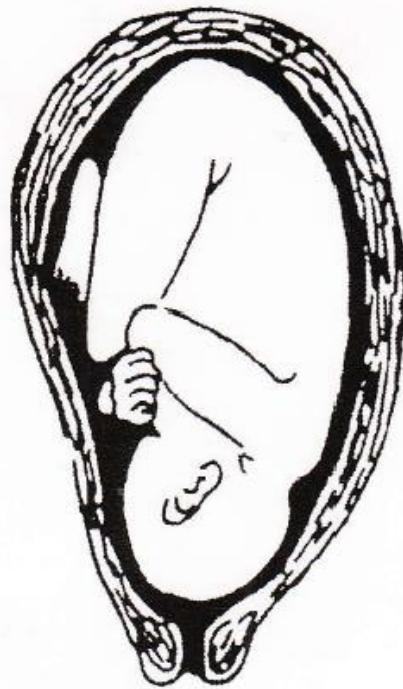




# **Manual of Standard Managements in Obstetrics and Gynaecology for Doctors, HEOs and Nurses in Papua New Guinea**



**7th Edition 2016, with minor edits in 2018**

**(Reprinted in 2021)**

## **TALK TO THE MOTHER**

- Always tell her about her problem and its management.
- Tell her about healthy diet and safe sex.
- Discuss family planning with her & the importance of breast feeding.
- Tell her to bring her record book/clinic card whenever she comes for antenatal care or attends OPD for an illness.

### **FAMILY PLANNING** (See page 82 of this manual)

- Every woman and couple need to use family planning
- Some women can rely on abstinence to avoid getting pregnant; however, most require assistance to select other methods.
- When women have had sufficient children or when they reach para 3, they should be offered tubal ligation so as to avoid the dangerous problems of becoming a grand multipara. Some women or couples may request tubal ligation or vasectomy when they have fewer than 3 children.
- Family planning is about making sure that the mother, children and father are in good health and well-being. A good and strong family is promoted when:
  - The total number of children is fewer than 5
  - The spacing of children is more than 2 years
  - Mother's age is >20 and < 35 years.
  - Parents have a regular source of money & other resources
  - All children complete their education.
  - Children are well cared for, trained and disciplined by loving and caring parents.

# Manual of Standard Managements in Obstetrics and Gynaecology for Doctors, HEOs and Nurses in Papua New Guinea

Seventh Edition  
2016

Reprinted in 2018 with minor amendments

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# INTRODUCTION

Books on Standard Treatments are of utmost importance to our health workers and people for they ensure the most efficient and best possible medical service for our country.

Standard treatment regimens should be used in all cases unless there are specific professional reasons to do otherwise. The medical supply system as well as health worker training programmes are all linked.

To write such books requires considerable skill, insight into local problems and disease patterns, and effort. The Health Department thanks Professor Glen Mola and other members of the Papua New Guinea Society of Obstetrics and Gynaecology; the Department of Health is most grateful for their energy in doing this important task.

The review working group for the 7th edition comprised Drs Glen Mola, AB Amoa, Mary Bagita, Ligo Augerea, Lahui Geita, Miriam O'Connor, other senior Obstetricians and members of the O&G and Midwifery Societies of PNG. The input of the World Health Organization is also acknowledged.

Obstetrics and Gynaecology has been a leader in the field of medical and public health audit and I am pleased to see that public health and audit issues are emphasized in this updated O&G Standard Treatment Manual. This book should be seen as complementary to those in the other major medical disciplines of Paediatrics, Medicine, Surgery and Anaesthesia.

Mr. Pascoe Kase  
Secretary for Health

*Cover design by: **John Gras Atep***



## PREFACE TO THE SEVENTH EDITION

There are many new protocols in this 7th edition of the O&G Standard Treatment Manual - e.g. relating to the use of Misoprostol in the treatment of miscarriage and PPH. When you get your new edition of the STM please discard the previous editions and follow this one.

Since writing the first edition of this manual in 1986, there have been many developments in Obstetrics & Gynaecology in Papua New Guinea. We have a new National Health Plan 2010-2020. Five midwifery schools in the country have been set up, and since 2011, 500 new midwives have been trained. The School of Medicine and Health Sciences (UPNG) now graduates up to 55 new doctors annually and there are now doctors in many of the nation's major health centres and district hospitals. In addition, a specialist training program in rural medical practice has been established, and 250 new obstetrician gynaecologists have passed out of the MMed training program at the SMHS.

Ultrasound is available in most provinces, and doctors with wider obstetric experience are available in most provincial hospitals. On the other hand our radiotherapy unit (at the National Cancer centre situated at Angau hospital, and only refurbished and reopened in 2009) is still not able to provide the brachytherapy that is necessary to properly treat the commonest women's cancer, cervical cancer<sup>1</sup>.

The seventh edition of the manual contains many suggestions which have originated from members of the

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<sup>1</sup> Since the death of radiotherapist Dr John Nibblett in 2017 the Angau radiotherapy unit has been closed.

Papua New Guinea Society of Obstetrics and Gynaecology and Society of Midwives, and from experienced health workers working throughout the country. Should any members of the health team have any suggestions which they feel would make the manual more useful, please write to the Editor at Port Moresby General Hospital. It is planned that a new edition of the book will be published every five years.

The review and printing of the O&G Standard Treatment pocket book has been assisted by the National Department of Health and WHO.

*Professor Glen Mola School of Medicine & Health Sciences,  
UPNG*

## PREFACE TO THE FIRST EDITION

Papua New Guinea has been a world leader in establishing standard management manuals for health workers. The standard management books in paediatrics and adult medicine have been in use for many years: they have undoubtedly been instrumental in producing more effective management of patients in those areas.

This standard management manual in obstetrics and gynaecology has been produced by a committee of the Papua New Guinea Society of Obstetrics and Gynaecology comprising Dr Glen Mola, Dr Ed Miller and Professor Jill Everett. It was presented to the general meeting of the Society for comment in September 1986 and modified in the light of various comments and suggestions. Any further comments should be sent to Dr Glen Mola at Port Moresby General Hospital.

The management regimens in this book are simple and effective. It is recognised however, that sometimes doctors treating certain patients will use alternative management to those prescribed in this book. In these circumstances it is a good idea to make it clear to junior medical, nursing and para medical staff the reasons for varying standard treatment.

*Glen Mola*

*President PNG Society of Obstetrics & Gynaecology*

*December 1986*

## ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Clinic/card
APH	Antepartum Haemorrhage
ARM	Artificial Rupture of Membrane
ARTs	Antiretroviral drugs
AZT	Zidovudine (an antiretroviral drug)
BBA	Born before arrival
bd	twice daily
B/S	Blood slide (for malaria parasite examination)
CIN	Cervical intraepithelial neoplasia (a precursor to cancer of the cervix picked up on Pap smear)
CPD	Cephalo pelvic disproportion
CS	Caesarean Section: if low uterine segment, (L.S.C.S) or classical C.S.
Cx	Cervix
DIC	Disseminated Intravascular Coagulation.
dpm	drops per minute
DUB	Dysfunctional Uterine Bleeding
D/Saline	Dextrose 4.3% and Normal Saline
ECV	External Cephalic Version
EDD	Estimated Date of Delivery
EGA	Estimated Gestational Age - calculated from the EDD
EUA	Examination under Anaesthesia
FP	Family Planning

FunHt	Number of centimetres from the pubic bone to the upper point of the fundus.
GTT	Glucose Tolerance Test
GA	General Anaesthetic
HIV	Human Immunodeficiency virus
IDC	Indwelling catheter
I&D	Incision and drainage (of abscess)
IMI	Intra-muscular injection
IUGR	Intra uterine growth restriction
IV	Intravenously
LAP	Lower abdominal pain
LMP	First day of last menstrual period
MgSO <sub>4</sub>	Magnesium sulphate
MVA	Manual Vacuum Aspiration
OCP	Oral contraceptive pill
PICT	Provider initiated counselling and testing (for HIV)
PPH	Post-Partum Haemorrhage - measured blood loss greater than 500ml
PEP	Post exposure prophylaxis (anti-retroviral drugs given to those who have been exposed to HIV – eg. rape victims and needle stick injury cases)
PET	Pre-eclampsia
PID	Pelvic Inflammatory Disease
PMS	Pre-menstrual Syndrome
prn	as required
PPTCT	Prevention of parent to child transmission (of HIV)

PT	Pregnancy test
PV	per vaginum (from or into the vagina)
qid	6 hourly
STD/STI	Sexually Transmitted Disease/Infection
SRM	Spontaneous Rupture of the membranes
SCN	Special care nursery
TAH	Total Abdominal Hysterectomy
tds	8 hourly
TDI	Total Dose Imferon
TL	Tubal Ligation
VCT	Voluntary counselling and testing (for HIV)
VDRL	Blood test for Syphilis; nowadays usually done by RDT

## DEFINITIONS

**Gravidity (G):** Total number of pregnancies.

**Parity (P):** Number of prior deliveries with delivery of babies more than 22 weeks gestation or over 500g.

**Abortion (Ab):** Delivery of an embryo or fetus weighing less than 500g

**Stillborn (SB):** Baby born without a heartbeat and weighing over 500g.

**Perinatal Mortality (PNM):** Stillborns plus early neonatal deaths (first week of life) per 1000 births. The national perinatal mortality rate (PMR) for PNG calculated from the 2006 DHS was about 60/1000 births. With good quality antenatal and intrapartum care this should be reduced to around 20/1000.

**Neonatal death (NND):** Death of a baby within first 28 days of birth. Early NND is infant death during first week of life (7days).

**Maternal Mortality (MM):** Death of a woman whilst pregnant or within 42 days of delivery or termination of pregnancy, from any cause related to or aggravated by pregnancy or its management, but excluding deaths from incidental or accidental cause.

**Low Birth Weight (LBW):** Birth weight less than 2500g.

**Very Low Birth Weight (VLBW):** Birth weight less than 1500g.

**Extremely Low Birth Weight (ELBW):** Birth weight less than 1000g.



## DOs and DON'Ts

### DOs

1. DO counsel ALL women about family planning, especially when they bring their young children to the baby clinic.
2. DO book EVERY woman who comes to the Antenatal Clinic even if they are in the first trimester: this is the best time to get the dates right and treat infections and anaemia.
3. When a woman arrives with labor pains and she is less than 4cm dilated, DO start her on the partogram. Don't wait until she is 4cm to begin the partogram.
4. DO keep all your oxytocin and ergometrine in the vaccine fridge. DON'T say the vaccine fridge is only for vaccines. Don't lock up the Misoprostol in a cupboard; it needs to be available to all staff at all times to treat emergency cases.
5. DO a vaginal and speculum examination on all women who present with gynaecological symptoms

### DON'TS

6. DON'T tell women to stop family planning when they get sick or have symptoms. They should continue family planning and be referred to a doctor if you can't work out their problem.
7. DON'T send women away from the FP clinic if they have no kids, or are very young, or it is not the day you usually do family planning clinics. Family planning must be available for every person every day in every facility, and in every part of the hospital including wards and outpatients.

8. DON'T say to women in the antenatal clinic that everything is 'fine' or 'normal', and they are low risk therefore they can deliver at home. All women must come for a supervised birth.
9. DON'T give antibiotics to all women coming to deliver.
10. DON'T leave women in labour alone at any time.
11. DON'T send women home straight after birth; encourage them to stay in the health centre for at least 2 days post-partum to learn more about family planning, postpartum and infant care.

## **ABORTION or MISCARRIAGE**

If a sexually active woman who is not using any FP, and who usually has regular periods then has a period of amenorrhoea followed by variable amounts of PV bleeding +/- lower abdominal colicky pain, the most likely diagnosis is some kind of miscarriage.

Decide if the miscarriage is threatened, incomplete, septic, or a mole (page 132), and consider the differential diagnoses of ectopic (page 79) or DUB (page 69). Bleeding from a pregnancy before 20 weeks is classified as a miscarriage, after 20 weeks as an APH (page 18).

Always inquire whether any pregnancy was planned or not (ie. 'a mistake'): this information will assist you to give appropriate Family Planning advice to the woman.

### **Threatened Miscarriage**

is diagnosed if there is little bleeding and little or no pain; the cervical os is closed, and the size of the uterus corresponds to the dates. Check the cervix and vagina with a speculum to make sure that there is no cervical lesion or infection accounting for the small PV bleeding (eg. cervical and vaginal causes for PV bleeding, like polyp/cancer).

### **Management**

- a. Advise the patient for possible progression to incomplete miscarriage, ie. increasing bleeding, pain etc. (see below): therefore come back if the bleeding gets worse.

- b. An **ultrasound examination** (if available) can be helpful if it detects a live, intra-uterine pregnancy. If a pregnancy is seen in the uterus and there is no fetal heart movement

(Missed Abortion) or no fetus at all is seen in a relatively normal pregnancy sac (Blighted Ovum) she will go on to miscarry soon. In these circumstances it is better to evacuate the uterus either by insertion of vaginal misoprostol 4 tabs or D&C. A molar pregnancy can also be seen on ultrasound. If there is NO pregnancy sac seen in the uterus she may:

- Have an ectopic (page 79); (consider urine PT and culdocentesis),
- Not be pregnant; (check urine PT),
- Be less than 6 weeks pregnant; (if you think this is likely, review the scan again in 1-2 weeks).

## **Incomplete Miscarriage**

Diagnosed if there is heavy bleeding associated with cramping labor like lower abdominal pains and the cervix is softened and open (admits a finger or more), or tissue (fetus or membrane) is passed. However, pieces of pregnancy tissue are sometimes indistinguishable from a 'decidual cast' (which is sometimes passed when there is an ectopic pregnancy) and hyperplastic endometrium which can be passed when there is DUB (page 69).

## Management

1. If the patient is shocked resuscitate with IV N/Saline (or Hartmans solution)
2. Give ergometrine 0.25mg IM or IV. (Not oxytocin)
3. Quickly remove products of conception from the cervical os with sponge forceps: do NOT wait to get to theatre to do this. She will not stop bleeding if there is tissue stuck in the cervix.
4. In the health centre, evacuate ('clean out') the uterus either by inserting misoprostol 4 tabs into the rectum or high up into the vagina: in most cases this will evacuate the uterus in 24 hours. In the hospital setting all incomplete miscarriages should be evacuated as soon as possible: this can be done by MVA, insertion of vaginal misoprostol 4 tabs, or sharp curettage. This prevents blood loss and the possibility of infection getting in to cause septic abortion.
5. Analgesia for evacuation by sharp curettage: sedation with pethidine + diazepam or Ketamine anaesthesia can be used. If evacuation is to be effected by insertion of vaginal misoprostol or MVA no anaesthesia is necessary. (Send curettings for histology if there is any doubt about the diagnosis, ie. you think it might be DUB or Hydatidiform mole and not a miscarriage, see NB\* below).

## Paracervical block technique

If the cervix needs to be dilated for D&C (for diagnostic D&C for DUB/Cancer of the endometrium, or evacuation of a Missed Abortion etc.) good analgesia can be obtained by using a paracervical block. Inject 2-

3ml of 1% lignocaine where the cervix joins to the vaginal vault at 2, 4, 8 and 10 o'clock positions. The injection should be quite shallow, - ie. only 5mm deep. In more advanced gestations paracervical block should be performed using a modified technique, (see 'Retained Placenta' page196).

**(NB\*:** Occasionally an episode of dysfunctional uterine bleeding (DUB) is diagnosed as an abortion because of the history of amenorrhoea followed by a heavy painful period. The proper diagnosis may be apparent if a careful menstrual history for the past year is taken. DUB patients often have irregular periods: at D&C the cervix will be closed and firm, ie. not admit a Hegar 8 dilator without resistance. Also the pregnancy test will be negative).

**Septic Miscarriage** A diagnosis is made if there is an incomplete miscarriage associated with:

- Evidence of sepsis (fever, fast pulse, offensive PV discharge, uterine tenderness and abdominal pain),

If there is evidence of septic abortion you should always consider that there may have been interference with the pregnancy.

The patient may be more shocked than the reported or seen amount of blood loss would suggest, and there may be internal damage if sharp objects have been inserted.

## Treatment:

1. Resuscitate with IV fluids and/or blood if the patient is shocked.
2. Give ergometrine 0.25mg amp IV.
3. Give triple antibiotics IV for at least 24-48hrs. Crystapen 1mega unit qid, or Amoxicillin 500-1000mg tds; and Gentamycin 5mg/Kg daily IV OR IV metronidazole 500mg tds. Change to oral Antibioticss after 48hrs or fever has subsided: Amoxil 500mg tds + Tinidazole 1g bd, or metronidazole 500mg tds. Continue gentamycin IV or IM for 3-5 days.
4. Evacuate the uterus when the patient has been resuscitated & antibiotics commenced. You can use manual vacuum aspiration (MVA) or rectal misoprostol (insert 4 tabs) for this.
5. Consult an SMO if generalized peritonitis is present or the woman is very sick. With septic miscarriage cases, transfer for transfusion if Hb is less than 8g%.

*Always assist miscarriage and abortion cases with Family Planning before they discharge: after a miscarriage, a woman should not try and get pregnant again for at least 4-6 months. If she is pale, also supply Fefol sufficient for 1-2 months.*

## ANAEMIA IN PREGNANCY

Anaemia is the commonest medical problem associated with pregnancy in PNG, but this does not make it “normal”; it contributes to many maternal deaths. Its cause is usually multifactorial (ie. many causes). On the coast the prevalence of anaemia can be as high as 40-50% in women.

Definition: Hb level less than 10g/dl, (or when you do not have access to a laboratory), she appears very pale on clinical examination of the mucous membranes. (**Always** check the 4 sites: palms, conjunctivae, lower lip and nail beds.)

### **Anaemia Prophylaxis** (for all antenatal patients)

1. Ferrous sulphate (200mg) 1 tab daily and Folic acid 5mg (1 tablet) weekly or Fefol 1 daily. If you give higher doses of ferrous sulphate it often causes gastrointestinal side effects, eg. nausea, constipation, heart burn etc. (ferrous fumarate containing iron tabs cause less gastrointestinal side effects.)
2. Give standard treatment for malaria in areas where there is prevalence of malaria (page 124).

**Hb estimations** should be done at booking: (repeat if the woman becomes pale and one month later if she is anaemic at booking). If you are not able to do Hb tests, check for clinical signs of anaemia at every visit.



## **Treatment of established Anaemia (Hb less than 10g %)**

**All** should receive:

1. **Extra iron and folic acid, Fefol 1bd, or Folic acid** 5mg daily and Ferrous sulphate/fumarate 1 bd for several months. If the woman has healthy bone marrow she will be able to make 1-2 grams of Hb per fortnight: therefore most severely anaemic women will need to take Fefol for at least 2-3 months.
2. **Albendazole** 400mg stat. (4 tabs): if the woman uses an inside toilet Albendazole is probably not necessary, only give Albendazole after the 1<sup>st</sup> trimester
3. **A standard treatment course of malaria tablets:** (See new schedule for malaria in pregnancy, page 124)
4. If **blood transfusion** is required (see table below) only use packed cells. Each unit should run slowly, ie. over 4-6 hours. Give IV Frusemide 20 mg before each unit. Fefol, Folic acid, Albendazole and standard treatment for malaria will need to be given after the blood. Give Imferon if the woman is not able to take oral iron.
5. **Imferon** (See table on page 9 for advice on iron in pregnancy\*).

There is no advantage in giving Imferon to patients if they are able to take oral iron successfully. However, some women get very unpleasant gastrointestinal side effects from oral ferrous sulphate (this is why ferrous fumarate is better), and some women are simply unable to remember or capable of taking oral iron for long periods. Large doses of iron can be given by 'total' dose Imferon (TDI). The dose should be 25ml for <60kg women and 30mls for women >60Kg. (These doses of Imferon are less than those recommended in the paper which comes with the drug; however, it is better to give these smaller ie. partial doses, as you can then follow up with oral supplements of iron tabs as with all antenatals).

Give 12.5mg of Promethazine IV when the infusion is commenced. Use a test dose of 5mls in the flask of Normal Saline and run in 200mls over a few minutes to determine whether the patient is allergic to the drug. If no allergic reaction add the remainder of the dose to the flask and run it in over 4 hours. Record TDI in the record book at ANC.

**Imferon** can be given intramuscularly instead, but it is a very painful injection and can cause skin discoloration at the injection site in light skinned people. Do not give a second TDI within 12 months.

<b>Hb g%</b>	<b>&lt;36 weeks Pregnant</b>	<b>&gt;36 weeks Pregnant</b>	<b>Postnatal</b>
7-9	Oral ferrous Sulphate or Fefol 1 tab daily	TDI* or oral Fefol if the woman is sure to be faithful with a daily dose	Oral ferrous Sulphate or Fefol 1 daily for 1 month
5-7	Ferrous sulphate or Fefol 1 tab daily	TDI* and transfer to Hospital	Fefol 1 daily for 2 months
<5	Start treatment and transfer to hospital. Transfusion of packed cells may be necessary	Give TDI* and transfer to hospital Xmatch packed cells and hold for delivery time	Ferrous sulphate or Fefol 1 daily for 3 months

6. Emphasize spacing the next child to give the mother a chance to get strong again. Recommend Family Planning for those wanting more babies later, and TL or vasectomy for those who don't.
7. Give nutrition and diet education to the woman.

### **Anaemia Post-Partum**

1. Give Iron and Folic acid tablets (Fefol) for 1-3 months supply to take home and Albendazole 2 tabs stat.
2. Emphasize once again the importance of FP to space the next pregnancy by at least 3 years, or to have TL (or vasectomy) if the couple have had sufficient children.

## ANTENATAL CARE

All women should be encouraged to book **EARLY** for antenatal care. It is best if they book when they have missed 2–3 periods, but at least all women should be booked by the time the baby starts moving (quickening). In this way it is possible to get the dates right and to screen for disease (especially syphilis and HIV) and other problems before these cause any bad effects, and damage the pregnancy. Be alert to domestic violence in pregnancy: if you suspect it, ask specific pertinent questions.

**NEVER** send a mother away if she comes to the clinic to book. Even if the clinic is full or very busy, at least give her an antenatal card or 'Mama buk', record her dates and take blood for tests, - then she can come back on a less busy day to complete booking and get her test results.

In village clinics or other places where you may not have any private place to examine antenatals you should still book antenatal mothers. The obstetric history picks up many antenatal risk factors, and you can take blood for tests, give Tet. toxoid, counsel the mothers etc. even if there is no private examination room available.

Normal patients may be seen by a health worker monthly until 30 weeks, fortnightly until 38 weeks, then weekly to delivery. (In rural areas women must be seen whenever an MCH clinic takes place. Women with problems may need to be seen more often, and

completely normal women less often than the schedules given above.)

## **GIVE THE WOMAN HER ANTENATAL CARD TO LOOK AFTER**

Do **not** keep the card in the clinic box. The mother needs her antenatal card available to her at all times, and especially if she has a pregnancy problem or comes into labor. You cannot be sure when or where she will have her baby. This also encourages community and individual participation in their own medical care.

Mothers have been looking after baby books for many years: they are perfectly capable of looking after their own AN cards. It does not matter if the card gets a bit dirty or torn. Mama record books are also available in most provinces.

### **At the first visit:**

Ask the woman if this is a **planned pregnancy**, and if she has been using any FP. It is important to know this if you wish to have a good talk with her about family spacing or TL.

- a) Carefully record the medical and obstetric history, including 1<sup>st</sup> day of LMP, and date of Quickening or the date when she first felt fetal movements – how many weeks or months ago.
- b) Perform a physical examination, especially checking for signs of anaemia, abdominal scars, an enlarged spleen, fundal height in cms, size of uterus in gestation weeks (eg. 16/40), and heart

murmurs. Record all the above on the antenatal card. In some clinics a speculum examination is done at the first visit to exclude cancer of the cervix. [Speculum examination in pregnancy requires expertise; there is more physiological mucous present in pregnancy and it is important not to think normal mucous is an abnormal vaginal discharge – and then give unnecessary antibiotics. It is NOT possible to diagnose STIs on speculum examination.]

## **GETTING THE EDD RIGHT**

When you ask a woman for her LMP, never write down the first thing she says. Always follow up with another question like, “did you see your period on that month or did you miss it on that month?”

If 1<sup>st</sup> day of LMP is certain her EDD is 40 weeks later ie. add 7 days and 9 months to the 1st day of LMP = EDD. If LMP is uncertain (or if the fundal height is more than 3cm from what it should be, based on LMP), determine her EDD based on FunHt and quickening:

- At 12-13 weeks the uterus is just palpable above the symphysis pubis
- At 16 weeks the fundus is half-way to the umbilicus
- At 20 weeks the fundus is just at the umbilicus
- After 20 weeks and up to about 35 weeks, the Fundal Ht in cm equals the number of completed weeks (e.g. if the Fundal Ht is 23cm, the estimated gestational age (EGA) is 23 weeks and her EDD is 17 weeks later).

A good check of the gestation is the onset of fetal movements. Primigravidae usually begin to feel the baby move at 20-22 weeks and multips at 17-18 weeks; therefore one can add on 20 or 22 weeks (ie. about 5 months) to the date the fetal movements began to be felt to get the approx EDD.

- a) Check Hb for anaemia, rapid tests for syphilis and HIV (PPTCT program). If either test is +ve, take appropriate action, (commence **immediately** Benzathine Penicillin 2.4M units x 3 weekly doses (page 230) for both wife and husband to all Syphilis positives, and commence PPTCT counselling and treatment for all HIV +ves (page 96 - 104).
- b) Give tetanus immunization if she has never been immunized (most primigravidas- unless they were immunized as children), and a booster to those who have not had one in the past 5 years. [If she has never had the full series (e.g. in first pregnancy and has never been previously immunized for tetanus) she needs 3 doses, - one now and then after 1 and 4-6 months].
- c) In malarial and coastal areas give a treatment course of malaria tablets, - followed by prophylaxis (see Chapter on Malaria in Pregnancy: page 124).

## Family Planning Counselling

If she is para 3 or more, ASK if she would like to stop having babies after this pregnancy. If 'Yes', give her a

TL form to take to take home to discuss with husband. If a para 1 or 2 requests TL after delivery, counsel her carefully making sure she realizes that TL is permanent. Discuss other methods; but do not refuse if she still wants sterilization.

**Grandmultiparity is a dangerous condition, but small family size is a personal choice.**

It is not required by PNG law to get husbands to sign TL forms, but in many PNG families husbands feel that they are 'in charge'. Nowadays some women want to make their own decisions. So the best way of approaching the family consent issues for TL is to ask "Would you like your husband to support you by signing the TL form too, or do you want to sign it for yourself?"

If you do not have TL forms, just write on any piece of paper and give it to her to take home and then to bring to the hospital when she comes for delivery. You can also discuss vasectomy.

If you have given a TL form to a mother, at subsequent visits ask her what her husband said about "pasim bel". Follow up the TL form until it is pinned to her antenatal card. Invite the husband to the antenatal clinic to discuss TL if the woman indicates that the husband has queries or worries about TL.

Some husbands have wrong ideas about this little operation. Some husbands think that having a TL will stop a woman working in the garden. In fact TL is very safe. It does not stop you working in the garden and



does not have any side effects. TL can help you live longer, and successfully complete your family at the right time.

## **TELL THE MOTHER THE EXPECTED DUE DATE AND DISCUSS DELIVERY PLANS WITH HER**

Antenatal care just by itself is not very useful; every woman should try and have a supervised delivery in a health facility for safety.

- Discuss when she should move from the village to be close to the health centre or hospital if required
- Help her plan for transport out of hours should she go into labor: ask about village trucks, saving up money for the fare, next door neighbours, ask her to discuss the plan with her husband & get him involved – save money.

### **1. At every visit:**

- Record her EGA (calculated back from her EDD).
- Record her BP and weight. If the BP is over 140/90 admit or refer; (page164), pre-eclampsia). If there is no weight gain for more than a month in the 3<sup>rd</sup> trimester, this may indicate poor or deteriorating placental function.
- Record her FunHt in cm; (measure from the top of the symphysis pubis to the top of the fundus). Ideal growth is 1cm per week after 24 weeks. If the fundal height is greater than the dates this may indicate twins, a very big baby, polyhydramnios, diabetes or wrong

dates. A fundal height > 3cm less than the dates may indicate IUGR, oligohydramnios or wrong dates.

- Provide her with folic acid and iron tabs (Fefol) to take daily, (and Fansidar malaria prophylaxis if in a malarious area). Spend time to emphasize the importance of taking the medicine.

## **2. At 32 weeks and 36 weeks:**

Recheck Hb; if less than 10g at booking, or the woman appears pale (see Anaemia page 6).

## **3. At every visit after 35 weeks**

Determine the presentation and attempt ECV for transverse or breech if there is no placenta previa on USS (page 35). Refer to hospital if abnormal presentation persists after 36 weeks.

## **4. Referrals to hospitals**

As soon as diagnosed:

- APH (page 18) even if the bleeding is very small
- Suspected twins (page 213)
- Severe pre-eclampsia (page 164)
- Problems in labor.

## **5. At 36 - 38 weeks**

- Persistent breech, (see page 35)
- Previous Caesarean Section,

- Suspected severe anaemia or Hb <7g% (page 6)
  - Previous retained placenta or severe PPH.
  - TL post-partum: If a woman wants to have a TL post-partum, she should plan to go to hospital for delivery, followed by TL.
6. Discuss appropriate family planning to be used post-partum. Ideal birth spacing is no less than 3 years; some women may prefer longer spacing.
7. All antenatals need to be educated about 'danger signs' that require immediate referral to hospital, and include:
- Any bleeding (APH)
  - Severe headaches and or feeling very unwell
  - Loss of liquor (rupture of the membranes) and no contractions for 6-8 hours.

*Always try to get the TL form signed antenatally. Although TL can be performed most easily a day or so after birth, it can be done at any time. TL can be done at anytime, by an O&G trained doctor using laparoscope or by minilap.*

## ANTE-PARTUM HAEMORRHAGE (APH)

APH is vaginal bleeding after the 20th week of pregnancy. It may be caused by placenta praevia, placental separation (abruption) a cervical lesion or a heavy trichomonas vaginal infection.

If a woman has an APH, **never** do a digital PV examination before the onset of labor (*except in a fully equipped operating theatre, see below*).

**Management: (always take any bleeding after 20 weeks very seriously)**

1. Always admit a woman who has a history of ante-partum haemorrhage, even if the bleeding has now stopped and she appears quite well.
2. If the blood loss is small and the woman is quite well arrange transfer to the nearest hospital by the next available transport. Insert an IV line before transfer.
3. If the blood loss is heavy, or the patient is shocked, she needs resuscitation (refer to Emergency Obstetric Complication Wall Charts/Flip chart – see below), and arrange **urgent** transfer to hospital:
  - Put up an intravenous drip of Normal Saline or Hartmans solution: use large cannula for this.

- If the patient is shocked or the uterus is hard and tender and fetus dead (ie. severe abruption); run in 3 litres of Normal Saline as fast as possible. Check pulse and BP blood pressure every 15 minutes to determine response to IV fluids.
- Put in an IDC and monitor urine output every hour
- After resuscitation give pethidine 50-100mg IMI if in pain.
- Arrange urgent transfer to your provincial hospital and take Observation charts, ANC, resuscitation kit etc. with you. Make sure her husband and a wantok go with her to donate blood: mention the name of the guardians accompanying her in your referral letter so that the hospital doctor knows who to call upon to give blood

4. **In the provincial hospital** the management of the patient depends upon the cause of the APH, the gestation and condition of the baby, whether active bleeding continues or not, and the onset of spontaneous labor. Inspect the cervix using a speculum when the bleeding has stopped.

