- Discuss the use of additional seizure medications with physician

- In case of prolonged seizure activity, consideration should be given to tracheal intubation

*Antihypertensive therapy* is added if maternal diastolic blood pressure is  $\geq 105$  mm Hg: *hydralazine (B class drug)*, 5 mg IM stat or 1 mg IV as test dose, then 5-25 mg IV over 2-4 minutes;

May need to be repeated in 20-30 minutes (5-10 mg IV) if the blood pressure is not reduced effectively with the first dose. With severe hypertension (diastolic pressure  $\geq 110$  mm Hg), the administration of an antihypertensive agent should be considered as follows: *hydralazine (B class drug)*, 5-10 mg via *intermittent IV bolus administration*

Check blood pressure every 5 minutes.  
Do not decrease the diastolic pressure to  $< 90$  mm Hg as this would reduce the placental perfusion and be detrimental to the fetus. Abruptio placentae is a possible complication of acute changes in blood pressure.

#### Precautions with Hydralazine

- Antihypertensive effects start within 30-60 minutes and last for about 4-6 hours
- Contraindication: heart disease
- Side effects: tachycardia, palpitations, faintness, headache, hypotension

#### **Referral**

Medevac as soon as possible.

Immediate Medevac required if progression of signs and symptoms, or risk for eclampsia (seizures).

#### **References**

Canadian Hypertension Society (2006)

ALARM (Advances in Labour and Risk Management), (SOGC, 2003)  
<http://www.bchealthguide.org/kbase/topic/major/hw2834/descrip.html>

[Michael B Brooks, MD](#), Consulting Staff, Department of Emergency Medicine, St. Mary-Corwin Medical Center, (emedicine 2005).

[Paul Gibson, MD](#), Assistant Professor, Departments of Medicine and Obstetrics and Gynecology, [Division of General Internal Medicine, University of Calgary](#), (emedicine, 2006)

Therapeutic approach to hypertension during pregnancy: Extrapolation of findings from reproductive studies in animals to humans

Arieh Lalkin, MD; Ronen Loebstein, MD; Antonio Addis, PHARM.D; Gideon Koren, MD, FRCPC, 1998 ([www.mothersrisk.org](http://www.mothersrisk.org))

## Hypertensive Crisis (Eclampsia)

### Definitions

- *Eclampsia*: Convulsions or coma in pregnant or postpartum woman. Convulsion may occur in a stable client with mildly elevated blood pressure in absence of excessive weight gain and/or edema.
- *HELLP syndrome*: hemolysis, elevated liver enzymes, low platelet count.

### History

A complete history and physical should be completed and include but not limited to:

- Grand mal seizure may have occurred before presentation
- Facial twitching may rapidly progress to body rigidity
- Generalized contraction and relaxation of body muscles follows
- Typically lasts for 60-75 seconds
- Coma follows the convulsion
- Client usually does not remember anything of the event
- Respiration absent during seizure
- Rapid and deep respiration usually begins after convulsion ends

One-third of seizures occur prenatally, one-third occur during labour, and one-third occur within the first 24 hours postpartum.

### Physical Findings

- Physical findings in eclampsia are extremely variable
- Client in acute distress (respiratory, CNS, end organ damage – e.g. renal, liver, lungs)
- May be stuporous, unconscious or in convulsion
- Vomiting or retching may be present
- Deep tendon reflexes hyperreactive
- Clonus may be present
- Urine: proteinuria present

### Complications

- Maternal injury during seizure/s
- End organ disease and/or damage
- Aspiration
- IUGR - Fetal distress

- Preterm labour and delivery
- Abruptio placentae
- HELLP syndrome (hemolysis, elevated liver enzymes, low platelet count)
- Disseminated intravascular coagulopathy - hemorrhage
- Stroke (CVA)
- Maternal death
- Fetal death

### Diagnostic Tests

- Vital signs including oxygen saturation
- Urinalysis (for proteinuria, 24hr urine if positive)
- Measure blood glucose level
- Measure hemoglobin level

### Management

#### **Goals of Treatment**

- Prevent end organ disease/damage, including brain injury
- Prevent convulsions
- Prevent maternal injury during convulsion
- Prevent fetal injury

#### **Appropriate Consultation**

Consult a physician as soon as possible, and recommend medevac.

The stabilization of the client should be discussed with the referral center to determine what drug therapy should be initiated before transfer and whether the therapy should be continued in transit. If intravenous magnesium sulfate or hydralazine hydrochloride is used during transport, a physician should accompany the client. Tracheal intubation and ventilation might become necessary if there is respiratory depression.

#### **Adjuvant Therapy**

- Oxygen 6-10 L/min
- Start IV therapy with normal saline to keep vein open
- Adjust IV rate if there is unusual fluid loss (vomiting, diarrhea, other)

Do not overhydrate with IV fluids as this may increase risk of iatrogenic pulmonary edema.

**Nonpharmacologic Interventions**

- Bed rest in a quiet, darkened room
- Position client on her left side
- Stay with client at all times; do not leave her alone (one to one nursing care)
- Nothing by mouth
- Protect airway
- Place artificial airway in client's mouth prn
- Ensure that breathing and ventilation are adequate
- Have oral airway and Ambu bag at bedside
- Wipe away and suction oral secretions
- Document time, duration and type of seizure
- Insert Foley catheter attached to a closed drainage bag to monitor urine output closely (recommended); urinary output should be greater than 25 mL/h
- Check urine for protein hourly

**Pharmacologic Interventions**

Infuse over 15 minutes:  
*magnesium sulfate (B class drug), 2-4 g in 100 mL of normal saline via a drip chamber*

Then reassess respiratory rate and reflexes.

Piggyback administration of this drug via a main line.

Magnesium sulfate is a cerebral depressant that reduces neuromuscular irritability. It can cause vasodilation and reduction in blood pressure.

