FOREWORD BY THE DIRECTOR GENERAL OF HEALTH

Leausa T. Dr. Take Naseri
DIRECTOR GENERAL

The National Protocols and Guidelines for Standard Management in Pregnancy and Childbirth for Samoa continues the process of providing of safe, effective and high quality evidence-based guidance to all antenatal care service providers both in public and private health sectors of Samoa and the antenatal patients of their care.

This is the third edition that brings together the two previous modules and contains updates of numbers of topics from them, with the new topic substance use already incorporated.

This document is developed to ensure that women in Samoa are provided with consistent, high-quality, evidence based antenatal and maternity care. This is very much in line with national health priorities articulated in the national strategy i.e. Strategy for the Development of Samoa FY2016/17–FY2019/20, Health Sector Plan FY2019/20 – FY2029/30 and MOH Corporate Plan FY2020/21-FY2022/23.

It is intended for all healthcare professionals who contribute to pregnancy and childbirth care including midwives, obstetricians, general practitioners, registered credentialed traditional birth attendants and allied health professionals.

The next challenge is to facilitate the uptake of the Protocols and Guidelines and their incorporation into routine care so that the women of Samoa receive the highest possible quality of antenatal and maternity care.

We acknowledge the contributions of all healthcare professionals and health experts who prepared this edition.

We trust that this third edition of the National Protocols and Guidelines for Standard Management in Pregnancy and Childbirth for Samoa will contribute to greater consistency in pregnancy care and improve the experience and outcomes of pregnancy and childbirth care for all women in Samoa and their families.

Fa'afetai lava.

Leausa Samau T. Dr. Take Naseri
DIRECTOR GENERAL OF HEALTH

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INTRODUCTION

The National Protocols and Guidelines for Standard Management in Pregnancy and Childbirth for Samoa 2021 is developed with the understanding that pregnancy is a normal physiological process; and women should have the opportunity to make informed decisions about their care and treatment based on the current available evidence, in close partnership with healthcare professionals providing effective, safe and quality antenatal care for them.

This National Protocols and Guidelines covers the antenatal care of all pregnant women in Samoa up to 42 weeks of pregnancy, in all settings that provide routine antenatal care including primary and hospital-based care. It also addresses routine antenatal care including screening tests for complications of pregnancy.

This Issue is only the third of its kind in Samoa, and is a compilation of well researched data backed up by evidence from across the world; mainly the different Colleges of Obstetrics and Gynaecology. All evidence have been streamlined into the Samoan context addressing cultural, language, religious and geographical issues that are unique to Samoa; and most times affect Maternal Health Care.

Implementation of this Guideline and Protocol Document by the Ministry of Health in collaboration with other antenatal care service providers will contribute in achieving national health key outcomes pertaining to maternal and child health as articulated in the National Strategy of Samoa i.e. SDS FY2016/17 – FY2019/20 and Samoa's Health Sector Plan FY2019/20-FY2029/30.

CHAPTER 1: ANTENATAL CARE GUIDELINES

1. 1 ROUTINE ANTENATAL CARE

Purpose of the Guideline:

This guideline is to help midwives, doctors, nurses and all maternal health care providers in Samoa provide timely evidence-based care and follow-up of all mothers during pregnancy.

The following timeline is for Antenatal Cares for Normal Pregnancy however; at any visit if there are any risks identified, timeline and progress and frequency of contacts (visits) may change.

Note - The scope is outside of that of the Traditional Birth Attendants' (TBA) Guidelines.

Optimal Outcome:

A healthy woman who has received "respectful, individualized person-centred care at every contact with implementation of effective evidence – based clinical practices and provision of relevant and timely information and psychosocial and emotional support" (WHO 2016)

Who is Responsible?

Doctors, Midwives, Nurses, Maternal Health Care Providers

Booking Contact/First Contact – Less than and up to 12 weeks

Note: Women should be encouraged to have their first booking visit as soon as they miss their periods.

History

- Fill in Prenatal card – Appendix …page… 231
- Estimate EDD – Add 7 days to the 1st day of the last normal menstrual period and add 9 months to the month she last had her normal menstrual period.
    - Example: If the pregnant woman's sure last normal period was from the 2nd of February 2021 – 5th February 2021, adding 7 days to the date and 9 months to the month makes her EDD 9th of November 2021.
- Alternatively use the Obstetrics wheel where EDD is determined as week 40.
- Menstrual Period – Take detailed history to determine women with irregular menses and those on Family Planning methods; in whom a correct EDD cannot be estimated reliably.
- Antenatal History – All previous pregnancies and mode of deliveries, gestations at which older children were born, complications during each pregnancy if any and birth weights
- For women >25 years, routinely ask about previous pap smears (if any) and results. If no history of having had a pap smear – book for Pap Smear 6 weeks after delivery. Booking is done by calling the Records Department of the

Ministry of Health telephone 66671/66574/66587 for a Gynaecology clinic appointment.

- Full Detailed Medical History – Chronic Medical conditions, Pregnancy related medical conditions, drug allergies, and medications if any
- Family History – Relatives with NCDs, Seizures, Malignancies
- Surgical History – previous surgeries of any kind, take special history of abdominal surgeries or uterine/cervical surgeries
- Social History – Assess Smoking status, Drug and Alcohol use and assess social support

NOTE – For women in 2nnd marriage (or more), indicate by placing a red dot/apteryx on first column of 1st pregnancy in that marriage.

Examination

- Vital Signs – Blood Pressure (BP), Fasting BSL and BMI (weight and height)
- Full Body Examination from Head to Toe (Head, Ears, Eyes, Nose, Throat, Teeth, Neck, Chest, Breasts, Abdomen, Feet)
- Abdomen – palpate fundus (if palpable), try and listen for fetal heart if gravid abdomen.

Investigations

- Booking Bloods – Full Blood Count (FBC), Group and Hold, Serology (RPR, HIV, HepBsAg) and HbA1c
- For women with chronic medical conditions (Diabetes, Hypertension, other) – add Biochemistry (RFTs, LFTs, Glucose)
- For women with Thyroid Disease – Add Thyroid Function Tests (T3,T4,TSH)
- Ultrasound Scan – Dating Ultrasound Scan (reliable best when performed at less than 12 weeks)
- Also give second scan form for an Anatomy scan around 18-20 weeks.
- Midstream Urine – Chlamydia, Gonorrhea
- Can offer a High/Low Vaginal Swab to be done at home by patient

Medications

- Presumptive treatment of Patient and her partner with Azithromycin 1g PO STAT dose under direct observation
- All High Risk pregnancies should receive high dose Folic Acid of 5mg PO daily

Counselling/Education

Diet and Nutrition, Exercise, Immunisations, Antenatal Care

Second Contact – 20 weeks

It is mandatory to have all booking investigation results available at the time of the second contact.

- Calculate and record Age of Gestation clearly OR Reconcile EDD by dates and EDD from booking Ultrasound Scan
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL)
- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal Height Measurement and Auscultation
- Treat Anemia (from Booking Hb)
    - Fesolate tablets 200mg PO daily or any other oral iron formulation available
- Treat women positive for Sexually Transmitted Infections (urine and serology bloods)
    - Positive Gonorrhea – treat mother and partner with Ceftriaxone 250mg IM Stat
- Positive Syphilis, Hepatitis, HIV
- Treat Positive Group B Strep (from urine/self swab)
- Refer and Book to the next available High Risk Clinic for opinion if HbA1c >5.8%
- For women with risk factors and normal HbA1c, Book for OGTT at 24-28 weeks.
- Discuss with Registrar on call or Obstetrician any issues that warrant immediate/same day referral. See Guideline 1.2.
- Education

Third Contact – 26 weeks

It is mandatory to have the 20 week ultrasound scan result available at the time of third contact.

- Calculate and Record Age of Gestation clearly
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL)
- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal height measurement and auscultation
- Plot growth charts - All women to have growth charts plotted from 20 weeks (using ultrasound scan result)
- Chase OGTT result from previous visit and refer if Fasting >5.5 and/or 2hours 9 or more
- Repeat FBC as per Guideline if Booking Hb was less than 100mg/dL
- Discuss with Registrar on Call or Obstetrician any issues
- Education

Fourth Contact – 30 weeks

It is mandatory to have all investigation results from 26 weeks available at the time of fourth contact

- Record Age of Gestation clearly
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL, BMI)

- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal height measurement and auscultation
- Chase OGTT if was not done before 26 weeks and refer if Fasting >5.5 and/or 2hours >9.
- Treat Anemia (from 26 week repeat FBC)
    - Increase dose/frequency for Iron Tablets per day
- Discuss with Registrar on Call or Obstetrician any issues
- Education

Fifth Contact – 34 weeks

- Calculate and Record Age of Gestation clearly
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL)
- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal height measurement and auscultation
- Discuss with Registrar on Call or Obstetrician any issues
- Refer to the next High Risk Clinic if history of a previous Caesarean Section

Sixth Contact – 36 weeks

- Calculate and Record Age of Gestation clearly
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL)
- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal height measurement and auscultation
- Routine repeat FBC +/- Iron studies
- Repeat Urine for Chlamydia and Gonorrhea
- Repeat Growth Scan
- Discuss with Registrar on Call or Obstetrician any issues
- Refer to the next High Risk Clinic if Breech presentation
- Education

Seventh Contact – 38 weeks

It is mandatory to have all investigation results from 36 weeks available at the time of seventh contact

- Calculate and Record Age of Gestation clearly
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL)
- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal height measurement and auscultation
- Refer to the High Risk Clinic in **1 week if Hb at 36 weeks was <90mg/dL**
- Discuss with Registrar on Call or Obstetrician any issues
- Education

Eighth Contact – 39 weeks

WHO recommends a visit at Week 40. However, the Samoan population has a high percentage of mothers booking in very late; others without any booking at all; therefore we recommend that the last contact before referral to high risk clinic be at 39 weeks. This is to avoid missing truly post dated mothers that may have post Datism complications before getting a chance to be seen by the O&G Team.