- i) If active bleeding continues, resuscitation must be continued with intravenous fluids. If more than 2 litres of Normal Saline have been

required to resuscitate, or if the patient is still shocked after being transferred, blood transfusion will be required.

- ii) If the uterus is hard and tender, the fetus dead and the patient shocked (indicating a severe **abruption of the placenta**), she will need urgent delivery (ARM and IOL) blood transfusion. Clotting problems/DIC can be diagnosed by putting some blood in a plain glass bottle or kidney dish and seeing how many minutes it takes to form a clot.

This is called the Clotting Time. Normal blood clots in less than 10 minutes.

- iii) If the blood fails to clot, the patient should receive two or more units of fresh frozen plasma. With a severe abruption of the placenta, the baby is usually dead and continuation of the pregnancy incurs the risk of worsening DIC and death.

## **Severe Abruption Management**

- a) Resuscitate the patient with Normal Saline as above
- b) Monitor urine output with an indwelling catheter
- c) Induce labor in the operating theatre (just in case a mistaken diagnosis has been made and a placenta praevia is present) by ARM and

oxytocin infusion. In severe abruption cases the ARM is urgent as it relieves the increased pressure in the uterus that can cause further separation of the placenta.

- d) Give IV Ergometrine after the birth of the baby and add 20 units of Syntocinon to iv flask to minimise blood loss. **PPH** is very common after delivery with abruption cases, therefore be ready for it (see page 157).
- e) Caesarean Section is rarely indicated in the management of abruption, and would only be considered for fetal indications when the fetus is viable (>34 weeks), still alive, and the cervix is very unfavourable (see *Bishops score page 81*). However, if you do a CS in the presence of DIC the mother will usually die from haemorrhage from every stitch and cut you make.

Therefore always **check the clotting time** before CS in the case of abruption. If it is prolonged (> 7 minutes) it would not be wise to perform CS for fetal distress because the mother could die from haemorrhage.

**If placenta praevia** is suspected because the bleeding is painless and the presenting part high or unstable; management depends upon the gestation of the baby and whether the bleeding is continuing or recurrent.

Where ultrasound facilities are available, a scan can help diagnose the presence of placenta praevia.

- a) If bleeding continues briskly after admission so that continuous blood transfusion is necessary then immediate CS delivery is indicated even if the fetus is very preterm. (Don't forget to inspect the cervix post-partum to exclude cancer of the cervix.)
- b) If bleeding settles at first but serious recurrent bleeding takes place (more than 200mls) and the head is entering the pelvis; take the patient to theatre when she is resuscitated, set up for EUA and CS. At EUA, if you can feel membranes through the os, then you should do ARM and induce labor with oxytocin drip, but if you feel placenta through the os you should do an emergency Caesarean instead.
- c) If there has only been spotting off and on, and the head is entering the pelvis, when she gets to 38 weeks take the patient to theatre set up for EUA or caesarean section as in (b) above. Induce labor with ARM and oxytocin drip if membrane is felt.

**Always have at least 2 units of blood cross-matched for EUA and CS in cases of suspected placenta praevia.**



**Bleeding at the time of the operation can be very severe with placenta praevia patients.**

If the bleeding is small and painless, inspect the cervix when the bleeding stops. Local causes can cause such spots of bleeding, such as:

- Trichomonas vaginitis often gives a pink blood stained discharge in pregnancy. On speculum examination you will see copious pink frothy discharge. (Treat with Tinidazole 4 tabs stat).
- Cervical polyp or cancer (twist off polyps with Sponge Forceps, - this procedure is quite painless. If the lesion on the cervix looks malignant, take a biopsy of it with Sponge forceps and send for Histology. A pregnant woman with Cancer of the Cervix needs to be delivered by C.S).
- Cervicitis can cause small contact bleeding in pregnancy. (Treat with Erythromycin 500mg tds for a week and Tinidazole 2g stat).

## AUGMENTATION (or Acceleration) OF LABOR

When progress of labor is slow because of poor\* contractions, the contractions can be strengthened by an oxytocin infusion and ARM. This is called 'Augmentation of Labor'. Once the diagnosis of true labor has been made the mother should be commenced on the partograph (see page 121). If labor is not progressing well, ie. she is crossing the action line on the Partograph, or the Latent phase of labor is going on for more than 8-12 hours and there is evidence of poor or deteriorating placental function, labor should be augmented or sped up. Slow labors cause both mother and baby to get tired and become distressed.

\* Poor contractions are those which come less than every 3 minutes & last less than 50 seconds, or contractions which are quite irregular. Do not 'measure' the strength of uterine contractions by the amount of noise a woman is making. Even with poor contractions a woman will become distressed in a prolonged labor.

### Indications for Augmentation of Labor

1. If the **latent phase** is prolonged.  
When a woman is in true labor (ie. the cervix is progressively effacing), but the Latent Phase is going on for more than 8-12 hours and there is evidence of poor or deteriorating placental function\*.

*[\* Evidence of poor or deteriorating placental function may be indicated by any of the following: post-term pregnancy, pre-eclampsia, bad obstetrical history, IUGR, oligohydramnios, static weight for more than a month in the third trimester.]*

2. In the **active phase** of the first stage of labor, poor contractions means that she will cross the action line on the partograph.

### **Management of slow progress in labor due to poor contractions**

- a) Do an ARM, give 600-800mls of N/Saline iv and wait for 2-3 hours for contractions to improve: (if the patient is HIV positive leave the membranes intact and augment labor with oxytocin infusion alone)
- b) If the contractions do not improve in 2-3 hours, put up an oxytocin infusion: 5u/litre. *(See page 108 for full description of management of the oxytocin infusion in labor.)*

### **Contraindications to the use of Oxytocin infusion**

1. **Suspected fetal distress** either manifested by a slow or decelerating fetal heart rate with contractions, the presence of heavy (+++) meconium or passage of any fresh (extra) meconium in labor.

2. **Malpresentation** such as breech or transverse lie.
3. Usually oxytocin is not used when there is **a scar in the uterus**, ie. previous CS. Occasionally an SMO may decide to augment contractions in previous CS mothers, but in these cases there must be an OT available for immediate use in case CS needs to be done urgently.
4. **No multipara should be augmented unless the case has been discussed with an obstetrician:** (this is because of the significant risk of uterine rupture). Great care must be taken to observe frequently that the contractions do not become too frequent/prolonged and that the fetal heart is satisfactory. There must be a contraction 'rest period' of at least 1 minute between contractions. Augmentation of primigravidas does not lead to uterine rupture, but it can cause fetal hypoxia and death if the contractions become excessive.

When the contractions become strong it is kind to give a dose of Pethidine to women being augmented with an oxytocin infusion.

**Women whose labor is being augmented with oxytocin need to be observed carefully every 30 minutes.** If the contractions are allowed to become too strong (ie. more frequent than 3 minutely or last longer than 60 seconds), then the baby can become distressed and die, or a multipara can rupture her uterus and die.

**If you are augmenting the contractions from late in the first stage or in the second stage of labor, the protocol below needs to be modified\* (see below for advice about commencing augmentation with Oxytocin at >8cm).**

### **Technique of Oxytocin Drip to strengthen labor pains:**

- i) Put up a Normal Saline drip: add 5 units of oxytocin to 1 litre.
- ii) Commence the drip rate at 20 dpm\* and increase by 10 dpm every 30 minutes until contractions are strong ie. coming every 2-3 minutes and lasting for 50-60 seconds. Do not exceed 60 dpm. Record ½ hourly observations of fetal heart and contractions for frequency, duration and strength – before increasing the drip rate.
- iii) Do a PV after 4 hours to assess progress. If there has been no significant dilatation after 4 hours of oxytocin drip **and** good strong contractions refer the patient, or perform CS. *(But do check that the drip has been properly managed, ie. it has not become blocked).*

If the contractions are still poor on 5 units of oxytocin in 1 litre at 60dpm, put 10 units in the next litre flask and continue to increase the drip rate from 40-60dpm until the contractions are

adequate: ie. frequency is one contraction every 3 min and duration of 50-60 seconds.

- iv) If at least 2cm of dilatation has occurred, continue with the drip for a further 4 hours. **Never use oxytocin to strengthen contractions in the Active Phase of labor for more than 8 hours.**
- v) If fetal distress develops at any time, or if the woman is not delivered within 8 hours, stop the oxytocin drip and perform C/S or vacuum extraction as appropriate.
- vi) If contractions become excessively strong (more than 2 minutely, or lasting for more than 65 seconds) stop the oxytocin drip, and change the flask to plain Normal Saline until the contractions slacken off, then recommence the oxytocin at 20 dpm and only increase up to a rate which produces normal (ie F=3 minutely, D=45-60 seconds) contractions.

**\*If** you are commencing Augmentation with oxytocin infusion from late in the first stage (ie. >8cm) or in the Second stage, you should commence the drip at 30dpm, plan to increase the drip rate every 10 minutes and re-check cervix dilatation and descent (PV exam) every half hour.

**Such a patient should be delivered in LESS than 3 hours.**

## **BREAST FEEDING & INDUCTION OF LACTATION**

### **BENEFITS OF BREASTFEEDING**

- It saves lives.
- Provides optimum nutrition for growth and development.
- Content of the milk adapts to baby's changing needs.
- Protects the baby against infections.
- Promotes a good relationship between mother and baby.
- Reduces risk of childhood asthma and eczema (skin problems) and in later life helps prevent diabetes.
- Encourages good childhood dental development, earlier speech development and is therefore associated with better performance in school.
- Assists the mother to maintain a healthy weight.
- Reduces risk of breast and ovarian cancers in mothers.
- Helps mother space her children

### **EFFECTIVE BREASTFEEDING DEPENDS ON**

- Consistent and accurate advice from health workers
- Personal and consistent positive support for the mother.
- Unrestricted breastfeeding on demand.
- Correct positioning of the baby at the breast.
- Correct attachment of the baby to the nipple.
- Fully emptying at least one breast at each feed.

- Avoidance of formula feed or water supplementation.

Practically, this means that a baby should be put to the breast within one hour of being born, should not receive anything else (no water) except breast milk for the first six months of life. Demand breast feeding should be promoted during the first six months of life. *[The latest PPTCT protocols recommend that all babies of HIV+ve mothers be exclusively breast fed to reduce transmission to the baby – see page 102]*

**Engorgement:** This is a very common problem. When this happens, help the mother to breast feed often. Express some milk before feeding to soften the breast. Apply a warm cloth to the breast during feeds to help with ‘let down’ of milk. Cold pack to the breast after feeding can relieve pain.

**Baby Friendly Hospital Initiative (BFHI)** – This UNICEF/WHO initiative recommends that every facility providing maternity and newborn care should follow 10 steps:

## **10 STEPS TO SUCCESSFUL BREASTFEEDING**

1. Have a written breastfeeding policy which is communicated to all staff.
2. Train all health staff in skills to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.



4. Help mothers initiate breastfeeding within an hour of birth; look for feeding cues (ie. drooling, sucking, head turning)
5. Show mothers how to breastfeed, and how to maintain lactation, even if they are separated from their infant (ie. baby in SCN).
6. Give newborn infants no food or drink other than breast milk unless medically indicated.
7. Practise rooming-in 24 hours a day (normal baby stays with mother at all times).
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (dummies) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups (eg. Susu Mamas), and refer mothers to them on discharge from the hospital.

**Put up a notice in your maternity ward that reads:**

*“This unit wishes to actively promote the Baby Friendly Hospital Initiative and all staff should make every effort to encourage exclusive breastfeeding in hospital and continue after discharge”.*

## INDUCTION & AUGMENTATION OF LACTATION:

**Induction of lactation** is appropriate for a woman who has not delivered recently and wishes to feed an adopted new born baby.

**Augmentation of lactation** applies to women who have been separated from their newborn babies (ie. baby has been in the SCN for some time), or re-establish her own baby on the breast after being artificially-fed for some time.

### Induction of lactation

1. Very important for the woman to have a very positive psychological desire to breast feed the baby and to believe that this is the very best infant feeding for her newly adopted baby. You will need to counsel the prospective adoptive mother about the critical importance of breast feeding (see *above – page 29*).
2. She should begin the treatment preferably when the biological mother goes into labor and be with her during the labor, providing support.
3. She begins taking the combined OCP (eg. Microgynon) double dose, ie. one hormone tablet twice daily for 10 days. (This helps to get the breast tissue to grow and get ready for lactation).
4. For the last 5 days of the above OCP regimen she should also take Maxolon 10mg tds and begin

breast feeding the baby too, ie. baby is about 5 days old now.

5. Breast feeding is best done in conjunction with the biological mother if possible, eg.
  - Adoptive mother puts the baby to each breast for 4-5 minutes each time before the biological mother breast feeds the baby (ie. when the baby is hungry); this should occur every 3-4 hours or so.

At the start, no milk will come from the adoptive mother's breasts. So after 4-5 minutes of sucking on each breast the baby is given to the biological mother to get satisfaction. After a few days, the adoptive mother will start producing milk and thereafter, the biological mother will feed the baby less and less.

6. Some new research shows that a supplemental supply line will help keep baby attached. This can be done with an infant naso-gastric tube taped beside the mother's nipple with the other end in a cup of EBM. It acts as a straw and then the baby sucks on the nipple the supply line allows milk to be drawn up by the baby who will continue to feed and thus stimulate the nipple more. The tube needs to be carefully washed between feeds.
7. If there is no biological mother to assist (ie. the mother has died or does not want to have anything to do with the baby), then, until the adoptive mother's milk begins to flow, the baby

will need to be artificially fed after sucking for 5 minutes on each breast every 3-4 hours.

8. The success rate for induction of lactation is 90% (*even if the mother has never had a baby*). Success rate is high if motivation is good and she persists for at least 2 weeks with the above regimen.

## **Augmentation of lactation**

1. The key to good lactation is frequent and effective sucking (ie. good positioning of baby on breast and attachment to nipple).
2. Keep on encouraging the mother to breast feed the baby even when there is obviously not much milk in the breasts to begin with. She must allow the baby to suck for 5+ minutes on each breast before supplementing.
3. Give her Maxolon (metaclopramide) 10mg or Largactil (chlorpromazine) 25mg tds for one week while she is re-establishing breast feeding.

## BREECH

With vaginal breech delivery there is a high risk of fetal death or brain damage if there is CPD; or if delivery is poorly managed and the head gets stuck.

Conditions that increase likelihood of a breech presentation being present when labor starts include:

1. Prematurity and fetal abnormalities
2. Grandmultips
3. Placenta praevia
4. Multiple pregnancy and Polyhydramnios

### **Management:**

1. Attempt External Cephalic Version (ECV) from 36 weeks onwards provided no contraindication (i.e. APH, ruptured membranes, twins, and severe pre-eclampsia). Previous caesarean section is only a relative contraindication to ECV. An ECV is often uncomfortable but should not cause mother severe pain. It is usually successful in about 60-70% of cases if performed by an experienced health worker.
2. If ECV fails after 37 weeks, transfer to hospital. In hospital a doctor will arrange a scan to check for risk factors, check the dates and attempt version again. Give a tablet each of Salbutamol 4mg and Diazepam 5mg, and allow the mother to rest quietly for one hour before the repeat version attempt.

If breech persists, consider whether it is safe for baby to deliver vaginally, or whether Caesarean should be done.

Breech with extended legs is the safest breech presentation for vaginal delivery; footling breech the most dangerous.

### 3. **Caesarean section may be a better option for delivery if:**

- Big baby (est fetal weight over 3.8kg - think carefully if the FunHt is >38cm), especially if footling presentation.
- Bad obstetric history (previous perinatal loss)
- Other obstetric abnormality requiring induction (e.g. pre-eclampsia, diabetes), or previous C.S
- Primigravida, particularly if nervous and anxious.

*But you should also take the social and demographic history of the woman into account (and also her own preference) when deciding whether to do a CS for a breech presentation. If the woman is very much against operation (you cannot force her), and if she is from a remote district and may not have access to ANC or supervised birth in the next pregnancy, a CS might be quite dangerous for her.*

### 4. **Breech Delivery**

Should be in a hospital where a CS can be done if necessary. Labor must be supervised by an

experienced doctor or midwife. Paediatrician should be present at the birth if possible. Talk the mother through the whole procedure and explain the procedure as you go.

1st stage     Observe progress using Partograph. Do PV when membranes rupture to detect cord prolapse (which is quite common with footling breech). If the action line is crossed it is advisable to do Caesarean.

**Oxytocin augmentation in the first stage and ARM can both lead to bad outcomes.**

2nd stage     Do not allow mother to push until vaginal examination has confirmed full dilatation of the cervix. If she can't stop pushing before full dilatation give IV Pethidine 50-75mg and have Naloxone available to give the baby after delivery.

At full dilatation if the breech fails to descend after 30 minutes of good pushing efforts, take her for a C.S.  
**Never pull on the breech.**

### **Breech Delivery procedure**

- Empty the bladder and put up in Lithotomy position as the breech starts to distend the perineum. Put 5 units of Oxytocin into the IV flask and run at 60dpm for remainder of the delivery process.
- Anaesthesia - local perineal infiltration.

- Put an IDC into the bladder.
- Episiotomy in ALL primigravidas (and some multips if the perineum is tight) when buttocks fully distend the perineum.
- Delivery of legs and trunk by maternal effort. DO NOT PULL on the breech, but guide the delivery so as to ensure the baby's back stays upwards.
- Look at the clock when umbilicus appears. Baby should be breathing air or oxygen within 5 minutes.
- Use Lovset's manoeuvre to assist delivery of arm (i.e. hold baby by pelvic bones and rotate trunk – by swinging the body of the baby up and over to the other side).
- Deliver head by gentle, controlled traction, keeping the head well flexed with your index and 4<sup>th</sup> (ring) fingers.
- Fingers on the maxilla (cheeks) and middle finger in the fetal mouth (*Mauriceau-Smellie-Veit manoeuvre*) to keep the head flexed.



## **What to do if the head of the breech gets stuck.**

1. Put a catheter into the bladder if not previously catheterized. Check that an episiotomy has been cut. Allow the baby to hang down. [Ask someone else to hold the baby].
2. Place your fist supra-pubically and locate the baby's head. As the next contraction starts push hard (lean with all your weight) on the baby's head to push it through the pelvis and cervix. [This will be very uncomfortable for the woman for a few seconds, - but it may be life-saving for her baby].

An assistant needs to be holding the baby and if possible to continue to perform the Mauriceau-Smellie-Veit manoeuvre to help complete the delivery.

## CAESAREAN SECTION

### Hints:

1. Wash abdomen with soap and water in the ward.
2. Do not shave the abdomen in the ward prior to going to theatre: this is associated with more wound infections post-op. Trim or shave pubic hair in the theatre if necessary. When transporting a woman to OT for CS, place a bag of iv fluid under her right buttock so that she is tilted to one side and cannot lie flat on her back.
3. Abdominal incision - a transverse suprapubic incision heals better, is associated with less post-op complications and is usually safer than a vertical subumbilical incision, but you should use the incision you are most confident with.
4. Before making your uterine incision, correct any **rotation** of the uterus and have an assistant hold it straight as you make your uterine incision.  
Don't try to make uterine incision too low: make it just below the junction of the upper and lower uterine segments.  
  
[If the lower segment is not wide enough, a lower segment vertical incision in the uterus is better than an inverted 'T' incision or classical incision]
5. For transverse lie, find foot, pull it out and deliver as a breech.

6. Give prophylactic antibiotics with induction of anaesthesia, prior to skin incision. In addition, 5 days of a broad spectrum antibiotic is wise if:
- Temp  $>37.5^{\circ}\text{C}$ , or membrane rupture  $>20$  hours
  - Diabetes
  - Operation time  $>60$  minutes
  - Break in aseptic technique, eg. hole in glove.
7. **Anaesthesia** for CS can be very dangerous. Make sure you resuscitate any shocked patient and stabilize severe PET/Eclamptic before giving anaesthesia. In a small centre where there is no trained person to give the anaesthetic, the options for the doctor having to give both anaesthesia and do the operation are limited. The safest methods in this situation are:
- a) **Local infiltration** of the skin with **L.A.**, followed by IV Pethidine, Diazepam +/- Ketamine.
  - b) Intravenous **Ketamine** should be combined with the local infiltration and sedation if the woman is still experiencing pain when you use local infiltration technique for CS.
  - c) **Spinal** produces good analgesia; however, special attention to the following points is required for its safe use for CS:
    - Give 700-900 ml of IV N.Saline or Hartmans just before putting in the spinal

anaesthetic: have a large gauge iv cannula in place to administer this,

- Have an assistant check the BP every 2 minutes for the first 15 minutes after putting in the spinal, and then every 10 min for the duration of the operation: have Ephedrine on hand and give 10mg aliquots if BP falls and fails to recover with fast IV fluid bolus.
- Place a sandbag or iv fluid bag under the right buttock to give a left lateral tilt to the patient so that the uterus does not lie on the vena cava and block venous return,
- Be prepared for emergency intubation and ventilation should the spinal block move up too high, or the BP drop and the patient stop breathing.
- Mother may drink when she feels like it after spinal, but nurse her flat for 12 hours to avoid 'spinal headache'. *[Spinal headache is not a problem if you use fine spinal needles; ie. gauge 25 or 26].*

*For further information concerning anaesthesia for CS refer to The Standard Management Manual in Anaesthetics for PNG or "Primary Anaesthesia" by Maurice King published by Oxford University Press.*

## Types of C/Section:

- a) **Lower segment** (LSCS): The standard procedure, which is associated with only a small risk of rupture in a subsequent pregnancy.
- b) **Classical** (including inverted T incisions): A dangerous operation because of the high risk of rupture in subsequent pregnancies. There are very few indications, but these may include:
  - 1. Obstructed transverse lie with ruptured membranes and fetus alive. (See page 144).
  - 2. Lower segment densely covered with adhesions from previous operation: ie. unable to locate bladder flap.
  - 3. Anterior placenta praevia if huge vessels visible in lower segment and no blood transfusion available.
  - 4. Occasionally it may be necessary to do a classical CS for shoulder presentation.

If you do have to do a classical CS, do a tubal ligation at the same time. (If you do a TL at the time of CS without prior sterilization consent because of medical problems, always make careful notes about the necessity for doing the TL in the patient's notes: eg. "Classical incision necessary because of anterior placenta praevia; very dangerous for mother to have further

pregnancy, therefore tubal ligation done." If TL has not been done after classical CS, advise the woman of risks of any pregnancy in future and give her a letter or health book with full details to show midwife and doctor when she is next pregnant.

***After a Classical CS, mother must have an elective CS and TL at 37 weeks gestation in the next pregnancy.***

**Write full details** and indications for all Caesarean Sections in the **baby book** and on a separate card or health record book for the woman to show MCH staff when she books in her next pregnancy.

### **Post-operative pain relief**

Add 100mg of pethidine in 1 litre infusion flasks post-operatively; this gives much better and more even pain relief than ordering bolus IMI doses of pethidine 6 hourly. The drip should run at the maintenance rate of 30 dpm. Pethidine infusions use less total amounts of pethidine. From 24-36 hours post-op you can stop pethidine drip and she can start taking oral Paracetamol plus a NSAID eg. Diclofenac HCL or Ibuprofen.

### **Pregnancy following Caesarean Section**

Once a CS, always deliver subsequent pregnancies in hospital. Two or more Caesareans, always a Caesarean, *(unless she arrives in the labor ward nearly fully dilated and about to deliver).*

## **One Previous CS**

Make decisions in ANC whether patient should have repeat Caesarean Section or Trial of scar. Make sure you know what kind of CS she had the first time (LUCS or Classical). Always offer previous CS mothers a TL antenatally. If the Trial of Scar fails in the middle of the night, and she needs a CS, it is often not possible to find the husband to discuss whether they want a TL with the repeat CS.

## **Indications for repeat elective Caesarean Section**

1. Previous Classical Caesarean Section (the repeat operation should be done at 37 weeks gestation).
2. Previous Caesarean Section for persistent indication (e.g. previous obstructed labor, proven CPD; (CPD is never 'proven' in a primigravida if the labor was not augmented with oxytocin infusion or the membranes remained intact).
3. Obstetric complication in this pregnancy - e.g. breech, severe PET, Diabetes needing induction of labor etc.
4. Two or more previous Caesarean Sections.

## **Trial of Scar (for vaginal delivery after previous CS)**

This should only be carried out in fully equipped hospital with theatre and blood available 24 hours a day.

1. X-match at onset of labor. Mention to the woman once again that the chance of the trial succeeding

is about 50/50, and should she want TL (if she needs a CS), ask the husband to support her by co-signing the TL form. If he is not around, she can sign herself.

2. Chart progress on the partograph. Do not use oxytocin to augment the contractions if action line is crossed, (unless the contractions are poor and the patient can be observed by an experienced doctor or midwife),
3. Watch for evidence of scar dehiscence:
  - Pain between contractions over lower part of uterus
  - Sometimes the contractions get less
  - Tenderness over uterine scar
  - Fetal distress develops
  - Vaginal bleeding or haematuria
  - Maternal shock (this is a late sign of uterine rupture).
4. Do not allow her to push for too long in the 2nd stage - assist with vacuum extraction if necessary.

## **PPH**

**NB1:** If PPH occurs, this could be due to rupture of the uterine scar and may need laparotomy. Explore the uterus if there is unexplained bleeding post-partum. Emphasize again the importance of hospital delivery with every pregnancy, and recommend TL.



## **TUBAL LIGATION**

**NB2:** If performing a woman's 2<sup>nd</sup> Caesarean or more, try and persuade her to have a tubal ligation. Best to get the TL form signed in the antenatal clinic well before the delivery date. If the TL is to be conditional upon the CS being necessary then write on the TL form "only if operation necessary", and get the husband to sign antenatally if she wants him to co-sign the TL form with her. Otherwise she can sign for herself.

## **SECONDARY PPH AFTER CS**

**NB3:** If a woman has bleeding several days AFTER her CS operation, this is probably due to infection of the uterine wound. In this situation do NOT do a D&C, as this is likely to make the bleeding worse.

Give IV antibiotics, Ergometrine and oxytocin drip and cross-match blood: she will need a hysterectomy should the bleeding not stop after resuscitation or if significant bleeding recurs.

## CANCER OF THE CERVIX & Management of CHRONIC PAIN

Invasive carcinoma of the cervix usually presents as follows:

- Irregular PV bleeding or post coital bleeding (the only relatively early sign)
- Offensive vaginal discharge
- Severe anaemia and/or cachexia
- Urinary symptoms, incontinence and lower abdominal pain are very late symptoms.

Whenever a woman has post-coital bleeding or bleeding between periods she needs an urgent speculum examination. If the cervix looks normal do VIA or a Pap smear. If there is a lesion on the cervix do VIA AND take a biopsy of the lesion. Pap smears of frank cancers may not be diagnostic because one may only obtain dead cells from the top of the cancer which the cytologist is not able to interpret properly. Therefore don't do Pap smears if cervix has a lesion that looks like cancer: biopsy it.

Whenever you have the opportunity to talk to young women, always mention post-coital bleeding and bleeding between the periods as an important reason to get a proper check of the cervix.

### Management:

- a) **Post coital bleeding:** treat with Doxycycline 100mg bd for 10 days, Tinidazole for 3 days or Metronidazole for 5 days orally &

Nystatin or chlortrimazole vaginal pessaries : do the VIA or Pap smear after treatment.

- b) **Obvious cancerous growth:** discuss the case with an SMO (O&G) or the radio-oncologist SMO at Angau Radiotherapy unit. The lesion will need to be biopsied to confirm the diagnosis (exclude Donovanosis etc.), and type the cancer (squamous cell 95%, adenocarcinoma 5%).
- c) Stage the cancer clinically. Always do a rectal exam to assess CaCx stage properly.

If possible the clinical staging procedure should be done under anaesthesia (EUA) and combined with cystoscopy to see whether bladder mucosa is involved.

Give a course of Metronidazole or Tinidazole before EUA.

## Staging of Cancer of the Cervix

- |          |  |
|----------|--|
| Stage 1  | Cancer confined to the cervix. May be amenable to radical Wertheims' hysterectomy, but can also be cured by radiotherapy.                |
| Stage 2a | Spread to upper 2/3 of the vagina. May be possible to remove by radical Wertheim's hysterectomy or can usually be cured by radiotherapy. |

- Stage 2b      Spread into the parametrium but not as far as the lateral pelvic wall. Can usually be cured by radiotherapy: Surgery no longer safe, and should not be attempted.
- Stage 3        Spread into the parametrium as far as lateral pelvic wall, or to lower 1/3 vagina. Will be helped by radiotherapy.
- Stage 4        Spread outside the pelvis or involving the bladder or rectum. Should probably not be sent for radiotherapy, but discuss the case with an SMO. Requires palliative care & pain relief (see below).

d) **Referral for Radiotherapy**

Perform Hb estimation, blood urea or creatinine, Chest X-ray and get biopsy result.

Discuss the case per phone with your nearest SMO (O&G), or with the radiotherapist (at Angau hospital in Lae) before sending the patient. Make a summary of all your findings in a referral letter.

If the Hb is less than 9gm% transfuse with packed cells before transfer for radiotherapy. However, do not repeatedly transfuse women with stage 4 cancer, or those with advanced stage 3 disease; this may hasten their demise. Allow them to die peacefully with adequate pain relief.

Should a woman wish to go to Brisbane or Townsville for radiotherapy the cost is about K40-45,000.00. The arrangements for transfer to the Queensland Radium Institute (QRI) will need to be made by an SMO: this will involve getting in touch with the Royal Brisbane Hospital and the Australian High Commission. She will need to have the money in the form of a bank cheque or a letter from her insurance company to say that they will pay for her expenses, before she will be able to obtain a medical visa to travel. Radiotherapy in some Asian centres is much cheaper:

Contact, [deepak@medicanservicecompany.com](mailto:deepak@medicanservicecompany.com) for a quotation.

#### **e) Surgery**

Some stage 1 & early stage 2a cancers are possible to remove by radical Wertheim's hysterectomy; all other cancers should be treated by radiotherapy except for those stage 4 cancers which are terminal. Do NOT perform simple hysterectomy for invasive cancer of the cervix; this will only spread the cancer and make subsequent application of radiotherapy more difficult and less efficacious.

### **Palliative Care and Pain Relief for advanced Cancer and those with chronic pain.**

1. Discuss the prognosis sympathetically with the patient and her trusted relatives.

2. Always emphasize that it is possible to relieve pain even when the disease is advanced.
3. If there is infection present (woman feels unwell, febrile has pain in the pelvis), give a course of antibiotics, eg. Amoxil and Tinidazole.
4. Give analgesics regularly by the clock, - usually 4 hourly: the next dose should be given **before** the return of severe pain.
5. Increase the dose or order a stronger analgesic rather than decrease the dose interval.
6. Give **analgesia orally** as much as possible.
7. Treat and anticipate side effects: regular laxatives for constipation, antiemetics for nausea and vomiting.
8. Begin with Aspirin 600mg – 900mg 4-6 hourly: soluble forms eg. Aspro Clear is preferable. This can be combined with Paracetamol 500mg – 1g 6 hourly. For more severe pain, morphine (NOT Pethidine) should be used in combination with the aspirin or another NSAID eg. Ibuprofen or Diclofenac HCL or Indomethacin. Commence with oral Morphine 10mg orally 4-6 hourly and increase the dose up to 30mg as required. Only use imi morphine if you have no oral morphine available and the pain cannot be controlled on the oral analgesics you have available.