Symptoms of magnesium sulfate toxicity: respiratory depression or arrest, reduced or absent deep tendon reflexes, cardiac arrest, coma. The antidote is

*calcium gluconate (B class drug).*

**Keep preloaded syringe of 10% calcium gluconate at bedside.**

After the loading dose of magnesium sulfate:  
*solution of 20 g magnesium sulfate in 1 L normal saline or Ringer's lactate, 1-2 g/h (50-100 mL/h)*

Transport may be commenced once the loading dose is complete and the maintenance dose has been started.

**Monitoring and Follow-Up**

- Monitor state of consciousness and respiratory rate constantly; monitor deep tendon reflexes (patellar) and blood pressure q15min; monitor fetal heart rate q30min.
- If respiratory rate 8-12/min, reflexes reduced or urine output < 100 mL in previous 4 hours, reduce infusion of magnesium sulfate by 50%.
- If respiratory rate < 8/min or reflexes absent, stop infusion of magnesium sulfate, then unclamp main line of Ringer's lactate and run at 100 mL/h. Consult a physician and then give antidote:

*10% calcium gluconate (B class drug), 10 mL (1 g) IV over 5-10 minutes*

If a seizure occurs:

- Suction nasopharynx prn
- Administer oxygen
- Position the client on her side and cushion appropriately
- Record length and type of seizure
- After seizure, assess uterine contractions, vaginal bleeding, uterine tenderness, abdominal pain and fetal heart rate
- Discuss the use of additional seizure medications with physician
- In case of prolonged seizure activity, consideration should be given to intubation

*Antihypertensive therapy is added if maternal diastolic blood pressure is ≥ 105 mm Hg: hydralazine (B class drug), 5 mg IM stat or 1 mg IV as test dose, then 5-25 mg IV over 2-4 minutes; May need to be repeated in 20-30 minutes (5-10 mg IV) if the blood pressure is not reduced effectively with the first dose. With severe hypertension (diastolic pressure ≥ 110 mm Hg), the administration of an antihypertensive agent should be considered as follows: hydralazine (B class drug), 5-10 mg via intermittent IV bolus administration*

Check blood pressure every 5 minutes.

Do not decrease the diastolic pressure to < 90 mm Hg as this would reduce the placental perfusion and be detrimental to the fetus. Abruption placenta is a possible complication of acute changes in blood pressure.

Precautions with Hydralazine

- Antihypertensive effects start within 30-60 minutes and last for about 4-6 hours
- Contraindication: heart disease
- Side effects: tachycardia, palpitations, faintness, headache, hypotension

**Referral**

Medevac as soon as possible.

**References**

Dr. Turnell, Lecture Reproductive-Urology, Obstetric Review, University of Alberta, 2004  
Webpage: BC Health Guide ([www.bchealthguide.org](http://www.bchealthguide.org) - search eclampsia)  
Webpage: [www.familydoctor.org](http://www.familydoctor.org) (search hypertension and eclampsia)

## Intrauterine Growth Restriction (IUGR)

### Definition

- Slow fetal growth within uterus
- Fetus small for gestational age
- Symmetrical vs. Asymmetrical

Asymmetrical occurs in most of the cases of IUGR and occurs due to placental insufficiency. The abdomen is small, but the head and limbs are within acceptable percentile.

Symmetrical usually occurs due to anomaly, the head and limbs are generally below the 10<sup>th</sup> percentile.

### Causes

#### Maternal Factors:

- Age
- Environmental / Social factors – smoking, drug use, alcohol use, obesity
- Poor obstetrical history – past IUGR, stillbirth, or birth defect babies
- History of maternal disease – hypertension etc.

#### Fetal Factors:

- Chromosomal abnormalities
- Structural abnormalities
- Multiple gestation
- Prematurity
- Infections – CMV, toxoplasmosis, rubella, herpes, HIV, Hepatitis A or B, Syphilis

#### Placental Factors:

- Inadequate placenta – r/t maternal medications, maternal disease processes, maternal elevated AFP
- Impaired umbilical blood exchange – previa, hypertension

### History

- Usually occurs in second trimester
- Client may be aware of lack of growth
- Altered fetal movements (increased or decreased)
- Gestational hypertension and gestational diabetes may be present
- Other illnesses may be present

- Poor weight gain (doesn't 'look' pregnant)

### Physical Findings

- Weight unchanged or decreased from previous visit
- Fundal height unchanged or less than expected from previous visit

Suspicion should be raised if fundal height does not exhibit the predicted growth: at 20wks = 20cm +/- 2cm or no increase over a 3 week period. Actual fundal height is not reliable until the second trimester, however measurements still need to be done throughout pregnancy for trending.

A lag in fundal height by 4 cm warrants ultrasound evaluation.

### Differential Diagnosis

- Miscalculation of dates (Use LMP if woman is sure of dates, or use earliest U/S for EDD calculations. If discrepancy is <10days and woman is sure of her dates, use her LMP dates for EDD)
- Improper measurement on previous assessment
- Intrauterine death

### Complications

#### Antepartum Complications

- Oligohydramnios (insufficient liquor)
- Intrapartum fetal acidosis (due to insufficient placental circulation)
- Intrauterine death
- Risk of preterm labour

#### Neonatal Complications

- Persistent fetal circulation
- Meconium aspiration syndrome
- Hypoxic ischemic encephalopathy
- Hypoglycemia
- Hypocalcemia
- Hyperviscosity
- Defective temperature regulation

### Diagnostic Tests

- Urinalysis

- Blood sugar measurement
- Ultrasonography (18 week Anatomical U/S)
- Maternal workup to rule out underlying pathology

Ultrasonography, preferably serial, is needed for definitive diagnosis.