- Calculate and Record Age of Gestation clearly
- Ask about general health and any new problems
- Take Vital Signs (BP, Fasting BSL)
- Urine Dipstick (protein, glucose, leukocytes, nitrites, blood)
- Routine Abdominal Palpation, Fundal height measurement and auscultation
- Discuss with Registrar on Call or Obstetrician any issues
- Discuss with Registrar on Call/Obstetrician and **Book to the High Risk Clinic in 1 week (40 weeks)**
- Education

Note 1: – All mothers that book later than recommended dates should

- Be treated as first Contact/Booking mother
- Have all of the same Investigations done at first contact.
- Should be followed up according to the recommended guidelines thereafter; and
- Referred accordingly as per Individual Guidelines.

Note 2: Any woman with proteinuria (1+ or more) should be assessed for Pre-eclampsia or Urinary Tract Infection (Asymptomatic Bacteriuria)

References:

- *Protocols for Standard Management in Pregnancy and Childbirth (2012). National Health Services*
- *Screening Diagnosis and Management of Gestational Diabetes in New Zealand (2014). A clinical practice guideline. Ministry of Health*
- *WHO recommendations for a positive pregnancy experience (2016). World Health Organization*

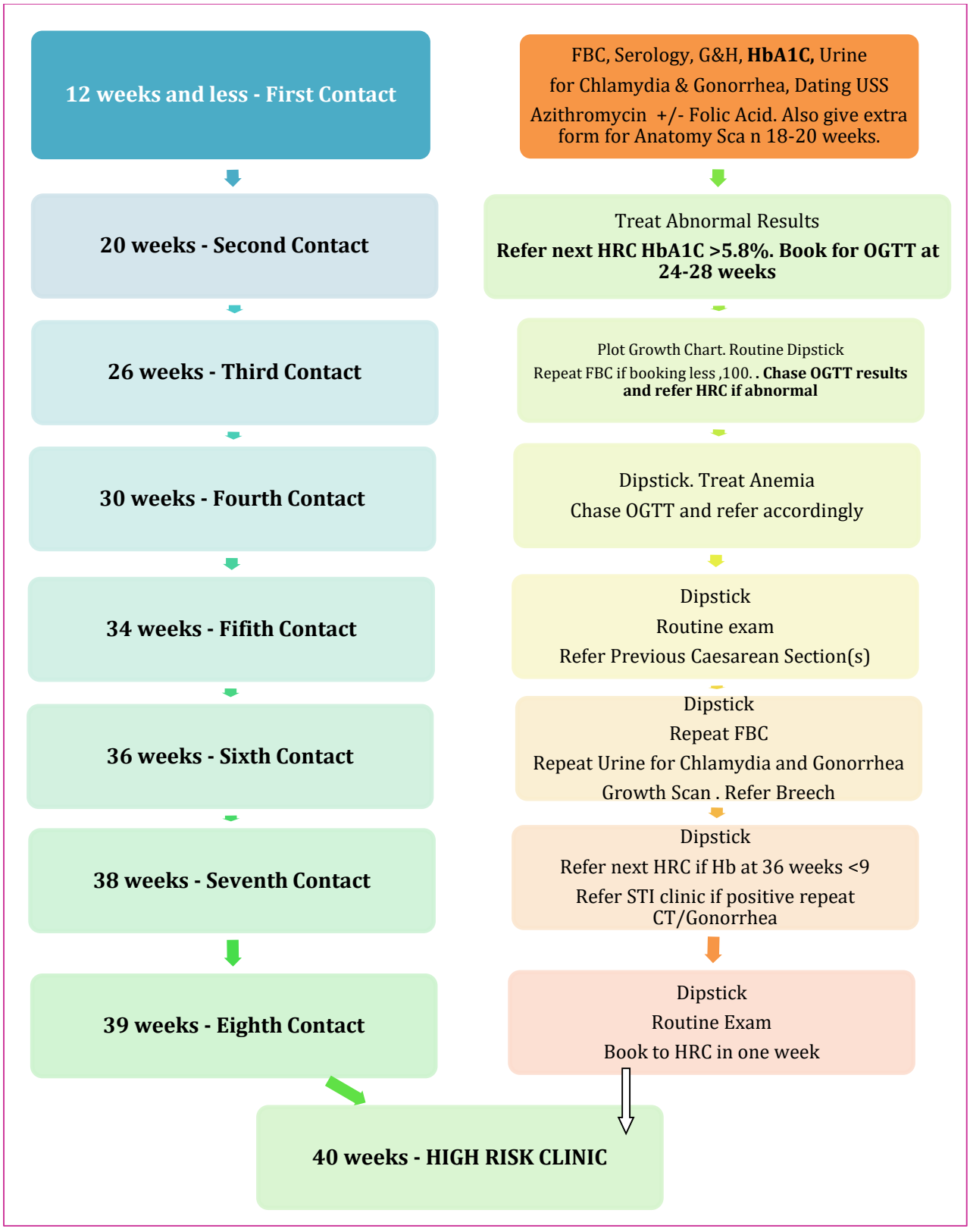


Figure 1: Routine Antenatal Care for All Mothers without Risk Factors.

1.2 INDICATIONS FOR REFERRAL TO HOSPITAL/HIGH RISK CLINIC

Purpose of the Guideline:

This guideline is to help midwives, doctors, nursing staff and other maternal health care providers in Samoa with the referral of high risk cases to the Doctors' HIGH RISK ANTENATAL CLINIC in both the TTM and MT2 Hospital.

Optimal Outcome:

All women who have antenatal problems or risks identified in district levels are referred to hospital appropriately and promptly.

Who's Responsible:

Doctors, Midwives, Nurses, Maternal Health Care Providers (Public and Private GPs and NGOs).

IMMEDIATE REFERRALS AT ANY Time IN PREGNANCY

ALL cases that warrant **IMMEDIATE URGENT** referral should:

(i) be discussed with the On Call Registrar or an OBSTETRICIAN first
(ii) be clinically stable before referral (ie) not at risk of adverse outcomes before and during the shift from area of referral to Labor Ward/Main Hospital
(iii) remain at area of referral if clinically UNSTABLE for resuscitation while awaiting help from Labor Ward/main hospital
(iv) be accompanied by a REGISTERED MIDWIFE
(v) In the event where the mother is too unstable for transfer, DO NOT MOVE the patient but await an extraction team from the Main TTM and MT2 hospital.

1. Unconscious Mother
2. Sick Mother – Elevated Temperatures (>38), Tachycardic (HR >100), Low Blood Pressures (<90/60 with tachycardia), RR (>30), Saturations (<95), MEWS (Maternal Early Warning Score) 5
3. Fitting Mother
4. Severe High Blood Pressure – Systolic Blood Pressure ≥160/Diastolic Blood Pressure ≥110 with or without symptoms
5. Bleeding Mother
6. Laboring Mother: (Not expecting to deliver during transit)
   - With non vertex presentation
   - Who is Preterm
   - With a macrosomic baby in antenatal visits
   - With Fetal Distress
   - With a Cord Prolapse
   - With Meconium Liquor

- With PV Bleeding
- With Obstructed Labor
- With 1 or more previous Caesarean Sections
- With previous Bad Obstetric History
- With a previous IUD
- With a previous ENND
- With a previous Shoulder dystocia
- With a previous Uterine Inversion
- With multiple pregnancy
- With a Hemoglobin at 36 weeks of less than 8g/dL
- With identified Elevated Blood Pressures
- With identified Medical Conditions
- With previous uterine surgeries
- With identified uterine/cervical anomalies

SAME DAY REFERRALS

ALL cases that warrant referral on same day should be:

(i) discussed with the On Call Registrar prior or an OBSTETRICIAN
(ii) accompanied by a REGISTERED MIDWIFE

1. All Emergency Cases (see above)
2. Elevated Blood Pressures – Systolic ≥140/Diastolic ≥90 REPEATED TWICE 4-6 hours apart with or without symptoms
3. High BSL readings
    - Fasting >7 (last meal/drink/gum/lollypop at least 6 to 8 hours prior)
    - Random >11
    - Abnormal OGTT Abnormal HbA1c (>5.8%)
4. Malpresentation (Breech or Transverse Lie) at Term (37 weeks and more)
5. Post Datism (41 weeks and more)
6. Suspected Rupture of Membranes by History (Term or Preterm)
7. Suspected Multiple Pregnancy between 34 and 37 weeks.
8. Hb <8 after 36 weeks OR Symptomatic for Anemia at any gestation OR Hb <7 at any gestation despite Iron tablets.
8. Suspected Small for Dates or Large for Dates – See guideline

*ALL Booking Clinic moms to be referred on the same day for Dating if a dating scan had not been done before (subject to change)

REFERRAL TO HIGH RISK CLINIC WITHIN A WEEK

ALL mothers with conditions that DO NOT fall into CRITERIA above to be booked to the next available High Risk Clinic AFTER consultation with the Registrar on Call or an OBSTETRICIAN.