## **Screening for Cancer of the Cervix**

### **A. Papanicolaou Smear (Pap smear)**

In our pilot project (1993-2012) with 'Meripath,' we performed nearly 100,000 Pap smears; however, it was not possible to locate about 50% of those who were found to have high grade lesions. Many of those who could be located were not able to access adequate Gyn treatment for their high grade lesion. Pap smears are only useful if high grade lesions are properly treated. For these reasons Pap smears are not longer recommended for screening.

### **B. VIA or DNA testing and immediate cryotherapy for those who screen +ve. (available for women 30+ yrs)**

In the VIA screening system, the cervix is swabbed with acetic acid (ie. white vinegar). If any suspicious areas are seen (ie. areas that whiten after vinegar application) a cryo probe is applied to the cervix; this freezes the affected area and destroys the pre-cancerous lesion. DNA testing is a new technology which is simpler than VIA: it is being pilot tested in a number of sites around PNG (2018). Women who test DNA positive can receive immediate treatment with thermocoagulation.

VIA is being performed in Goroka and Mt Hagen hospitals. Any other provinces that wish to set up Cervical Cancer screening programs should plan for AAP funding in their next provincial health budget, and arrange to send a team of a doctor and nurse to Hagen or Goroka for training.

If a cervical biopsy indicates carcinoma in situ (CIN 3) and there is no invasion the case can be treated either with cone biopsy or simple total hysterectomy, depending upon the age, parity and desire of the woman for further children.



## DELIVERY (incl. Active Management of the 3<sup>rd</sup> Stage)

1. If the perineum is so tight that it is stopping the head of the baby from delivering, inject 5-10ml of 1% lignocaine and make a medio-lateral episiotomy.
2. Assist the head to deliver slowly by keeping the head flexed as it crowns. If the head crowns but the chin keeps receding back in between pushes, diagnose **Shoulder Dystocia**: this is an emergency (see page 200)
3. If the cord is around the baby's neck (as it is ~ 40% of the time) do NOT clamp/ divide it: you can usually pull it over the head of the baby or just wait until the next contraction when it will probably loosen as the baby delivers.
4. Do not suck out the baby's mouth and nose unless there is *thick* meconium (+++) present. (Routine neonatal care of the baby see p 136).
5. If the baby is vigorous (breaths and cries at birth), deliver the baby onto the abdomen of the mother and dry its skin thoroughly (do not routinely suck babies). Delay clamping of cord until it stops pulsating (1-3 minutes). (Only perform immediate cord clamping if the baby is flat at birth and in need of resuscitation, see below).

## Routine Management of the Third Stage:

1. Immediately after delivery exclude a second twin by abdominal palpation and give oxytocin<sup>2</sup> 10 units (drug of first choice). If there is no oxytocin in stock you could use:
  - a. Ergometrine<sup>2</sup> 0.5mg IMI, or
  - b. 3 Misoprostol<sup>3</sup> tablets PR (or orally)

If there is active bleeding ++ at this stage, see Management of PPH (page 158) and Retained Placenta (page 196)

2. If not bleeding ++: when the uterus has contracted again, apply controlled cord contraction (pull down steadily on the cord with one hand, and hold the uterus back with your other hand over the pubic bone) and wait for the placenta to come.... usually within 10-15 minutes.
3. After delivery of the placenta, rub up the fundus firmly to make it contract well and expel any blood clots. If PPH occurs, see page 157. (Do not rub the fundus before delivery of the placenta.)
4. Repair any episiotomy or perineal/vaginal tears with 2/0 or 0 Vicryl (or O-chromic if nil/short supply of Vicryl). Use only cloth or gauze swabs to wipe

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<sup>2</sup> Do **not** use Ergometrine in women with **raised BP, including those with PET**

<sup>3</sup> **Notes on the use of MISOPROSTOL in the routine management of the 3<sup>rd</sup> stage of Labor.**  
If you are not able to give IMI oxytocics (eg. village births or remote community health posts where there is no fridge to safely keep oxytocin and ergometrine) to help the uterus contract and minimize blood loss in the 3<sup>rd</sup> stage of labor, you can use Misoprostol tablets instead.  
- Give the mother 3 Misoprostol tablets to chew and swallow with a little water (or insert into the rectum for better and faster absorption) straight after the delivery of the baby.

away blood, **not** cotton wool). Once repair is complete:

- a. Check the vagina for any retained swabs and
- b. Do a PR to see if any stitches have penetrated the rectum: if so, take out the stitches and do repair again

5. Check the fundus, pv loss, BP, pulse and general condition of the woman every 15 minutes for the two hours after the birth then hourly for 4 hours, (page 154 for Postpartum Care).
6. Leave the well dried baby on the mother's chest (skin to skin) after the birth and until the baby has its first breast feed (within 30 minutes). Records can be filled out after that.

**NOTE:** oxytocin, ergometrine and syntometrine should **ALL BE STORED IN THE VACCINE FRIDGE**. They will be ineffective if left out of the fridge for long. Take vials you require from the fridge and keep in labor ward when you have patients in true labor.

Misoprostol does not require special storage conditions, but must **NOT** be locked up in the DD cupboard: it is not a narcotic and it needs to be available on the emergency trolley in labor ward at all times for staff to use.

**For the following delivery problems, consult a midwife, HEO or a doctor:**

1. If she develops
  - a) A tachycardia of more than 100, or respiratory rate of more than 20, consider hypovolaemic shock.
  - b) A fever over 37.0 (see Puerperal Fever page 182).
2. A higher risk woman in labor (always check for risk factors on the ANC).
3. Prolonged expulsive phase of the 2<sup>nd</sup> stage: multi pushing for more than 30 minutes and has not delivered the baby: primips can be permitted 60 minutes to push out baby (see page 217).
4. The placenta is:
  - a) Not delivered within 20-30 minutes, (See Retained Placenta, page 194).
  - b) Not complete when inspected after delivery.
5. The cord breaks and cannot be re-clamped (see Retained Placenta, page 194).
6. You must check the anal sphincter after delivery if there has been a 2<sup>nd</sup> degree peri tear or episiotomy. If there has been any involvement of the anal sphincter or rectum a doctor must be called to do the repair.

**If there is no Oxytocin or Ergometrine for injection available, or you are using Misoprostol tablets** for the management of the Third Stage, you should not use the standard management above but manage the third stage thus:

**If no bleeding:**

1. Wait for signs of separation (show, contraction of uterus, rising fundus & lengthening of the cord)
2. Apply very gentle CCT (when uterus has contracted)
3. Rub up the fundus when the placenta has delivered to ensure it is well contracted

If no signs of separation, and more than 15 minutes since delivery and not bleeding, you can try:

- Sitting her up
- Breast feeding
- Assist her to pass urine or pass a catheter if she can't pass urine and the bladder is full.

If placenta not delivered by 30 minutes, consult with the most senior person available (midwife/HEO/Doctor).

**POST PARTUM CARE** (see also page 153)

Post-partum mothers should be encouraged to stay in the health centre or hospital for 4-5 days post-partum because 70% of maternal deaths occur in labor, or in the days following delivery. If you allow mothers to go home early some will start bleeding again (and die from PPH), and others will get puerperal sepsis which is also very dangerous. PPH and puerperal sepsis are

the two common causes of maternal mortality in PNG and account for 60% of all maternal deaths.

Keeping the mother in the health centre post-partum for several days also gives you an opportunity to make sure that:

- Good lactation is established (*critical for the baby's survival*).
- Gives you time to counsel her about healthy baby care and care of herself post-partum including counselling.
- Getting her commitment to a specific method of Family Planning to commence 4-6 weeks post-partum; (Implants can be inserted immediately post-partum).
- The perineum is healing and the baby is well (see Neonatal Care, page 136).
- Neonatal sepsis is a common cause of neonatal death; usually the baby gets a fever on day 2-4 post partum.

### **Post-natal observations:**

- Check uterus for firmness frequently in the first 15 min
- Every 15 minutes for 2 hours; then hourly for 4 hours.
- Check her temperature bd for 3-4 days.

**For the following delivery and post-partum problems, CONSULT a midwife, HEO or doctor:**

- If she develops a fever over 37.0 axillary (see Puerperal Fever page 180).

- A high risk mother is in labor
- Prolonged 2<sup>nd</sup> stage: Multi pushing for more than 30 minutes, or Primi pushing for more than 60 minutes and has not delivered the baby
- Placenta is not delivered within 20 minutes, (See Retained Placenta, page 194)
- Placenta is not complete
- The cord breaks and cannot be re-clamped
- Bleeding of more than 500mls occurs (PPH, page 157): continuously massage the fundus, give IV Normal Saline to replace blood lost, also give IV ergometrine 0.5mg, oxytocin 10iu and Misoprostol 3 tabs into the rectum whilst waiting for senior staff to arrive.

In the treatment of established PPH, insert 3 tablets of Misoprostol into the rectum as well as giving the oxytocin, ergometrine etc. (see page 157). Replace blood loss with x 3 times volume of N/Saline; eg. 500mls blood loss, infuse fast 1.5L of N/Saline.

## DIABETES IN PREGNANCY

Diabetes in pregnancy needs referral to hospital for proper management. Many diabetics can be managed with diet, monitoring and doing proper exercise daily. Those requiring insulin injections may have to stay in hospital for the whole pregnancy, if they cannot learn to administer their own injections, or have no fridge in which to store the insulin amps at home.

Oral Metformin is a safe hypoglycaemic for use in pregnancy.

### **Risk factors which indicate possible Diabetes (GDM) and the need for testing the blood glucose:**

- Diabetes in a previous pregnancy or heavy glycosuria
- Family history of Diabetes
- Polyhydramnios or this fetus feels macrosomic
- Age over 34 years
- Obesity (more than 80 or 90Kg, - local definition): however, it is better to use BMI (Wt Kg/m<sup>2</sup>) as an indicator of obesity (BMI >30 is significant)
- A previous unexplained still birth or neonatal death
- A previous baby weighing over 4kg



- Comes from Marshall Lagoon, Central province coast, Tolai, Buka or some other risk genetic group
- Early onset pre-eclampsia, ie. rise in BP before 34 weeks gestation, or unexpected PET, ie. occurring in a multipara who has not had PET in previous pregnancies
- Eating a non-traditional diet since childhood (ie. rice, bread, sugar, lolly water and fats – tin meat, lamb flaps, fried food etc).

## Diagnosis of diabetes in pregnancy (GDM)

Women with diabetes in pregnancy often have relatively **normal fasting** blood sugars and no sugar in the urine; therefore these should not be used as basis for diagnosis. [However, if the fasting blood sugar is  $>5\text{mmol/l}$  you should suspect the woman might have diabetes and do a glucose profile].

Pregnancy Diabetes (GDM) is best diagnosed by testing the blood sugar after meals (post prandial): this is called a Glucose Profile: a GTT is not a good idea because if she is diabetic the big load of glucose will severely stress the fetus.

## Testing

Use glucometer testing if possible: venous samples are about  $1\text{mol/l}$  lower.

If the woman has GDM risk factors (see above) do a post prandial blood sugar test at 26+ weeks.

If the post prandial (1-2 hours after a normal meal) blood sugar test is  $>7\text{mmol/l}$  this is significant, and a full profile should be performed (ie. RBS after breakfast, lunch and dinner).

## OR

Do a GTT.

A 2-hour level of  $>8$  is diagnostic of GDM.

If a random blood sugar level is  $>11\text{mmol}$  at any time then there is no need to do a GTT for diagnosis, as the woman should be managed as Diabetic.

If you are not able to perform the above tests, another way to test a pregnant woman for GDM is to do a Glucose Challenge test: Have her drink a 500ml bottle of Coca cola or lolly water. If the blood sugar one hour later is over  $7\text{ mmol}$ , manage her as though she has Gestational Diabetes.

## Ways to diagnose Diabetes in Pregnancy (GDM)

Test	Glucose level mmol/l	Comments & Recommendation Levels for Diagnosis
Any RBS	$> 11$	Diagnostic, treat as diabetes
Glucose Profile	$> 7$	Levels persistently up 1-2 hours after each meal indicates GDM
GTT	$>8$ at 2 hours	This is a diagnostic level
Coco-Cola (500ml) challenge test	$> 7$ at 1 hour	this level indicates need to treat as GDM

## Management

The outcome for both mother and baby depend a lot on control of blood sugar during pregnancy.

1. Instruct her to limit her weight gain to no more than 1kg per month by doing regular **exercise every day**.
2. **Diet:** Garden food and fresh fish is best diet for diabetics. Stop eating all sugar, sweet foods and lollies water/cordial or fruit juices. Avoid fatty foods, like coconut cream, lamb flaps, fried foods, takeaways like Big Rooster or 'fish-and- chips'. Also avoid refined carbohydrates like white bread and rice and biscuits and noodles.

In summary: only drink water and eat garden food, and exercise at least before or after every meal.

3. **After one week on the diet**, repeat the Glucose Profile, ie. check a fasting blood sugar and blood sugar level between one and two hours after her main meal of the day. If the fasting level is now less than 6 mmol and her post prandial levels (1-2 hours after her meal) are generally less than 8mmol, then she does **not** need medicine. The fasting levels and after-meal levels should be repeated at 2-3 weekly intervals because glucose tolerance usually deteriorates as pregnancy progresses. She should continue her diet at least until delivery

4. If after one week on the diet, the post-prandial (ie. 1-2 hours after meals) blood glucose checks are more than 8mmol, **she needs medicine**, but she must also continue her diet (above) and exercise too,
- Admit her
  - Start her on **Metformin** 500mg bd, and the next day recheck the Glucose Profile. If the post prandial levels are still above 8 increase the dose of Metformin to 1g bd and then up to maximum of 1g tds to achieve post prandial levels of < 8mmol/l. If Metformin fails to control her blood sugar she will need Insulin as well.

If the blood glucose is not adequately controlled on diet, exercise and max. dose of **Metformin (1g tds)**, **add** Actrapid insulin with each meal and Isophane insulin at 10pm each night. The usual starting dose is 10 units with each meal and 10 units at 10pm. Do not stop metformin when starting insulin: the two can be given together. Recheck the Glucose profile after commencing the Insulin to see if the patient needs more than this dose. If the levels are still more than 8 mmol, then increase the Insulin dose in increments of 5 units. Check the post-prandial levels again each time you increase the Insulin dose to see if the new dose is controlling the glucose levels.

5. Induce labor at 38-40 weeks if the dates are reliable. If the cervix is not ripe it will be necessary to ripen it with Misoprostol (see page 109).

6. When the baby is born, it may develop dangerous hypoglycaemia. Early initiation of breast feeding is very important for babies of GDM mothers. If the baby is too tired to breast feed or mother does not have any breast milk commence 2 hourly feeds with 10% dextrose starting at one hour of age (15ml for babies above 2kg, 25ml for 3kg, 30ml for 4kg). If the baby is not able to take this by cup and spoon use an NG tube or IV dextrose drip. After 12 hours of age, 3 hourly breast feeding may be sufficient, but watch carefully for 3 days to make sure the baby is not too tired to breastfeed well.

Check the baby's blood sugar every 2-3 hours after birth to make sure baby is not getting hypoglycaemic: continue supplements of Dextrose 10% hourly if the blood sugar level is  $<2.5\text{mmol}$ .

**The above management should also be given to all macrosomic babies even if the mother is not diabetic.**

7. After delivery stop the mother's insulin, but check a fasting blood sugar after 1 week to detect a chronic need for diabetes medicine, ie. she may have true Diabetes sickness and need lifelong treatment.
8. Encourage mother to have TL as soon as she has sufficient children. (Diabetics are much more likely to have many pregnancy complications and it is

best to limit the family size to 2 or 3, for safety's sake.)

If the woman wants to have more children, encourage her to space her children with reliable FP (eg. Depo-Provera, Implant or IUD). Warn her to book early in any pregnancy and inform the nurses in the ANC that she had 'diabetes' in the last pregnancy.

## **DYSFUNCTIONAL UTERINE BLEEDING (DUB)**

Regular menstrual periods depend upon regular ovulation. If a woman is not ovulating (or ovulating irregularly), she will miss her period(s) and then have excessive bleeding: this is called dysfunctional uterine bleeding. Often ovulation and periods are irregular in the following women:

- a) Soon after the menarche (first period): 11-16 year olds.
- b) Around the time of the menopause: 45-50 year olds.

Rarely women can have irregular periods all their lives. Others can become irregular after stress, excessive weight gain or weight loss, when they use Depo-Provera or after they stop taking the OCP. Women who have irregular cycles for many years associated with hirsutism and androgenized (coarse) skin (which is best seen on the cheeks) are likely to have polycystic ovary syndrome (POCS).

### **Management**

Always take a careful history to try and exclude pregnancy conditions e.g. abortion and ectopic pregnancy. Special care is required in unmarried and older women who often deny pregnancy. If available, a pregnancy test or ultra sound is wise if you are in doubt about pregnancy.

## **A. 12-16 Year age group**

Treat as below if the bleeding is excessive, causing anaemia, very inconvenient or going on for more than one month. Never do a vaginal examination if she is a virgin.

- a) If she is bleeding heavily, stop the bleeding with Norethisterone 10mg every 2-3 hours: when the bleeding slows, reduce the dose to 10mg bd for 2 weeks. If you have no Norethisterone you can use Microlut 10 tabs every 3 hours until the bleeding slows and then 10 tabs bd for 10 days.
- b) Then allow a break of 5 days: the girl should have something like a normal period during this break,
- c) After the break regulate her menses by putting her on a combined OCP eg. Microgynon or Lo-femenal for at least 6+ months, but if she continues to have period problems, continue the OCP until she gets married and wants to get pregnant.

Treat any anaemia present with Iron and Folic acid (Fefol) for a couple of months.

## **B. 17-39 age group**

1. Take a careful history especially with regards to dysfunctional cycles (anovulatory). This is the kind of woman who:



- i) Often has a long term history of irregular periods and with months of amenorrhoea in between.
  - ii) There is often a history of weight gain coinciding with the onset of the problem. She is usually obese. If there is associated hirsutism (of the lower abdominal wall skin) and androgenized skin of the face (coarse looking skin on the cheeks), she probably has polycystic ovary syndrome (PCOS).
  - iii) She is usually subfertile; at least since the onset of her DUB.
2. Do a careful speculum and bimanual examination to exclude pathology (especially cancer of the cervix) and pregnancy, and discuss possible diagnostic D&C with an SMO if the woman is over 35 years of age.
3. If not pregnant, the bleeding can be controlled as in "A" above (page 70) with Norethisterone (or Microlut) 2<sup>nd</sup> hourly dose. After that the bleeding can be made cyclical with the combined OCP as above, or by giving the woman Norethisterone 5mg daily for 14 days each month. Most do not need D&C.

However, many of these women present with "infertility" and want to get pregnant. In this case,

- i) Do a semen analysis
- ii) Control the bleeding as in "A-a" above.

- iii) Encourage the woman to lose weight; she should lose 5-10Kg by diet and lots of exercise: (her normal weight is probably what it was when she got married).
- iv) Refer her to a gynaecologist (**at her own expense**) if the semen analysis is normal, she has been able to reduce her weight but periods have not returned to normal, - for induction of ovulation. If the periods do return to normal cycle when she loses weight, then it is likely that ovulation has returned and there is no advantage in referring her for further investigation.

### **C. 40+ age group**

Irregular bleeding in this age group may be serious because of the possibility of **cancer** of the cervix or uterus.

- i. Take an accurate menstrual history for the past 3-4 months.
- ii. Examine the cervix with a speculum to see if there is cervical cancer (See page 48) and do a careful bimanual examination.
- iii. If the bleeding is heavy, control it as in A-a. above, with Norethisterone 10mg 2<sup>nd</sup> hourly until bleeding slows then 10mg daily for a further 12 days.
- iv. Refer the patient to a provincial hospital for diagnostic D&C and possible cervix biopsy. The curettings and biopsy must be sent to Port Moresby for histological examination\*:

the result may take 2 months to come back. Make sure you have an accurate address or mobile contact to follow-up the patient when the result does come back. If the D&C curettings result is 'proliferative endometrium' or 'endometrial hyperplasia with cystic dilatation of the glands', the patient should be put on regular Norethisterone 5mg daily from the 1st to the 15th of each month for about 6 months to regulate her periods and suppress endometrial hyperplasia.

- v. If the D&C result shows glandular hyperplasia or cancer she should be referred to a gynaecologist for hysterectomy and/or other management.
- vi. Treat anaemia with iron and folic acid whilst waiting for D&C result.

## **DUB due to Depo-Provera**

Amenorrhoea followed by irregular spotting since commencing depo-provera can cause DUB. Usually these women do not need any treatment but reassurance that there is nothing seriously wrong. You can stop the rare heavy bleeding associated with depo by giving her ethinyl estradiol (or Microgynon OCP) 1 tab bd for 14 days).

***\*To send curettings to Histopathology at PMGH: leave the curettings in formalin overnight. Then place in a plastic glass-slide holder, wrap up in paper and send in an envelope. Address to The Chief Pathologist, Histology Laboratory, PMGH, FMB, PO Boroko NCD. Include your mobile no. and email and postal address for return of histology report***

## Diagnosis

Fit(s) after 20 weeks gestation of pregnancy.

1. Ensure good airway: roll her onto her side
2. Give Magnesium sulphate loading dose urgently (MgSO<sub>4</sub> - see below): to control and prevent further fits. Do **not** wait for a doctor's order; she could die while you are waiting.
3. **(a) Assess and record patient's condition:**
  - Vitals: level of consciousness, BP, pulse, temperature
  - Urine for proteinuria
  - Abdominal palpation, VE and fetal heart

If high fever, neck stiffness and normal blood pressure, consider cerebral malaria or meningitis, do a LP or treat for both conditions.

### **(b) Care of unconscious patient**

- Maintain airway: Nurse on side, turning regularly
  - Oxygen by nasal catheter
  - Indwelling catheter and record urine output hourly; minimum safe urine output is > 25ml/hour.
4. Set up IV infusion N/saline but only run at 30dpm.

(If the patient's urine output drops below 30ml/hr, give Frusemide 40mg IV stat to see if her kidneys respond to this fluid challenge.)

5. Prophylactic antibiotics (to treat possible aspiration pneumonia). Ampicillin / Amoxicillin 500mg (or chloramphenicol 500mg 6 hourly IV, or Ceftriaxone iv).

## Anticonvulsants

- Give **Magnesium Sulphate** regimen as follows: warn conscious patients that they will feel a hot flush and drowsy as the MgSO<sub>4</sub> is injected. MgSO<sub>4</sub> is now a category A drug; ie. it can (and must) be given by nurses and CHWs as it can save eclamptic mothers' lives.
- **Loading dose (total of 14g: 4g iv and 10g imi)**
- **First give 4g IVI** (this is 8ml of 50% MgSO<sub>4</sub>) into the cannula port of a fast flowing N/Saline drip. To do this dilute 4mls of MgSO<sub>4</sub> in each of two 10ml syringes with 6mls of sterile water (or N/Saline from an IV flask) to fill the syringes up to 10mls. Now sit down with the patient & inject these 2x10ml syringes IV at the rate of about 2mls/min.
- **Next give the 10g imi component.** (5g = 10 mL 50% MgSO<sub>4</sub>) + 1mL 1% lignocaine in each of 2 syringes & give the 5g (10ml +LA 1ml) per syringe into each buttock or lateral thigh.

- **Maintenance dose**, 5g (10ml of 50% solution plus 1ml 1% Lignocaine) IMI starting 6 hours after the loading dose, and then give the same 6 hourly into alternate thighs. Continue the maintenance dose for 24 hours after delivery. **NB.** Remember to give a maintenance dose before transfer; a bumpy road can easily set off another fit in an eclamptic.
- **If another fit occurs** after the commencement of the MgSO<sub>4</sub>, give an additional 4g (8ml) bolus of MgSO<sub>4</sub> 4g IV over 5 minutes (as above).

### **If Magnesium Sulphate is not available, use:**

Diazepam 10mg IV or PR to control the convulsions (For PR dose, lubricate the 2ml syringe (with no needle) and insert it up to the plunger and squirt the diazepam into the rectum: hold the syringe in place for 5 minutes to stop back leak), If there is no Diazepam you could use Phenobarbitone 200mg IMI. Do not use Paraldehyde.

### **Hypertensive**

If diastolic BP is 110mmHg or over, give Hydralazine 5mg IV into the rubber of a fast flowing Normal Saline drip. Repeat every 30 minutes until diastolic BP stabilizes at about 100mmHg. (Always give Hydralazine into the rubber of a fast flowing Normal Saline drip), OR give Nifedipine 10mg oral hourly (get the woman to chew the tablet and swallow it with some water).

If the BP drops below 90mmHg give 500ml Normal Saline fast, and do not give any more of the above antihypertensive unless BP goes very high again. Once the BP has stabilised check the BP every 1-2 hours.

6. Give IV Frusemide 80mg if **pulmonary oedema (SOB)** develops, sit the patient up and give oxygen as well.
7. If there is a laboratory available, check platelets, urea/creatinine and liver transaminases.
8. Do vaginal examination and perform ARM to induce labor, (if the cervix is not ripe use Misoprostol to ripen it). If she needs CS because of failure to progress or fetal distress etc. you will require the assistance of a very experienced anaesthetist as it is very dangerous to give anaesthesia to an eclamptic woman who may have multiple organ dysfunction: they can easily die; see 9 and below under hospital management).
9. Strengthen contractions with oxytocin drip if necessary.
10. Further management depends on whether patient is in a Health Centre or a fully equipped hospital. If in a Health Centre and delivery is not close, ie. cervix is closed & uneffaced, transfer the patient to hospital immediately after the emergency treatment above. If possible ring a SMO (O&G) as soon as the fits are controlled and the patient assessed.

## If in hospital:

Decide on method of delivery. In general, if patient is in normal labor or the cervix is ripe plan to deliver vaginally with short 2nd stage. (Assist delivery with vacuum extraction if there is any delay in the 2<sup>nd</sup> stage.)

If the cervix is not ripe, ripen the cervix with Misoprostol and induce (ARM and oxytocin drip) when it has become ripe (see page 108).

Do not use Oxytocin drip less than 6 hours after the last oral Misoprostol dose. (See page 108) for use of Misoprostol).

11. Postpartum - continue MgSO<sub>4</sub> for 24 hours after delivery or after the last fit (if that occurred after delivery).

Use Oxytocin 10 iu IMI and **NOT Ergometrine** for the active management of the third stage.

Use Implant or Depo or IUD for family planning (ie. not Pills). Best to space the next pregnancy by several years, but tell the woman to warn the ANC in her next pregnancy that she had eclamptic fits in the previous pregnancy.

***In the next pregnancy the woman should take 'low dose Aspirin' (75mg or half a normal aspirin tablet) daily from the first trimester up until 34 weeks. This can reduce the risk of severe PET and Eclampsia in the next pregnancy.***



## ECTOPIC PREGNANCY

Ectopic pregnancy is usually due to partial tubal blockage from previous PID: therefore, the patient is often sub fertile, ie. she has been trying to get pregnant for some time, or this is her first pregnancy after some years of marriage.

### Diagnosis

#### a) **Acute rupture**

- Recent abdominal pain of sudden onset
- 6-9 weeks amenorrhoea
- Shock and anaemia
- Abdominal distension, tenderness, guarding and rebound tenderness.

#### b) **Slow leak (more common type of ectopic)**

- Abdominal pain for some time
- Irregular PV bleeding, usually dark blood: (amenorrhoea may be absent).
- Anaemia, fainting attacks.
- Low grade fever may be present, usually fast pulse.
- Low abdominal pelvic tenderness and possibly a mass
- Cervical excitation present.

### Investigations for the doubtful case:

- i) Culdocentesis is positive if dark blood obtained; she needs laparotomy. If the culdocentesis is

negative, but you still suspect ectopic pregnancy, then she needs exploratory laparotomy or,

- ii) In some centres laparoscopy is an alternative in cases where the diagnosis is in doubt and the culdocentesis negative.
- iii) If a woman has bleeding and lower abdominal pain, the cervix is closed and the pregnancy test is positive, but the scan shows no intrauterine pregnancy, the diagnosis is Ectopic until proven otherwise. Refer urgently to hospital.
- iv) Differential diagnosis of some cases of Ectopic include: PID, Appendicitis, Abortion, Rupture & bleeding corpus luteal cyst.

## **Management**

1. Start IV with Normal Saline and run 1-2 litres fast to treat shock.
2. Transfer to hospital for urgent laparotomy. Ask her if she would like TL and record her wishes (and those of her husband if this is relevant) in the referral letter.
3. Total salpingectomy of damaged tube: also remove the other tube if it is very damaged as leaving it will only be a source of PID flare-ups or another ectopic. Make careful note of the condition of other tube and ovary in her records.

4. Give 5 day course of broad spectrum antibiotics, eg. Chloramphenicol. Do NOT attempt any other surgical procedure at the time of salpingectomy(s) for ectopic pregnancy eg. Appendicectomy, salpingostomy on the other tube etc.: with all the blood in the peritoneal cavity the operation site is very likely to become infected and make the condition of the other tube worse.
5. Give Depo-provera or the OCP for 6 months after the operation (if the other tube was not removed or ligated): this gives time for the pelvis to heal up before ovulation resumes and minimize the chance of another ectopic.
6. Give Fefol for at least a month (but often they need 3-6 months) to treat post-op anaemia.

**Advise the woman to come for an ultrasound scan if she ever misses a monthly period in future to check for another ectopic pregnancy.**

## FAMILY PLANNING METHODS

*(See 'Standard Treatment Manual on Family Planning in Papua New Guinea' for more details on the various Family Planning methods).*

Everyone should plan their family so that all children are born at the time they are wanted, expected, welcome, and as safely as possible. National Health Policy states that all adult citizens do not require someone else's consent to access family planning.

Adolescents under 16 years may obtain family planning from a registered health worker without parental consent if they are sexually active.

**Every opportunity** should be taken to inform women about family planning e.g. at antenatal clinics, baby clinics, delivery time in health centres and hospitals, children's wards and schools.

With modern family planning methods **serious side effects are very rare**. On the other hand unplanned and poorly spaced pregnancy can be very dangerous.

**Whenever** a woman comes to the Family Planning clinic always give her something effective to prevent pregnancy. Never send her away with just advice/"toktok": at least give her some effective method to take home.

**DO NOT** tell post-partum women who come seeking family planning assistance to wait for their period to

return before giving them family planning. Many will come back with unplanned pregnancy. If you inadvertently give the pill or Depo-provera to a woman in early pregnancy, it will NOT cause any harm to the fetus.

## **Temporary Methods**

### **1. Combined Pills** (e.g. Microgynon ED, Lo-femenal, Planak etc.).

Should not be used in women who are in the first six months of breast feeding (because it can decrease the amount of breast milk produced), those with BP over 140/90 mmHg or in the woman who is over 40 years and smokes as well.

It needs to be emphasized to the pill user that she must take a pill every day whether the husband is present or not. The menstrual flow will occur regularly every 28 days on this type of pill. Always give at least 3 months' supply to a woman whom you have put on the pill: it is not reasonable to expect women to come to the clinic monthly.