## **Management**

### **Goals of Treatment**

- Prevent condition through education about nutrition, avoidance of substance use, especially smoking
- Identify associated disorders early (e.g. diabetes mellitus, hypertension)
- Genetic screening – Maternal Serum Screening if warranted and consent received\*
- Maintain a healthy fetus and hopefully a health newborn.

MSS – refer to handout from the NWHP at the Stanton Territorial Hospital

### **Appropriate Consultation**

Consult a physician immediately if this diagnosis is detected or suspected.

Consider consult to nutritionist if this is identified as a contributing factor.

### **Nonpharmacologic Interventions**

- Provide support to client and family.
- Attempt to treat underlying cause.

### **Pharmacologic Interventions**

None.

### **Monitoring and Follow-Up**

- Once this diagnosis is made, more frequent prenatal visits are essential for monitoring.
- This may include serial ultrasounds and stress tests. The frequency of visits will depend on establishing the underlying cause of the growth retardation.
- More frequent visits to referral centre may be needed throughout pregnancy for serial growth ultrasounds.

### **Referral**

- Refer to physician and/or NWHP (Northern Woman's Health Program) as soon as possible for further assessment.
- Close antenatal surveillance is required, and the decision as to when to deliver the infant is complex.
- Consideration must be given to have this woman's prenatal care delivered in a secondary or tertiary care centre.

### **References**

ALARM and SOGC. (2002) Gestational Hypertension.

Martin, E. Jean. (2002). Intrapartum Management Modules. A Perinatal Education Program. Lippincott Williams, Philadelphia.

## Antepartum Hemorrhage (Late)

### Definition

Vaginal bleeding that occurs after 20 weeks of gestation.

### Causes

The two most common causes are placenta previa and abruptio placentae, described in Table 6.

### Diagnostic Tests

- Measure hemoglobin level
- Urinalysis

### Management

#### Goals of Treatment

- Identify condition early
- Resuscitate and stabilize if client is in shock
- Prevent complications

#### Appropriate Consultation

Consult a physician as soon as possible.

#### Nonpharmacologic Interventions

- Nothing by mouth
- Bed rest
- Trendelenburg position (prn) to aid venous return if client is in shock
- Insert urinary catheter if client is in shock
- Monitor intake and output hourly
- Aim for urine output of 50 mL/h

#### Adjuvant Therapy

Initial aggressive fluid resuscitation is needed if client is in hypovolemic shock:

- Start two large bore IV 14g-18g
- Start IV therapy with normal saline

- Give 20 mL/kg normal saline as a bolus over 15 minutes
- Reassess for signs of shock
- Repeat 20 mL/kg boluses until systolic blood pressure stabilizes at >90 mm Hg
- Ongoing IV therapy is based on response to initial fluid resuscitation, continuing losses and underlying cause, treat to achieve a good hemodynamic response
- Adjust IV rate accordingly, to maintain urine output of 50 mL/h
- Oxygen to keep saturation  $\geq 97\%$

#### Pharmacologic Intervention

Verify Rh status and give Rh immune globulin (RhIG) within 48 hours, if indicated (available from the Laboratory Department of Regional Hospitals).

#### Monitoring and Follow-Up

- Monitor vital signs q10-15min if hypotension is present or vaginal bleeding continues
- Monitor fetal heart rate q15min
- Monitor for signs of onset of labour
- Assess stability of pre-existing medical problems

#### Referral

Medevac as soon as possible.

#### References

<http://www.emedicine.com/med/topic6.htm>

Abruptio Placentae; Gaufberg, S.V

<http://www.emedicine.com/MED/topic3271.htm>

Placenta Previa; Ko, P

**Table 6: Description and classification of placenta previa and abruption placentae**

Placenta previa	Abruptio placentae
<p><b>Definition</b> Aberrant implantation of placenta in lower uterine segment</p>	<p>Separation of the placenta from the uterine wall after 20 weeks gestation; may be partial, rarely complete</p>
<p><b>Classification</b> Marginal: low-lying implantation, near the cervical os but not covering it  Partial: partly covering cervical os  Complete: completely covering cervical os</p>	<p>Mild: slight vaginal bleeding (&lt; 100 mL); no fetal heart rate abnormalities; no evidence of shock or coagulopathy  Moderate: moderate vaginal bleeding (100-500 mL) and uterine hypersensitivity with or without elevated tone; mild shock and fetal distress may be present  Severe: extensive vaginal bleeding (&gt;500 mL), tetanic uterus and moderate to profound maternal shock; fetal death and maternal coagulopathy are characteristic</p>
<p><b>Prevalence</b> 1 in 200 deliveries often misdiagnosed in 2<sup>nd</sup> trimester on ultrasound, before lower segment has formed.</p>	<p>10% of all deliveries (severe form rare)</p>
<p><b>Risk Factors</b> Increasing maternal age, multiparity, prior uterine scar; associated with breech and transverse presentations, prior placenta previa</p>	<p>Prior history of abruption, maternal hypertension, cigarette or cocaine use, increasing maternal age, multiparity; sudden decompression of uterus (rupture of membranes, after delivery of first twin), trauma to abdomen</p>
<p><b>Clinical Presentation</b></p> <ul style="list-style-type: none"> <li>• Vaginal bleeding is typically painless, with bright red blood</li> <li>• Blood loss is usually not massive with initial bleed, but bleeding tends to recur and become heavier as the pregnancy progresses</li> <li>• Verify Rh status</li> </ul>	<ul style="list-style-type: none"> <li>• Vaginal bleeding in 80% of cases, but may be concealed in the remainder (i.e. retroplacental bleeding); therefore maternal hemodynamic situation may not be explained by observed blood loss</li> <li>• Pain and increased uterine tone typical</li> <li>• Pain increased in severity</li> <li>• Verify Rh status</li> </ul>
<p><b>Physical Findings</b></p> <ul style="list-style-type: none"> <li>• Heart rate may be normal or elevated</li> <li>• Blood pressure normal, low or hypotensive</li> <li>• Postural blood pressure drop may be present</li> <li>• <b>Fetal heart rate usually normal, initially</b></li> <li>• <b>Fetal heart rate depends on amount of bleeding</b></li> <li>• Mild distress to frank shock</li> <li>• Bright red bleeding per vagina</li> <li>• Fundal height consistent with dates</li> <li>• Uterus soft, normal tone, nontender</li> <li>• Uterine size consistent with dates</li> <li>• Transverse, oblique or breech lies common</li> <li>• Should be suspected in client with persistent breech presentation</li> <li>• Advisability of speculum examination debatable</li> <li>• Digital examination contraindicated in Health Centres</li> </ul>	<ul style="list-style-type: none"> <li>• Depend on degree of detachment, amount of blood loss</li> <li>• With mild abruption, signs may be minimal</li> <li>• Heart rate mildly to severely elevated</li> <li>• Blood pressure normal, low or hypotensive</li> <li>• Fetal heart rate elevated, reduced or absent</li> <li>• Client appears in acute distress</li> <li>• Client may be pale or unconscious (if in shock)</li> <li>• Vaginal bleeding moderate, profuse or absent</li> <li>• If membranes ruptured, amniotic fluid may be bloody</li> <li>• Uterus may be larger than expected for dates</li> <li>• Uterus tender</li> <li>• Increased uterine tone (tense or hard)</li> <li>• Uterine contractions may be present and prolonged</li> <li>• Uterus may fail to relax completely between contractions</li> </ul>