Note that some cases referred will be referred back to primary care giver and low risk clinics for continuation of care; after consultation with Secondary Care Team. These women shall have a detailed plan and recommendations by the Secondary Care Team in their files for their Primary Health Provider to follow.

Refer to Individual Guidelines for each Condition for detailed follow-ups and plans.

(i) Demographics

- Elderly Primips – 35 years and older
- Mothers 40 years and above – refer to High Risk Clinic at 37 weeks
- Mothers 16 years and younger
- Fasting BSLs >5.5

(ii) Mothers with a Previous History of:

- ***Medical Conditions***
  - PET/Eclampsia
  - GDM
  - PCOS
  - Cardiac/RHD
  - Asthma
  - Epilepsy
  - Thyroid Disease
  - Renal Disease
  - Mentally Challenged
  - Quad/Paraplegia

- ***Surgeries***
  - Caesarean Sections regardless if has had a VBAC(s)
  - Uterine/Cervical Surgeries
  - Spinal Surgeries

- ***Obstetric History/Previous History of:***
  - Preterm Deliveries
  - Macrosomic Babies (>4 kg)
  - Third or Fourth Perineal Tears
  - PPH with Blood Transfusions
  - Uterine Inversion
  - IUD
  - ENND

- Shoulder Dystocia
- Cord Prolapse
- Instrumental Deliveries (Ventouse/Forceps)

- ***Previous admission to ICU***

- ***3 previous miscarriages***

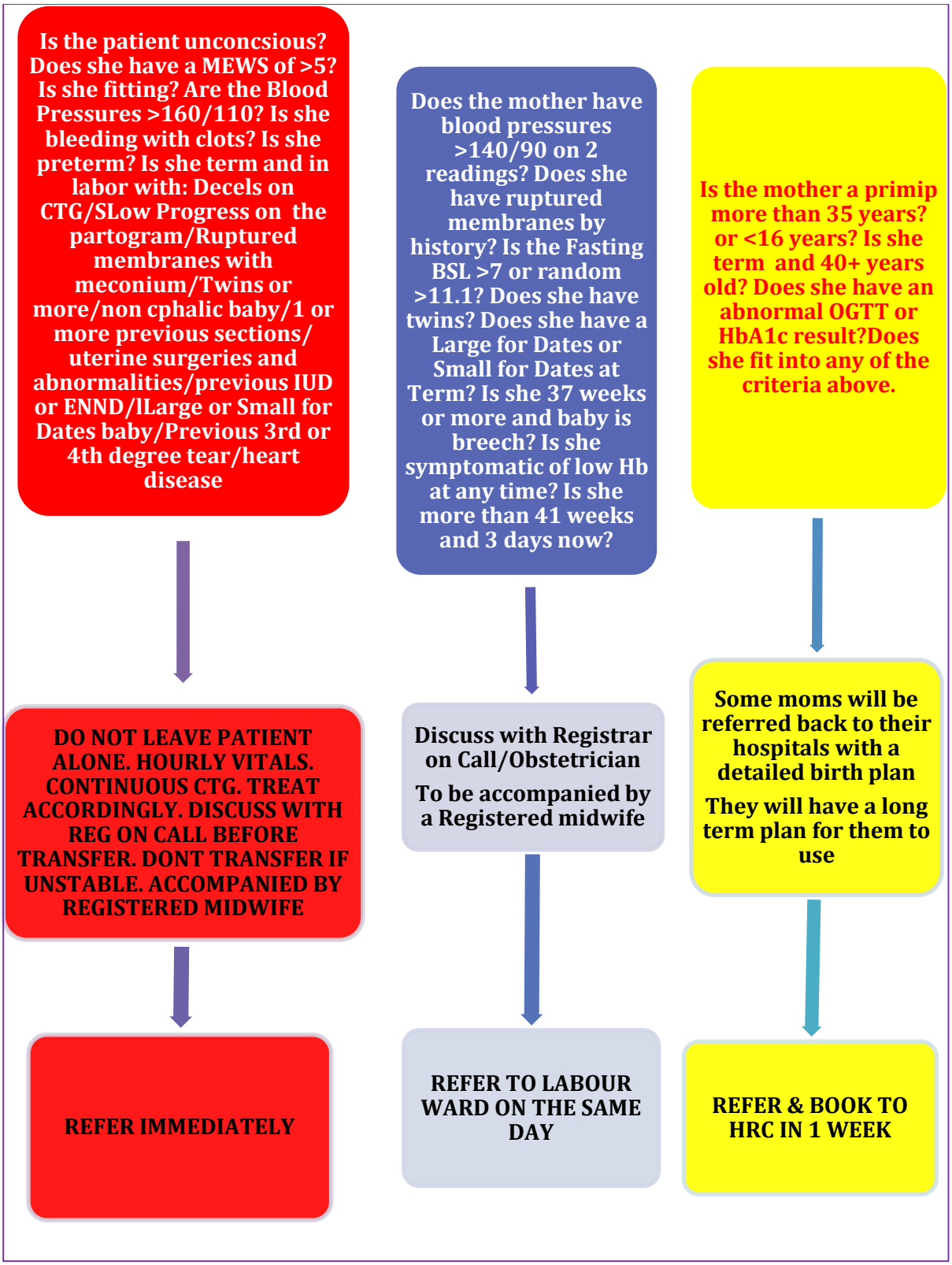
- ***Uterine Anomalies***
  - Fibroid Uterus
  - Bicornuate uterus etc
  - Didelphic Uterus

(iv) Anemia at/after 36 weeks (<8)

(v) Abnormal Ultrasound Findings

- Multiple Pregnancies from 28 weeks
- Malpresentation after 36 weeks
- Oligohydramnios (Single Deepest Pocket 2cm or less)
- Polyhydramnios (Single Deepest Pocket > 10 cm)
- Any Fetal Structural Anomalies
- Placental Anomalies (Extra lobes etc)
- Ovarian and/or uterine masses (or other masses)

Figure 2: Indications and Timing for Referrals



1.3 MANAGEMENT OF DIABETES IN PREGNANCY

Purpose of Guideline

This Guideline aims to establish the detection, diagnosis and management of Diabetes in Pregnancy.

Optimal Outcomes

1. Maintenance of maternal normoglycaemia
2. Prevention of fetal macrosomia

Patients:

Women with gestational diabetes or pre-existing diabetes

Responsibility:

Doctors, Nurses, Midwives, All Maternal Health Care Providers (Private and Public)

DEFINITIONS:

- Diabetes outside of Pregnancy - Diagnosed by an abnormal OGTT (Fasting >7 mmol per L and 2 hr level >11.1 mmol per L) or HbA1c more than or equal to 6.7% (50mmols/mol)

- Gestational Diabetes – Abnormal Glucose Tolerance that is detected in Pregnancy (ie) after 20 weeks and or within 6 weeks post-partum
    - OGTT values (MOH New Zealand 2014)
    - Fasting > or equal to 5.5 mmols/L OR
    - 2hr glucose level more than or equal to 9.0 mmols/L

- HbA1c 50mmols/L (6.7%) during pregnancy is referred to as Probable Chronic Diabetic

RISK FACTORS FOR DIABETES IN PREGNANCY

- Maternal Age >35 years
- Family History of Diabetes (parents or siblings)
- Past personal History of abnormal glucose tolerance
- Previous very large babies > 4.5kg Bwt
- Polycystic Ovarian syndrome
- Persistent glycosuria
- Obesity (BMI > 30)
- Previous unexplained Perinatal lost or a birth of a malformed child
- Past history of Recurrent miscarriages (>3)
- Pre-existing Hypertension