Occasionally during the first packet women suffer minor nausea and headaches; these symptoms usually go away after the first couple of months of pill use. Many other symptoms are erroneously blamed on the pill unless health workers reassure the users properly. The main problem with PNG women on the Pill is that they do not take it regularly. If a woman misses a pill she may see 'break through bleeding' (not dangerous), or get pregnant.

## **2. Breast feeding Pill (e.g. Microlut)**

This pill is specifically designed for the mother breast feeding a baby less than 6 months old as it does not decrease the milk supply. It also needs to be taken every day as in 1 above. It does not regulate the menstrual flow, and there may be long periods of amenorrhoea especially after birth. If a woman is keen to re-establish regular menstrual flow and the baby is at least 6 months old, it is better to change her over to the combined pill (1 above).

## **3. Morning-after Pill or Emergency Contraception**

There are 3 alternatives for emergency pills. She can take:

- Postinor (levonorgestrel 0.75mg) 2 tablets stat.
- Triple dose of the combined OCP (ie. 3 tabs of Lo-femenal or Microgynon 30 ED) taken as soon as available after sexual intercourse, and repeat dose 12 hours later, or
- 20 tabs of Microlut taken all at once.

Emergency oral contraception is effective in preventing pregnancy as long as it is taken less than 3-5 days after sex. (The effectiveness is becoming less as the days go by: It should not be repeated more than once per month. If a woman needs regular FP advise her to use a regular method).

#### **4. Depo-provera injection**

This injection is 100% safe and very effective, and can be used in breastfeeding and non-breast feeding women. When you are giving Depo to any mother always warn her that she will not see her period every month and that this is because Depo stops her 'eggs ripening' inside her so that there is no 'rubbish' forming inside her baby's bag every month: ie. "Depo keeps your baby's bag clean". Tell her that when she stops the Depo she will start seeing her monthly periods again and then she knows that her eggs have started ripening and she can get pregnant at any time.

It needs to be given every 3 months. Women should be counselled that they can expect a change in their menstrual cycle and that amenorrhoea is also common. Menstrual irregularity or amenorrhoea do not indicate a problem, and women should be counselled that there is no 'rubbish' accumulating inside them; these changes to the menstrual cycle are not a reason for stopping Depo-provera. Very occasionally women can experience thinning of their hair when on Depo.

If a woman bleeds continuously on Depo-provera, the bleeding can easily be controlled by giving ethinyl estradiol 50ug daily for 14 days (or Microgynon combined pills - white tabs 1 bd - for 14 days).

Depo-provera does not cause cancer or sterility. However, the Health Department does not recommend its use in women without children. This is because, if a nullipara who is infertile from some other cause (eg. PID) uses Depo-provera, and then can't

get pregnant later, she is sure to blame the injection for nothing, and spread bad rumours about it. However, occasionally doctors will prescribe Depo for nullipara women.

Depo-provera does have many **beneficial** effects including:

- Prevents ovarian and uterine cancer,
- Makes spread of infection by bacteria such as gonorrhoea into the pelvis to cause PID, **less** likely
- Women on Depo-provera get fewer Thrush/Monilial infections in the vagina
- Because there is less menstrual loss, women on depo do not suffer from so much anaemia
- Women on Depo-provera usually have improved appetite, less pre-menstrual syndrome and feel good and strong to do heavy work in the garden etc.

## 5. Implants

The Implant was introduced into PNG in 2012 and since then it has become one of the most popular methods. It is a progestogen only method; *(in fact the Implant contains the same progestogen as Microlut tablets contain).*

The two kinds of Implants available in PNG are Jadelle and Sino2 or Femplant: both of them provide reliable family planning for 4-5 years depending upon the size of the woman.



**Implants can be inserted by any health worker who has been trained to do so.**

When a woman uses the Implant she should expect some change to her usual cycle (periods), or develop amenorrhea. This is because the Implant stops ovulation (just like Depo-provera). When the Implant wears off, the woman's periods will return to normal, and she will know that she is ovulating again and can get pregnant at any time.

Before offering an Implant to a woman, make sure that she does not want to get pregnant before 4-5 years in the future. If she wants a more closely spaced pregnancy offer Depo-Provera or Pills instead. If she does not want a pregnancy for more than 5 years, it might be more appropriate to get an IUCD (the CuT380A can prevent pregnancy up to 15 years), or a TL (or vasectomy) if she does not want any more children.

## **Removal of Implants**

The only valid reasons for removing an Implant is because she has changed her mind and now wants to get pregnant early (ie. before 5 years), or if the menstrual disturbance is too bothersome for her, (eg. she is bleeding every day (rare), and is not responding well to supplementary OCP for 3 months.

If a woman with an Implant gets pregnant (eg. it was put in by mistake when she was in early pregnancy), this is not a problem. Implant will not harm the

pregnancy. You can leave it there and it will provide several years of FP after delivery.

TB treatment causes the Implant to be less effective for the duration of the medicine (ie 6-9 months). If a woman with an Implant commences TB treatment she should also be given additional Depo provera every 3 months for the duration of her TB treatment. Do not remove the Implant.

Women who request removal of Implants for spurious reasons: (eg. backache, or other symptoms that the Implant does not cause, or husband is demanding its removal) should be counselled to keep their Implant and their symptoms treated appropriately (eg. Panadol or referral to a doctor). If a woman insists on getting her Implant removed, do not take it out on the day of the request. Removal is an 'operation'. To have it removed she should be booked for the removal procedure on the special day that you do operative procedures in your clinic. Give her an operation consent form to take home and an appointment to come back.

After an Implant has been in place for 4-5 years all its medicine will have finished: it is not necessary to remove the empty Implant rod. This is an unnecessary operation. Leaving it in place will not cause any harm.

## **6. The IUD or Loop**

The loop is a good method for women in rural areas who cannot return frequently to clinic for fresh supplies of contraceptives. Or for any other woman who does not want to take medicine or have injections. When a woman uses an IUD for family planning she will see her normal monthly periods. Sometimes they are a bit heavier for the first few months after insertion. The IUD works by ensuring the sperms are not able to fertilize the ovum (“lup isave stopim sperm bilong man long go insait na painim kiau bilong yu. Em olsem banis ia”)

Insertion should be by a person trained in the technique using sterile precautions, and preferably at the end of a menstrual period. The IUD can be inserted immediately post-partum (ie. after delivery of the placenta) in those who have been trained to do this.

IUDs should not be used by single women, nor if there is any risk that the husband may transmit STI to the woman. If a woman with an IUD contracts an STI, the infection quickly spreads internally and can cause PID and tubal damage. IUDs do not cause STIs; partners do.

## **7. Condoms (male & female condoms are available)**

Condoms are a good method when sexual contact is infrequent. They also protect the user from STIs including HIV/AIDs. There is no need to register

people wanting condoms at the Family Planning Clinic; simply allow clients to take supplies of condoms from a box **outside the front door** of the clinic. Put a big sign on the box, “Free, take as many as you need”. FP staff should arrange to have distribution boxes at other sites around the hospital too, eg. on each ward counter, in the OPD reception etc.

Statistics about condom use can be obtained from the number of condom packets that are missing from the distribution box at the end of each day.

Make sure that you leave some male and female condoms in the distribution box outside the clinic door before you go home every afternoon.

## **8. The Ovulation Method**

This method relies upon avoiding intercourse around ovulation time. Ovulation usually takes place 14 days before the next period. Ovulation is associated with the passage of slimy, watery vaginal mucous. Some women can determine their ‘wet’ days with ease, others have difficulty. It is best for women to attend a special education course on this method before attempting to use it. Needless to say, because of the high prevalence of vaginitis in Pacific women, unfamiliarity with calendars, and husbands who are not willing to follow the directions of the wife on sexual matters, this method has a very poor success rate in PNG.

## **9. Permanent Methods (Sterilization)**

Those undergoing sterilization should make written consent. It is not necessary for the spouse (husband or wife) to give

consent, but many PNG women will want their husbands to sign the TL form. Ask women 'do you want your husband to sign with you or would you like to sign by yourself because you have already discussed this in the house?'

There is no legal requirement for spousal consent in PNG, but many village women will want their husbands to sign for them. In an emergency (eg. CS + wants TL), always allow a woman to consent for herself.

### **Tubal Ligation**

This procedure can be performed safely and simply under local anaesthesia within the first week after delivery through a very small sub-umbilical incision. General anaesthesia in the immediate postpartum period is dangerous and should not be used except in special circumstances (e.g. obesity, the very anxious woman). Spinal anaesthesia or Ketamine are good alternatives to general anaesthesia for difficult cases.

The procedure does not have any serious long term side effects; particularly it does not make a woman weak or gain weight. She will have her normal monthly periods after TL. She can resume all the heavy work one month after the operation that healthy women are usually expected to do.

Women desiring post-partum tubal ligation should be referred to a hospital for delivery near term: they should bring their signed consent form with them.

If tubal ligation is not performed in the first week after birth, it can be done through a slightly bigger supra-pubic incision. In some centres it can be done laparoscopically. When the laparoscope is used only a tiny incision is made and the scar is almost invisible.

## **10. Vasectomy**

This procedure can be performed under local anaesthesia. It does not interfere with sexual intercourse in any way; particularly it does not lessen his erection nor reduce the amount of fluid ejaculated.

If a man desires vasectomy, he should be referred to a health worker who is competent at the procedure.

After Vasectomy a man is still fertile for about 2-3 months or until he has ejaculated about 20 times.

If the man wants to be sure that his vasectomy has been successful, he can have a semen test several months after the operation to make sure there are no sperms left in his semen.

## FETAL DEATH IN UTERO

The reason for fetal death in utero is often never found; however, of the treatable causes malaria, syphilis, PET and diabetes are the most common. Give Malaria treatment (in malaria transmission areas), do tests for Syphilis and HIV (after PICT) and blood sugar on all cases of FDIU. Suggest that the woman attend a hospital with a specialist in the next pregnancy.

When the baby dies inside, the patient relatives often put great pressure on the doctor to 'do something'. Resist this pressure. Explain that no harm will come to the mother because the baby is sealed off in its bag of membranes. Never rupture the membranes to induce labor.

As long as the membranes are intact it is quite safe to wait for at least one month for the spontaneous onset of labor. After one month there is a small risk of disseminated intravascular coagulation (DIC) developing. You can check that DIC is not developing by checking the platelet levels.

### **Management:**

1. If the membranes rupture spontaneously, put up an oxytocin 10u/l drip to bring on uterine contractions. Continue to increase the drip rate from 10dpm - 60dpm as necessary to produce sufficiently strong contractions to dilate the cervix and expel the baby. You may need to use Misoprostol to ripen the cervix first, see below.

*Occasionally (more commonly with a mid-trimester FDIU), it is necessary to apply a small amount of traction to the presenting part from 5-6cms dilation to effect delivery. (This can be done by applying forceps to the skull or a gauze bandage to the feet of a breech presentation, and attaching the gauze bandage to a bag of iv fluid hanging over the end of the bed).*

2. Commence broad spectrum antibiotics if the membranes have been ruptured for more than 24 hours and delivery is not imminent.
3. If spontaneous labor begins, do not rupture the membranes until >6cms dilatation of the cervix. Augment sluggish uterine contractions with an oxytocin drip as above.
4. If spontaneous labor does not commence within 1 month, assess the cervix. If it is very ripe put up oxytocin 10u/l drip. (**Do not rupture the membranes**). If the cervix is not ripe, or labor has not commenced within 24 hours of oxytocin stimulation of **increasing strength**, contact your referral hospital O&G doctor for advice.

The doctor may tell you how to put a Foley's catheter through the cervix and apply a small amount of traction (ie. tie the speculum to the end of the catheter and hang it over the end of the bed,) the balloon of the catheter will dilate the cervix and assist induction of labor.



The cervix may also be ripened and labor induced with **Misoprostol**. Dissolve 1 tablet (200ugms) in 200mls of water (about half a small coke bottle). Give the woman 25mls every 2 hrs for 4 doses; stop if she gets regular painful contractions. If there are no contractions on 25mls doses, the next day increase the dose to 50mls every 2 hours for another 4 doses. If this dose also does not work, increase the dose to 100mls every 2 hours x 4 doses the next day. When contractions begin do not give any more Misoprostol.

However, if the contractions continue but are very mild or inadequate, you can augment them with an Oxytocin drip; however, do not start the oxytocin drip for at least 6 hours after the last dose of Misoprostol.

## HIV IN PREGNANCY including PPTCT

It is a national Department of Health policy to provide HIV testing for all AN mothers. The purpose of testing women in ANCs is not only to assist women and their families who are HIV positive but also to try and prevent transmission of HIV to infants. When we health workers initiate the discussion on getting HIV tested for a clinical benefit for the patient (in this case prevention of transmission to the baby) the testing and counselling sequence is called Provider Initiated Counselling and Testing (PICT).

The rate of HIV positivity in the pregnant women of PNG varies greatly from province to province. At the moment (2018) the rate at the PMGH clinic is 3%: mainly young women and nulliparas are affected. The rate is higher in some other parts, eg. Daru 5%, Angau clinic 3% and some clinics in the Highlands reporting 5-8% +ve rates.

The best way to prevent a baby from getting infected with HIV through parent-to-child transmission (PTCT) is to prevent the mother and father from acquiring the virus in the first place. This is one of the reasons that we need to continue to emphasize prevention of transmission with “ABC” - ie. premarital, young age **A**bstinence, **B**eing faithful and minimizing numbers of sexual partners, and ‘safe sex’ (ie. **C**ondoms for those who cannot achieve abstinence and reciprocal faithfulness).

Many women are not able to make their own decisions about sex and faithfulness, and can become the unwitting victims of HIV from their boyfriends and husbands. Nevertheless, pregnancy is a risk time for STIs and HIV to enter a relationship. Some men are not able to abstain from sex for many months; this is why it is important for women to continue having sex with their partners during pregnancy.

### **Health Education strategies in the ANC to encourage primary prevention**

All antenatal clinics should stress primary prevention of HIV in their routine group health education sessions with the antenatal clients. Pregnant women need to be helped to consider whether their husbands can do without sex for the number of months that they plan to abstain for in relation to the end of the pregnancy and the immediate post-partum period. Always have **condoms** prominently displayed in the ANC so that women can pick up a box if they need to take some home for their husbands.

Some people in PNG have customary beliefs about the inadvisability of semen touching a pregnant or breast feeding woman. Therefore, even couples who have no problem with HIV (HIV negative) may want to use condoms for sex in the later part of pregnancy or soon after delivery.

If husbands come to the clinic, a staff member should organize them into a group for counselling about primary prevention. The health education session should specifically stress the particular social

vulnerability of a husband to get HIV whilst his wife is pregnant if they are not having sex together as often as usual. Pregnant women also need to be encouraged to have sex with their husbands so that unfaithfulness due to frustration does not occur either.

Some clinics are trying a strategy to invite husbands to come to the clinic with their wives for a special counselling session about HIV prevention, FP, condom use, etc.

## **Counselling issues**

In ANC, do not do VCT, always do PICT. The only way for a woman to know if she is infected is to have an HIV test. Only by finding out your HIV status can the health system help you. There is NO benefit in being ignorant of your HIV status. Tell women booking in the ANC that it is routine for mothers to be tested for infections that can infect and damage the baby in-utero; such as syphilis and HIV.

Pre-test counselling in the ANC should be done in groups and emphasis must be put on the benefits of having the test. If your ANC is getting more than 10% of mothers 'opting out' of getting the HIV test then you are probably doing the pre-test counselling in a negative and scary way, and not properly emphasizing the benefits of getting tested.

If a woman does not find out her HIV status then she will not have any opportunity to save her own life (by getting ART medicine before AIDS damages the body and brings her to death's door), and neither will she

have the opportunity to prevent transmission of the virus to her baby.

In fact not finding out early that you are HIV positive will also mean that the whole community will get to find out your status when you get sick from AIDS (because most people can recognize AIDS victims now). But if you get tested and start taking ART medicine before you get sick, then you will stay healthy and the public may not know you are HIV +ve.

Post-test counselling for –ve mothers should stress the need to stay negative. Being faithful and encouraging your partner to be faithful is equally important. Many husbands are not able to abstain from sex for more than 3-4 months: this is why it is recommended that pregnant mothers should continue to have sex with their husbands up to near delivery time, and resume sex in the month or two after birth.

For those who are +ve there are many issues to be discussed, including family planning, positive living and caring for herself, what she tells her partner and family, how she should encourage her partner is to be tested too, the need for daily treatment for the rest of her life (anti-retroviral treatment, ART). It must be stressed to her that it is very dangerous to start and stop ART because this will lead HIV resistance to the ART and then she is likely to die because we do not have good access to other HIV drugs if our HIV becomes resistant to our standard ART. All these issues cannot be covered in a single counselling session, and many of them will need to be repeated over and over again.

HIV infection can be transmitted from mother to baby:

- During pregnancy, especially during labor and delivery
- Sometimes in the postpartum period through breast milk if mother is not taking her ART properly.

## **Strategies for care of the HIV positive mother**

If we know a woman is HIV positive we can adopt various strategies to minimize the risk of the virus infecting her baby.

1. Care in pregnancy should include screening for any other infections (eg. syphilis, TB and skin problems like grille and scabies), treatment of any inter-current illnesses, and information about strategies for FP and prevention of mother to child transmission using ART (see below).
2. Give all HIV positive mothers prophylactic antibiotics Tinidazole 500mg bd stat, Amoxicillin 500mg tds or Erythromycin 500mg bd for 5 days, or Azithromycin 1g stat as well as routine AN drugs.
3. Care during the labor should include careful attention to 'universal precautions' on behalf of the nursing and medical staff, No routine ARM, short SRM/delivery interval, no use of forceps for assisted delivery, minimize perineal trauma, and if a CS is necessary ask about whether she would like to have TL.

## **Prevention of parent to child transmission using ART**

All HIV +ve mothers should be started on triple therapy ART medicine. The standard ART therapy for use in pregnancy is a fixed combination tablet containing AZT, Lamivudine and Efavirenz, and the dose is one tablet daily. The woman needs to be clear that she will need to take the ART **for the rest of her life**. And she must not stop and start taking ART because this will breed HIV resistance to the medicine.

## **Husbands, Partners and family members**

There is no way a woman can take life-long HIV treatment and not tell her husband and family. She will need to come to the clinic on a monthly basis to get more medicine supply. For this reason it is critical that PPTCT health workers make every effort to get the woman to allow them to contact her husband and family and explain the situation. It is very likely that the husband is also +ve, and if this is the case unless he also gets treated with ART, he will start becoming sick with AIDS and die. If the woman allows this to happen, then it may be too late to effectively treat him. So by not giving consent for health workers to contact her husband / partner, this could be a death sentence for him.

When you do contact the husband/partner, be careful to emphasize that 'you want to save his life' from this serious infection, but you can only do that if he comes to see you to get a blood test.

## Breastfeeding for known HIV positive mothers

The policy that is recommended by child health specialists and NDOH is for most mothers to:

- **Exclusively breast feed** for first 6 months of life, and then start introducing weaning diet from 6 months: cease breast feeding whenever the baby seems to be eating well. This is the best option for the baby to survive: Less than 10% of babies will get HIV from their mothers via the breast milk (even if they are untreated), and this number can be reduced to less than 1% if the mother continues ART while she is breast feeding. In PNG, babies who are not breast-fed often die from gastro-enteritis and malnutrition. There is no use at all having a HIV negative **dead baby**.

Emphasize to the woman that it is important not to give the baby anything except the breast in the first 6 months of life. If she gives any other fluid or food to the baby this will cause the stomach lining to become inflamed; this in turn gives the baby more chance of contracting the virus.

However, some mothers will still want to artificially feed their babies. In this circumstance health workers should explain why this is NOT the best option for the baby, but if a mother insists on artificially feeding, make sure she can afford the formula, has a stove and fridge to prepare and keep the milk properly, and then teach her how to do this. If she does not have all these things available the baby is VERY likely to get repeated gastro, malnutrition and die in the first year of life.



**Mixed feeding** in the first 6 months of life is **the worst option** for the baby: this means some breast feeding and some artificial feeding. Make sure that mothers who are exclusively breast feeding their babies are clear what this means (ie. nothing except breast, not even water supplements for the baby in the first 6 months). The reason that mixed feeding increases HIV transmission risk is that anything other than breast milk in a baby's stomach in the first 6 months of life causes inflammation of the stomach lining cells and this allows easier entry of HIV into the baby's body.

## **Family Planning**

The Implant, Depo-Provera, and IUD are appropriate, but if a mother does not want to have any more children (many will decide this after you counsel them), offer a TL. Emphasize to HIV +ve people that they now need to focus on their own health.

**IUCD or Implant is probably the best option for the majority of HIV positive mothers:** this is because many are young or having first baby and the idea of TL is hard to accept. IUCD is fine as long as the woman does not have AIDS, ie. is not in a state of immune collapse.

Also discuss the use of condoms too (Dual Protection) if her partner is of unknown status or is negative, or if she is single and does not have a regular partner to go home to.

It is very important to gain the HIV +ve mother's agreement that you can discuss her condition with her husband. There is no advantage for the husband in not finding out his status. About 20% of husbands will be negative, and if you find this out you can assist him to stay negative for the rest of his life: this gives him a better opportunity of looking after his family too. Most husbands will test +ve, but unless they find this out before they start getting sick (AIDS), then they will not have the opportunity of getting ART when it is still time to stay healthy for the rest of their lives.

**Remember as a health care worker treat your patient with dignity, care and respect, and always for their benefit. This helps alleviate stigma & discrimination in the workplace and community.**

The HIV situation in PNG is changing very rapidly. If any health worker has a query about how to manage an HIV positive mother, do not hesitate to contact either your nearest SMO O&G: Dr Mary Bagita at PMGH maternity section (3248235); or Dr Roland Barnabas at PMGH (3248100 Ext. Well Baby Clinic) for advice.

## INDUCTION OF LABOR

This procedure is to be performed **in a hospital** by a doctor or in a health centre if the case has been discussed with a doctor. Not to be confused with strengthening contractions of established labor which can be done in a health centre by midwives and HEOs, and which is properly called 'augmentation' (see page 24).

### Indications for Induction of Labor

Generally the indication for induction of labor (IOL) is that it is more dangerous for the baby to remain in the uterus than the risks of the induction process itself. Occasionally we induce labor for maternal reasons even when we understand that the baby does not stand a good chance of survival eg. severe pre-eclampsia before 34 weeks.

The decision to induce often requires quite sophisticated obstetrical skills and deep experience. Some of the reasons that doctors decide to induce labor are:

- **Strong indications:** Severe Pre-eclampsia (page 164), abruption (page 20), severe IUGR and oligohydramnios (page 15), diabetes at term (page 62), FDIU with platelets dropping (page 93)
- **Weaker indications:** mild pre-eclampsia at term (page 164), FDIU less than 1 month from demise and normal platelets, post term (>42 weeks) p93.

With regards post term pregnancy, it is not a good idea to do IOL unless there is objective evidence that the pregnancy really is more than 42 weeks, [ie. mother needs to have booked before 3<sup>rd</sup> trimester and the menstrual history, quickening and uterine size at the first visit are consistent, or she has had an early (1<sup>st</sup> or 2<sup>nd</sup> trimester) ultrasound to substantiate her memory of LMP].

If a pregnancy is thought to be post-term, but there is no objective evidence because of late booking, then she should be reviewed twice weekly and the fetus monitored on a kick chart. A normal AFI (on scan) is reassuring that baby is OK.

### **Contra-indications to induction of labor:**

- a) Breech or transverse lie.
- b) Previous caesarean section, (unless the cervix is very ripe, & good supervision of the contractions of the induced labor is assured).

### **Likelihood of success of the Induction process**

Induction usually succeeds if the cervix is ripe. Ripeness of the cervix is measured on the **Bishop's score**. The Bishop's score uses five parameters to measure cervical ripeness: **a score of 6 or more is considered "ripe"**.

Induction usually succeeds more easily with multigravida. If inducing a mother with an **unripe** cervix (e.g. severe PET) you must be prepared for the possibility of failure and the need for CS. Consider the use of Misoprostol (see below) to ripen a cervix if induction is necessary & the cervix is not ripe.

With a ripe cervix, induction to delivery time is usually only 5-6 hours. If the cervix is not ripe induction to delivery time may be as long as 16-18 hours, and require 5-10 Units of Oxytocin in the flask and up to 60dpm to achieve good contractions. Ripen the cervix with **oral** Misoprostol if it is unripe and induction necessary (see below). Do not start the oxytocin drip less than 6 hours after the last dose of oral Misoprostol.

Always commence with low dose Oxytocin infusion and increase the drip rate expeditiously (see Standard Regimen below) until good contractions are achieved. Too slow escalation of an Oxytocin drip will only prolong the labor unnecessarily. Induced labors with unripe cervix are very painful, therefore be ready to give Pethidine every 4-6 hours. Do not continue with an induction for more than 24 hours after the membranes have been ruptured. Consider the induction failed and prepare for CS.

### Bishops Score Table: Cervical Ripeness Calculation

Parameter	0 points	1 point	2 points	3 points
Dilatation in finger breadths	closed	Admits 1 FB	Admits 2 FBs	Admits 3 FBs
Effacement	uneffaced	< 50%	>50%	100%
Softness	firm	Soft	Very soft	
Position of Cx	posterior	Mid-position	Anterior	
Level of Head	4/5 <sup>th</sup>	3/5 <sup>th</sup> s	2/5 <sup>th</sup> s	1/5 <sup>th</sup>

## **Standard Regimen using ARM and Oxytocin infusion**

1. Do ARM (except in FDIU). Immediately followed by:
2. Oxytocin 5 units per litre starting at 20 dpm and increasing by 10 dpm every 30 minutes until contractions are occurring every 3 minutes and lasting 50-60 seconds: whichever comes first. (Occasionally it is necessary to increase the strength of the Oxytocin in the flask to 10 iu/l if 60dpm on the 5units/litre strength of Oxytocin is not achieving good contractions).

## **Observations must be done ½ hourly during IOL process**

- Drip rate
- Fetal heart rate after contractions
- Contractions: Record frequency, duration and strength
- Liquor colour on pad: check for any fresh passage of meconium
- Evidence of progress (check the cervix after 4 hours of good contractions).

## **Induction (and ripening of the cervix) using oral Misoprostol (Cytotec 200 mcg) tablets**

1. Misoprostol is very effective in ripening an unripe cervix.

2. Break up a Misoprostol tablet in 4 pieces and drop into 200mls of tap water (about one cup). Shake well in a bottle (eg. 500ml coke bottle) to ensure completely dissolved.
3. Listen to the fetal heart before you give the 2<sup>nd</sup> dose of Misoprostol: do not give the next dose if the FH is slowing with contractions.
4. Give 25mls of this mixture every 2-3 hours (shake bottle again before each dose) for 4 doses.
5. If contractions do not begin, or the cervix does not become ripe with 4 doses; increase the dose of Misoprostol the next day to 50mls and give another 4 doses at 2-3 hourly intervals. Once again check the cervix.
6. Misoprostol causes frequent contractions of the uterus and can cause fetal distress if there is placental insufficiency, (as there often is in PET, IUGR and diabetes.). Always listen to the fetal heart carefully (with a Doppler) for a full minute about one hour after giving the 1<sup>st</sup> dose of Misoprostol.
7. Check for uterine contractions and the cervix for ripeness before increasing the dose of Misoprostol.
8. When the cervix is ripe (Bishop's score >6), do ARM and put up Oxytocin at least 6 hours after the last dose of Misoprostol, - if the contractions are not strong.

Never put up oxytocin less than 6 hours after the last dose of Misoprostol, as this can cause hypertonic uterine contraction leading to fetal distress or ruptured uterus.

[If you use Misoprostol vaginally, sometimes it causes very strong contractions and can distress the baby or rupture the uterus. Only use vaginal Misoprostol to induce cases of FDIU or if the baby is pre-viable (less than 32 weeks). 1/4 tab inserted under the cervix – in the posterior fornix].



## INFERTILITY

**Definition and Presentation:** Inability to become pregnant after 12 months of trying. Take a full couple fertility history.

### 1. Perform a semen analysis.

Little can be done for men with very low counts (ie. less than 10 million sperm/ml). However, the semen quality in individual men can be very variable. If a man has a low semen count (ie. < 20 million/ml), give him a course of Doxycycline 100mg bd for 10 days, and repeat the test after 2 months. **Offer VCT and VDRL** testing to both partners. Test for Diabetes if there are risk factors.

### 2. Assess the woman for evidence of:

#### a) Ovulation

- Regular periods: >95% of women with regular periods are ovulating. (For irregular periods and DUB see page 69).
- Premenstrual syndrome (PMS) indicates ovulation, i.e. tightness or heaviness of the breasts for several days before the period comes, – some women only feel PMS as a heavy feeling in the pelvis or backache.

Explain that the **fertile period** is usually day 12-16 of the cycle, with a 28 day cycle. The 1st day of the menstrual cycle is the first day of bleeding. If the cycles are irregular it is more difficult to work out the fertile period: however some women are able to discern the typical ovulation mucous (stretchy, slimy clear mucous

that can 'wet the pants' which occurs at ovulation time. If this is the case then the couple should aim for this time.

- b) **Damage to the fallopian tubes:** the commonest cause is PID. Women with chronic PID usually have a history of:
- Recurrent lower abdominal pain,
  - Dyspareunia (pain when they have sexual intercourse)
  - Congestive type dysmenorrhoea (lower abdominal pain starting some days before a period that tends to get better when the period starts flowing).
  - On bimanual PV examination there is usually adnexal tenderness or cervical excitation pain.

Women with evidence of PID may be helped symptomatically by standard treatment of "chronic PID" (page 148); however, the infertile woman cannot be helped much further outside a base hospital, and not much there either as most tubal damage is not possible to repair surgically.

**Endometriosis** is a less common cause of tubal damage: it is also associated with dysmenorrhoea, dyspareunia and sometimes they also have pre-menstrual brown spotting too. Endometriosis affected women do not have the STI social risk factors that are often present in women with chronic PID.

If the infertile couple with a normal semen analysis are insistent upon further investigation, refer the woman at

**her own expense** to your nearest SMO (O&G) for possible laparoscopy or laparotomy. Always obtain consent for surgery before referring gynaecological cases which are not urgent.

Do not perform D&C or hysterosalpingography (HSG) if there is a possibility that the infertility is due to PID, as both these procedures can spread and reactivate pelvic infections and lead to further damage to the tubes.

If the infertility is not treatable it is best to counsel the couple about adoption if they are very keen to have children. Be very careful about how you do the counselling as some men leave their wives if they find out it is not possible for their wife to bear children.

If the infertility is due to a low sperm count, make sure you make this clear to both wife and husband: this may protect the woman from domestic violence and divorce.

## LABOR MONITORING AND USE OF THE PARTOGRAPH

All women who present in labor must be commenced on the partograph. These notes only apply when the presentation is **cephalic** with term gestation, and there is no contraindication to vaginal examination (e.g. APH).

When you admit women in labor, **smile and be welcoming** and respectful. Labor is a very stressful time. If we are unwelcoming or speak harshly to women, this can cause release of adrenaline and lead to slow and dysfunctional labors. Women in labor should **NEVER** lie on their back. They should walk around, sit up, lie on their side and frequently change position. If a woman is lying on her back, help her to change position. Encourage normal food and fluid intake during the Latent phase and continuous companionship throughout labor.

### Diagnosis of Labor

- Regular, painful, contractions that first efface and then dilate the cervix, or
- Regular painful contractions and ruptured membranes.

### Aims of the Partograph

- To determine if the woman is in true labor or false labor.