## Group B Streptococcal Infection

### Definition

Group B streptococci (GBS) is a bacterial infection that involves the pregnant woman and her newborn infant, causing maternal infections of the uterus, placenta, and urinary tract and infections in the infant that can be localized or involving the infant's entire life.

Estimates of GBS colonization rates among pregnant women range from 15% to 40%. GBS infection is transmitted in 40% to 70% of cases, but sepsis develops in only 1% to 2% of affected newborns.

GBS sepsis presents in the early neonatal period (<7 days of age) or somewhat later (7 days to 3 months of age). Early onset is more common and is associated with a higher mortality rate.

### Diagnostic Tests

- Universal screening of all pregnant women at 35-37 weeks of gestation with a vaginal/rectal swab.

### Management

#### **Appropriate Consultation**

- Consult a physician or nurse practitioner when risk factors are indicated.

#### **Risk Factors for which Intrapartum Chemoprophylaxis is recommended**

- Treat with IV antibiotics in the following cases:
- Intrapartum (at time of labour) or with rupture of membranes if:
  - Positive GBS culture screening done at 35 weeks,
  - Any woman with an infant previously infected with GBS,

- Any woman with documented GBS bacteriuria in this pregnancy.<sup>1</sup>
- Women in preterm labour at <37 weeks gestational age unless there has been negative GBS vaginal/rectal swab culture within 5 weeks.
- If GBS culture result is unknown and the woman has ruptured membranes at term for greater than 18 hours.

### **Pharmacologic Interventions**

Antibiotic regimen of choice for intrapartum prophylaxis:

*penicillin G 5 million units (B class drug) IV load followed by 2.5 million units every 4 hours until delivery*

or

*ampicillin (C class drug), 2 g IV at least 4h prior to delivery, followed by*

*1-2 g IV q4-6h until delivery or until labour is stopped<sup>1</sup>*

For clients with allergy to penicillin:

*clindamycin (B class drug), 900 mg IV q8h until delivery or until labour is stopped*

### References

SOGC .The Prevention of Early-Onset Neonatal Group B Streptococcal Disease. (September 2004). # 149. pages 826-832.

Blondel-Hill, Edith and Fryters, Susan (2006). Bugs & Drugs. Antimicrobial Reference. Capital Health Alberta. Page 414.

Martin, E .Jean (2002) Intrapartum Management Modules. Lippincott Williams, Philadelphia

## Preterm Labour

### Definition

Onset between age of viability and 37 weeks gestational age of regular contractions with progressive cervical dilatation and/or effacement.

Discrimination from "false labour" is difficult, unless there is cervical dilatation, which indicates true labour; however, postponement of treatment until such dilatation occurs may lower the chances of treatment success.

### Causes

Frequently unknown. Several factors have been associated with preterm labor.

### Maternal Factors

- Infection (systemic, vaginal, urinary tract, amnionitis)
- Uterine anomalies
- Fibroids
- Retained intrauterine device
- Cervical incompetence
- Overdistended uterus (polyhydramnios, multiple gestation)
- Rupture of membranes
- Physical and situational stress
- Poor nutrition/underweight
- Smoking
- Gestational hypertension

### Fetal Factors

- Congenital anomalies
- Intrauterine death

### History

- Presence of one or more risk factors
- Onset of contractions
- Contractions regular, becoming stronger and closer together
- Rupture of membranes and passage of bloody mucus may have occurred
- Clients at risk should be identified during routine prenatal visits
- Cramping, general discomfort, lower back pain

### Physical Findings

- In early gestation, subtle signs with general discomfort and lower back pain.
- *Moderate distress*
- "Bloody show" may be present.
- Contractions (strength, frequency, duration)
- If contractions moderate to strong, uterine changes seen on abdomen
- Fetal heart rate: identify changes with contractions.
- Uterine tenderness or hardness
- Assess position and presentation of fetus, engagement of head
- Cervical dilatation, effacement, descent and presentation of fetal parts
- **Avoid digital exam in presence of suspected ROM unless ordered by consulting physician prior to transport.**

### Differential Diagnosis

- Braxton-Hicks contractions in later pregnancy
- False labour in later pregnancy
- Urinary Tract Infection
- Pelvic/vaginal infection

### Complications

- Progression to active labour
- Progression to preterm delivery

### Diagnostic tests

- Fern test of amniotic fluid
- Amnioswab test
- Urinalysis: evidence of infection may be present
- Cervical and vaginal swabs for STI, BV
- Consider Point of Care Testing dipstick, if available, to estimate the cervical ripeness and the risk of preterm delivery for e.g Actim Partus or Fetal Fibronectin

### Management

#### Goals of Treatment

- Slow or halt labor
- Deliver preterm infant safely, if delivery necessary in most appropriate setting whenever possible.