Figure 3: Management at different Levels of Care of Diabetic Mothers

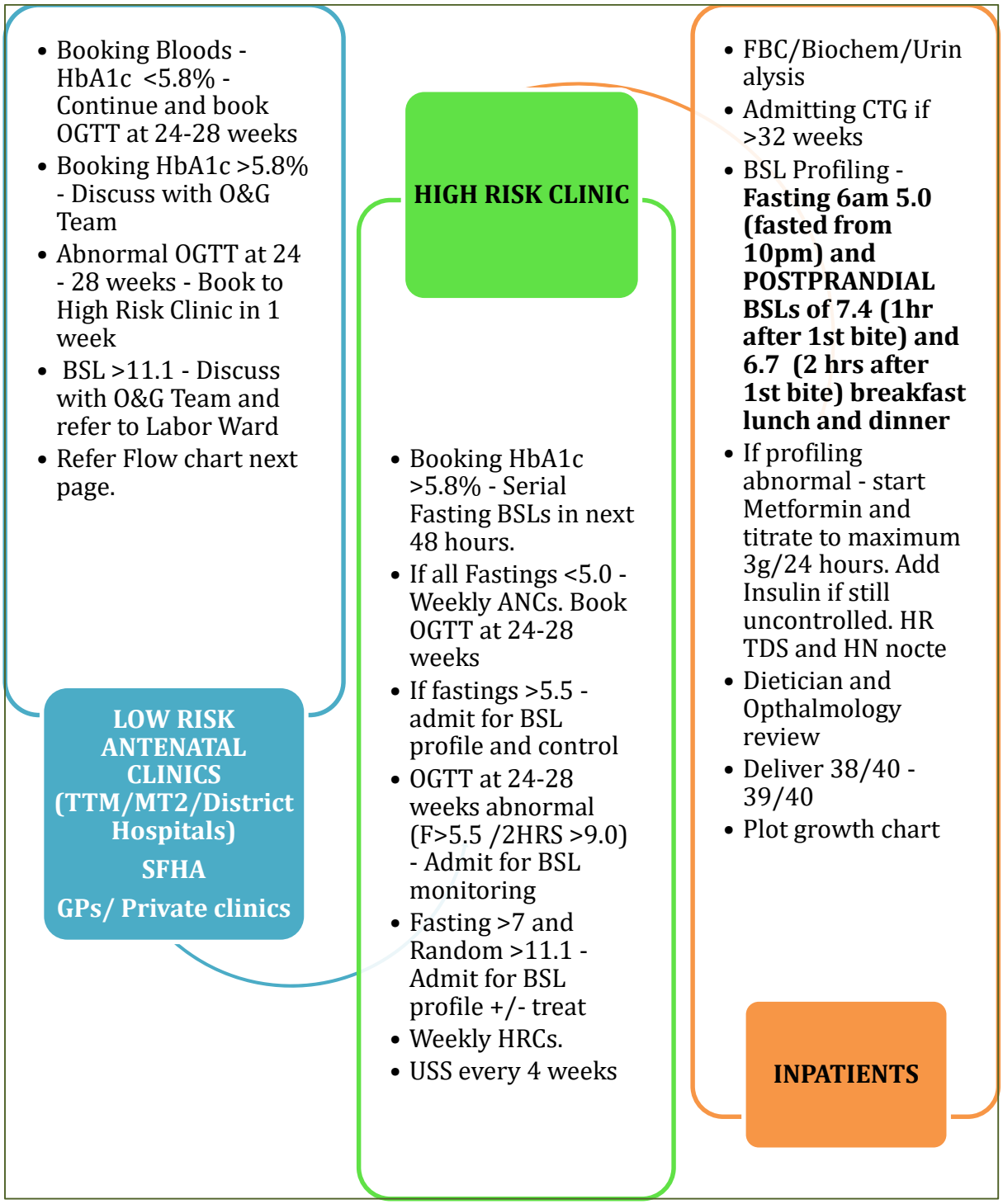
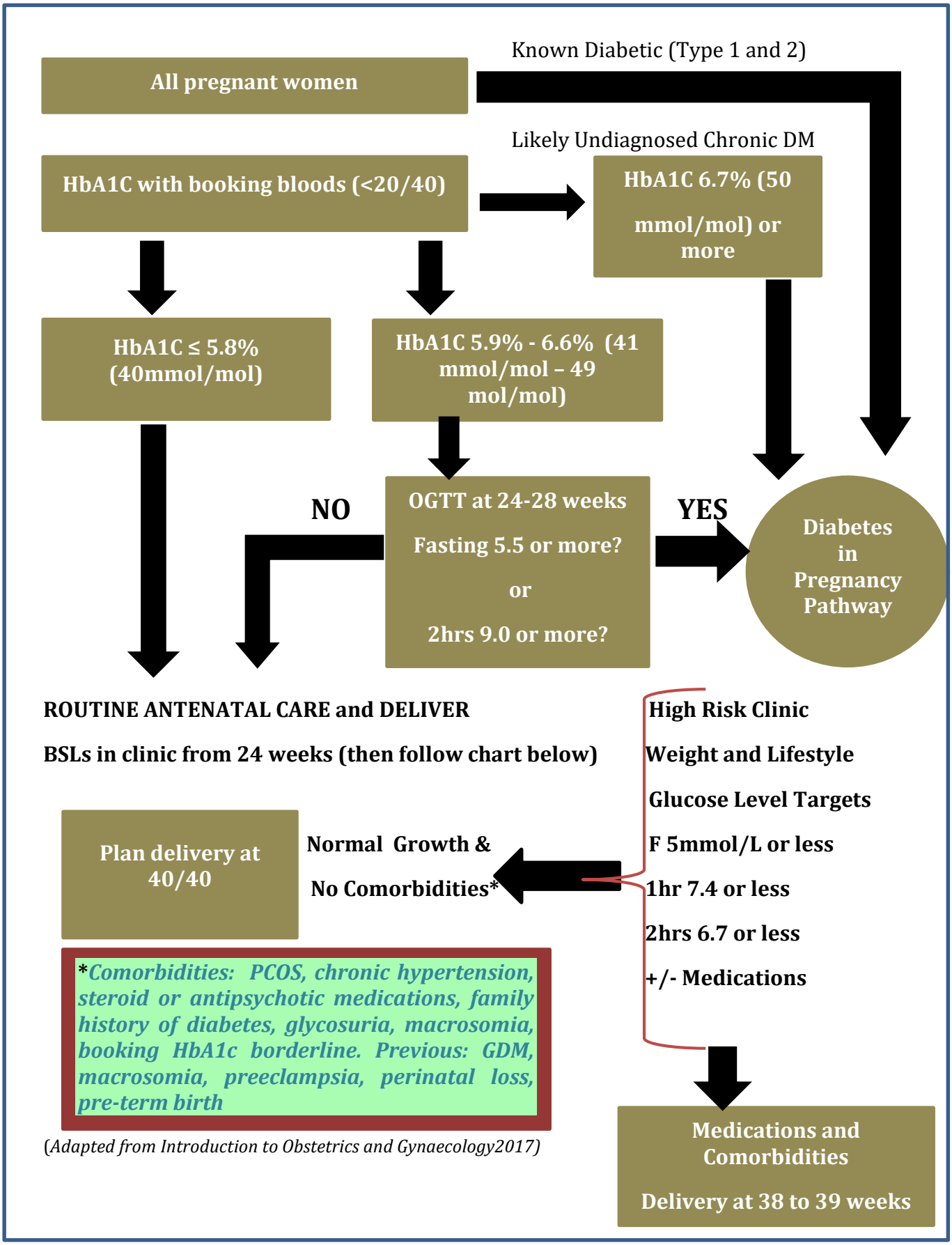


FIGURE 4: SCREENING AND MANAGEMENT



(*Adapted from Introduction to Obstetrics and Gynaecology2017)*

ALTERNATIVE PATHWAY FOR WOMEN IN LATE PREGNANCY

80% of pregnant women are either Late Bookers or Unbooked (Fidow 2015: Research paper on Rates of IUDs in Samoa 2014-2015). This makes screening for Gestational Diabetes very difficult. The following is WHO Criteria for Gestational Diabetes (2006) and should be deemed useful in managing this group of women. Data used were based on the HAPO (Hyperglycaemia and Adverse Pregnancy Outcome) Trial which is a landmark study looking at adverse pregnancy outcomes with different levels of maternal hyperglycaemia.

The diagnosis of gestational diabetes mellitus at any time during pregnancy should be based on any one of the following values:

• *Fasting plasma glucose = 5.1-6.9 mmol/l (92 -125 mg/dl)*
• *1-h post 75g oral glucose load >=10.0 mmol/l (180 mg/dl)**
• *2-h post 75g oral glucose load 8.5 – 11.0 mmol/l (153-199 mg/dl)*

**there are no established criteria for the diagnosis of diabetes based on the 1-hour postload value*
Quality of evidence: very low. Strength of recommendation: weak

Source: Diagnostic Criteria and Classification of Hyperglycema first detected in pregnancy (WHO 2013): page 5.