- To determine whether labor is progressing normally: by making observations of both mother and baby.
- To detect prolonged labor early, and take action.

## **Admission of women in Labor**

1. If the mother does not have private washing facilities in her home, tell her to go and have a good wash when she arrives, and that she should pay particular attention to washing her perineum and vulva (ie. ples pikinini ikamaut longen). Also ask her to use the toilet to empty her rectum and bladder on admission in labor. (If admitted in advanced labor and can't pass urine, pass a catheter).
2. **Study the antenatal card** for risk factors, and come to a conclusion about gestational age, (If less than 34 weeks see page 169). If HIV (PICT) and syphilis tests have not been done in ANC, do them now and begin treatment.
3. **Palpate** the abdomen and determine:
  - Size of fetus and Fundal Height in centimetres.
  - Presentation
  - Level of the head in 5ths above the symphysis pubis; record with a circle on partogram (See Fig 2.6, inside back cover for how to determine head level).

4. **Check vital signs.** If she has a fever: cool sponge her and start broad spectrum antibiotics like Chloramphenicol or iv Ampicillin or Amoxicillin and Metronidazole or Tinidazole, and a treatment course of antimalarials if she has been in a malarious area in the past 3 weeks.
5. **Check fetal heart (FH)** rate every 30-60mins throughout labor: listen to the FH when a contraction stops. If it is  $< 110$  or  $> 160$  this could be fetal distress; re-check the FH with the woman on her (other) side. [Never allow women to lie flat on their back in labor, this can cause fetal distress.] If it is over 160 check her temperature, and give 500ml of N/saline fast then continue the drip at 40 dpm: treat the cause of fever as appropriate. Consult a midwife or doctor if there are signs suggesting fetal distress.
6. If no APH, **do PV to assess:**
  - Cervical dilatation (record with 'x' on the partograph).
  - Cervical effacement (cervical length) if less than 4cm dilated; 0, 25%, 50%, 75%, 100%. (All cervixes are 100% effaced by 4cm; ie. when labor has reached the active phase).
  - Moulding (+ sutures together, ++ sutures overlapping but reducible, +++ sutures overlapping but not reducible ie. jammed together). Severe moulding with any head above the brim is a definite sign of CPD.
  - State of membranes and colour of liquor:  
Meconium+ = yellow colour to clear fluid

Meconium++ = particles seen in the fluid  
Meconium+++ = thick green soupy fluid  
Meconium +++ usually indicates fetal distress.  
If the liquor is clear when the membranes first rupture, and then becomes stained during labor, this always indicates fetal compromise is developing.

## **ALL THE ABOVE MUST BE RECORDED ON THE PARTOGRAM & LABOR RECORD FORMS**

- 7. If the cervix is less than 4cms dilated** on admission, wait up to 8 hours to re-check the cervix. Place an 'x' on the partograph to mark the cervical dilatation, note the time and place a circle corresponding to the level of the fetal head. After 8 hours have elapsed it is necessary to decide if the woman is in true labor or not. After 8 hours if the cervix is still less than 4cm, but there are signs of true labor present (ie. the contractions are becoming stronger and the cervix has further effaced or the membranes have ruptured), manage as a case of Prolonged Latent Phase. If the cervix is unchanged after 8 hours this is a case of Spurious or False Labor.

### **Prolonged Latent Phase**

If she is absolutely normal, and there is no sign of maternal or fetal distress, it is OK to allow the Latent phase to go on for another 8 hours.

However, if there are any signs of poor or deteriorating placental function<sup>4</sup>, then you should do ARM, and put up an oxytocin drip if contractions are poor. (ARM should not be done if she is HIV +ve or the head is above the brim). Consult a doctor if she has not delivered after 8 hours of oxytocin drip.

### **Spurious (or 'False') Labor**

If the cervix is unchanged and contractions have become less she has had an episode of Spurious Labor. Check and treat any signs of disease. Fever may indicate malaria or other infection. **Urinary infection** (UTI or cystitis) is a common cause of Spurious Labor – frequency +/- dysuria: (treat with Septrin 2tabs bd for 5 days). Uterine tenderness could indicate an abruption or chorioamnionitis. If there is no definite cause of the Spurious Labor give her some analgesia transfer her to the antenatal ward or a nearby house to await the onset of true labor.

8. When the cervix reaches 4cms, draw in 'alert' and 'action' lines 2 and 4 hours to right, and observe by further PV examination every 4 hours. Normal dilatation proceeds at least at the rate of 1cm per hour; thus the woman's graph will stay to the left of the alert line. If the action line is crossed, dilatation is definitely too slow and specific action must be taken. (See 9 on page 119).

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<sup>4</sup> \* You should suspect poor or deteriorating placental function if any of the following are present: Post-term, no weight gain now for more than a month, PET, IUGR, oligohydramnios, bad obstetrical history (ie. previous SB/NND).



9. **Too slow dilation of the cervix** is either due to:

- a) Contractions too far apart or too weak (ie. uterine inertia), or
- b) Obstructed Labor; this diagnosis can only be made **after** the pelvis has been tested by good contractions and the membranes have ruptured.

In a primigravida one should not diagnose obstructed labor or CPD without having augmented contractions with an oxytocin infusion first.

If the alert line is crossed call a midwife and re-check PV after 2 hours. If the action line is crossed put up a Normal Saline drip, run in 600-800mls of fluid and notify the midwife, HEO or Doctor. (never give dextrose 50% iv).

They may decide to use oxytocin to strengthen contractions if the patient has:

- i. No previous caesarean section,
- ii. No heavy (ie. +++) meconium staining of the liquor, or other sign of fetal distress,
- iii. Contractions are poor, (i.e. contractions slower than 3 minutely and lasting for less than 50 seconds).

Whenever a woman is experiencing prolonged labor, in the latent phase she should sip any fluid of her choice frequently. In the active phase, give her iv Normal Saline infusion as the intestine is not able to absorb

fluid well in the active phase of labor. Do not give dextrose 50% iv to pregnant women; it is dangerous as it can cause rebound hypoglycaemia and problems for the baby.

**NB.1** Never augment labor with an oxytocin drip at night in a Health Centre if you cannot transfer the patient, or in a hospital if CS is not possible until morning. Instead, wait until early in the morning to make decision about strengthening the contractions. Then it will become apparent by early afternoon whether augmentation has succeeded or not.

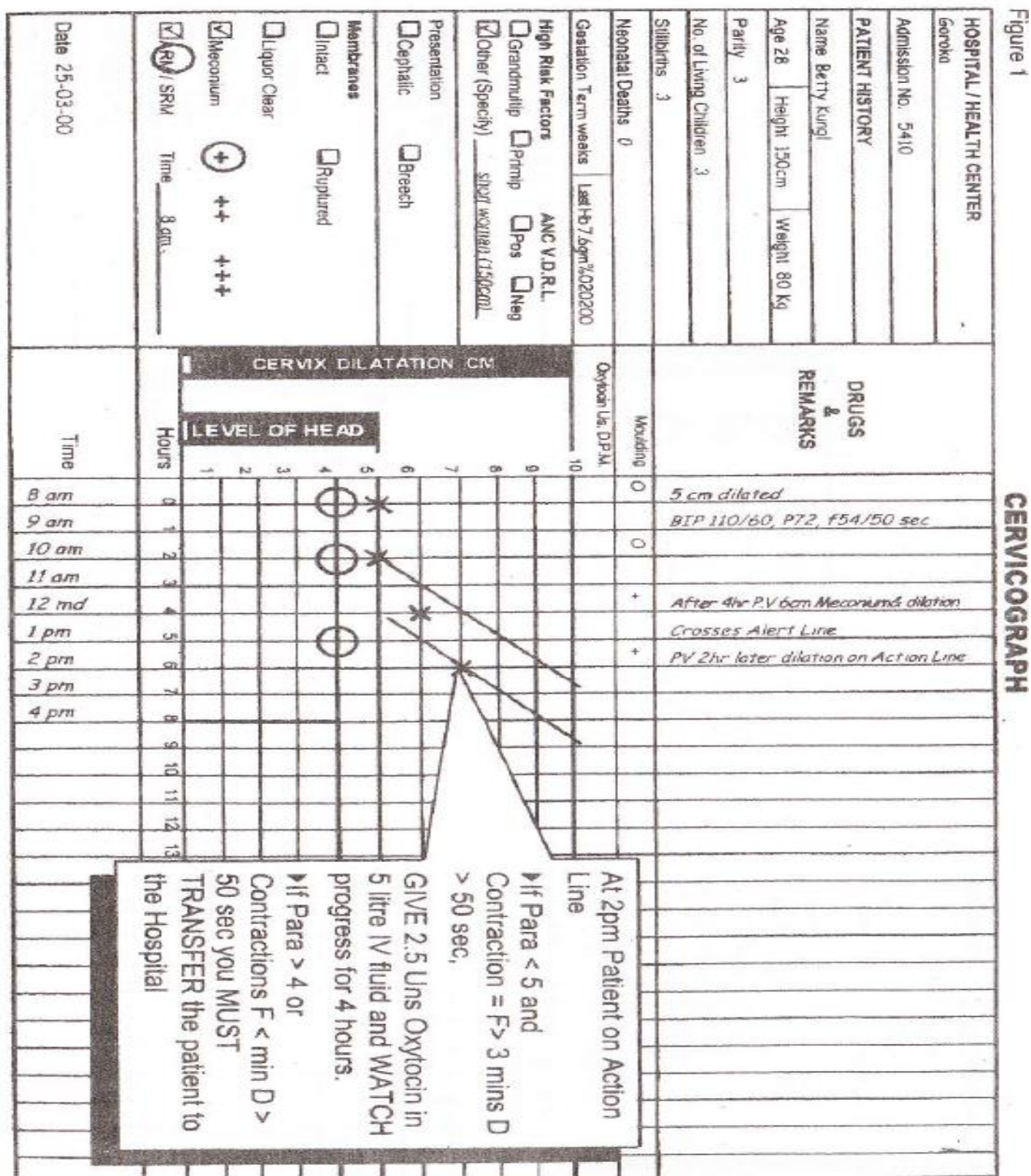
**NB.2** Never use oxytocin to strengthen contractions in a multipara if you are not personally able to supervise the rest of the labor closely. Rupture of the uterus is a disastrous and not uncommon complication of excessively strong contractions in multiparae.

Details of how to use an Oxytocin drip to Augment contractions can be found in the Chapter on 'Augmentation of Labor', (page 24 – 28).

For details of the **Management of the Third Stage of Labor**, see page 56, and page 59, '**Delivery and Post-partum Care**'.

## PARTOGRAPH FORMS SHOWING EXAMPLES OF COMMON LABOR PATTERNS

Multip: At 2pm action line is crossed. Assess the contractions and vaginal findings carefully for any moulding of the fetal head and consult the doctor. You may be advised to put up an Oxytocin drip if the contractions are poor and you have a midwife available to supervise the drip carefully. Otherwise, refer the woman to hospital





## Partograph: example of prolonged latent phase

Figure 2

HOSPITAL / HEALTH CENTER				CERVICOGRAPH	
PATIENT HISTORY				DRUGS & REMARKS	
Name Kila Opa					
Admission No. 226037					
Age 15				Height 156 cm	
Weight 56 kg					
Parity 0					
No. of Living Children 0					
Stillbirths 0					
Neonatal Deaths 0					
Gestation 37 weeks				Last Hb 9 gm %	
High Risk Factors				ANC V.D.R.L.	
Grandmultip 1/1 Primip				Pos: Neg	
Presentation				Others (Specify)	
Cephalic				Breech	
Membranes					
Intact				Ruptured	
Liquor Clear					
Meconium + ++ +++					
ARM / SRM				Time:	
Date 25-03-00					
CERVIX DILATATION CM				Moulding	
LEVEL OF HEAD				Oxytocin Use D.P.M.	
Time	Hours	1	2	3	4
8 am	0				
9 am	1				
10 am	2				
11 am	3				
12 MD	4				
1 pm	5				
2 pm	6				
3 pm	7				
4 pm	8				
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No lines are drawn (less than 4 cm)

Consider augmenting labour

If there are NO SIGNS of True Labour present, SEND the patient out of the Labour Room.

If there has been progressive effacement of the cervix and the contractions are continuing, she is in true labor. Assess for signs of poor placental function and manage accordingly. See pp. 80-83



# Partograph with Normal Progress

Figure 3

HOSPITAL HEALTH CENTER PMCH				CERVICOGRAPH	
Admission No. 226079				<b>DRUGS &amp; REMARKS</b> PV cervix 4cm ARM clear BP 100/60 P70 F13-D 40 secs After 4 hrs PV 8cm Delivery at dilation	
PATIENT HISTORY					
Name Petra Wokun					
Age 34	Height 150cm	Weight 60kg			
Parity 6					
No. of Living Children 4					
Stillbirths 1					
Neonatal Deaths 0					
Gestation 40 weeks		Last Hb 9 gm %		Moulding	
High Risk Factors <input checked="" type="checkbox"/> Grandmultip <input type="checkbox"/> Primip <input type="checkbox"/> Pos <input type="checkbox"/> Neg <input type="checkbox"/> Others (Specify) _____				Oxytocin Us. D.P.M.	
Presentation <input checked="" type="checkbox"/> Cephalic <input type="checkbox"/> Breech					
Membranes <input type="checkbox"/> Intact <input type="checkbox"/> Ruptured <input type="checkbox"/> Liquor Clear <input type="checkbox"/> Meconium + ++ +++ <input checked="" type="checkbox"/> ARM / SRM Time: ____ 8 am ____					
Date 25-03-00					

CERVIX DILATATION CM		LEVEL OF HEAD	
Hours	1	2	3
8 am	0	1	2
9 am	1	2	3
10 am	2	3	4
11 am	3	4	5
12 MD	4	5	6
1 pm	5	6	7
2 pm	6	7	8
3 pm	7	8	9
4 pm	8	9	10
	9	10	11
	10	11	12
	11	12	13
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	16	17	18
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	19	20	21
	20	21	22
	21	22	23
	22	23	24

Cervical Dilation is Good,  
Before the Alert Line.  
Labour is Normal.

# **MALARIA IN PREGNANCY: PREVENTION and TREATMENT**

## **Dangers of Malaria in Pregnancy**

Malaria is a very dangerous disease for the pregnant woman. It can lead to maternal death directly, or indirectly by causing severe anemia making her prone to death from PPH. Malaria can also cause fetal death in utero, IUGR, miscarriage, and fetal distress in labor.

## **Malaria situation in PNG**

There is year round transmission of malaria (holoendemicity) in all the coastal areas of PNG. Formerly most of the Highlands districts were malaria free, but over the past 10 years malaria has become mesoendemic (ie. epidemics of malaria occur regularly usually during the wet season). Malaria transmission occurs up and down the Highlands Highway most of the year. Fortunately there is little transmission of malaria in Port Moresby and most of the urban areas of PNG.

## **Prevention of Malaria in pregnancy**

If your clinic is in a malarious area, malaria prevention should be major priority in the ANC: it can only be prevented by a combination of strategies:

- i. All pregnant women should be encouraged to obtain a treated bed net and sleep under it every night. All ANCs should try and become distributors of treated bed-nets
- ii. Health education talks at ANCs should reiterate malaria prevention strategies
  - need to use treated bed-nets

- need to wear protective clothing when outdoors in the evenings
  - need to take drugs for malaria prophylaxis (Fansidar – see below) in holoendemic areas
  - need to attend the health facility quickly for treatment if you get a fever
  - In areas where malaria is holoendemic (most coastal districts) give all women Fansidar 3 stat. Fansidar 3 tabs should be repeated monthly until delivery - ie. at about 30 weeks and again at 35-36 weeks.
- i. Living in a screened house, using mosquito repellents on the skin, burning coils and wearing long sleeve clothing in the evenings can also be useful.

## **Treatment of Malaria in Pregnancy**

If possible a rapid malaria blood test should be performed before treatment is prescribed.

Coartem or Mala 1 (artermether and lumifantrine combination) 4 tablets stat, another 4 tablets after 8 hours and then 4 tablets bd for a further 2 days - a total of 24 tablets over 3 days.

OR

Artesunate (50mg tabs) 4 stat, followed by 2 tablets daily for 5 days, AND Fansidar 3 tablets stat.

[In the first trimester use Quinine 600mg tds for 5 days AND Fansidar 3 tablet on the 3<sup>rd</sup> day of the treatment course.

Quinine can be given orally or intramuscularly. The combination Quinine and Fansidar treatment is also used as “second line treatment” if a severe malaria case is not responding quickly to the first line treatment regimens above.]

If the woman is vomiting or toxic you should use parenteral or rectal suppositories of Coartem or Artesunate, or injections of Quinine until the temperature comes down and the vomiting stops.

### **Injection & suppository doses of artesunate for severe case**

<b>Drug</b>	<b>Dose of injection, 80mg in 1ml</b>	<b>Typical adult dose</b>	<b>Rectal suppositories 200mg</b>	<b>Typical adult dose</b>
Artesunate inj Stat dose	3.2mg /Kg	2ml (160mg) stat		
Artesunate for next 4 days	1.6mg/Kg daily	1ml (80mg) daily		
Artesunate suppositories			10mg/Kg	3 stat, daily



## MASSES (LOWER ABDOMINAL)

Lower abdominal masses can be due to any of these conditions:

1. **Normal pregnancy** – can be diagnosed from the menstrual history, clinical signs and doppler sonic aid and/or ultrasound if available.
2. **Distended bladder:** dull to percussion, catheterize if the woman cannot pass urine.
3. **Infection (chronic PID) or Endometriosis**  
Ask about infertility, lower abdominal pain, dysmenorrhoea and dyspareunia.

**Examine:** Often there is a low grade fever, cervical excitation, fixed and tender pelvic masses (page 2). It is quite difficult to distinguish chronic PID from Endometriosis, and women with chronic pelvic pain may have both conditions. Sometimes lack of social risk history (of STI) will give you the clue that she has Endometriosis rather than PID.

4. **Ectopic:** Rare to present with abdominal mass. Often there has been irregular bleeding and Culdocentesis usually produces dark blood (page 79).
5. **Uterine fibroids**
  - Age usually 30+
  - Heavy periods sometimes associated with cramping pain

- Mass firm, nodular, non-tender and moves with the cervix

Small fibroids (uterus less than 12 weeks size) that are not causing any symptoms **do not** need to be removed. Reassure her that her little fibroids are just thickenings in the muscle of the wall of the uterus and will not cause any harm.

However, if the fibroids are causing heavy periods, anaemia and a lot of pain, refer her to an SMO for operation (TAH).

## 6. Ovarian Cyst

- Any age group.
  - Usually normal menses.
  - Mass cystic and mobile.
- May undergo torsion to cause acute pain.
  - If <8cm size, re-examine after one month; if > 8cms or persistent, do laparotomy and remove. Send for histology.

## 7. Ovarian Cancer

- Usually over 40 years.
- There may be ascites and wasting: Mass is usually fixed, hard & irregular

Laparotomy for cancers, infective and endometriotic masses are difficult. Operations should be done under the supervision of an SMO (O&G). Therefore, consult your nearest SMO (O&G) if you find a case that might be cancer, chronic PID or endometriotic masses.

# MATERNAL MORTALITY REGISTER REPORTING FORM

**All maternal deaths must be reported whether they occur in a health facility or in the village/home by any health worker when they hear about the event. Fill in as much of the form as you can and send it in.**

Her Name:..... Date of Death:.....  
Place of Death:..... Date of Delivery:..... Place of Delivery:.....  
Best estimate of age of mother:..... Mother's home district:.....  
Parity (excluding this pregnancy):.....Gravida:.....  
Number of children alive:..... Children dead:.....  
How many times did she attend antenatal clinic:.....  
Was patient seen by medical or nursing staff in labor?:.....  
Was patient referred to hospital? Yes/No:  
If not why not:.....  
This baby: Liveborn/Stillborn/NND. Birth weight:.....g

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## Antenatal problems and Past Obstetrical History problems

1. ....
2. ....
3. ....

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## Labor Problems

1. ....
2. ....
3. ....

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## Type of delivery and Delivery problems

1. ....
2. ....

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## Past Medical diseases or problems

1. ....
2. ....

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**Treatments Given**

1. ....
2. ....
3. ....

**Was this death avoidable or preventable?**

**If so, How?.....**

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**Write the full story of this maternal death below.**  
Every maternal death is a sad story, but needs to be told so that others might not die.

**Your Name and position.....**

## **DEFINITION OF MATERNAL DEATH**

Maternal death is the death of any woman dying of any cause while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy.

## **REPORTING MATERNAL DEATHS**

All maternal deaths, wherever they occur, must be reported on one of these forms. All mothers that die delivering their baby in the village should also be reported whenever you hear about it.

Always ask APOs, CHWs and mother in a village MCH clinic if they have heard about any pregnant or post-partum mothers dying in the recent past.

## **WHERE TO SEND COMPLETED FORM**

Send completed form to the: Director of Health Information, NDOH, PO Box 807 Waigani NCD, with copies to Professor Glen Mola, Port Moresby General Hospital, FMB, PO Boroko, and your Provincial Health Advisor

## **MOLAR PREGNANCY (HYDATIDIFORM MOLE) and CHORIOCARCINOMA**

Hydatidiform Mole usually presents as a threatened or incomplete abortion: occasionally the mole is diagnosed on routine early pregnancy ultrasound scan.

In the 'threatened' stage, before the cervix opens, the diagnosis of hydatidiform mole may be suspected if:

- threatened abortion bleeding does not settle within a week of rest in bed
- the uterus is bigger than the menstrual dates indicate
- no fetal movements/fetal heart present with an 18+ weeks, sized uterus.

The diagnosis can only be confirmed at this stage by ultrasound scan. Refer immediately to a doctor.

When the cervix opens, passage of the typical grape-like vesicles confirms the diagnosis. Bleeding may be very heavy when a Hydatidiform mole is aborted spontaneously, and can therefore be a cause of maternal death.

### **Management of the case that is bleeding heavily**

1. Treat shock with IV Normal Saline or blood as necessary.
2. Put up an oxytocin drip (20 units in 1 litre of Normal Saline) and insert 3 tabs of Misoprostol into the rectum.

3. Transfer to hospital for evacuation of the mole by **suction** curettage, followed by sharp curettage of the uterine cavity. If you do not have a suction curette, you can make one by cutting holes in the side of a piece of Portex suction tubing and connecting it to an electric or Foot sucker. Send some tissue for histology (see page 73).
4. Give Ergometrine 0.5mg IMI after the evacuation, and continue the oxytocin drip: REPEAT the evacuation with a sharp curette one week later to make sure the uterus is completely empty.
5. Give the woman reliable family planning for at least 1 year. (Depo-Provera or Implant is probably the most convenient and reliable for this, unless the woman is having a TL done).
6. Review the patient monthly for three months and then every second month for one year. Perform clinical examination and pregnancy test at each review visit to detect the development of choriocarcinoma.

Suspect **choriocarcinoma** if any of the following occur:

- Recurrent bleeding
- The pregnancy test remains positive for more than a month after the second evacuation of the uterus.
- The pregnancy test becomes negative, and then positive again.

Secondaries are suspected by the appearance of granulomatous lesions in the vagina, on the vulva or perineum, or the woman develops cough, SOB and haemoptysis indicating lung metastases. (Lung metastases appear as cannon ball lesions on CXR)

**If Choriocarcinoma is suspected:**

- Send 10mls of serum to PMGH Pathology, for B sub-unit HCG estimation, with details of the case.
- Discuss the case with your nearest SMO (O&G) by phone.
- Do NOT perform hysterectomy in cases of choriocarcinoma unless there is a residual focus of tumour after completion of chemotherapy, or haemorrhage cannot be controlled by IV Methotrexate and suction curettage.

**The first line chemotherapy for choriocarcinoma is:**

1. Methotrexate 50mg IM alternate days at 8am for 5 days, and Folinic acid (Leucovorin) 15mg at 4pm the next day after the Methotrexate, ie. 36 hours after each dose of the Methotrexate.
2. This regimen is repeated with a week's break between courses until the urinary pregnancy test becomes negative (usually takes about 4-5 courses of Methotrexate and Leucovorin). Give another 2 courses of Methotrexate and Leucovorin after the urine pregnancy test becomes negative to make



sure that all the choriocarcinoma has completely gone.

3. Do WCC and creatinine before each course of chemotherapy. Contact SMO (O&G) for advice if WCC is less than 3000 or creatinine is high. If you cannot do creatinine, give Methotrexate anyway because the risk of death from choriocarcinoma is much higher than the possibility of renal failure.

## NEONATAL CARE

Essential steps for immediate care of the newborn must be taken as soon as the baby is born to increase its chance of survival and promote early maternal-neonatal bonding. The essential 4 steps are:

1. **Thorough drying:** Active drying helps to stimulate breathing. Most babies who are not breathing at birth will start to breathe after thorough drying. It also prevents hypothermia. At birth of the head, wipe the face, nose and mouth with clean dry cloth. Thorough drying takes 30-40 seconds. It should be by rubbing, not patting. Assess the baby for breathing while drying. There is no need to suck baby's nose and mouth; unnecessary suction of neonates can suppress onset of respiration. Only suck **if there is thick meconium present**, and the baby does not breathe at birth.
2. **Skin-to-skin:** Remove the soiled cloth and place baby prone on mother's chest skin-to-skin. Then cover them with a clean dry towel or blanket. Skin-to-skin keeps baby warm, promotes bonding, contributes to early breastfeeding, stimulates baby's immune system, protects from hypoglycemia and helps colonize with maternal skin flora.
3. **Delayed Cord Clamping:** Delaying cord-clamping protects against anemia, intraventricular hemorrhage and necrotizing entero-colitis. Palpate the umbilical cord. After cord pulsations have

stopped (1-3mins), clamp the cord using a sterile plastic clamp or tie at 2 cm and 5 cm from the umbilical base. Then cut near to 2 cm (ie. between the clamps); this eliminates the need to “trim” the cord later. There is no need to apply disinfectant to the cord stump. By allowing the cord to air dry, the cord will dry more quickly. Remind mother - Do not use a binder or apply any substance to the cord. Unnecessary handling of the cord gives opportunity for bad bacteria to get into the cord.

#### **4. Initiate early breast feeding**

Breastfeeding is one of the most lifesaving interventions for babies. Delays in initiation of breastfeeding are associated with dramatic increases in death and illness. Babies who are formula (artificially) fed have 6 times the risk of dying compared with exclusively breastfed babies. Babies normally are not ready to feed immediately after birth. Leave the baby between the mother's breasts in continuous skin-to-skin contact until it is ready to feed. Do not force its mouth onto the nipple. The baby may not show feeding cues for 20-30 minutes or even longer. Signs of readiness to breastfeed include drooling, mouth opening, tonguing, licking, rooting and sucking fingers or hand. When you observe these feeding cues, position the baby put the breast into its mouth, while still maintaining skin to skin.

Keep the baby on the breast for as long as

possible before transfer to postnatal ward.

## **Non-breathing baby**

If the baby is breathing and crying by the time you have completed drying the baby, there is no need for resuscitation. But if the baby is not breathing by the time you have completed drying the skin (30 seconds after birth), clamp the cord and perform newborn resuscitation.

## **Newborn resuscitation**

- Position head: extend the neck with jaw lifted forward.
- Place the mask over the baby's mouth and nose. Do not cover eyes with the mask.
- Form a firm seal between the mask and the face (use mask size 1 for normal birth weight newborn and size 0 for low birth weight newborn).
- Squeeze the bag a few times slowly to observe the rise of the chest. Squeeze 40-60 times a minute. After a minute of bag and mask resuscitation allow baby the chance to breathe on its own. If ventilation is adequate, baby chest rises and colour becomes pink.
- When baby starts breathing, stop bag and mask.
- Keep baby warm and return baby to mother for skin to skin
- Facilitate early breastfeeding as earlier explained.

## Refer to Newborn Resuscitation algorithm at back of this manual

### General care of Newborn:

- Give Konakion 1mg im to prevent bleeding (Vitamin K).
- Give vaccinations according to national vaccination schedule (Hep B and BCG vaccination at birth)
- Write all important information about the delivery (including delivery complications like CS and the indication for the CS) and treatments in child health book;
- Emphasize the need for future vaccinations and check-ups and commencement of family planning for mother.
- Bathing baby is not necessary in first 12 hours.
- **Weigh baby** after you have done all priority care.
  - If less than 2500g, this is low birth weight (LBW) and the baby's gestational age should be assessed for prematurity (see table on page 142).
  - If over 4000g, the baby is macrosomic and may develop low blood sugar and lethargy. It needs early and extra feeds. Colostrum is the best fluid for a newborn baby. However, if he is unable to suck well, give him 40ml of 10% dextrose (or formula) at one hour of age, then 2-hourly for the first 12 hours. Then observe to ensure breastfeeding is adequate for the next two

days. See page 52 for care of the diabetic or macrosomic baby.

## **NEONATAL ADMISSION to Special Care Nursery (SCN) and ASSESSMENT**

Mother's Name:..... Baby's Name:.....  
Father's Name:..... Address/contact/tel no etc.....  
Dates of Admission to Nursery:..... Discharge from Nursery:.....  
Date of Discharge from Hospital:..... Admission Number:.....  
Admission Diagnoses..... Discharge Diagnoses:.....

### **HISTORY:**

Date of birth:..... Time of birth:.....  
Age:.....days Sex:.....  
Place of birth:.....  
Type of delivery: SVD/Vacuum/Breech/C-S  
Birthweight:.....g. Apgars...../1m,...../5m,...../10m.  
Meconium: Nil, +, ++, +++  
Resuscitation needed at birth:  
Reason for admission:  
Medicine already given:

### **HISTORY OF MOTHER:**

Age:..... single/married.. Gravida.....Para..... L Living children.....  
Pregnancy Problems:  
Anaemia (lowest Hb ) .....  
Diabetes: .....  
Booked/Unbooked: Number of prenatal visits:.....  
Malaria:..... Other diseases.....  
Labor problems:  
Fever:..... Pre-eclampsia:.....  
Medicines given to mother..... Bleeding (APH):.....  
Estimated Gestational Age.....weeks: (determined from her EDD)  
Time and date of membranes rupture:.....

### **PHYSICAL EXAMINATION OF BABY:**

Temp. ....°C pulse:...../min Resp rate:...../min.  
Weight today.....g Head circum.....cm Length .....cm.  
Level of activity:.....  
Skin: Rash:.....Head:.....  
Jaundiced: N, +, ++, +++ Eyes:.....  
Cyanosis:..... cleft palate: Yes/No.  
Lung sounds:.....distressed breathing: grunting, flaring, retracting  
Heart sounds:.....  
Abdomen: masses, distension, tenderness.  
Genitals: ..... Umbilicus: infection: yes/no.....vessels  
Anus: open/closed Extremities: hip click: yes/no  
Other deformities:.....

Apparent Gestational Age: (From reverse side) ..... weeks

#### **PROBLEMS:**

#### **PLAN:**

- 1.
- 2.
- 3.

Your Name (health staff) :.....