**Appropriate Consultation**

Consult a physician. Discuss care plan based on most accurate gestational age, membrane status, cervical dilation.

**Nonpharmacologic Intervention**

Bed rest in left lateral decubitus position.

**Adjuvant Therapy**

*Start IV therapy with normal saline to keep vein open*

**Pharmacologic Interventions**

*Tocolytic agent*

Discuss with a physician possible use of tocolytic agent to attempt to halt contractions and to permit timely transport to referral centre.

*indomethacin (A class drug) only if <32 weeks gestational age, 100mg PR prior to transfer. Consult with physician for subsequent doses if transport is delayed*

*Steroids*

Discuss with physician the use of steroids to accelerate fetal lung maturation only in fetuses less than 34 weeks gestational age:

Preferred drug of choice-  
betamethasone (**B class drug**) 12 mg IM q24 hours x 2 doses

Or alternately

*dexamethasone (B class drug), 6 mg IM q12h, 4 doses only*

*Antibiotics*

- Discuss with physician for antibiotic use depending on clinical picture.
- Ensure Group B strep prophylaxis for all women with confirmed positive GBS or unknown GBS status.

Give:

*penicillin G (B class drug) 5 million units IV load followed by 2.5 million units every 4 hours until delivery or labor has stopped*

or

*ampicillin (C class drug), 2 g IV at least 4h prior to delivery, followed by 1 g IV q4-6h until delivery or until labour is stopped<sup>1</sup>*

For clients with allergy to penicillin:  
*clindamycin (B class drug), 900 mg IV q8h until delivery or until labour is stopped*

- Consider antibiotics for all women with ruptured membranes with risk factors such as:
- Increased temperature > 38°C or fetal/maternal tachycardia or uterine tenderness
- Consider antepartum antibiotics for all women with ruptured membranes prior to 34 weeks, regardless of clinical presentation

**Monitoring and Follow-Up**

- Monitor uterine contractions, vital signs and fetal heart rate

Assess probability of imminent delivery on the basis of the following factors:

- Cervical effacement and dilatation
- Frequency of uterine contractions
- Parity
- Previous obstetric history
- Woman states is ready to push.

Prepare for delivery as necessary.

*Refer to "Unplanned Delivery in the Health Centre," at the end of this chapter.*

**Referral**

Medevac as soon as possible

**References**

ALARM 13<sup>th</sup> edition 2006.

SOGC. *Women's Health Information, Pregnancy, Preterm Labour.* (October 2006).

Sosa, C., et al. (2004) *Bed rest in singleton Pregnancies for preventing preterm birth* (Cochrane Review). In: the Cochrane Library, Issue 1, Cichester UK: John Wiley & Sons Ltd.

**Table 7: Quick reference guide for procedures prior to and during medevac of pregnant women with suspected / confirmed premature labour or premature rupture of membranes**

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**Always consult with the receiving physician. The care plan will be based on many factors including, but not limited to, the most accurate gestational age, membrane status, labour status and cervical dilation, parity, and obstetrical history.**

**Establish IV line; consider need for second line  
Avoid unnecessary digital exam in presence of suspected or confirmed rupture of membranes.**

**Tocolysis**

Discuss with physician the possible use of a tocolytic agent to attempt to halt contractions in order to facilitate timely transport to referral centre.

*indomethacin (only if < 32 weeks)* 100 mg PR prior to transport  
Consult with physician for subsequent doses if transport is delayed.

**Steroids**

Discuss with physician the possible use of steroids to accelerate fetal lung maturation, **only if <34 weeks.**

Preferred Drug:

*betamethasone 12 mg IM q 24 hrs x 2 doses*

*or alternately,*

*dexamethasone 6 mg IM q12h x 4 doses*

**Antibiotics**

Ensure Group B Strep antibiotic prophylaxis for all women with unknown or confirmed positive GBS status, regardless of gestational age or membrane status.

Preferred Drug:

*penicillin G 5 million units IV loading dose at least 4 hours prior to delivery, then 2.5 million units IV q4h until delivery*

*or alternately,*

*ampicillin 2g IV loading dose, then 1 g IV q4h until delivery*

If client allergic to penicillin:

*clindamycin 900mg IV q8h until delivery*

Consider antibiotics appropriate for chorioamnionitis for all women with ruptured membranes who present with fever, maternal or fetal tachycardia, uterine tenderness or irritability, or WBC changes.

*Consult physician for choice of antibiotics.*

Consider antepartum antibiotics for all women with ruptured membranes prior to 34 weeks, regardless of clinical presentation.

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## Premature Rupture of Membranes

### Definition

Rupture of membranes is considered premature if it occurs more than 1 hour before onset of labour. "Preterm premature" is premature rupture of membranes is rupture that occurs before 37 weeks of gestation.