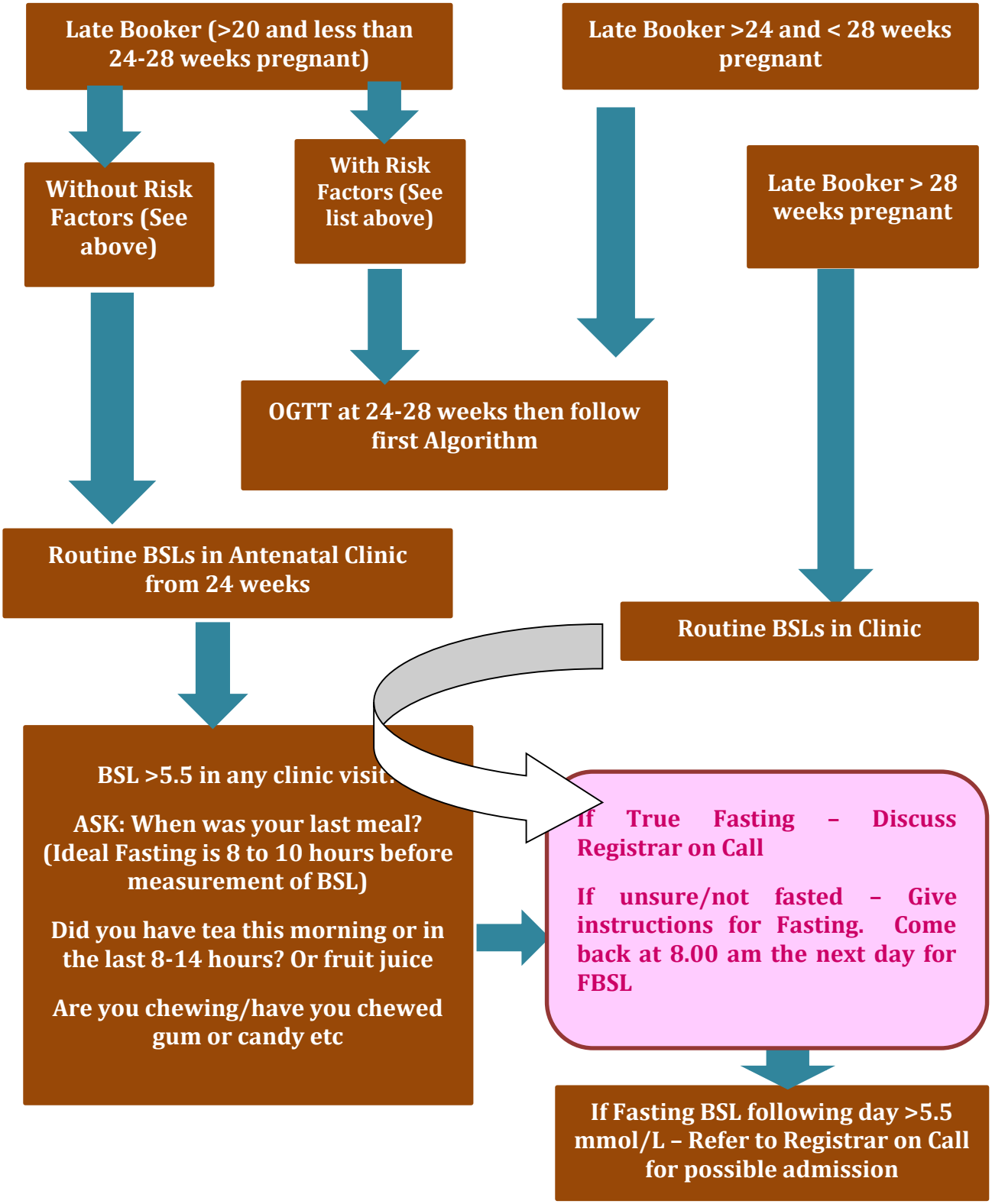
Note:

1. Because of the lack of resources in Samoa: limited number of ward beds for all Unit patients and limited number of manpower, there are discussions against using 5.1 mmol/L as cutoff for referral and therefore admissions as this would mean a large number of women admitted everyday exceeding capacity.

2. According to the World Health Organisation, a cutoff of 7mmol/l is also largely too high a number that we may miss Women with Diabetes thereby making room for Adverse Pregnancy Outcomes. This is identified by various Institutions worldwide who have therefore endorsed the use of Fasting Plasma Glucose around 5mmols/l. The lowest is 5.5 mmols/L recommended by Australasia .

3. To synchronise local dilemma and experience with established Guidelines (see above) we recommend (and have been practicing) the use of 5.5mmol/l as cut-off for fasting plasma glucose in Antenatal Clinics in Samoa (refer below)

FIGURE 5: Flowchart for Late Pregnancy and Late Bookers



INPATIENT CARE

Criteria for Admission

1. Fasting BSL > 5.5 mmol/L (fasted from 10pm the previous night)
2. Random BSL > or equal to 11. 1 mmol/L
3. Abnormal OGTT values F 5.5 or more/2hrs 9 or more
4. Known Chronic Diabetic (Insulin Dependent or Non Insulin Dependent) on Medications

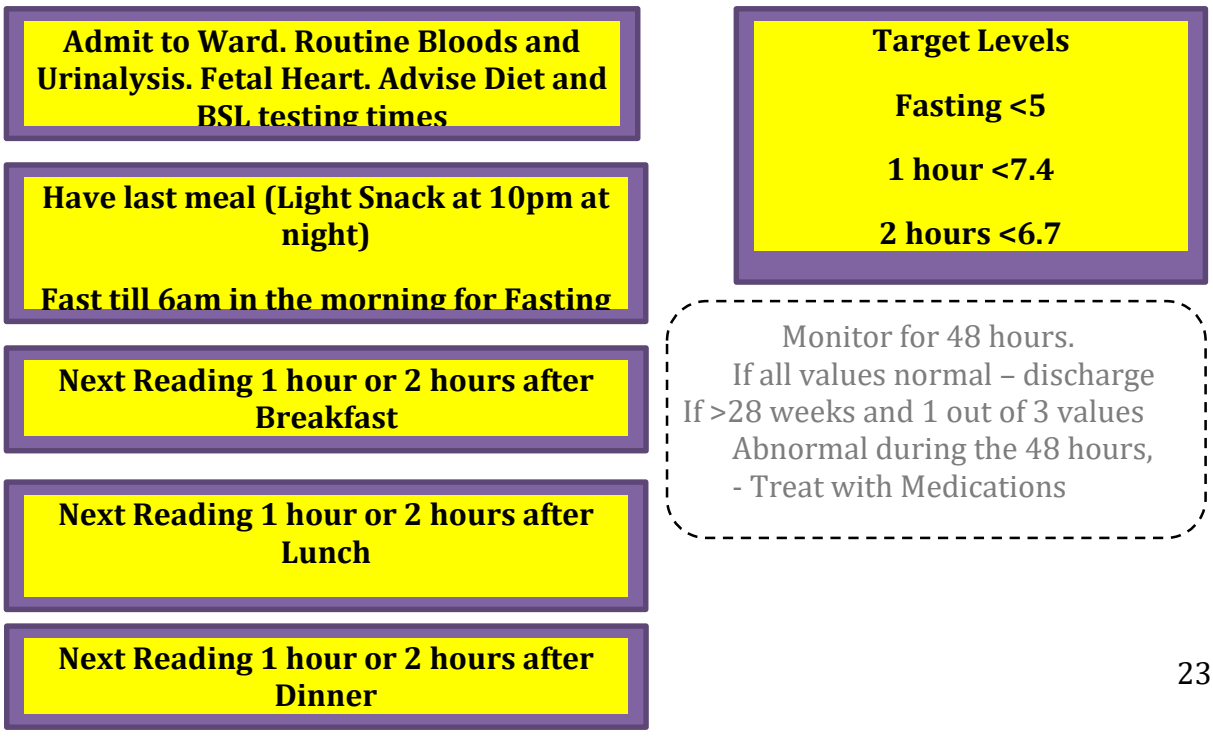
Inpatient Management

- Admit and Clerk patient in – Ensure all previous records are available
- History and Routine Examination
- Admitting CTG (if more than 32 weeks). Doppler if less than 32 weeks; and daily
- FBC, Biochemistry + Glucose, Group and Hold & Urinalysis
- Growth Scan (if has not had one in last 3 to 4 weeks) – Plot on Growth chart
- BSL monitoring 4 times a day for 24 hours first and to await review by Antenatal Team Ward Rounds the next day.
- Ideal monitoring times – 4 times a day. Fasting BSL and postprandial BSLs (1hr or 2hrs from first meal bite) breakfast, lunch and dinner
- Referral to the Dietician
- Book an appointment with Ophthalmology Unit

Target Levels

- Fasting <5 mmol per Litre
- 1hr post prandial – 7.4 mmols per Litre
- 2hrs post prandial – 6.7 mmols per Litre

Figure 6: In patient Management



Indications for Treatment

- Target levels (above) not achieved after 48 hours monitoring

Criteria for Discharge

- Discharge when Target Levels are achieved with or without medications
- Less than 38 weeks pregnant at discharge
- No other Obstetrics or Medical problems

Criteria for Induction of Labor

- Term (38 – 39 weeks) on Medications
- 40/40 if well controlled sugars on Diet only
- Woman on very high doses of Insulin – Consider earlier
- Decreased Fetal movements at Term or Near Term
- Macrosomic baby (4.5kg or more) before 38 weeks (after steroids)
- Presence of other comorbidities

Follow up Plan

All women should be discharged:

- With a discharge Summary with follow up plan
- To be seen weekly in the High Risk Clinic with a Fasting BSL till 38 weeks if on treatment
- With a Free Drug Supply Form to accompany her prescription for the remainder of the pregnancy
- With a plan for Induction of Labor at 38 to 39 weeks (on treatment)

Women with diet-controlled diabetes:

- Fortnightly reviews in the High Risk Clinic with Fasting BSLs
- Admit for BSL monitoring at any gestation if the Criteria above is reached
- Plan for Induction of Labor at 40 weeks if BSLs are well controlled prior

Postpartum Care for Women on Treatment:

- Continue BSL monitoring 48 hours after delivery – restart on antidiabetic medications if persistently abnormal values. If not, discharge after 24 to 48 hours of normal BSL monitoring.
- Weekly for 6 weeks
- Wean off or add on medications depending on BSL levels
- Routine OGTT in 6 weeks and Book to a Medical Clinic for ongoing care thereafter