## DETERMINING APPARENT GESTATIONAL AGE (AGA)

Feature	0	1	2	3	4	Score
foot creases	none	faint red marks	anterior transverse crease only	creases on anterior 2/3	creases on whole foot	
breast	barely seen	flat areola no bud	stippled areola	raised areola 3-4mm bud	Full areola 5-10mm bud	
ears	pinna flat stays folded	slightly curved, soft slow recoil	well curved soft, ready recoil	formed, firm instant recoil	thick cartilage, stiff	
genitals of boys	scrotum empty, no rugae		testes coming down, few rugae	testes down, good rugae	testes pendulous, deep rugae	
genitals of girls	prominent clitoris & labia minora		labia majora & labia minora equally prominent	labia majora larger than labia minora	clitoris and labia minora completely covered	

**Total Score**    3   5   8   9   10   11   12   15   16   17   20   23    **Baby's Score:.....**

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**AGA (wks)**    27   28   30   31   32   33   34   35   36   37   38   40   42    **Baby's Age: ....**

## DETERMINING APGAR SCORE

Score Sign	0	1	2
pulse	absent	less than 100	over 100
resp. effort	absent	slow, irregular	good, crying
muscle tone	floppy	some flexion, arms/legs	active motion
reflexes	no response	Grimace	cries
colour	blue, pale	body pink, hands feet blue	completely pink



## OBSTRUCTED LABOR AND DESTRUCTIVE DELIVERY

When the uterus is (or has been) contracting **strongly**, but there is no progress (i.e. no further dilatation of the cervix or descent of the presenting part) then labor is obstructed. In obstructed labor the membranes have always been ruptured for some time and there is severe moulding of the fetal head present. Often there is also vulval oedema too.

When obstruction occurs, contractions may get weaker, particularly in primigravidae: however, in a multipara the contractions usually do not get weaker but continue strong until the uterus ruptures.

When labor has been obstructed for some time, the mother becomes dehydrated, infected, and ketotic. A fistula may form some days later if labor has been obstructed for many days. A transverse lie in labor will always obstruct.

### **Management:**

1. Put up Normal Saline infusion and commence broad spectrum antibiotics (eg. Chloramphenicol 1 gram qid or Amoxicillin 500 tds and Tinidazole 1g bd or Metronidazole 500mg tds IV or PR). Consult a senior colleague and refer the patient to hospital.
2. If the baby is alive, it should be delivered as soon as possible, by Caesarean section or vacuum extraction +/- symphysiotomy as appropriate. If you suspect

hydrocephalic fetus, take an X-ray or do an US scan (see next item 4).

3. If there is some delay in being able to perform the C-Section, it is possible to temporarily stop the contractions by giving an intravenous injection of salbutamol. Dilute 0.5mg salbutamol with sterile water in a 10ml syringe and give IV over 2 minutes.
4. If the baby is **hydrocephalic or dead**, and the cervix well dilated (ie. > 6cm) vaginal delivery should be assisted by destructive means. [Always empty the bladder with a catheter before attempting a destructive delivery and leave a foley's catheter in afterwards on continuous drainage for 5-7 days].

a) **Hydrocephaly:** The suture lines are usually separated, and the head feels soft. However, in obstructed labor the skull bones may be pushed together because of moulding: this can make diagnosis difficult. Confirm your suspicions with X-ray or ultrasound. After confirmation, perforate the skull with a pair of sharp, straight scissors. (Push the point of the scissors through a suture line or fontanelle and open to allow the CSF to drain out). If the hydrocephalic is presenting by the breech, pull down on the legs and push the needle or the scissors into the skull just below the occiput. As the excess fluid around the brain drains away the baby will be able to deliver normally.

***Note: if baby is clinically hydrocephalus in utero, it will not be possible for the***

***neurosurgeons to save this baby, therefore do NOT offer the woman a CS, - she will just end up miserable with a dead or disabled baby and a scar in her uterus.***

- b) **Dead baby:** CS should be avoided if possible, for mother's sake: Explain to the mother what you need to do [and why]. See below for the management for cephalic & breech;

**Cephalic presentation:** Perforate the head as for hydrocephalus (above). However, you will need to 'punch' the sharp pointy scissors through the fetal skull bones with some force as the bone will be thicker. The collapsed skull bones should then be grasped with Volsellum, Kockers or other strong tissue forceps and the baby extracted by traction on the forceps. If she is not fully dilated, this may take several hours.

**Breech:** If the patient is admitted with the trunk hanging out and the head retained, give her 50-75mg iv Pethidine, put her legs up in lithotomy and tie a weight on to the breech (a litre bag of saline makes a good weight) and allow to hang. If the breech does not deliver in one hour, perforate the head.

**Transverse lie:** The baby's head (preferably with one arm attached) should be decapitated with a sharp strong scissors. Have an assistant pull down hard on the prolapsed hand while you are trying to locate and cut the neck (However, if you are not experienced at this procedure, and particularly if the neck is not easily accessible or the cervix not fully dilated, it may be

easier and safer to perform Caesarean Section). Give broad spectrum antibiotics for a week as these patients are very much at risk of developing severe puerperal sepsis.

*Always explore the uterus with your hand after a destructive operation to make sure it is not ruptured.*

- c) CS for an obstructed transverse lie can be very difficult. It is preferable to do a vertical lower segment incision in the uterus extending a short distance into the upper segment if the lower segment is not wide enough; rather than an inverted T (or full classical incision).

**Never** attempt internal version and breech extraction with an obstructed labor and transverse lie in a multigravida as rupture of the uterus is a very real danger and will usually prove fatal for the mother.

**Leave an IDC** in the bladder for continuous drainage after delivery (CS or Assisted vaginal delivery) for obstructed labor for 7 – 10 days: this will minimise the risk of fistula formation.

### **Perinatal Death Record Card**

Fill out details of the reason that the baby died on a card and give it to the woman for future reference, - 'bring it to ANC in the next pregnancy'.

## PELVIC INFLAMMATORY DISEASE (PID)

PID almost always arises first from a sexually transmitted infection with Gonorrhoea or Chlamydia, - very rarely can it follow another cause of pelvic sepsis such as a septic abortion.

It is best to interview and treat the husband or boyfriends as well at the same time. If he says he has no symptoms, tell him that men usually feel no symptoms with Chlamydia or Trichomonas infection and it is best for him to just 'take the medicine' (Doxycycline 100g bd for 10 days or Azithromycin 1g oral stat and Tinidazole 2g stat.). This will treat any sub-clinical gonococcal or chlamydial urethritis he may have, - as well as eradicate trichomonas infection.)

Chlamydia is very common in PNG: most areas record prevalence of 20-25% in young adults: Gonococcal prevalence (asymptomatic carrier state) is about 1%.

Most PID presents in PNG in the chronic or acute-on-chronic stage.

### **Acute PID (and acute on chronic flare ups of PID)**

Acute PID means the first episode of PID following on the STI of gonorrhoea or Chlamydial infection. If this is the case, it is usually associated with a new sexual partner, or the husband has recently contracted an STI elsewhere: therefore take a careful social history regarding both patient and partner.

In PNG most women presenting with symptoms like 'acute' PID really have acute on chronic disease; ie. they have chronic PID, and this sudden onset of lower abdominal pain is a flare up, not a new infection. If this is the case, the woman will have some years of subfertility.

### **Diagnosis:**

- Lower abdominal pain usually starting soon after a menstrual period. (If this is acute on chronic there will be a history of lower abdominal pain in the past)
- Fever
- Not able to get pregnant for some time, or at least not since the recurrent episodes of lower abdominal pain began several years ago.
- Signs of peritonitis across the lower abdomen and tenderness on bimanual examination (particularly cervical excitation).

**N.B.** A PV examination must be done on all women who present with lower abdominal pain.

If ectopic pregnancy is a possibility: ie. patient pale, menstrual irregularity, history of amenorrhoea present; do a culdocentesis, see pages 2 and 79.

If **Appendicitis** is the actual diagnosis, there are usually GI symptoms: she will have been **anorexic** since the pain began, and the right sided pain will be worse rather than improved after 24 hours of antibiotics.

## Treatment:

### A. Mild or Moderate case

Patient not toxic, vomiting nor with severe signs of peritonitis: Give

1. Amoxicillin 500mg oral tds for 5 days (or Chloramphenicol 500mg qid for 5 days), and
2. Metronidazole 400mg tds for 5 days, or Tinidazole 1g bd for 3 days
3. The above to be followed by Doxycycline 100mg bd or Azithromycin 500mg daily for 10 days.

[\*Doxycycline should always be given **AFTER** food to prevent gastritis and severe epigastric pain].

4. The recent partner(s) should also be treated with Doxycycline 100mg bd for 10 days and Tinidazole 2g.

### B. Severe case

Patient toxic, vomiting or has signs of severe peritonitis across the lower abdomen.

1. Admit and put up an IV infusion of Normal Saline
2. Pethidine or Codeine/Paracetamol for pain
3. Chloramphenicol 1 gram IV progressing to oral qid for 7 days, or Amoxicillin 500mg tds
5. Metronidazole 400mg iv, oral or rectal tds for 7 days or Tinidazole 1g bd for 3 days
6. The above seven day course of combined antibiotic therapy to be followed by 10 days of

Doxycycline\* 100mg bd **or** Azithromycin 1g stat and 500mg daily.

7. The partner must be treated with Doxycycline\* 100mg bd for 10 days (or Azithromycin 1g stat) and Tinidazole 2g stat.

At the end of the antibiotic course, a repeat bimanual examination should be done. If a tender pelvic mass is found, the patient should be discussed per phone with your nearest SMO (O&G).

### **C. Chronic PID**

Is diagnosed when there is chronic or recurrent lower abdominal pain, dyspareunia, dysmenorrhoea, infertility; there may be adnexal tenderness, induration or masses present on bimanual examination.

#### **Treatment:**

1. Antibiotics as above for Mild/Moderate acute PID
2. Refer (not urgently or discuss per phone) to your nearest SMO (O&G) if pain is persistent and troublesome. Get consent for surgery **before** sending the patient to the specialist. Do not give the patient hope with regards fertility. It is rarely possible to help these women achieve return of fertility. Persistent pain may be helped by a pelvic clearance (hysterectomy).

**Gonorrhoea:** This is a common disease in PNG. Many gonococcal infections are associated with **Chlamydial infection** as well. Gonorrhoea and



Chlamydial infections are the commonest cause of infertility in women and can cause infertility in men too.

Diagnosis of the initial infection is usually difficult in women because they may have no symptoms. Some women develop mild dysuria and a discharge of pus from the cervix (Cervicitis). Lower abdominal pain indicates that the infection has spread into the pelvis (tubes & ovaries), and the patient now has PID (see above). A gram stain from the urethra or endocervix confirms the diagnosis if gram negative intracellular diplococci are seen.

**Chlamydial** infections are even more common than Gonorrhoea and the onset of symptoms more insidious. Treat all cases of urethritis and/or cervicitis in women for both Chlamydia and Gonorrhoea.

**Treatment** (of the case lower genital tract infection: ie. merely with urethritis or cervicitis; **No** PID yet). Both patient and sexual partner(s) need to be treated as follows (Gonopac):

- Amoxicillin 3 grams stat
- Probenecid 1 gram stat
- Augmentin 1 tab stat
- Followed by Doxycycline\* 100mg bd for 10 days, or Azithromycin 1g stat.

Gonorrhoea infection with any signs of pelvic inflammation needs full PID treatment as in A above.

As these infections are all STIs, counsel all PID and STI patients and partner(s) about:

- Use of condoms
- Having VDRL and HIV testing (PICT)

**The risk of a woman with PID having HIV** is most related to whether her PID onset is recent. If her husband gave her PID 10+ years ago, and he is not behaving in a risky manner any more, it is unlikely that he would have given her HIV. However, if her PID is recent then it is more likely that he may have given her HIV as well as the STI that has caused her PID. This is because HIV has only been very prevalent in PNG for the past 10 Years.

## POST-NATAL CARE OF THE MOTHER

The **4<sup>th</sup> stage of Labor** is 1-6 hours after birth. It is a very dangerous time for the mother as she can start bleeding again. For this reason, she needs close observation.

Of those mothers who die in relation to pregnancy, 70% of them do so in the 48 hrs around delivery time.

The post-natal period can be a very dangerous time, but having your patient under observation gives you (and them) a big advantage in terms of recognising problems early.

**Welcome, encourage and assist all mothers to stay in the health centre or hospital for at least 48 hrs post-partum. Primiparas and those with risk factors or problems should stay 4-5 days.**

If you allow mothers to go home early some will start bleeding again and others will get puerperal sepsis (or the baby die from neonatal sepsis). PPH and Puerperal Sepsis are the two commonest causes of maternal mortality in PNG and account for 60% of all maternal deaths in PNG.

Keeping the mother in the health centre for several days post-partum also gives you an opportunity to make sure that:

- Lactation and attachment are established (critical for the baby's survival)

- You have time to counsel her about:
  - Healthy baby care and care of herself post-partum
  - Family Planning: this is a good time to get her to commit to a specific method to commence 4 - 6 weeks post-partum.
    - The Implant can be inserted immediately after birth; ie. before she goes home.

## **Routine maternal post-natal observations**

Ask the woman how she feels and if she has any questions. Check and chart the following... (see page 136 for Routine care of the newborn baby).

1. Fundus is firm and central immediately after delivery, check again before you leave the patient to tidy up; then every 15 minutes for 2 hours, then hourly for 4 hours.
2. Pulse, BP and Respirations hourly for 4 hours; if these Observations are normal, then check daily until discharge.
3. Temperature bd, for 3 days: oral temperature is more reliable than axillary temperature recording.
4. Perineum/Episiotomy and pad check bd
5. Mental state: if she becomes aggressive or confused consult a doctor: check for meningitis and malaria

6. Pain relief: give Paracetamol 1g qid for any pain (breasts, perineum etc)
7. Discharge with 60 days of Fe/folate to all postpartum mothers who are anaemic.

**For the following post-partum problems consult a midwife, HEO or doctor:**

If she develops:

- a. A tachycardia of more than 100, or respiratory rate of more than 20.
- b. A fever over 37.0 (see Puerperal Fever page 180).
- c. If the uterus fails to involute at correct rate, especially if her lochia is not decreasing.

**You may find it useful to use the Postnatal Discharge Checklist in the Mama Record Book or print out and use the table below.**

NAME:	Date of delivery Date of Discharge		What further action required?
VDRL status HIV status	Pos/Neg	If +ve, have both partners had treatment?	For HIV she needs life-long treatment & husband must be tested.
Any other A/N issues requiring follow up	Y/N	What?	
Fundus firm, central, lochia normal	Y/N		
Fundal height =	...wks		

Perineum			
Afebrile for last 24 hrs	Y/N		
Higher risk factors	Y/N	If Yes, which?	
Baby going home with mother	Y/N	If No, why not?	Give her info on early signs of neonatal sepsis
<b>Discharge medications:</b>			
Fe/fefol	It is a good idea to give Fefol one month supply to all post-partum women, and for longer if they are anaemic.		
Antibiotics required and supplied	Y/N	If Yes, which & for how long?	
Other medications	Y/N	Which?	
Needs to see Dr before discharged	Y/N		
Warning/danger signs re post-partum complications discussed	Y/N		
Post-partum depression	Y/N	Mild depression is quite common post-partum; be alert to severe depression, it can be very serious and lead to suicide. Refer	
Family Planning decision	Y/N	Method:	She can have Implant inserted before discharge
Next appointment/s	Date	Where:	

### Primary PPH:

Definition: a measured blood loss of 500 ml or over, occurring within the first 24 hours of vaginal delivery. Blood loss at delivery is often underestimated because blood trickles into the bucket, onto the bed etc. and is not measured.

PPH is caused by one or a combination of the following:

1. The uterus being not well contracted ("atonic"). 70%
2. Genital tract tears .....20%
3. Having retained products (placenta or clot) ....10%
4. Clotting problem .....1%

### Higher Risk Women:

1. Uncorrected anaemia in labor ( $Hb < 8g\%$ ): these patients are much more at risk of developing shock/dying with smaller PPHs.
2. History of PPH or retained placenta
3. Primiparas and Grand multigravidae (para 5 and over)
4. Over-distended uterus due to big baby, twins or polyhydramnios.
5. Very long labors and especially when she has needed Vacuum extraction for delivery
6. APH cases are more at risk for PPH.

**Management of higher risk mothers with a view to prevention of PPH:**

1. Correct anaemia antenatally by giving daily Fefol etc.
2. Encourage delivery in health centre or hospital: refer her to hospital before delivery if she has several risk factors.
3. Insert IVI Normal Saline infusion with large cannula when she gets to about 6cms dilated
4. Get extra assistants for the delivery and 3<sup>rd</sup> stage
5. Have a “PPH Box” ready in your Labor Ward with all the equipment you need in it; check the PPH box daily
6. Oxytocin 10iu imi with the delivery of baby or as soon after as possible
7. Controlled cord traction as soon as the uterus contracts.
8. Firmly rub up the fundus following delivery of the placenta to ensure uterus is well contracted
9. Add 20 units oxytocin to the flask of Normal Saline, and run at 40 dpm for at least 2 hours after the birth
10. Insert 3 tablets (600ugm) of Misoprostol into the rectum after delivery, and give Oxytocin 10iu imi if there is any excessive bleeding at all.

### **Management of PPH:**

1. If placenta is out, rub fundus until firm, and at the same time call for “HELP”: tell the woman what is happening.
2. Lie the patient flat with a slight tilt to her left hand side and give oxygen by face mask;



3. Several things need to be done at the same time and FAST:
  - a. If placenta is not out, actively manage third stage, including use of ergometrine and oxytocin (see page 56) and consider manual removal (see page 194)
  - b. Insert an IV Normal Saline (with largest bore cannulae you can get in and take blood for Hb and cross-match at the same time) and run in **3 litres as fast as it can possibly run**. (For every 1 L of blood loss, she will need 3 L of N/Saline: never use Dextrose solutions for blood volume replacement and resuscitation.)
  - c. Repeat Ergometrine 0.5mg IV
  - d. Put up a second iv N/Saline with oxytocin 20 units.
  - e. Insert an IDC and record urine output
  - f. Insert 3 tablets of Misoprostol into the rectum.
4. Keep the woman warm as you can and call for help
5. Get someone to check the placenta is complete
6. Check that the blood (being collected from vaginal loss) is clotting: and keep massaging the fundus.
7. Ask someone to estimate total blood loss every 10 min.

Further management depends on the cause of the bleeding:

	<b>Cause</b>	<b>Action</b>
A	Uterus not well contracted	Continue to firmly massage the uterus and run oxytocin drip; repeat IV ergometrine & insert PR misoprostol; check IDC is draining and not blocked/in the wrong place
B	Placenta is retained or partially retained	Do controlled cord traction or manual removal as appropriate (see page 195)
C	Vaginal or cervical tears	Suture the tears. Pack vagina tightly if not able to suture and refer to doctor

## **AORTIC COMPRESSION**

Can temporarily control uterine bleeding and is useful whilst waiting for help or during transfer. The patient needs to be on a firm surface. The health worker places his/her fist just above the fundus and with a straight arm leans with full body weight onto it compressing the aorta between the patient's vertebra column and their fist. This can be a life-saving manoeuvre, and all health workers should practice it in the non-emergency situation.

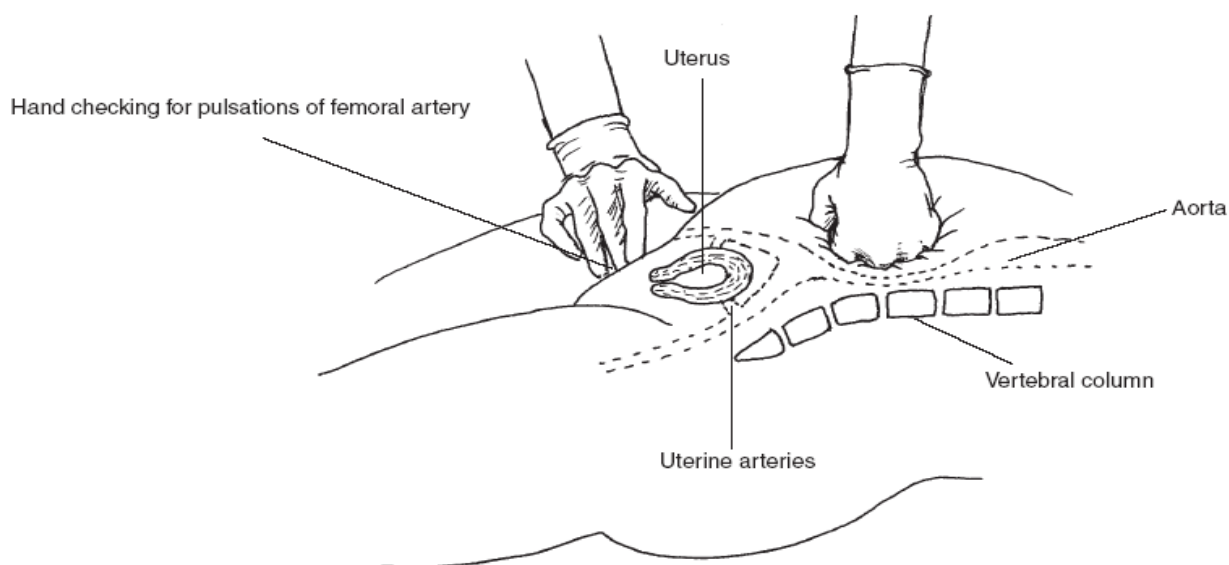


Figure 7.8 Manual compression of the aorta

## Persistent PPH

The above measures will control over 95% of cases of PPH. If the patient is still bleeding:

1. Do bimanual compression and/or aortic compression (see above).
2. Consider inserting a condom into the uterus and blowing it up with 600mls of Normal Saline to effect 'balloon tamponade' of the uterus. This can be useful in cases that continue to trickle.
3. Look at blood passed for clotting; if it is not clotting this is DIC and she urgently needs many units of fresh whole blood and/or fresh frozen plasma x at least 4 units. Alternatively you can take a unit of blood from an O group HIV –ve donor (possibly yourself), and give it **straight away** to the patient. This can be lifesaving in DIC, - especially if you do

not have lots of fresh blood and FFP in the blood bank to give your patient.

4. If in a health centre, continue to treat shock with iv Normal Saline and continue aortic compression in transit to hospital.
5. In hospital
  - Examine for tears, ruptured uterus, retained placenta.
  - Consider hysterectomy, B Lynch suture or internal iliac ligation.

**(NB.** Never embark on hysterectomy while shock or DIC persist as the patient is likely to die on the operating table).

## **Vulval or vaginal haematoma**

This is very painful and the haematoma may contain a significant amount of blood which can cause shock. It may occur in the presence or absence of a tear/episiotomy.

**DO NOT BE TEMPTED TO EVACUATE A VULVAL HAEMATOMA IN THE ACUTE SITUATION:** this can be fatal

The correct management in the first 48 hrs is:

1. Identification of extent of haematoma: the woman can quickly become shocked – manage with N/Saline drip fast (see above); she may also need blood transfusion

2. Ice packs (condoms ½ filled with water and frozen, inserted inside a split maternity pad works best)
3. Regular, strong analgesia (eg. Morphine or Pethidine): they may well need a Pethidine infusion (see page 44 post-op pain relief in section on CS)
4. IDC....it may be too swollen or painful to void for 48+hrs
5. Regular observation, reassurance and explanation

It is sometimes necessary to evacuate a vulval hematoma after 48 hours because it is spontaneously rupturing, not resolving or getting infected.

### **Secondary PPH:**

Definition: Excessive bleeding occurring > 24 hours post-partum

Cause: Usually retained products of conception associated with infection.

### **Treatment:**

1. Resuscitation, as above, if required with Normal Saline.
2. Broad spectrum antibiotics
3. Refer to doctor for evacuation or other measures.

(Do not evacuate women with secondary PPH following recent C.S. If a CS patient bleeding persists in spite of resuscitation and antibiotics, the woman probably needs laparotomy and hysterectomy).

## PRE-ECLAMPSIA (PET)

### Definition:

A rise in blood pressure after 20 weeks gestation to a level of 140/90 or above (with patient lying on her side) and proteinuria. Significant proteinuria is ++ on dipstix, or any solid protein on boiling. Raised BP without proteinuria is called Pregnancy Induced Hypertension (PIH) and is not as serious as PET. Oedema of the legs is not particularly significant and does not need treatment: ie. do not give diuretics eg. Lasix.

### Management of Raised BP in pregnancy

1. **ADMIT** to hospital or Health Centre for rest and observation.
2. Record 8 hourly BP and dipstix or boil\* urine to confirm the diagnosis of PET. Observe patient daily for development of other signs of severe pre-eclampsia. [Diuretics should **not** be given for oedema as this will often cause IUGR].
3. Consult doctor after one day rest in bed if BP not improved. Drugs to lower BP should be used if the diastolic BP is more than or equal to 110mmHg
4. In hospital laboratory tests should be done to further investigate the possibility that the case might be severe pre-eclampsia (UECs, platelets and LFTs)
5. **INDUCTION** should only be done in hospital. Induce labor if pregnancy is obviously term and cervix is ripe (ie. head 3/5 or below and cervix soft, effaced and admits 2 fingers): do ARM and

start oxytocin infusion. (See page 108). It might be necessary to ripen the cervix with Misoprostol first.

6. Ensure short 2nd stage with episiotomy and/or vacuum extraction if necessary.

### **\* Urine Testing**

Boiling the urine in a test tube is the most reliable way of ascertaining if there is significant protein present: dipstix are not so reliable in the tropics, especially if the top is left off the bottle of dipstix for any length of time.

### **Severe Pre-Eclampsia:**

Diagnosis: is made if any of the following occurs:

- BP remains above diastolic 110mmHg in spite of 4 hours bed rest in hospital,
- Severe headache, eye signs (spots, blurring etc) or epigastric pain,
- Proteinuria 1/3 solid or greater on boiling in a test tube, (> 300mg/dl on dipstick testing, ie. +++)
- Very Hyperactive reflexes, or clonus is tested for, (Clonus is the sure sign of CNS irritability and risk of eclampsia).
- Platelet level is dropping, urea or creatinine level is going up, or liver enzymes are becoming elevated.

### **Management:**

1. The best anticonvulsant therapy for severe PET or eclampsia is MgSO<sub>4</sub> (see also page 74

“Eclampsia”): please note MgSO<sub>4</sub> is not an anti-hypotensive drug.

## **Magnesium Sulphate (MgSO<sub>4</sub>) Regimen**

- **Loading dose (total of 14g: 4g iv and 10g imi)**

**First give 4g IVI** (this is 8ml of 50% MgSO<sub>4</sub>). Draw up 4mls of MgSO<sub>4</sub> in each of two 10ml syringes and dilute each with 6mls of sterile water (or N/Saline from an IV flask) to fill the syringes up to 10mls. Now sit down with the patient & inject these 2x10ml syringes IV into the cannula port of a **fast flowing** N/Saline drip - at the rate of about 2-3mls/min.

**Next give the 10g imi component.** (5g = 10 mL 50% MgSO<sub>4</sub>): add + 1mL 1% lignocaine); give in each of 2 syringes. Inject the 5g x 2 (10ml +LA) per syringe into each buttock or lateral thigh.

**Maintenance Dose** of MgSO<sub>4</sub>. Give 5g (10ml) by deep IMI injection: start 6 hours after the loading dose and give every 6 hours until 24 hours after delivery.

If the woman has a fit whilst on the MgSO<sub>4</sub> regimen, give an additional 2g (4ml) of 50% MgSO<sub>4</sub> via direct intravenous injection.

When using MgSO<sub>4</sub> it is important to monitor the patient for signs of toxicity by checking the reflexes, urine output and respiratory rate hourly. If the reflexes become non-responsive, the respiratory rate becomes



less than 14 per minute or the urine output is less than 30mls in the preceding hour, the next scheduled dose of  $\text{MgSO}_4$  should not be given. If the woman's respirations become  $< 12/\text{min}$  she should be given the antidote to  $\text{MgSO}_4$  which is **Calcium Gluconate 10ml IV** slowly and the respiration supported by Ambu bag and mask.

2. **If  $\text{MgSO}_4$  is not available use diazepam** to control each fit or Phenobarbitone 200mg IMI. These drugs are **not as good as  $\text{MgSO}_4$**
3. **If BP is persistently over diastolic 110mmHg** give Hydralazine 5mg IV every 30 minutes until diastolic  $< 110\text{mmHg}$ . If the diastolic BP drops below diastolic 80mmHg after the Hydralazine give one litre of Normal Saline stat and maintenance fluids at 30dpm. If there is no Hydralazine available use Nifedipine 10mg 3<sup>rd</sup> hourly until BP stabilized and then tds. If the woman is not in labor and the BP is persistently above 160/110mmHg, commence her on Aldomet 500mg tds and/or Nifedipine 20mg daily.
4. **Consult doctor** for probable transfer for induction.
  - i. Depending upon the transport situation the doctor may tell you to go ahead with the induction in the health centre (see page 105). If induction is necessary before 35 weeks give Dexamethasone 12mg bd for 1 day to accelerate lung maturity (see page 170).

- ii. In hospital induce labor as soon as the baby is mature (or earlier if the BP has not settled after 24 hours bed rest and sedation. (Induction should be carried out whether the cervix is ripe or not if severe Pre-Eclampsia is worsening. Misoprostol can be used to ripen the cervix, (see page 109).

- 5. **If pulmonary oedema occurs (ie. she gets very short of breath): Give Frusemide 40mg iv, intranasal Oxygen and stop all IV fluid intake for 24 hours.**
- 6. Use oxytocin 10u IMI (i.e. no Ergometrine unless there is PPH), if the BP >150/90 mmHg for the active management of 3<sup>rd</sup> stage.
- 7. **Assist delivery in the second stage with the Vacuum extractor** to minimise pushing efforts which may raise the BP further and lead to stroke or cause fits.

After the pregnancy, continue BP checks each time she presents for follow-up until it returns to normal.

Advise family planning for at least 3 years to minimize recurrence of the problem and a small family to lessen the woman's total life risk of maternal death. Depo, Implant, IUD or TL are all good methods for those with BP problems; not OCP as it can make BP problems worse.

## PRETERM LABOR & PRELABOR RUPTURE OF THE MEMBRANES

**Preterm labor: before 37 weeks** - regular painful contractions and the cervix is effaced and a little dilated.

***Critically Review the gestation again.*** Check the antenatal records carefully to confirm the gestational age. Look at the time when fetal movements commenced, the size of the uterus at the first visit to the ANC compared with the menstrual dates, and any scan findings, to help you come to a conclusion about the actual gestation of the pregnancy. It will not be beneficial to the baby if you stop labor when the uterus is small because of severe IUGR and the baby is near term and needing to get out!

***Check for illness and abruption.*** Malaria and UTI: these are common causes of premature labor. If there is fever and the woman has been in a malarious area 2 weeks ago, give her a treatment course of antimalarials (beginning with intramuscular dose if she is in advanced labor). Do not try to stop labor if the fever is due to chorioamnionitis, (ie. fever with a tender uterus), or has ruptured membranes or she has had an abruption.

***If you are convinced that the pregnancy is less than 34 weeks gestation*** and the membranes are **intact**, perform a vaginal examination. If the cervix is 3cm or less dilated attempt to stop the labor pains, provided there is no other obstetric complication such as PET, APH, or chorioamnionitis etc. (see above).

- i. Give pethidine 50-100mg IMI (or Morphine 10mg) & Chlorpromazine 50mg IMI once
- ii. Oral **Nifedipine** is effective in stopping uterine contractions. Give 20mg stat. and a further 20mg every hour until the contractions stop up to a maximum of 80mg, ie. four doses. Arrange for transfer. Nifedipine does not cause hypotension in women with normal BP. It has much fewer side-effects than salbutamol.