### Causes

- Unknown
- Abdominal trauma
- Incompetence of cervix
- Uterine abnormality
- Hydramnios
- Multiple gestation
- Abnormal lie of fetus
- Placenta previa
- Viral or bacterial intrauterine infection
- Bacterial vaginal infection
- Previous cervical surgery
- Following amniocentesis
- Smoking and other lifestyle habits

### History

- Sudden gush of fluid or continuous trickle from vagina
- Fluid may be clear or colored as pale green, brownish, stained with blood
- Sometimes described as loss of control of bladder or wet panties
- Using pads for leakage
- No uterine contractions felt

### Prenatal History

- Assess (from history or from records) for vaginal group B streptococcus (GBS) status during pregnancy

### Physical Findings

- Cervical digital examination with ruptured membranes increases risk of chorioamnionitis. Therefore, evaluate cervix visually with sterile speculum. Avoid digital examination if possible, unless client is in labour and delivery is inevitable
- Fetal heart rate – evidence of bradycardia suspect cord prolapse.

- Vital signs
- Assess fundal height for consistency with dates
- Assess fetal engagement through abdominal wall
- Evaluate for uterine contractions
- Assess fluid leaking from vagina (color, odor, amount)
- Assess for bleeding from vagina
- Check for cord prolapse.

If rupture of membranes has been documented, a sterile vaginal examination should be performed with the following goal:

- Assess cervix for changes and signs of onset of labor

### Differential Diagnosis

- Loss of bladder control
- Premature labour
- Term labour

### Complications

- Intrauterine infection
- Preterm delivery
- Cord prolapse/compression

### Diagnostic Tests

- Amniotest –using sterile swab
- Urinalysis (routine, microscopic and culture)
- CBC and differential early on
- Ferning testing

### Management

#### **Goals of Treatment**

- Identify presence of amniotic fluid
- Prevent infection
- Develop appropriate care plan for medevac/ possible delivery

#### **Appropriate Consultation**

Consult a physician as soon as possible if you suspect this diagnosis.

#### **Nonpharmacologic Interventions**

- Bed rest
- Diet as tolerated
- Encourage ample fluid intake po
- Change sanitary pad at least q2h

- Shower rather than bath.
- Pericare appropriate
- Change maternal position (left lateral or right lateral recumbent) that optimizes FHR.
- Knee chest position. If cord prolapse is confirmed, maintain knee-chest position and apply digital pressure on presenting part, holding it away from the cord, up and out of the pelvis, normally until the client reaches the OR. (Consult with a physician and medevac team re assignment of responsibility during transport)

Or

- Knee chest position: alternate method – using an indwelling Foley catheter, fill the bladder with 500 ml normal saline. This will keep the presenting part away from the cord.

### **Pharmacologic Interventions**

#### *Antibiotics*

Discuss with a physician the need for prophylactic antibiotics depending on vaginal GBS status and clinical presentation (i.e. febrile or not, in labor or not)

#### *Steroids*

If transport is delayed and gestational age is less than 34 weeks, discuss with a physician the role of corticosteroids in fostering fetal lung maturation. Refer to “*Preterm Labour*” in this chapter.

### **Monitoring and Follow-Up**

- Monitor for development of labour or infection
- Monitor vital signs, including temperature, q2h
- Monitor fetal heart rate q2h if not in labour (q15min if in labor)
- Monitor quantity of fluid loss pv
- Monitor vaginal loss for foul-smelling discharge
- Monitor fundus for development of tenderness

### **Referral**

Medevac as soon as possible.

### **Reference**

ALARM –13<sup>th</sup> Edition 2006.

## Postpartum Hemorrhage

### Definition

Postpartum hemorrhage (PPH) is typically classified as primary or secondary (Table 8). Blood loss > 500 mL after spontaneous vaginal delivery and >1000 mL after instrumental or operative delivery. Therefore, clinical experience is necessary to determine when bleeding is occurring too rapidly or at the wrong time or is unresponsive to appropriate treatment. Any post partum blood loss that leads to hemodynamic instability is to be treated as hemorrhage. Blood loss will be less well tolerated if the client has low hemoglobin (anemia) or has not had the normal expansion of blood volume during pregnancy, as in cases of hypertension with proteinuria.

### Complications

- Anemia
- Hypotension
- Hypovolemic shock
- Secondary infection
- Sepsis
- Maternal death

### Diagnostic Tests

Serial or follow up CBC

### Management

#### Goals of Treatment

- Replace blood losses
- Stimulate uterus to contract
- Prevent hypovolemic shock

*See protocol for managing hypovolemic shock, under "Shock," in chapter 14, "General Emergencies and Major Trauma."*

#### Appropriate Consultation

Consult a physician as soon as possible.

#### Nonpharmacologic Interventions

- Nothing by mouth
- Bed rest, warmth, supportive measures
- Trendelenburg position if client is in hypovolemic shock (this may cause pooling of blood in uterus, but it is helpful)

- Massage fundus manually to stimulate uterine contraction. Be cautious not to over-massage.
- Insert Foley catheter (bladder distension can prevent effective contraction of uterus)
- Bimanual compression may be necessary if bleeding uncontrolled with all other interventions: capture uterus between both hands (one hand in vagina, one hand on fundus) and exert firm pressure

#### Adjuvant Therapy

- Oxygen to keep oxygen saturation  $\geq 97\%$
- Start at least 2 large-bore (14- or 16-gauge) IV lines with normal saline
- Aggressive fluid resuscitation as necessary for hemodynamic stabilization
- Give 20 mL/kg IV fluids as a bolus over 15 minutes
- Reassess for signs of shock
- Repeat 20 mL/kg boluses of IV fluids until systolic blood pressure stabilizes at >90 mm Hg
- Treat to achieve a good hemodynamic response

#### Pharmacologic Interventions

Assist uterine contraction:

*oxytocin (D class drug), 10 units IM or 5 units IV push stat*

*then:*

*oxytocin (D class drug), 20 units in 1 L normal saline IV fluid infused rapidly*

Bolus oxytocin can cause transient hypotension then hypertension.

Consult physician for further management.

#### Monitoring and Follow-up

- Monitor vital signs and general condition frequently until stable
- Monitor intake and hourly urine output
- Aim for urine output of about 50 mL/h

#### Referral

Medevac as soon as possible. Surgical intervention may be required.