Check List for admitted GDM patients

- Dietician Referral
- Eye Referral
- Growth Chart
- Urinalysis
- Renal Function test
- Mother to be fully capable of administering the right Insulin and the right dose at the right time on herself before discharge.
- Discharge Summary upon Discharge
- Free Drug Supply Form when Discharged
- Weekly or fortnightly AN visits to monitor the BSL level and ensure compliance with medications

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References:

1. *Diabetes in Pregnancy (2014). Quick Reference Guide for Health Professionals on the Screening Diagnosis and Treatment of Gestational Diabetes in New Zealand. Ministry of Health New Zealand*

2. *Diabetes in Pregnancy (2012). www.nationalwomenshealth.adhb.govt.nz*

3. *Diagnostic Criteria and Classification of Hyperglycaemia first Detected in Pregnancy (2013) World Health Organization*

4. *Farquhar C. Roberts H (2017) Intnroduction to Obstetrics and Gynaecology: Medical Disorders (123-125)*

5. *Fidow U (2016) Rates of Intrauterine Deaths Tupua Tamasese Meaole Hospital 2014-2016 Masters Research Paper*

6. *Gestational Diabetes: Risk Assessment Testing Diagnosis and Management (2020). National Institute for Health and Care Excellence*

7. *https://nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/Referrals-and-info/Diabetes/Diabetes-in-Pregnancy-background-paper.pdf*

1.4 MANAGEMENT OF HYPERTENSIVE DISEASES IN PREGNANCY

Purpose of Guideline

This guideline describes evidence-based care for women with hypertension and pre-eclampsia in pregnancy for all Maternity Health Care Workers and Servers in Samoa

Background

Hypertensive Disorders of Pregnancy affect 5 - 10% of all pregnancies. A priority of antenatal care in the second half of pregnancy is to detect the development of preeclampsia. When pre-eclampsia develops, delivery of the baby and placenta is the only cure. Management is aimed at timing delivery to prevent maternal complications whilst minimising fetal morbidity and mortality from prematurity and associated intrauterine growth restriction.

Who's Responsible?

Doctors, Midwives, Nurses in all District Hospitals, Private Practice, TTM and MT2 hospitals

Best Practice Principles

- All women with Hypertensive Diseases in Pregnancy should be referred to and followed up in the High Risk Clinic
- All women with Hypertensive Disease in Pregnancy should receive steroids for lung maturation between 28 and 34 weeks if they are an inpatient
- All women diagnosed with Hypertensive Disease in Pregnancy should be followed up in the Gynaecology Clinic within 6 weeks after delivery. If on medications, wean off medications.
- All women on medications AFTER 6 weeks of delivery should be discharged to her GP or a Medical Clinic for ongoing follow ups
- All women should be counselled for appropriate and safe Family Planning Methods using WHOMEC/UKMEC Criteria (See Family Planning Guideline page 226)

1.4(1) CHRONIC/PRE-EXISTING HYPERETENSION IN PREGNANCY

Chronic/pre-existing hypertension: Hypertension confirmed prior to 20 weeks of gestation with or without a known cause - measured on two or more consecutive occasions at least four hours apart

Management Pathways:

- ✓ All pregnant women with Chronic Hypertension should be referred to the High Risk Clinic for assessment and management
- ✓ Replace regular antihypertensive medications with those that are safe in pregnancy
- ✓ For BPs ≥140/90 – manage as Gestational Hypertension or Super-Imposed Pre-Eclampsia depending on urinalysis result
- ✓ All women with chronic hypertension should be followed up within 6 weeks after delivery and restart on usual regular antihypertensive medications
- ✓ All women with Chronic Hypertension should be discharged to her GP or a Medical Clinic for ongoing follow ups after 6 weeks of delivery

Medical Management

- ✓ Inform women on ACE Inhibitors or ARBs of the chances of congenital abnormalities and therefore recommend stopping or switching
- ✓ Inform women on thiazides (Lasix, etc) of the risks of congenital deformities and therefore recommend stopping or switching.
- ✓ Medicine safe in pregnancy include Labetalol, Nifedipine, Methyldopa, Oxyprenolol and Hydrallazine.
- ✓ Target Blood Pressure on Treatment 135/85 (NICE Guidelines 2019)
- ✓ Offer pregnant women with chronic hypertension low dose Aspirin 100mg daily from 12 weeks (NICE Guidelines 2019)

Continue on safe antihypertensives or switch to safe medications UNLESS

- ✓ Sustained systolic BP less than 110 OR
- ✓ Sustained diastolic BP less than 70
- ✓ Symptomatic hypotension

Offer antihypertensive treatment if not on treatment IF

- ✓ Sustained systolic BP of 140 mmHg or more OR
- ✓ Sustained diastolic BP of 90mmHg or more

Post partum

- ✓ Aim to keep BPs lower than 140/90

- If was Aldomet, stop within 2 days and change to an alternative medication if required

- ✓ Continue antihypertensives if required
- ✓ Refer to their GP or Medical specialist after 2 weeks of delivery for review of medications
- ✓ Put plan in Discharge Summary

1.4(2) GESTATIONAL HYPERTENSION

New onset hypertension (≥140/≥90) after 20 weeks' gestation (in a woman who was normotensive before 20 weeks of gestation); without any of the abnormalities that define pre-eclampsia followed by return of blood pressure within 6 weeks postpartum

Management Pathways:

Outpatient Management:

- Identify women with Gestational Hypertension
- Take history for signs and symptoms of Severe Hypertension (headache, blurry vision, nausea and vomiting, RUQ/epigastric pain)
- Do urine dipstick to look for proteinuria (1+ or more)
- Routine Abdominal Palpation for fundal height, lie and Doppler Auscultation
- Look for leg pitting edema, reflexes and clonus
- Take Bloods – FBC (purple top), Renal Fuction Tests, Liver Transaminases, Uric Acid (Red top) (Coagulation Profile (blue top) only if platelets <100)
- Discuss with Registrar on Call or Obstetrician and Refer for further Assessment on same day.

Inpatient Management:

- Admit to Antenatal ward
- Blood Pressure Profiling for 24 hours
- Take Bloods if not done already – FBC, Renal Function Tests, Liver Transaminases, Uric Acid (Coagulation Profile only if platelets <100)
- Daily Urinalysis
- Daily CTGs
- Growth Ultrasound Scan with Doppler Studies if suspected IUGR
- Treat with antihypertensive medications if BPs remain >140/90
- Dietician Referral
- Discharge after 24 hours if not term (<37 weeks) and Blood Pressure Profiling normal <140/90, no evidence of IUGR or fetal distress and not started on antihypertensive medications.
- If no medications - Review in High Risk Clinic 2 weekly till 40 weeks.
- If on medications – Review in High Risk Clinic weekly till 37 weeks, then assess for plan of delivery
- Ultrasound Scan for growth every 4 weeks.
- Aim for Normal Vaginal Delivery unless contraindicated

1.4(3) PRE-ECLAMPSIA

The new development of hypertension (BP≥ 140/90mmHg after at least 4 hours rest) after 20 weeks gestation in women with no previous history of hypertension, cardiac or renal disease plus proteinuria (1+ dipstick and more) or other systemic involvement eg. Thrombocytopenia, deranged LFTs, increased Creatinine, etc.

The use of low dose Aspirin has been proven beneficial for the prevention of progress of PET disease therefore recommended for women at risk.

Assessment of Proteinuria in Context of PET

Positive dipstick - +1 or more (NICE Guidelines 2019) without leukocytes; use

1. Protein:Creatinine Ratio (PCR) – threshold for significant proteinuria is 30mg/mmol; OR
2. Albumin:Creatinine Ratio (ACR) – diagnostic threshold; use 8mg/mmol

If threshold is met but there is still uncertainty about the diagnosis of PET; retest on a fresh sample. Avoid early morning urine sample use.

The routine use of 24 hour urine protein samples is not recommended.

Management Pathways:

Outpatient Management:

- Stabilise the patient – Treat High Blood Pressure
- Insert IV Cannula – Take FBC, RFTs, LFTs and Uric Acid and Group and Hold
- Take Urine for urinalysis.
- Discuss with Registrar on Call or Obstetrician for referral or transfer to main hospital TTM or MT2
- If the patient is in second stage or about to deliver, manage as Guideline on Management of Acute Severe Hypertension; safely deliver and stabilise before transfer
- Patient to be accompanied by a registered midwife or skilled birth attendant

Inpatient Management:

- All women with PET should be admitted to hospital.
- Routine Examination – Fundal Height measurement and palpation, assess for leg edema, presence of hyper-reflexia and clonus
- Blood Pressure Profiling for 24 hours – BP every 4hrs
- Take Bloods – FBC, Renal Function Tests, Liver Transaminases, Uric Acid (Coagulation Profile only if platelets <100)
- Daily Urinalysis
- Daily CTGs

- Growth Ultrasound Scan with Doppler Studies if suspected IUGR then 3 weekly growth scans and twice weekly Dopplers thereafter till delivery
- Treat with antihypertensive medications if BPs remain >140/90. For Severe Hypertenson, see Guideline of Management of Acute Severe Hypertension in Pregnancy
- Fluid Balance – Limit Intake to 80-85 mls/hr and to achieve a Urine output of 0.5 – 1 ml/kg/hour