If Nifedipine tabs are not available you can use salbutamol infusion to stop premature labor [Oral Salbutamol is not effective]. Put up an iv infusion and add Salbutamol 5mg to 1 litre of iv fluid. Commence at 20dpm and increase by 10dpm every 10 minutes; monitor the pulse rate and blood pressure before each increase in the drip rate and do not further increase the drip rate if the maternal pulse exceeds 120/minute. After contractions have stopped, reduce drip rate to 30dpm and complete the flask.

- i. If the gestation is between 28 and 34 weeks give Dexamethasone 12mg bd IMI (or Betamethasone 12.5mg bd) for 24 hours to accelerate fetal lung maturity.
- ii. If less than 32 weeks gestation, give MgSO<sub>4</sub> (same dose as for PET) to protect the baby's brain and prevent cerebral palsy.

## **Pre-labor, term and pre-term rupture of the Membranes without contractions** (Rupture of the membranes before or after 37 weeks.)

- Do **not** do a vaginal examination if there are no contractions.
  - Do not attempt to stop any labor pains.
  - Rest the patient in bed. Put on a sterile pad to collect liquor for confirmation of the diagnosis and refer her to hospital if contractions have not started within 6 hours.
- 
- a) Take temperature and pulse, do aseptic speculum examination to look for cord prolapse and confirm liquor
  - b) If the gestation is between 28 and 35 weeks give Dexamethasone 12mg bd for 24 hours (or Betamethasone 12.5mg bd) to accelerate lung maturity of the fetus, and
  - c) Commence Erythromycin 500mg tds or Amoxil 500mg tds
  - d) Put a notice on the patient's bed, "**No PV examinations**" (you can remove the notice when the patient goes into labor)
  - e). If there is any evidence of chorioamnionitis (pulse >90 min, tender uterus, bad smelling liquor and fever) induce labor immediately (see page 105)
  - f). If she is term, labor should be induced the next morning. If she is pre-term (<37 weeks) wait 5-7 days. If labor has not commenced after one week, you need to re-evaluate the situation, - see "Conservative management option" and "if liquor stops draining" below.

## **Conservative Management option:**

[If a doctor is sure that she is quite pre-term, that there is no infection present and NO vaginal examinations have been performed since the SRM, he may decide to admit the mother to hospital and wait for some time for the baby to become more mature.

In these circumstances, it is essential to monitor the situation very carefully (temperature, pulse and check for uterine tenderness on a daily basis), and if there is any evidence that infection is developing, induce the labor immediately.

There is NO place for prolonged conservative management:

- If there is evidence of chorioamnionitis at any time, or
- If a digital examination has already been performed
- If the pregnancy is less than 28-weeks' gestation when the SRM occurs (because there is no way that we can ever get the baby to viability from this very preterm gestation)
- If you are not able to monitor the patient carefully for infection or there are no SCN facilities available to look after a preterm baby after delivery then it is probably not reasonable to pursue conservative management either.

If the cervix is unripe, you will need to use Misoprostol to ripen the cervix before inducing with an oxytocin drip (see page 109). Do not use oxytocin drip less than 6 hours after the last dose of oral Misoprostol.

Contact your nearest SMO (O&G) for advice if you are in doubt about what to do.

If the presentation is not cephalic, see page 211 of this book for the management of the malpresentation.

**If a woman who is preterm and has been draining liquor, and now stops draining liquor.....**

- Occasionally the membranes heal up and liquor ceases to drain after a preterm SRM. If she stops draining liquor look at the volume of liquor around the baby on the US scan.
- If there is **no liquor** around the baby, induce labor. If there is plenty of liquor around the baby then the membranes have sealed over, and you can allow the pregnancy to continue.

## PROLAPSED CORD

Prolapsed cord is an obstetrical emergency. If the presenting part comes down and compresses the cord for more than a few minutes the baby is likely to die.

### Risk cases for having cord prolapse

- When membranes rupture with a high presenting part,
- Breech, Transverse or Oblique lie and membranes rupture
- Polyhydramnios and membranes rupture

Avoid ARM with high presenting part or malpresentation (eg. Breech). Always do a VE when membranes rupture spontaneously to check for cord prolapse.

### Management of Cord Prolapse

- Replace the cord in the vagina and check for pulsation.
- If the cord is not pulsating, check for fetal heart. If there is no fetal heart, allow labor to progress and deliver normally,
- **If the fetus is alive (FH present)**, push the presenting part up above the brim of the pelvis and hold it there with a hand placed supra-pubically.

The woman needs an emergency CS to save the baby's life. Therefore, you **need to hold the presenting part above the brim of the pelvis** until the woman reaches the operating theatre, is placed on the OT table, the



anaesthetic has been given and the surgeon is ready to cut the abdomen.

It may be possible to keep the presenting part above the pelvic brim by putting in an IDC and filling up the bladder with 600-700mls of Normal Saline. However, if you use this strategy it is difficult to be sure that the presenting part is being kept above the brim. [Some women can deliver with a full bladder!] Therefore, holding the presenting part above the brim of the pelvis is the most reliable way of making sure that it is not pressing on the cord. You may need to give Salbutamol iv (to stop contractions) and Pethidine injection (to relieve pain).

## PROLONGED PREGNANCY (Post-maturity/Post-term)

The normal duration of pregnancy is 37-42 weeks from the first day of the LMP. The risks of fetal death, due to hypoxia and difficult labor, increase slightly after 42 weeks. Induction of labor post term is only indicated if all the following conditions exist:

1. The pregnancy is more than 42 weeks gestation.  
(The woman is sure of her LMP, **booked before 26 weeks**, and the fundal height and fetal movements at the first visit agreed with her dates). Always check her cycle length too: if she has long cycles you will have to modify the Naegles' rule calculation of her EDD by adding the extra days that her cycle is more than a 28 day cycle  
Or  
An ultrasound scan, done before 26 weeks is consistent with menstrual dates and quickening.

*[Refer to page 12, for details of getting the EDD right]*

2. The presentation is cephalic and the cervix is ripe (Bishop's score > 6: see page 107). If you are sure she is post-term but the cervix is not ripe it may be appropriate to ripen the cervix with Misoprostol (see page 108).

If you induce a woman for post-maturity with an unripe cervix, the potential risks of induction (ie. failed

induction and CS) are less than the risks of post-maturity, therefore don't do it (see page 106 for "likelihood of success").

If the **woman is not sure of her dates** or booked after 26 weeks, her gestation cannot be accurately assessed and induction for presumed post-maturity alone is never advisable. If you suspect post-dates, but are not able to prove it because the woman booked late, then monitor the fetal well-being closely and allow the pregnancy to continue. If there is evidence of fetal problems like oligohydramnios, decreasing fetal movements or maternal weight has been dropping or static for the past month or so, then induction for fetal reasons is reasonable (see fetal kick chart on page 178).

If you think a pregnancy could be post-term, but there is insufficient evidence to be sure, or the cervix is not ripe so that you are unwilling to take the chance of inducing labor and having the induction fail, then you can be reassured about the well-being of the baby by putting the woman on a **fetal movement (kick) chart** and checking weekly that there is adequate liquor volume around the fetus. (If you have a CTG this can give additional reassurance about the well-being of the baby).

The **Fetal Movement chart** assesses whether the baby is moving adequately. Focused fetal movements counting in the third trimester can give a reasonable indication as to whether the baby is getting enough oxygen in utero.

The woman counts the baby's movements for one hour twice daily, - say morning and evening, and records the number of movements that the baby makes, on a piece of paper. If the baby is moving about the same number of kicks every time she counts it, then the baby is likely to be alright. If the movements get markedly less or stop, this means the baby is probably not getting enough oxygen through the placenta, and you should deliver it promptly.

### Example of Fetal kick chart

<b>Days</b>	<b>Morning 1 hour</b>	<b>Evening 1 hour</b>
<b>Monday</b>	she marks kicks here	She marks kicks here
<b>Tuesday</b>	eg. ////	
<b>Wednesday</b>		
<b>Thursday</b>		
<b>Friday</b>		
<b>Saturday</b>		
<b>Sunday</b>		

If you have a CTG machine then a CTG tracing can be helpful in this circumstance to work out how urgent it is to deliver the baby and to predict whether baby can withstand the stress of labor or not. If she rolls her nipples between two fingers to provoke a few contractions during the CTG examination, this is called a 'stress test'.

If you do not have a CTG machine and you are worried about the well-being of the fetus, do an ARM. If the

liquor is clear, put up the oxytocin drip and proceed with the induction. However, if there is thick meconium in the liquor at initial ARM, do a CS as the baby will probably die during labor if you induce labor.

If there is severe oligohydramnios or a previous CS it is better to ripen the cervix with a Foley's catheter (rather than use misoprostol) and do ARM when the cervix is ripe. If there is significant meconium (++ or +++) present at ARM it is better to do a CS in this scenario.

## PUERPERAL FEVER

Axillary temperature of more than 37°C occurring during the first 6 weeks after delivery. (If you take the temperature in **the** axilla make sure there is good skin contact for a full 1 minute: in fact oral temperatures are much more reliable)

### Common Causes:

- **Malaria and other general infections**

If she has been in a malarious area in the past 2 weeks, give her the standard treatment for malaria. Start second line malaria treatment if she is very sick, vomiting, or the fever persists after the first line treatment or the B/S is still positive after the first line treatment (see page 124 Malaria in pregnancy). If she has respiratory symptoms she might have 'flu, pneumonia, bronchitis, TB or just the common cold.

- **Genital tract infection**

- Low abdominal tenderness and pain.
- Offensive lochia, .and sometimes increased bleeding

- **Urinary tract infection,** indicated by frequency, dysuria or loin pain.

- **Mastitis, breast engorgement or breast abscess**

- Examine the breasts and look for signs of mastitis or abscess developing.
- The treatment of engorgement is emptying of the breast: by supervised effective breast feeding (see page 29)

## Treatment of Cause

### 1. **Genital tract infection** - For **mild** case

Oral Amoxicillin 500mg tds plus Metronidazole 400mg tds for 5 days (Tinidazole 1g bd for 3 days can be used instead of Metronidazole), or Chloramphenicol 500mg qid for 5 days.

- Evacuate uterus carefully if there is bleeding on admission that does not settle after the first 24 hours on antibiotics. (Ultrasound scan is NOT a reliable indicator of the need for post-partum evacuation of the uterus: the decision for the need for evacuation should be made on clinical grounds.)

In **Severe** cases with signs of peritonitis (Refer to a doctor).

- Commence iv fluids (plus blood if anaemic), and
- Injections of antibiotics: Ampicillin or Amoxicillin 500mg 6 hourly iv (change over to oral Amoxicillin when the patient improves), plus Metronidazole 400mg IV or suppositories PR tds changing over to oral when the patient improves (Tinidazole 1g bd for 3 days can be

used instead of Metronidazole), plus Gentamycin 5mg/Kg daily for 5 days;

## **OR**

- Chloramphenicol 1 gram 6 hourly iv changing over to oral to complete 7 days
- If patient does not respond after 48 hours or is very ill with septic shock, add: Ceftriaxone 1g IM or IV bd and discuss the case with your nearest SMO (O&G). Evacuation of uterus (give Ergometrine first), laparotomy, drainage of collections of intra-abdominal pus or hysterectomy may be necessary.

If many cases of puerperal sepsis are occurring from your deliveries, check labor ward procedures and aseptic techniques used by the staff. Many village and settlement women do not wash their perineum very often at home. When a woman comes into the labor ward, it is a good idea to show them around and have them all take a shower with specific instructions to wash their perineum 'rot bilong pikinini or ples we pikinini bai i kamaut longen', - before they come into the labor ward to deliver. Washing before delivery can prevent many infections

## **2. Urinary tract infection:**

High fluid intake (IV if necessary, ie. unable to drink a lot, or vomiting). Chloramphenicol 500mg qid, or Septrim 2 tabs bd for 5 days: use Gentamycin 5mg/Kg if she is very sick.



### 3. **Breast infection - mastitis**

- Flucloxicillin 500mg IV qid, or Clindamycin 150mg qid or Erythromycin 500mg tds, change to oral treatment when the temperature goes down.
- I & D if abscess has formed.
- Assist pain relief by providing breast support and paracetamol

**The mother must** continue breast feeding on affected side to keep breast empty otherwise infection will spread. (Reassure the mother and her relatives/husband that feeding the baby on the infected breast will not harm it as the acid in baby's stomach will kill any abscess bacteria.).

When you put a dressing after I&D of breast abscess do NOT cover up the nipple: plan your incision and dressing carefully so that baby can continue to breast feeding on the affected side.

## RAPE AND SEXUAL ASSAULT

**Carefully note 2 directives of the Secretary of Health in Nov. 2009:**

1. **No fees are to be charged** in hospitals, health centres, sub-health centres and health facilities (see File No. 1-2-5 of 12.11.09, memo about this from Secretary for Health): in cases of:
  - a. Domestic violence
  - b. Sexual assault
  - c. Child abuse

Nor are fees to be charged for reports on the above, or for women or children injured in tribal fights or domestic disturbances.

2. **Gender-Based Violence** (GBV) has been prioritized as a major factor affecting women and children in PNG and facilities have been directed (No. 1-2-5 of 17.11.09): to
  - a. Include GBV under Family Health Service programs
  - b. Include GBV activities in all AAPs each year
  - c. Include operation costs of Family Support Centres at District health facilities and hospitals.

### **Definitions of Sexual Assault:**

“Penetration of the vulva, or anus or mouth by the penis or any other object **without** *the consent* of the person”. Ejaculation need not have occurred. The age

of consent in PNG is 16 years. Any sex at all with a person under 16 years is a category of rape called “unlawful carnal knowledge”, and is punishable by 7 years in gaol.

[Presence or absence of semen in the vagina does not prove or disprove sexual assault; it merely indicates that sex has taken place.]

Even if no ejaculation has taken place, it is sexual assault if any part of the assailant’s body has penetrated any part of the victim’s body.

### **The health care provider should be aware that:**

1. Rape can, and does, occur within marriage (PNG Law is clear: it is illegal): and very often the rape assailant is a known person or relative.
2. Victims may present straight after the assault, or months or years later.
3. Some victims want medical care *and* counselling *and* may wish to take steps through the legal system to pursue their assailant.
4. Some victims want medical care only: victims are usually concerned about injuries, pregnancy and risk of STIs/HIV.
5. Health care providers should always **be compassionate and respect confidentiality.**

6. Do not force or pressure the survivor to do anything against their will.

**Your job is to provide health care:** not to decide whether or not she was assaulted as she says. That is the job of the police and the courts. The function of the health worker is:

1. Take a history
2. Do an examination (with her consent)
3. Collect relevant specimens for forensic purposes where indicated and possible
4. Provide appropriate health care (see below),
5. Refer to relevant agencies where requested and indicated (e.g. police, a *Meri Seif Haus*, supportive community agencies, Family Support Centre)
6. Arrange relevant follow-up
7. Ensure she is safe to leave your facility & has somewhere safe to go
8. Document your findings: you may later be required to provide medico-legal reports, so make good notes now.

### **Some hints re history taking:**

1. Let the patient (survivor/victim) tell his/her story the way he/she wants to.
2. It is important that the health worker understands the details of exactly what happened in order to check for possible injuries or forensic evidence. Document the name(s) of the alleged assailant(s) if known

3. Evaluate for possible existing pregnancy, ask for details of contraceptive use, last menstrual period, etc.

**There are 3 basic components to the acute care:**

<b>1 Physical Care:</b>	<ul style="list-style-type: none"><li>- Assess any injuries that require urgent management</li><li>- Take the history</li><li>- Examine generally and as directed by the history (usually includes genital examination)</li><li>- Order relevant tests</li><li>- Treatment of injuries (most have <b>no</b> significant physical injuries)</li><li>- Prophylaxis: against resulting Pregnancy, STI's, HIV and tetanus</li><li>- Physical protection if required</li></ul>
<b>2 Emotional support:</b>	<ul style="list-style-type: none"><li>- Keep telling her 'It's NOT your fault' and that she is safe now</li><li>- Counselling and follow-up (psych and social worker referral where available)</li></ul>
<b>3 Medico-legal responsibilities</b>	<ul style="list-style-type: none"><li>- Take samples for forensic evidence where required, where possible</li><li>- Write good notes for a medico-legal report</li></ul>

## **Take a history and document it:** Ideally do this

- On the medical proforma being developed by NDoH, or use the one from PMGH and
- The legal proforma being developed by the Royal PNG Constabulary and Public Prosecutor's Office

## **Thorough General Examination:**

- Document bruises/lacerations/abrasions using body charts & diagrams as well as text
- Consider concealed injuries (e.g. spleen, head injury etc.)
- Document general emotional condition of victim and condition of clothes and hair.

## **Thorough Genital Examination where indicated:**

(Do EUA if child or very anxious person)

- **Observe:** Bruises / abrasions / mucosal splits / tears / bleeding
- **Speculum:** Bruises /mucosal splits/abrasions/tears (may be tiny), Swabs / smear for infection and evidence of sperm
- **Digital PV:** is rarely necessary at time of acute assault if Speculum does not show any injuries or other injuries to other body cavities are not suspected.

## **Forensic specimens in PNG:**

- Smear for sperm (just like a Pap smear).

- If you have a microscope, do wet prep and look for active sperm.
- Other samples, (e.g. soil & twigs, pubic hair, the patient's clothing)

### Investigate:

- ALWAYS consider and exclude pre-existing pregnancy if possible
- ALWAYS consider the possibility of conception from the assault
- Counsel about and do VDRL and PICT for HIV (baseline and follow up)

### Treatment:

1. Pregnancy prevention: **Always** offer Emergency contraception if she is at risk of pregnancy from the assault, and if it is less than 5 days since the assault (see page 84).
2. STI prophylaxis/treatment: Doxycycline 100mg bd for 10 days and Tinidazole 2g stat.
3. Offer HIV prophylaxis medicine if available (PEP) (ONLY if the assault was within the last 72 hrs). Ideally she should have an HIV test first.
4. Tetanus Toxoid booster or commence immunization as appropriate

### Follow-up:

- Ensure ongoing safety and support: involve social workers if necessary
- May need emergency housing if her home is not safe.

- Advice re where she can come for further help
- Advice re:
  - What to do if she misses a period
  - What to do if she has symptoms that concern her
  - The need for repeat HIV&VDRL tests at 2 - 3 months
- Counselling by relevant health care team (O&G, Social worker) of:
  - the victim
  - the partner and family

### **Document everything carefully at the time:**

(Best to use a proforma from your hospital/Police)

- Everything she has said, what you observed on examination
- What any witness may have said to you (not through a 3rd party)
- What you found on examination (use body diagrams)
- Consider using digital photography (non-identifying) where available
- What you did in the way of
  - Samples/investigation
  - Treatment
  - Arranging follow-up
- Make sure you have a system of getting results of the tests you took.

**Write your report up immediately after you have examined the victim as you will have forgotten vital details even by the next morning.**



## REFERRAL: CRITERIA, WHEN AND HOW TO DO IT

Referral delays lead to poor outcomes for women. Childbearing in PNG can be very dangerous. Health workers at all levels must refer patients appropriately and expeditiously. Non-referral or delay in referral can easily lead to maternal death. **Better to refer earlier rather than later:** no good obstetrician will be cross about a referral that might be a bit too early, but many times provincial hospitals are exasperated by referrals that are sent too late to achieve a good outcome.

**Make sure you know the mobile and house number of the O&G doctor in your provincial hospital as well as the contact number in the labor ward.**

**If you are in doubt about whether or when to refer a patient, ring up (or use the radio network) to contact the provincial O&G doctor and discuss the case.**

The following conditions must be referral from community healthposts and health centres to hospital:

### **Refer immediately diagnosed or recognized**

As an emergency (after resuscitation, with IV in place and nurse to accompany the patient),

- Ante-partum haemorrhage if bleeding heavily or shocked (page 18)
- Problems in Labor (page 114, 143, 174, 208)
- PPH not responding to oxytocics, IV resuscitation and uterine massage (page 157)

- Eclampsia (page 74) after stabilization with MgSO<sub>4</sub>
- Twins (page 213) or previous Caesarean Section in labor (page 40)
- Possible Ectopic pregnancy (page 79)

**On next available transport (after appropriate management in the health centre)**

- Antepartum haemorrhage (even if the bleeding has now stopped) (page 18)
- Twins not in labor (see above) (page 213)
- Severe pre-eclampsia (page 164)
- Severe anemia and heart failure (page 6)
- Septic abortion or incomplete abortion continuing to bleed (page 4)
- Preterm premature (pre-labor) rupture of the membranes (page 169)
- Severe medical disease (eg. malaria, diabetes) in pregnancy

**At 36- 37 weeks gestation**

- Previous CS not in labor
- Breech presentation that you are not able to turn (ECV)
- Bad obstetrical history (prev stillbirths or neonatal deaths)
- Grandmultipara (for TL or vasectomy)
- HIV in pregnancy if you are not able to administer ARTs
- Diabetes in pregnancy (see page 62)

- Primigravida and baby feel very big (fundal height >38cm)
- Severe anaemia in pregnancy not responding to Rx (page 6).

**Prior to referral, please ensure you must have the following:**

Prior to referral, explain to the woman and family why you are referring her.

[In an emergency the pregnant woman may be quite sick or frightened, and she needs to understand the recommendation to refer and the family also need to know what is happening]

1. ANC Card and labor record (partogram etc.) if relevant
2. Letter of referral with summary of admission notes and management given in health centre
3. A signed TL/vasectomy document if a grandmultipara or the woman wants no more kids
4. Nurse (or HEO or CHW) to escort the patient and supplies to continue management enroute.

## RETAINED PLACENTA & MANUAL REMOVAL

Definition: non-delivery of placenta within 30 minutes of delivery of baby. If the placenta has not been delivered after 10 minutes of CCT, insert 3 tabs of Misoprostol PR and wait 30 minutes, - but start getting ready for manual removal.

### Management:

1. Explain to the patient what you need to do
2. Set up Normal Saline drip with large cannula & check Hb & X match blood
3. Catheterise and commence broad spectrum antibiotics

### 4. Analgesia:

- a. **If it is soon after delivery:** If the delivery took place less than 60 minutes ago, the cervix is likely to be still open sufficiently to admit your hand with only analgesia of IV Pethidine and Diazepam in the Labor Ward, - so do not delay the manual removal if seen at this time. **If it is more than an hour or so** you may have to give Ketamine.
- b. If the placenta has been retained **for longer than 1 hr but less than 72 hrs**, a manual removal should be done in a centre where blood transfusion facilities are available. (exception - if the patient is still actively bleeding, a life-saving manual removal should be done in smaller Health centres under IV Pethidine and Diazepam and Ketamine or paracervical block (see below, next page).

Have Normal Saline drip running during the manual removal.)

5. **Procedure:**

Perform manual removal under sedation plus paracervical block (below), Ketamine or caudal block as appropriate. It is always necessary to slowly but firmly push the inserting hand through the cervix and into the uterine cavity, (often quite difficult), and with the other hand on the abdomen hold the fundus steady. **It is necessary to get your whole hand into the uterus in order to separate the placenta and remove it.**

6. Give Oxytocin 10units imi after removal and maintain uterine contraction with massage and 20 units oxytocin in IV infusion concurrently with PR Misoprostol (3 tabs). Only administer Ergometrine 0.2mg iv or imi if still bleeding significantly.
7. If the placenta has been retained **for more than 72 hours**, difficult/piece-meal manual removal may be associated with circulatory collapse or septicaemia, so check first to see whether the placenta has separated or simply become stuck in the cervix (if so just pull it out).
  - a. Resuscitate, as above and keep uterus contracted with oxytocin drip.
  - b. Transfuse with packed cells,
  - c. Give triple antibiotics (Gentamycin, Amoxicillin/Ampicillin & Metronidazole/Tinidazole)

If the placenta is stuck in the uterus, the uterus needs to be explored manually under general anaesthesia or Ketamine.

**If transfer to hospital is possible at this point:**

- Refer the patient
- If transfer is not possible, (when the patient's condition is stable) or on arrival in hospital, explore the uterus carefully. If the placenta is partially separated or can be removed easily, perform manual removal. If not easy to remove, treat conservatively by **the 'rot out' method** (below):

**Rot Out Method** (if the placenta is accreta – stuck in uterus),

- i. Continue the above antibiotics for at least 2 weeks.
  - ii. Monitor urine output carefully - an indwelling catheter for at least the first 48 hours.
  - iii. If continued bleeding or oliguria occurs, the patient **must** be referred to an SMO)
8. Advise the patient that hospital delivery is essential next time as retained placenta is likely to recur.
  9. Offer and carry out tubal ligation if consent can be obtained as further pregnancy may be very dangerous.

## **Paracervical Block for Manual Removal of the Placenta**

- i. Mix 20 ml of 1% Lignocaine and 20ml of Sterile water in a sterile bowl or galley pot.
- ii. Place the mother in lithotomy position, have a good light handy.
- iii. Place a speculum in the vagina (Simms is best for this) to visualise the cervix, and grasp anterior lip with sponge forceps.
- iv. Inject 10 ml of the dilute local anaesthetic at each of 1 o'clock, 3 o'clock, 8 o'clock and 10 o'clock at a depth of about 1/2cm.....aspirate before placing each 10ml bolus of local anaesthetic.
- v. Wait 10 minutes for the local anaesthetic to act.
- vi. Give Pethidine 50mg and Diazepam 5mg IV to the patient.
- vii. Commence the manual removal.

## SECONDARY SUTURE

### **Broken down episiotomy or superficial layers of abdominal wound**

Clean wound with b.d. EUSOL packs or diluted Sod. Hypochlorite bleach solution. (To make Eusol: dilute household bleach (Dazzle, Zixo, SnowWhite, 1:4 – ie. one spoon bleach in four spoons of tapwater). Leave a gauze swab on the wound wet with this solution until the next cleaning and dressing due. [Do not use hydrogen peroxide; it is expensive, causes pain and loses its effectiveness quickly at room temperature].

When the wound is clean and granulated, arrange re-suture under Pethidine/Diazepam and local anaesthetic.

### **Procedure**

Use single layer of interrupted thick (ie. size '0' or 1) nylon mattress sutures.

**N.B.** Do not use catgut or buried vicryl sutures at all when performing secondary suture as this will cause the wound to break down again.

**Burst abdomen** - bowel or omentum extrudes through abdominal wound, needs to be re-sutured as an emergency.

Cover with sterile packs and sprinkle abdomen with N/Saline. Perform emergency re-suture under G.A. Commence broad spectrum antibiotics IV.



## Procedure

1. Open up wound under general or Ketamine anaesthesia
2. Clean edges
3. Resuture with single layer of interrupted thick (no 2) **nylon** tension sutures going through all layers from skin to peritoneum. Smaller mattress sutures may be applied to the skin to achieve skin apposition.  
**Do not use any catgut or buried sutures at all.**
4. Remove sutures after 10 days.

# SHOULDER DYSTOCIA

## 1. Recognition

- The head delivers but fails to restitute (ie. does not turn to one side): it retracts back into the perineum as the contraction subsides and she stops pushing. Often called the “Turtle Sign”.

**Do NOT keep increasing traction** to the baby’s head and neck in an attempt to effect delivery

## 2. Actions

- **Call for help** and explain the emergency to the woman
- **M<sup>c</sup>Robert’s manoeuvre**: two assistants should quickly push the woman’s flexed knees up **hard** onto her chest while you continue to attempt to deliver the anterior shoulder. This change in maternal position will solve the problem in 90% of cases....the baby will deliver with the next contraction and maternal effort ++

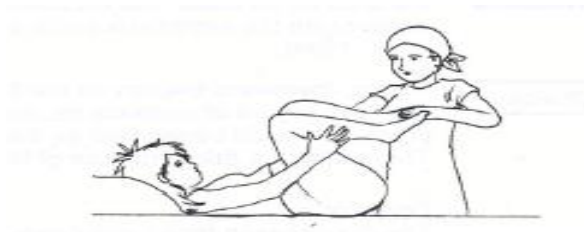


Fig.1

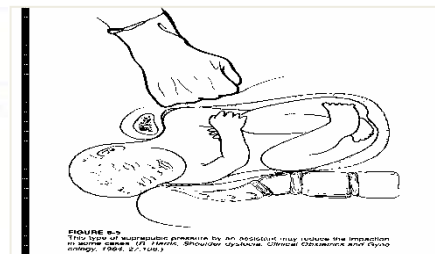


Fig. 2

- Another assistant can help by **pushing the fetal shoulder down suprapubically** (fig 2)

If this fails to deliver the baby with the next contraction

- Make an **episiotomy** (if not already done)
- Put your hand into the vagina to **try to bring down the *posterior* arm** by flexing the arm at the elbow and sweeping it across the baby's chest.

### 3. **Be ready**

- **To resuscitate** the infant
- **To actively manage the third stage** (see page 55) and prevent or manage a PPH (see page 157) which is common after shoulder dystocia (from both atony and tears).

## SYMPHYSIOTOMY

Symphysiotomy is an operation to divide the cartilage of the pubic symphysis so as to enlarge the pelvis and overcome moderate CPD. [Do not choose a fat patient when you attempt your first symphysiotomy].

**Symphysiotomy is a preferable operation to Caesarean Section in some situations** because:

- It can be done quickly in the labor ward with just 10 ml of local anaesthesia, therefore there is no delay in having to get the theatre ready (which can take many hours in the middle of the night if the OT staff have to be picked up),
- When the head is very low down in the pelvis, one does not have to push the head back up through the pelvis to effect delivery,
- After the operation the woman does not have a scar in her uterus which could cause her complications in subsequent pregnancies,
- In the next pregnancy the pelvis is likely to be a little larger because of natural growth of a young woman, or the fact that the symphysis heals (by fibrous union) a little more widely spaced,
- Maternal mortality rates from CS can be as high as 2-5% for obstructed labor in hospitals without experienced anaesthetists, surgeons

and blood transfusion facilities. Caesarean section is particularly dangerous in the presence of prolonged labor and intra uterine infection. There should be no maternal mortality from symphysiotomy,

- You will be more likely to do proper safe Trials of Vacuum Extraction if you are confident with doing Symphysiotomy if the trial fails.

## **Indications for Symphysiotomy**

[Refer: Clinical practice article on Symphysiotomy: technique, problems and pitfalls, and how to avoid them, PNG Med. J. 1995; 38: page 231-236, or 'Primary Mothercare and Population for PNG' by Mola & King]

Although Symphysiotomy can be performed for a number of indications including failed trial of vacuum extraction, entrapped after-coming head of a breech and shoulder dystocia, the doctor performing the procedure rarely, is wise to limit himself to the first indication.

The ligaments heal up fast after symphysiotomy in young women (especially teenagers). It is best not to do symphysiotomy on women > 30 years of age because healing of the ligaments is much slower: this will make the post-op course more difficult. Also, older women can sometimes be left with long term urinary continence problems.

## Procedure

1. Always be clear when a vacuum extraction is to be a 'Trial of Vacuum' (see page 222), rather than a simple vacuum. Whenever a 'Trial' is to be embarked upon, have symphysiotomy instruments at the bedside so that the symphysiotomy can proceed immediately if the 'Trial' fails: (otherwise you need to be in theatre for Trials of assisted delivery with preparations for CS).
2. Proceed with the 'Trial of Vacuum extraction' in the usual way. With experience it will become possible for you to tell by the second pull whether the 'Trial' will succeed or not.
3. When it is clear that the 'Trial' is not succeeding (ie. by the 2nd or 3rd pull), get **two assistants** to take the legs out of the stirrups. They now must hold each foot firmly on the end of the bed with one hand and support the knee with the other hand so that the angle between the thighs does **not** exceed 90 degrees at any time
4. Place a firm (clear plastic) Nelathon catheter in the bladder which is easy to palpate when your finger is in the vagina.
5. Inject 10 ml of local anaesthetic into the skin (insert the needle just above the clitoris), and inject down to the symphysis in the mid line.
6. Swab the area clear of pubic hair just above the clitoris with Iodine solution.