#### Reference

ALARM – PPH Chapter 2005

**Table 8: Definition, causes, history and physical findings for primary and secondary postpartum hemorrhage**

Primary	Secondary
<p><b>Definition</b> Blood loss &gt; 500 mL immediately after or within 24 hours of delivery</p> <p><b>Causes</b></p> <ul style="list-style-type: none"> <li>• TONE: Atonic uterus</li> <li>• TISSUE: Laceration of cervix, vagina, perineum,</li> <li>• TRAUMA: laceration, rupture, inversion</li> <li>• THROMBIN: coagulopathy</li> <li>• Predisposing factors; prolonged labour, rapid labour, high parity, bladder distension, multiple gestation, partial separation of placenta, retained fragments, retained blood clots, antepartum hemorrhage, uterine inversion</li> </ul> <p><b>History</b></p> <ul style="list-style-type: none"> <li>• Presence of one of the above causes</li> <li>• Vaginal bleeding</li> <li>• Restlessness, anxiousness</li> <li>• Nausea and vomiting may develop</li> <li>• Note Rh status</li> </ul> <p><b>Physical Findings</b></p> <ul style="list-style-type: none"> <li>• Heart rate rapid</li> <li>• Blood pressure low or hypotensive</li> <li>• Postural blood pressure drop may be present</li> <li>• Acute distress possible (agitation from shock)</li> <li>• Client pale, possibly diaphoretic</li> <li>• Continued profuse bleeding after delivery</li> <li>• Placenta or membranes may be incomplete</li> <li>• Fundus above level of umbilicus</li> <li>• Uterus soft, boggy</li> </ul>	<p>Blood loss &gt; 500 mL per vagina 24 hours to 6 weeks postpartum (usually occurs between 10<sup>th</sup> and 14<sup>th</sup> day)</p> <ul style="list-style-type: none"> <li>• Retained placental fragments</li> <li>• Endometritis</li> </ul> <ul style="list-style-type: none"> <li>• Persistent bright red lochia or large or small amount</li> <li>• Lochia may have returned to normal</li> <li>• Client presents with sudden, severe, bright red bleeding</li> <li>• Passage of clots and tissue</li> <li>• Fatigue and dizziness may be present (if bleeding is slow, continuous)</li> <li>• Symptoms of shock may be present (if bleeding is sudden, acute)</li> <li>• Foul discharge and fever may be present (if there is a secondary infection)</li> </ul> <ul style="list-style-type: none"> <li>• Temperature may be elevated</li> <li>• Heart rate rapid; may be weak, thready (if client is in shock)</li> <li>• Blood pressure low to hypotensive (if client is in shock)</li> <li>• Postural blood pressure drop may be present (early sign of impending shock)</li> <li>• Client in moderate to severe distress</li> <li>• Bright red bleeding per vagina</li> <li>• Purulent or foul-smelling discharge may be present (if there is an infection)</li> <li>• Fundus can be visible or palpated high in abdomen</li> <li>• Fundus may be soft</li> <li>• Tenderness may be present (secondary infection)</li> <li>• Pelvic examination: cervical os open, bright red bleeding from os, tissue may be present in os</li> </ul>

# Unplanned Delivery of a Term Pregnancy in the Health Centre

## History

- Lightening within past 2 weeks (usually only in primigravida)
- Frequency of micturition increased
- Easier breathing
- Greater difficulty walking
- Braxton-Hicks contractions occur from 16 weeks onwards but may have become more noticeable to the woman in the past few weeks.
- Passage of red mucus-like material per vagina ("bloody show")
- Fluid gush (may be described as loss of bladder control but possibly amniotic fluid)
- Onset of painful, rhythmic uterine contractions, increasing in length, strength and frequency
- Contractions may be felt in back and low in abdomen
- Record time of onset, frequency and duration of contractions
- No history of pregnancy (concealed pregnancy)

## Physical Findings and Initial Monitoring

- Baseline TPR
- Heart rate increased
- Blood pressure may be mildly elevated
- Fetal heart rate 110-160 bpm; determine location of heart tones
- Abdominal contour changes with contraction
- Bloody mucus may be seen on perineum
- Assess length, strength and frequency of contractions
- Palpate to assess fetal lie, presentation and engagement of fetal head
- Assess rupture of membranes (e.g. amniotest)
- Perform vaginal examination (using sterile technique if ruptured membranes): assess

effacement and dilatation of cervix, presentation and descent of presenting part

- Monitor fetal heart rate before and after a contraction for a full minute

## Diagnostic Tests

- Urinalysis: routine; measure for glucose, ketones and proteinuria
- If poor or no prenatal care consider hemoglobin and random blood glucose

## Management

### Goals of Treatment

- Ensure maternal and fetal well-being
- Delivery of healthy baby
- Delivery in supportive environment.

### Appropriate Consultation

\*Consult a physician to arrange transfer to hospital for delivery where possible.

### Adjuvant Therapy

Consider saline lock, use fluid only if dehydrated or complications arise. If transferring, will need IV access.

### Nonpharmacologic Interventions

If possible, have family member(s) or friend(s) stay with client during labour, at client's discretion

- Assist and encourage client with breathing and relaxation techniques in response to client's needs.
- Ensure adequate nutrition and hydration status during labour as per client (PO or IV)
- Supportive comfort measures

### Monitoring and Follow-Up

- Monitor progress of labour
- Monitor contractions, maternal vital signs and fetal heart rate hourly in early labour, more frequently as delivery nears

- Fetal heart rate (FHR) should be monitored before and after a contraction every 15-30 minutes during the active first stage of labour and after every push in the second stage (Fetal Health Surveillance in Labour SOGC, Bodell's book) as per facility policy.
- Perform vaginal exams to assess effacement and cervical dilatation (in normal labour these should not be more often than 4 hourly, unless there is a clinical indication to do otherwise)
- Observe colour of liquor, if ruptured membranes
- Estimated length of time required for evacuation
- If there is a possibility of the client delivering en route, keep client at Health Centre and deliver baby there
- Reassess client upon arrival of transport team.