Discharge Criteria

- Discharge when stable and if not term (<37 weeks)
- Blood Pressure are controlled <140/90
- No evidence of IUGR or abnormal Dopplers and
- Clinically and biochemically stable.
- All women should be discharged with a Discharge Summary

Follow up Plan

- Review in High Risk Clinic weekly till 37 weeks
- Induction of Labour at 37 weeks (earlier if indicated – see Indications for Delivery)
- Aim for Normal Vaginal Delivery unless contraindicated

Indications for Delivery

Maternal

- Term Pregnancy (37 weeks)
- Inability to control BP with maximum anti-hypertensive therapy
- Progressive deterioration in liver function
    - Rise in ALT/AST over 70 IU/L or twice the upper limit of normal
- Progressive deterioration in renal function
    - A new persistent rise in Creatinine (90 micromols/L) or more
- Falling platelet count or HELLP
- Neurological complications, including Eclampsia
- Signs of Impending Pulmonary Edema

Fetal

- Term Pregnancy (37 weeks and more)
- Abnormal CTG (NST)
- Persistent IUGR, decreased liquor on ultrasound scan
- Abruption
- Abnormal Dopplers (using RANZCOG Guidelines) – Reversed End Diastolic flow in the umbilical artery
- Stillbirth

Induction of Labour

- All women with PET should be induced at at least 37 weeks
- All women should be induced according to Induction of Labour Guidelines

Post Partum follow up

- Measure BP every 4hours after delivery
- Repeat platelets, Creatinine, AST and ALT 48 hours after delivery
- If PET but was not on treatment and has delivered (NICE 2019)
    - Start antihypertensives if BPs 150/100 or higher
- Continue antihypertensive medications.
    - If was on Aldomet – Stop within 2 days after delivery then change to alternative medication if needed.
    - Wean off or consider reducing medications if Blood Pressure falls below 140/90
    - Reduce Medications if Blood Pressure falls below 130/80

- Discharge when
    - Blood pressures with/without treatment is 150/100 or less
    - No symptoms of PET
    - Stable blood tests or improving

- Clinic Follow ups
    - Weekly to wean off or stop antyihypertensives
    - Urine dipstick at 6 weeks post partum
    - Refer to their GP or Medical Clinic for ongoing care after 6 weeks if Blood Pressures still elevated, still on antihypertensives medications and/or persistent proteinuria

1.4(4) MANAGEMENT OF ACUTE SEVERE HYPERTENSION

Blood Pressure ≥160/110 at any time in pregnancy

Management Pathways:

- Inform Registrar on Call and Obstetrician
- Insert IV Luer – Take FBC, Group & Hold, RFT, LFTs, Uric Acid
- Start Hydrallazine
    - Hydrallazine 20mg (vial) dilute up to 20mls Sterile Water. Give 5mg (5mls) IV push every 30minutes if Blood Pressures >160/110. Maximum – 4 doses.
    - Hydrallazine Infusion if Blood Pressure still uncontrolled – Hydrallazine 80mg (4 vials) in 500mls Normal Saline. Start at 30mls/hour (5mg/hr). Increase infusion by 10ml/hr every 30minutes to a maximum of 90mls/hr
    - Give Prophylaxis for Eclampsia – Magnesium Sulphate 5g (2 vials) in 100 mls of Normal Saline and run over 15 to 20 minutes.

- DO NOT LEAVE THE PATIENT ALONE

- Monitor CTG

1.4(5) ECLAMPSIA

Seizures or convulsions in a pregnant woman with gestational hypertension or pre-eclampsia not due to other causes.

Management Pathways (*Main Hospital*)

- All cases of unexpected seizures in pregnant women should be assumed to be eclampsia until proven otherwise (need to exclude other acute neurological causes, e.g. subarachnoid hemorrhage
- Signs and Symptoms of Imminent fitting – hyper-reflexia with sustained clonus (> 2 beats), severe headaches, restlessness and confusion
- Call for Help
- Assess ABC
- Control fitting
  - Place patient on side
  - Clear Airway – Suction and insert a Guedel airway
  - Give Oxygen 10L
- MgSO4 5g (2 vials in 100mls NSaline and run over 15 - 20 minutes). If no IV access, 10g IM stat (4vials)
- Control Severe Hypertension (Refer previous Guideline)
- Insert IDC. Monitor Urine output
- Check PET bloods
- Prepare for urgent expedited delivery when patient is stable
- Check fetal status
- Perform a Vaginal Examination to assess progress when patient is stable
- DO NOT LEAVE PATIENT ALONE

Management Pathways (*for District Hospitals and settings outside of the main hospitals TTM and MT2)*

- Call for Help
- Assess ABC
- Control fitting
    - Place patient on side
    - Clear Airway – Suction +/- insert a Guedel airway
    - Give Oxygen 10L

- MgSO4 5g (2 vials in 100mls 0.9% NaCl and run over 20 minutes). If no IV access, 10g IM stat (4vials)
- If patient fits again, give 1g IV MgSO4
- Diazepam IV Push 10mg stat and prn in areas without MgSO4 or if out of stock or while waiting for MgSO4 to be drawn and given.
- Control Severe Hypertension (see guideline)
- Insert IDC. Monitor Urine output
- VE when patient is stable to assess progress & check fetal status
- Discuss with Registrar on Call or Obstetrician for transfer
- DO NOT LEAVE PATIENT ALONE
- Escorted by a registered midwife with an assistant skilled birth attendant.

Delivery:

All eclamptic women should

- Be delivered in TTM/MT2
- be delivered by a skilled birth attendant
- NOT receive Ergometrine/Syntometrine
- be stabilized first before transfer to a main hospital
- be stabilised first then transfer to the ICU.

Post-Partum:

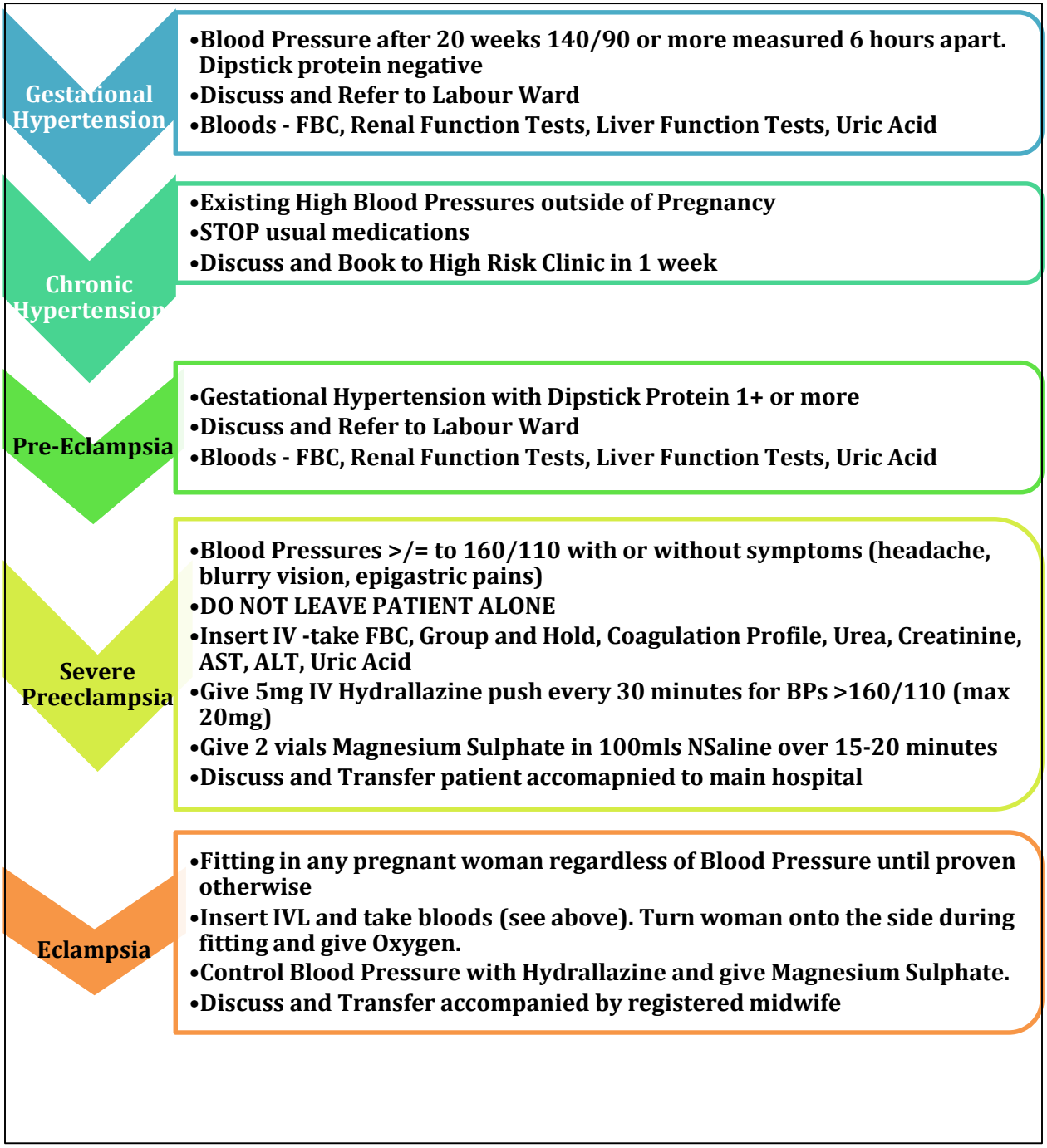
- All eclamptic women should have a maintenance MgSo4 infusion running from time of last seizure for 24 hours. Maintenance Dose – 1g per hour over 24 hours from delivery or from time of last seizure
    - Dilute 20g (8 ampoules) to 40mls into 460 mls of Normal Saline (remove 40mls from 500mls bag prior)
    - Infusion rate – 25mls/hr