7. Place the left index finger into the vagina pushing the catheter to the patient's right (away from the mid-line), and hooking the end of your finger right up over the top of the back of the symphysis so as to protect the bladder neck.
8. With a large scalpel blade (size 20, 22 or 24), make a stab incision entering the skin about 2cm above the clitoris, then straight down to the symphysis and through it. As you cut right through the symphysis cartilage you will feel the pressure of the blade on your vaginal finger. Then, with a seesaw motion, cut the symphysis downwards to the bottom. Rotate the blade 180 degrees and cut the rest of it by cutting upwards. When you have completed the division of the symphysis you will feel (and hear) the symphysis pull apart. You can check that you have divided all the symphysis cartilage by palpating with your little finger through the incision.

A common mistake is to leave a bridge of symphysis at the anterior top of the joint. To make sure you have completely divided the symphysis, tap the scalpel onto your vaginal finger along the whole length of the symphysis, - particularly checking that you have not left a bridge of cartilage intact at the top.

9. When you have divided the symphysis and felt it pull apart, inject LA into the perineum, make an episiotomy and reapply the vacuum cup up under (posterior) to the caput. The head should now be delivered by **downwards traction** with just one

moderate pull with the next contraction. Give IV oxytocin/ergometrine and add oxytocin 20u to the drip to prevent PPH. Remind the two assistants who are supporting the legs NOT to allow them to open more than 90 degrees.

10. After delivery of the placenta, tell the two leg holding assistants to bring the knees together. Suture the episiotomy and the skin over the symphysiotomy site, and replace the polythene catheter with a Foley's catheter. The assistants can now straighten the legs being careful to keep them together all the while.
11. **Loosely** place a calico bandage around the knees to stop the legs from falling apart inadvertently as the mother sleeps. Give broad spectrum antibiotics for 5 days and a Pethidine infusion (same as for post CS patients) for pain relief.
12. Turn the mother onto her side: this allows the symphysis to be pushed together and minimises bleeding from the site and haematoma formation.
13. Leave the Foley's catheter in-situ for 24-48 hours (but retain it for 10 days if the urine is blood stained after 12 hours). Remove the calico bandage the next morning and allow mother to move her legs around in the bed.
14. She may get out of bed on the second post-op day, but she will need a walking frame (or bedside



trolley) to help her walk around for about 5 days. Remove the symphysis stitch after 7 days.

Follow the woman up in the clinic weekly until she has made a full recovery; ask about mobility and stress incontinence at each visit. Encourage pelvic floor exercises each time you see her.

### **The main problems encountered by a mother after Symphysiotomy**

- a) Urinary problems. Many (particularly older) women have stress incontinence for some time after the delivery; however, the great majority improve with pelvic floor exercises over a couple of months.
- b) Pelvic instability. Some mothers are fine after about 2 weeks, but some have walking difficulties for a month or so, ie. until the ligaments binding the symphysis together completely heal up. Reassure the mother who is having walking difficulty that she will get her pelvic stability back after a month or so.

Symphysiotomy should not be repeated in a subsequent pregnancy as the second operation is likely to fail to increase the pelvic diameters. If labor becomes obstructed in the next pregnancy, do a CS instead.

## TEARS OF PERINEUM (Including 3rd & 4th Degree)

- Up to 40% of women with third or fourth degree perineal tears during childbirth go on to suffer from faecal incontinence
- Episiotomy is not protective because more than half the women who sustain a third or fourth degree tear have had an episiotomy at the time of the birth.
- **Never** tell her it is her fault for pushing when you told her not to!

### Definitions:

Graze	Not full thickness thru skin: does NOT need suturing
First degree, 1°	A tear only in the skin or vagina or perineum
2 <sup>nd</sup> degree, 2°	Involves the perineal muscles only
Third degree, 3°	Involves the anal sphincter complex
4 <sup>th</sup> degree 4°	Involves anal sphincter & rectal mucosa

### Risk factors:

- First vaginal delivery, Second stage >2 hr, previous 3° or 4° tear, instrumental delivery (particularly forceps), birth weight >4 kg, misplaced episiotomy (eg. midline or too lateral)

### Recognition

- All women should be examined to assess degree of perineal /vaginal /rectal injury after vaginal

delivery.

- If there have been tears to perineal muscles, the external anal sphincter should be palpated between two fingers - one vaginal, one rectal.

**Always refer suspected 3° & 4° tears to a doctor** because unless sutured properly the woman can be incontinent of faeces for the rest of her life. The repair should be conducted/supervised by a doctor trained in the repair technique.

### **Repair technique for 3° & 4° tears:**

1. Extensive 2° tears and all 3° and 4° tears should be repaired ***in the operating theatre*** (need good light, an assistant to retract, adequate anaesthesia and analgesia),
2. Broad spectrum antibiotics stat and for 5 days,
3. A repeat examination should be performed in theatre to adequately grade the damage before starting the repair,
4. If the **rectal mucosa** is disrupted (i.e. 4° tear) then this should be repaired first using 2/0 Vicryl. Start at the apex.
5. **Anal sphincter repair:** The torn ends of the sphincter should be grasped with Alice tissue forceps and repaired using 2-0 or 0 Vicryl. If the sphincter is only partially torn (less than 50%) then repair using several interrupted sutures is acceptable.) Internal and external sphincter should be repaired separately if possible.

6. The rest of the repair is the same as repair of episiotomy, - ie. perineal muscles, subcutaneous tissues and skin
7. **Perform a rectal examination at the end** to ensure the repair is intact. There should only be stitches palpable if you have repaired a 4° tear.

### **Post-repair care:**

1. Provide generous analgesia with ice packs, Pethidine and Paracetamol
2. Keep bowel motions soft: (encourage fluid intake of at least 1.5-2 L daily, diet with plenty of fruit e.g. pawpaw & pineapple, kau kau)
3. Keep perineum clean with regular washing and changing of pad to keep dry.
4. Keep in hospital, until has had at least one satisfactory bowel motion and her pain control can be managed with paracetamol alone
5. Educate about adequate perineal care at home, & risks in future pregnancies (anal sphincter is likely to rupture again)
6. Provide good FP advice: best to have a TL if no more kids desired. Advise hospital delivery for next delivery.

## TRANSVERSE, OBLIQUE AND UNSTABLE LIE

In the first two trimesters the baby changes position often and the lie is not important unless the woman comes into premature labor

(There is no need for MCH staff to refer malpresentations before 34 weeks gestation; normally we only try and turn babies after 35 weeks gestation).

If the baby is not lying longitudinally after 35 weeks attempt to correct the lie by external version.

If the presentation is not cephalic after 36 weeks, or if the lie of the baby is not stable after 36 weeks and you are not able to perform ECV, refer the woman to hospital for more experienced health workers to attempt ECV, and as she may need Caesarean Section for delivery.

Whenever you are referring a multipara to hospital for possible operation always discuss tubal ligation before she goes. If she and her husband want no more children send a **signed ligation form** with your referral letter.

### In Hospital:

- Keep the women in hospital from 38 weeks until delivered,
- Scan for placenta praevia if possible,
- Do ECV daily if necessary.
- Consider EUA, and stabilizing induction in theatre at term if the cervix is ripe,

- Check for cord or hand prolapse when SRM occurs,
- Check the lie and do ECV as soon as spontaneous labor starts if the presentation is not cephalic, and the membranes are still intact.

### Diagnosis

1. Uterus bigger than gestational age. Whenever the fundal height grows to more than 40cm, twins should be suspected. (When the fundus grows to more than 40cm in a non-obese mother she should always be referred to hospital even if twins are not present as a single baby with a fundal height of more than 40cm might indicate a very big baby or polyhydramnios.)
2. Term uterine size, but only a small head presenting.
3. More than two fetal poles felt or multiple fetal parts.
4. Polyhydramnios, early onset or first time PET in a multipara, family history of twins and persistent anaemia make one suspicious of twins.
5. The diagnosis is proven by X-ray or ultra sound.

### Management

- i. Admit to health centre for rest as soon as diagnosed and **refer to hospital at 32 weeks or as soon as possible thereafter.**
- ii. Check Hb monthly and give extra iron, folic acid 5mg daily, regular Malaria prophylaxis. Use Imferon prn if not able to tolerate daily oral iron.

- iii. Monitor carefully for obstetric problems e.g. PET, anaemia, APH.
- iv. Scan (or X-ray) at 36-38 weeks to determine
  - Presenting part of 1st twin,
  - Exclude triplets
  - Exclude possibility of conjoined or locked twins.
- v. The labor is managed according to the presentation of the 1st twin, i.e. if transverse caesarean section will be required (see page 40), if breech (see page 35). However, most 1st twins present cephalically and vaginal delivery is proper. If the first baby is breech most can deliver vaginally too because twins are usually small.
- vi. An iv drip of Normal Saline should be set up in the first stage; Oxytocin infusion (see page 108) may be required to augment the contractions if the action line is crossed (1<sup>st</sup> twin cephalic presentation).
- vii. It is best to have two assistants for the delivery. After the delivery of twin 1, hand the baby to an assistant & check the lie of the 2nd twin

**If:**

- A. It is transverse, do external version; if this fails put your hand into the uterus, bring down a leg and rupture the membranes. After you have delivered a



leg add oxytocin 5 iu (and run at 60dpm) to flask and deliver the 2<sup>nd</sup> twin by breech extraction.

B. It is longitudinal, do ARM and ask assistant to add 5 units oxytocin to the iv flask and run at 60 dpm. If there is delay, a 2<sup>nd</sup> twin breech can be delivered by breech extraction and a cephalic 2<sup>nd</sup> twin can be delivered by Vacuum extraction.

viii. After the delivery of the 2<sup>nd</sup> twin, give IV Oxytocin 10 iu and add 20 more units of oxytocin to the flask. Deliver the placenta(s) by controlled cord traction. Insert Misoprostol 3 tabs into the rectum to prevent PPH

## **The Retained 2nd Twin**

If a mother is referred with a second twin, examine the lie of the fetus and check for the membranes. If the membranes of the 2<sup>nd</sup> twin are intact, you should be able to deliver the 2<sup>nd</sup> twin easily.

A. If longitudinal, do ARM and put up Oxytocin drip to effect delivery.

B. If transverse, cervix still fully dilated and membranes intact, give the mother a dose of iv Pethidine and Diazepam (sometimes Ketamine may be necessary for this procedure), then carefully put a hand into the uterus over the shoulder to the buttocks and find a leg, grip it firmly and pull it down: At the same time (with the other hand) push the presenting arm and shoulder back into the uterus.

- C. If the membranes of the 2<sup>nd</sup> twin have been ruptured for many hours, and the fetus is longitudinal, put up oxytocin 5 unit infusion (as above). If the lie is transverse and you are not very experienced at internal version and breech extraction, occasionally it may be necessary to perform a CS for a retained 2nd twin if the arm has prolapsed many hours ago and the uterus is very tight around the baby and the baby is still alive.
- D. If the baby is dead, a destructive delivery is much less dangerous than a CS for the mother, (see page 143).

Be alert to the possibility of PPH which is very likely after twin delivery and prolonged labor.

## VACUUM EXTRACTION

The vacuum extractor is used to assist delivery in the 2nd stage with vertex presentations.

### Indications for the use of the Vacuum Extractor

1. Delay in the second stage, if the head is not delivered within 30 minutes of full dilatation and expulsive efforts in multiparas, and one hour in a primigravida.
2. To avoid maternal effort in conditions in which it could be bad to push eg. heart disease, severe pre-eclampsia, eclampsia, respiratory distress from any cause. Start setting up for Vacuum extraction as soon as the labor becomes expulsive in these cases.
3. Fetal distress in the second stage.

### Requirements:

- i. Cephalic presentation (but NOT a face or brow presentation)
- ii. Head no more than 1/5 above the pelvic brim, with moulding ++, or no head palpable (ie. 0/5) if there is severe moulding present: (except in "Trial of Vacuum", see below). See inside back cover for definition of 'levels of the head above the pubic symphysis'
- iii. Good contractions. If the contractions are more than 3 minutes apart or irregular, put up a drip and add 5 units of Oxytocin; run at 40-60 dpm

and attempt vacuum extraction as soon as the contractions have become stronger, (an Oxytocin drip is almost always required to help a Primigravida push properly in the presence of delay in the second stage),

- iv. Cervix fully dilated, - or nearly so, and membranes already ruptured,
- v. Bladder empty (catheterize if the woman is unable to pass urine spontaneously).

**Technique:** Use a standard 6cm metal anterior or Bird posterior cup

1. Explain the procedure to the woman. Abdominal examination to check the level of the head, and vaginal examination to determine the dilatation of the cervix, confirm the head level, the degree of moulding and the position of the fontanelles. (If severe moulding is present - see "Trial of Vacuum" below).
2. Aseptic precautions (Savlon or Betadine wash down, sterile gloves and instruments etc); have the mother in the lithotomy position.
3. Infiltrate the perineum in case an episiotomy is necessary. (Occasionally if the perineum is very tight, it is necessary to do this before applying the cup).
4. Apply the cup on your hand and pump a little to ensure no leaks and equipment working properly.

5. Apply the cup over the 'flexion point'; use a posterior type cup if the position of the head is posterior, and an anterior cup if the occiput is anterior. For posterior positions the cup needs to be pushed in 10-11cm up under the baby's head. For anterior positions the cup is pushed 5cm up under the baby's head. (If you are unsure of the position and there is no more experienced person to help, apply a posterior cup and push it up as far as you can under baby's head. (If you have no posterior cup, push an anterior cup up as far as it will go up under the fetal head). You usually have to lift up the caput with the forefinger of your other hand so that you can push the cup up under the caput. (You must **not** apply the cup to the caput.)
6. Tell your assistant to pump the vacuum pump a couple of times and check the application of the cup to make sure you have it over the flexion point. Now tell your assistant to pump the vacuum to maximum pressure on the dial (approximately 100mmHg). Now wait 2 minutes for the chignon (scalp) to form inside the cup.
7. With the next contraction pull **downwards** towards the floor: if you do not pull downwards to begin with the cup will slip forward onto the caput. Only pull with contractions and ensure that your pulls coincide with the mother's bearing down efforts. Pull with the right hand and use the fingers of the left hand to prevent the cup slipping or lifting off: press your thumb against the cup and rest your index finger on the baby's head. As the head

descends and starts to distend the perineum your pulls should become straight outwards: when the head is 'crowning' you may need to pull upwards.

**If you pull correctly, the head should descend with each contraction and deliver in not more than 3-4 pulls.**

8. Release the vacuum (by pulling the tubing off the suction bottle) as the head is delivered, and deliver the rest of the baby in the usual way. (Do not touch the screw on the suction bottle; if you unscrew this and it drops off and gets lost you have destroyed the whole Vac. Extraction kit.)

Manage the third stage in the standard way. Watch out for PPH which is common in women who have a Vacuum Extraction after a prolonged labor. Make sure the baby gets 1mg of Vit K1 ('Konakion').

Check the scalp of the baby after delivery to check where you put the cup, and see if you have caused any sub-galeal haemorrhage. If there is a SGH, resuscitate the newborn with iv or intra-osseous N/saline: x 3 times N/saline for hematoma volume. Usually this means giving 100-200ml N/saline fast.

### **Difficulties:**

- a) The cup may come off (detach) if:
  - i. You do not pull down towards the floor to begin with

- ii. The cup is applied over (or slips forward onto) a big caput. If this happens, reapply the cup posterior (ie. up under) to the caput and pull downwards so that it does not keep slipping forward.
- iii. Something wrong with the instrument: check rubber connections and the rubber plug seal on the vacuum jar
- iv. You are pulling too hard in the presence of cephalo-pelvic disproportion: review the level and position of the head, and if there is more than 1/5 of head above the symphysis pubis, or severe moulding present, perform symphysiotomy or CS instead.

**NB:** Do not reapply the cup more than 2 times. **Pulling the cup off the baby's head can be very damaging to the scalp of the baby, and can sometimes cause intracranial haemorrhage too.** If you cannot get good traction or the head is stuck so that pulling only leads to cup detachment, the baby needs to be delivered by an alternative method, ie. CS or Symphysiotomy.

- b) Head does not descend in the presence of good contractions (ie. there is relative CPD).
  - i. Do not continue to pull if the head fails to descend with each contraction and pull, you will cause tearing of the scalp off the baby's cranium and sub-galeal haemorrhage if you continue to pull when there is no progress.

- ii. Do not pull for more than 3-4 contractions or longer than 20 minutes total.

Refer to a doctor for symphysiotomy or Caesarean section if vacuum extraction fails.

### **Trial of Vacuum Extraction** (Experienced doctor only)

If there is severe moulding present with the head at 1/5, or if there is 2/5 or 3/5 of the head above the symphysis pubis and lesser degrees of moulding present when the vacuum extraction is indicated, the procedure must be considered as a `Trial of Vacuum Extraction`. (See inside of back cover for explanation of levels of the head above the symphysis pubis.)

Perform the procedure with Symphysiotomy instruments at hand, (or in an operating theatre with blood cross-matched and an anaesthetist ready if CS is the preferred option, eg. Mother > age 30 years)

Perform the procedure with strict adherence to the technique as outlined above.

If the trial of 3 pulls with 3 contractions fails to deliver the head, proceed straight to Symphysiotomy (or CS as appropriate). Your choice of which procedure to use will depend on your own experience with each, and the operating and blood transfusion facilities available (See page 202 for Symphysiotomy).

If you are not able to perform symphysiotomy or caesarean section, refer the patient **urgently**.



**Exception:** If the baby is dead, perforate the skull rather than operate on the mother. (See page 143 on destructive delivery). It is relatively easy to perforate the head of the baby in this situation as the head will be low in the pelvis.

## VAGINITIS and VAGINAL DISCHARGE

Vaginal discharges are usually caused by vaginitis, not by cervicitis. There is usually no vaginal discharge with PID. [Refer to Family Planning Pocket book, chapter 15 and pages 11-115 of this STM for more information.]

If you examine a woman who presents with 'a vaginal discharge', but you find that she only has a physiological mucous discharge, she is probably worried about STIs or cancer. Address her concerns adequately by counselling her about these issues. There is always more mucous discharge in pregnancy: this is normal. (It is not possible to diagnose STIs by speculum examination, however, if you are experienced you should be able to diagnose vaginitis infections.)

A. **Monilia (Thrush, Candida infections):** very common in pregnancy. Depo-provera use for FP helps to prevent Monilia.

**Symptoms** - vaginal or vulva itch and soreness, dysuria

**Signs** - thick yellowish discharge, redness of vagina and/or vulva. Hyphae can be seen under the microscope.

**Treatment:** Nystatin vaginal suppositories/tablets bd or Miconazole daily for 7 days or Clotrimazole daily for 3 days.

## B. **Trichomonas**

**Symptoms** - discomfort or itchiness in the vagina, watery yellowish discharge: (discharge may be blood stained, especially in pregnancy, giving a pink frothy discharge)

**Signs:** frothy, watery yellow-green discharge (sometimes has a slightly fishy smell), red cervix, mobile trichomonads and many pus cells seen under microscope.

**Treatment:** Metronidazole 400mg tds for 5 days or Tinidazole 2g stat for both woman & her sexual partner(s).

Men have zero symptoms with Trichomonas infections, but the woman will get her infection back unless her partner is also treated.

## C. **Bacterial vaginosis**

**Symptoms:** foul-smelling greyish discharge, but usually not itchy

**Signs:** grey purulent offensive discharge, no vaginal redness. Clue cells and pus cells seen under microscope.

**Treatment:** Metronidazole 400mg tds for 5 days or Tinidazole 2g stat.

If there is cervical contact bleeding or muco-pus in the cervical os, consider that she may have

Chlamydia or Gonococcal cervicitis too (See page 147 for treatment).

Women with advanced cancer of the cervix often have an offensive blood stained vaginal discharge.

In pregnancy women often have more normal mucous discharge; if you are not sure whether a mucoid discharge is physiological or pathological (especially in pregnancy) ask an experienced doctor or gynaecologist to have a look at the speculum examination with you.

## VULVAR LESIONS

**[Refer to Chapter 15 of Family Planning Pocket book]**

The common lesions seen in PNG are Donovanosis, Viral warts (condylomata accuminata), primary and secondary Syphilis and Bartholin's abscess. Other less common lesions include carcinoma, herpes, chancroid (or soft sore) and lymphogranuloma venereum. Usually it is possible to diagnose vulval lesions clinically by visual inspection; sometimes it is necessary to confirm diagnosis by scrape, biopsy, blood tests etc., as appropriate.

### **Donovanosis**

Red, fleshly granulomatous looking lesions usually on posterior vulva and perineum. (Lesions may also occur in groins and in vagina, cervix and within pelvis mimicking carcinoma). Lesions are usually not painful at the outset, but become painful when there is secondary infection present. Most have pain present by the time they come to see a health worker.

**Diagnosis:** Clinical suspicion, confirmed by crushing a piece of the edge of an ulcer between two glass slides. The exudate is then fixed, and when stained may demonstrate Donovan Bodies. Biopsy can also be sent for Histology

**Procedures:** Put a piece of the edge of a lesion on a slide and crush with 2nd slide,

- Fix in methanol (or spray with Pap smear cyto-fixative)

- Stain with Giemsa or Leishman stain

**Treatment:** Response is slow, particularly during pregnancy.

In pregnancy: Chloramphenicol 500mg qid or Azithromycin 500mg twice weekly for 6-10 weeks.

Non-pregnant: Doxycycline 100mg bd or Azithromycin 500mg twice weekly for at least 6-10 weeks.

(Lesions in the perineum can sometimes be excised by a Doctor; this can make the period necessary for antibiotics and healing less.)

If lesions do not respond to antibiotic therapy, biopsy for cancer and examine wet prep for amoebae, (and give 3 days of Tinidazole too).

**Venereal Warts** (Condylomata Acuminata): is caused by the Human Papilloma virus (HPV) which is sexually transmitted.

Typical warty lesions around vulva and perineum. May extend up the vagina and to the cervix. If there are a great many warts she may be HIV +ve.

**Diagnosis:** The appearance is typical, but may be confirmed by biopsy. Also do an HIV test (PICT) because if the patient is HIV positive it will be difficult to treat warts without HAART.

## **Treatment:**

- a) Cautery/Excision under local, spinal or Ketamine anaesthesia, **or**
- b) Local application of Podophyllin 20% in spirit. Only appropriate for < 10 warts. Paint carefully on to warts avoiding the surrounding, unaffected skin. Wash off in 6-8 hours. Repeat weekly till clear. (Do not use Podophyllin in pregnancy)

If the woman is HIV positive and the lesions are very big defer excision or cautery of the lesions until her immune status is back to normal; otherwise she may get septicaemia post operatively and die.

## **Syphilis** (very important to treat all sex partners too)

### **a) Primary chancre**

- Painless clean looking ulcer, usually on labia or cervix: usually single but not more than two ulcers; usually about the size of 10 toea
- VDRL and Determine rapid test may be negative in this early stage.

### **b) Secondary stage of syphilis** (Condylomata lata)

- Flat firm painless raised plaques (also occur in the axillae or under the breasts): their tops may ulcerate.
- VDRL and Determine rapid test will be positive.

## Treatment:

Benzathine Penicillin 2.4 million units weekly for 3 doses (always mix 1ml of Lignocaine LA with the Benzathine penicillin as otherwise it is a very painful injection, and the patients are unlikely to come back for their follow up injections). If you do not have any Benzathine Penicillin, you can use Procaine penicillin 3ml daily for 10 days.

All sex partners must be treated too.

If the woman is pregnant at the time of diagnosis; the newborn baby also needs to be treated with 1ml of the Benzathine Penicillin mixture imi.

Women who test positive in the ANC for syphilis usually do not have any lesions; they are in the **Latent phase** of syphilis infection. One is not very infectious in the Latent phase of a disease; this is why the partner is sometimes negative. However, it is best to treat both partners with Benzathine Penicillin rather than testing the partner, because trying to explain a negative test in the partner is difficult, and can lead to marriage problems.

## Abscess

### a) Infection of Bartholin's gland

Red, tender swelling on inner aspect of the lower labia majorum; the abscess usually points at the border of the pink and brown skin.



**Cause:** Often due to Gonorrhoea infection, therefore treat for this too (along with partner) if laboratory diagnosis is not available.

**Treatment:** marsupialization (ie. cutting of one toea size piece from the top of the gland). This is better than simple I&D which often leads to recurrence or Bartholin's gland cyst formation.

**Procedure:** Local anaesthesia with iv Pethidine and Diazepam or Ketamine.

Excise circular area (about the size of 2 toea coin) from inner aspect (ie. where the brown skin meets the pink skin) of the abscess to let the pus out. Suture edges of abscess cavity to adjacent epithelium with interrupted fine sutures. Pack abscess cavity with Eusol gauze and remove over 24 hours.

Amoxicillin 3g stat, and Probenecid 1 g stat and Augmentin 1 tabs stat for patient and sex contacts. Follow up with Doxycycline 100mg bd or Azithromycin daily for 10 days to cover for Chlamydia.

b) **Skin abscess of labia**

Treatment: Incision and drainage.

## Appendix A

Copy of Memorandum from NDoH Health Secretary "Family Planning for All"



### DEPARTMENT OF HEALTH Office of the Secretary

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#### CIRCULAR INFORMATION

To : All Health Workers  
Family Planning Clinics  
SMO's (O&G)  
Provincial Health Advisors &  
Provincial Family Health Service Co-ordinators  
Hospital CEO's & OIC's of Health Centres

DATE : 15/06/09

FILE NO : 1-2-5

SUBJECT : THE IMPORTANCE OF FAMILY PLANING FOR ALL

Our National Health Plan emphasizes the importance of family Planning Services to assist all citizens plan their families by methods which are safe and acceptable, and to reduce unintended pregnancies and precipitate marriage.

Unintended pregnancy can (and does) lead to many social problems, unsafe abortion and even maternal death, and it is up to each one of us to ensure that these problems do not worsen. Papua New Guinea already has the highest maternal mortality ratio in the region and recent reports indicate that a significant number of maternal deaths are related to unplanned pregnancy and unsafe abortion.

Population is also a critical national development issue for our nation. I call on every health worker to advise individuals and couples on family planning from both personal health care and Public Health perspectives. Health workers must not withhold family planning information and counseling from citizens under their care because of personal moral or religions reasons. If any health worker believes that she/he is unable to provide full counseling to people then they should either refer the person to another health worker or consider not working in the MCH area themselves.

Family Planning advice and methods MUST be made available to all who seek them, including single people. In particular young people should all be educated about the need for and the methods of family planning that are available in the country.

With regards consent issues in family planning, I would like to offer the following advice.

1. There is nothing in PNG law that requires any spousal consent (or other male guardian) for an adult woman to access family planning. The age of adult consent in PNG is 16 years. If an unmarried girl under 16 needs family planning, then her parents do need to be consulted.
2. When a woman seeks family planning it is appropriate to inquire as to whether the decision to commence family planning is a consensus family decision; however, health workers should never send a woman away to get consent from some other person before commencing a requested family planning method.
3. If a woman indicates that she is deliberately not involving her male partner in the decision making process to use family planning, it is appropriate to inquire why this might be the case, and to counsel her about the possible on sequences of taking a decision alone in this matter, - taking the circumstances of each individual client into account.
4. With regards temporary methods of contraception (IUD, pills, Depo, condoms etc.) no woman should be hassled by health workers demanding written consent from any other person before family planning is commenced; however it is important to counsel clients about the fact that use of family planning is usually a consensus family decision.
5. With regards sterilization consent (both vasectomy and TL) written consent from the client should be obtained (as is the case for all operative procedures), and in most circumstances it is customary to recommend spousal agreement as well. However, in an emergency (and indeed there is nothing in PNG law that requires spousal consent for sterilization), doctors should not refuse to perform sterilization if it is in the best interests of the patient for this to be performed, (eg. doing a repeat CS and woman says that husband agrees it is OK to tie the tubes but he is not present to actually sign a form at the time). [In the case of doing a classical SC it is almost incumbent upon the doctor to explain to the patient why doing at TL is the only safe thing to do at the same time.]

If there are issues with regards family planning that an individual health worker wishes to obtain advice about, he/she should feel free to discuss the matter with a senior colleagues (eg. nearest SMO O&G).

DR. CLEMENT MALAU  
Secretary

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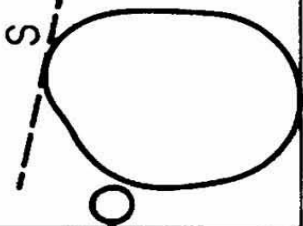
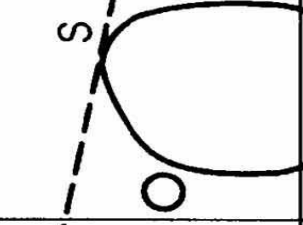
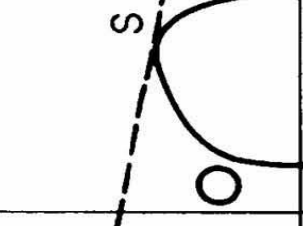
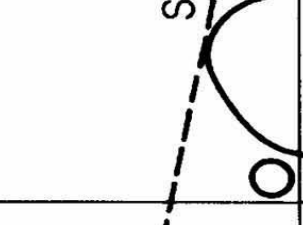
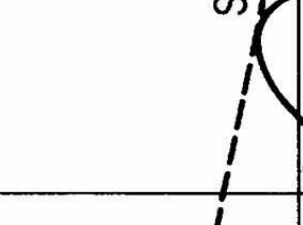
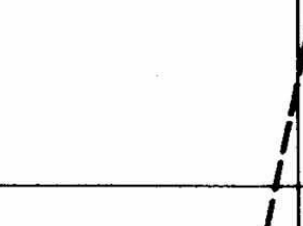
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# *Intranatal Care of the Mother*

Completely above	Sinciput +++ Occiput ++	Sinciput ++ Occiput +	Sinciput + Occiput just felt	Sinciput + Occiput not felt	No part of head palpable
5/5	4/5	3/5	2/5	1/5	0/5
					

**Fig. 2.6** Progressive descent of the head, assessed in fifths still palpable above the pelvic brim. (*After Crichton*  
2. *modified by Lasbrey*)

## **EMERGENCY ADVICE AND ASSISTANCE**

If you have an emergency and need to talk to a Specialist, never hesitate to ring your nearest SMO O&G (make sure you have the contact phone numbers in your labor ward or office), or one of the SMOs at PMGH, (our home phone numbers are in the telephone book). Professor Glen Mola's mobile no. is 72259440.

Alternatively, call Port Moresby General Hospital on 3248100 / 200 and ask to be connected to the Labor Ward (extension 132).

## **HOW TO GET THIS BOOK**

Members of the health team in PNG can get this book from Provincial Health office (Family health services coordinator), DMS or DNS of provincial hospital, or provincial Obstetrician Gynaecologist.

Others should write to the Editor (Prof. Glen Mola) at Port Moresby General Hospital, FMB Boroko, NCD.