### ***When Delivery Is Imminent***

Ensure second health care professional present.  
Prepare delivery equipment, resuscitation equipment and incubator.

### *Care during Delivery*

### ***Progression of Normal Labour***

- Plot progress on partogram
- It is important for FHR to return to normal rate if it decelerates with a contraction. To encourage this, change client's position, turn on left side if lying down. Encourage the client to walk or remain upright throughout labour.

In a primigravida (rule of thumb):

- Cervix will efface first, then dilate
- Dilatation progresses at about 1 cm every hour
- Full dilatation on average takes approximately 10-12 hours.
- Once full dilatation is achieved, delivery of baby may take 1-2 hours
- Unplanned labours in a community often happen much faster than stated above. Be prepared.

In a multigravida:

- Effacement and dilatation are extremely variable, but usually occur together
- Time to delivery of baby is also extremely variable

### ***Referral***

When considering evacuation of a client in labour the following factors should be considered:

- Progress of labour
- Stage of dilatation
- Parity

- Control delivery of head, stop client pushing and let head come out naturally
- Support perineum to prevent tears
- Once head is delivered, check for presence of cord around neck
- If cord is wrapped around neck, gently slip a finger under cord and gently pull it over head
- If cord is tightly around neck, insert two fingers under cord, using two 3" straight artery forceps (or whatever available) to clamp cord, cut between clamps and unwind cord from neck.
- Wipe face clear of secretions
- Guide anterior shoulder out under symphysis pubis, and deliver posterior shoulder through the curve of Carus--do not pull on baby
- Body will slip out quickly without much assistance from practitioner

### *Care after Baby is Delivered*

- Clamp cord in two places, and cut between clamps after cord stops pulsating
- Dry baby and wrap
- Keep baby warm and ensure that respiration is established
- Assess Apgar scores at 1 and 5 minutes
- Give baby to mother (unless problems identified)
- Obtain 20-mL sample of cord blood
- Assessment and care of newborn according to NWT Newborn Record Form

*Delivery of Placenta*

Wait for delivery of placenta (can take up to 30 minutes).

Look for signs of placental separation:

- Client may state she feels another contraction
- Cord will lengthen
- A gush of blood may occur
- Uterus may be seen to tighten with a contraction
- **Do not pull on the cord to hasten delivery** unless you are sure placenta has separated.

Once the placenta has separated:

- If the woman is lying/semi-recumbent in bed, place one hand on abdomen, just above symphysis and hold uterus back.
- Hold cord and guide placenta downwards and out, following the curve of Carus
- Alternatively, when you think the placenta has separated, have the woman stand, kneel or squat depending on her condition and ask her to either gently push or “cough” the placenta out. If you do this, you **MUST NOT** pull on the cord at all, but you may gently guide the placenta out, following the curve of Carus. If you have difficulty with the placenta and the woman’s vital signs are completely normal, with no evidence of bleeding per vaginam, this is a good way to get the placenta out, as it is usually just sitting in the vagina waiting to “fall” out.
- To aid in the deliver in the after coming membranes, rotate placenta gently as you withdraw the membranes.
- If having difficulty, consult at earliest opportunity, preferably on speaker phone, stay with patient
- Examine placenta and membranes for completeness
- Do not give oxytocin until placenta has been delivered.
- Total blood lose is about 500 ml. If greater, refer to post partum hemorrhage topic. Some women may be negatively affected by a smaller blood loss.

*After Delivery of Placenta*

- Palpate uterus to ensure it is firm
- If uterus is boggy massage fundus of uterus, which is top – not front - of uterus, until firm
- Examine perineum for tears

**Pharmacologic Interventions**

Administer oxytocin to promote contraction of uterus after delivery of the placenta:

*oxytocin (D class drug), 5-10 units IM*

*or*

*5 units IV push*

*and/or*

*oxytocin (D class drug), 10-20 units in a 1-L bag of Ringer's lactate IV at 100-150 mL/h*

**Postpartum Monitoring**

- Monitor vaginal blood loss, uterine firmness and vital signs every 15 minutes during the first hour, then monitor every 30 minutes for 2 hours if mother is not up and walking.
- If using more than one pad completely soaked, per hour, consult
- Examine and clean baby
- Encourage early ambulation if all vital signs normal

**Referral**

Consult with doctor to see if transfer warranted. Transfer mother and baby to hospital if necessary. If delivery has occurred without complications and baby has no problems at birth and is term (37-42 weeks) there is no valid clinical reason for sending Mum and Baby to hospital. There may be staffing reasons i.e. not enough staff to observe Mum and baby for a few hours. Following normal birth Mum and Baby may return home after approximately 6 hours, or at Mum’s discretion.

**Documentation**

If baby is born in Health Centre complete Registration of Live Birth, Labour and Delivery Summary and Newborn Record and any other pertinent documents

**References**

[www.sogc.org/guidelines/public/112E-CPG1-March2002.pdf](http://www.sogc.org/guidelines/public/112E-CPG1-March2002.pdf) (Fetal Health Surveillance in Labour (Part 1))

[www.sogc.org/guidelines/public.112E-CPG1-April2002.pdf](http://www.sogc.org/guidelines/public.112E-CPG1-April2002.pdf) (Fetal Health Surveillance in Labour Part 2)

Obstetric Guideline 6A, Intermittent Auscultation in Labour-

[www.rcp.gov.bc.ca/guidelines/Obstetrics](http://www.rcp.gov.bc.ca/guidelines/Obstetrics)