- Hourly – 2 hourly Observations on MgSO4 (to detect Magnesium toxicity)
    - Stop the infusion and Inform Registrar on Call or Obstetrician if any signs of overdose present
    - Administer antidote – Calcium Gluconate 10% 10mls IV over 10minutes
        - Hyporeflexia

        - Respiratory Rate for Respiratory Depression (RR <10/I or SPO2 <95%)
        - Hypotension (<110/80)
        - Urine Output – Inform if <30mls/hr for 3 consecutive hours
    - Check Magnesium Levels 6hrly in 24 hours

- Monitor Urine Output
- Restrict IV Fluids to 80mls per hour
- Control Blood Pressures
- Have daily PET Bloods
- Stay inpatient until clinically, hemodynamically and biochemically "well"

Figure 7: Hypertensive Diseases in pregnancy



Inpatient Care Summary

Gestational Hypertension	PET (Inpatient)	Severe Unstable PET/Eclampsia	MgSO4 Monitoring	Intra-partum	Postpartum
BLOOD PRESSURE MONITORING					
6hourly	4-6 hourly (except overnight when an interval of 8 hours may be acceptable	One-on-one care Blood pressure at least hourly, respiratory rate, oxygen saturation	One-on-one care Blood pressure every 30 minutes during loading dose then 2hrly during maintenance dose	PET - 2Hourly Gestational HTN – 4hourly	4 hourly (except overnight when an interval of 8 hours may be acceptable) After discharge, weekly up to 6 weeks
TESTING					
Weekly Urinalysis	Daily Urinalysis Weekly PET Bloods if admitted Repeat prn if new concerns about maternal and/or fetal status	At least daily PET bloods Repeat laboratory investigations more often if you have concerns about the condition of either mother or fetus	At least daily preeclampsia bloods Repeat laboratory investigations more often if you have concerns about the condition of either mother or fetus Consider magnesium levels as per	PET bloods at start of IOL, on admission to Labour Ward.	Beware of postpartum deterioration and eclampsia

Gestational Hypertension	PET (Inpatient)	Severe Unstable PET/Eclampsia	MgSO4 Monitoring	Intra-partum	Postpartum
			guideline Watch for Magnesium Toxicity		
FETAL ASSESSMENT					
Fetal assessment at time of diagnosis. Growth USS when indicated +/- Dopplers Changes in fetal movements, other signs/symptoms of pre-eclampsia.	Daily CTGs once 28 weeks gestation if inpatient. Fetal Heart by Doppler Daily <28/40 Growth USS when indicated +/- Dopplers	Continous CTG	Continuous CTG	Continuous CTG	N/A
FLUID BALANCE					
	Fluid Restrictions to 80-100mls per hour	Fluid restriction 80-85 mL/hour total fluid for severe preeclampsia Fluid balance chart	Fluid restriction 80 - 85 mL/hour total fluid for severe preeclampsia Fluid balance chart	Fluid restriction (replace loss at birth and then 80-85mL/hour total fluid for severe preeclampsia.	

1.4(6) MEDICATIONS FOR TREATMENT OF HYPERTENSON IN PREGNANCY

Drug	Dose	Action	Contraindications	Practice Points
Methyldopa	250mg po TDS (up to 1G po TDS)	Central	Depression	Slow onset of action over 24 hours. Adverse Effects: dry mouth, sedation, depression, blurred vision Withdrawal effects: rebound hypertension
Labetalol	100mg po BD (up to -400mg po Q8H)	ß-blocker (with mild α-vasodilator effect)	Asthma, chronic airways limitation	Adverse Effects: bradycardia, bronchospasm, headache, nausea, scalp tingling (which usually resolves within 24-48 hours)
Nifedipine	20mg po BD or 30-60mg po DAILY	Calcium Channel Blocker	Aortic Stenosis	Can be added as 2nd line agent to labetalol or methyldopa

Drug	Dose	Action	Contraindications	Practice Points
	(Maximum 60mg/BD)			Immediate release formulation is not recommended for long-term treatment. Adverse Effects: severe headache, peripheral oedema, constipation
Oxyprenolol	20mg tablets 8hrly Max 240mg per 24 hrs	Non-selective beta blocker	Anaphylaxis to Oxyprenolol, uncontrolled heart failure, asthma, pulmonary hypertension	Dry mouth Constipation Allergic reaction signs if allergic
Hydrallazine	20mg vials Dose – 5mg Iv pushes up to 4 doses for BPS > 160/110. Dilute 1 vial up to 20mls and push 5mls every 30 minutes for persistently elevated BPs Hydrallazine Infusion - Hydrallazine 80mg (4 vials) in 500mls Normal Saline. Start at 30mls/hour (5mg/hr). Increase infusion by 10ml/hr every 30minutes to a maximum of 90mls/hr	Vasodilator – Calcium Channel Blocker	Low BP Recent Heart attack Recent/current stroke High pressure within skull Coronary Artery Disease	Headache Palpitaions

References:

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1.5 USE OF ASPIRIN IN PREGNANCY

Purpose of Guideline

To summarize the evidence and provide current recommendations regarding the use of low-dose aspirin in pregnancy.

To establish a Guidance for Samoa regarding the use of Low Dose Aspirin in Pregnancy

Optimal Outcome

The timely utilisation of Low Dose Aspirin in the prevention of Pre-Eclampsia

The early recognition of women with high and moderate risk factors for PET

A successful pregnancy resulting in a healthy mother and her baby following the use of prophylactic low dose Aspirin.

Who is Responsible?

All Obstetricians, All doctors and medical officers looking after pregnant women in TTM, MT2, all district hospitals and All General Practitioners.

All midwives and nurses looking after Antenatal Clinics in TTM, MT2, all district hospitals and general practices.

Pathophysiology

Aspirin (Acetylsalicyclic Acid) is a non steroidal (NSAID) that works primarily through the inhibition of 2 cyclooxygenase isoenzymes (COX1 and COX2) which are necessary for prostaglandin synthesis. Both are present within the uterine endothelium. Due to these properties, Aspirin is used widely for the prevention and/or slowing down of Preeclampsia in high risk women.

The effect of Aspirin on Prostaglandin synthesis is dose dependent. At lower doses (60-150mg/day) it irreversibly neutralises COX 1 and results in decreased platelet synthesis without affecting other prostaglandin production. At higher doses, it inhibits both COX 1and COX 2 thereby effectively blocking all prostaglandin production (ACOG 2010)

Literature Search

American College of Obstetricians and Gynaecologists (ACOG) & USPSTF (United States Preventive Services Taskforce)

- ✓ Low dose (81mg) Aspirin prophylaxis between 12 and 28 weeks of gestation; and continued daily until delivery, reduces risk of PET (in high risk for PET women) without resultant adverse fetal effects, maternal bleeding or abruption.
- ✓ Recommend women with any of the high risk factors for PET should receive low dose Aspirin prophylaxis
- ✓ Consider low dose aspirin prophylaxis for women with more than one of several moderate risk factors or PET.

Royal Australia and New Zealand College of Obstetrician and Gynaecologist (RANZCOG) & NZCOM (New Zealand College of Midwives) 2018

- ✓ Beneficial effects of Aspirin appears greater with doses >75mg.
- ✓ It is ideal to commence low dose Aspirin at or less than 16 weeks. There may still be benefit in commencing after 16 weeks.
- ✓ Daily 100mg enteric copated tablet taken daily at bedtime after the evening meal is recommended. Evening administration appears to associated with greater protection from PET and SGA (Small for Gestational Age) compared with morning administration
- ✓ Recommend stopping Aspirin at 36 to 37 weeks of gestation BUT there are no major concerns if women give birth while still on low dose aspirin,

National Institute for Health and Care Excellence (NICE) Guidelines 2019

- ✓ All pregnant women at high risk of PET to take 75 – 150 mg of Aspirin daily from 12 week until the birth of the baby.

- ✓ All pregnant women with 1 mo more moderate risk factors for PET to take 75 – 150 mg of Aspirin daily from 12 week until the birth of the baby.

World Health Association (WHO) 2011

- ✓ Recommends that low-dose aspirin (75 mg/day) be initiated before 20 weeks of gestation for women at high risk of preeclampsia

Risk Assessment

Level of Risk	Risk Factors	Recommendations
High	Hypertensive Disease in previous pregnancy Chronic Kidney Disease Chronic Hypertension Autoimmune Disease (SLE/Antiphospholipid Syndrome) Type 1 or Type 2 Diabetes Previous SGA/LBW or adverse outcome in relation to previous PET	Start Aspirin if any one (or more) Risk Factors present
Moderate	Nulliparity 4o years and older Pregnancy interval >10 years BMI 35 or more at booking Family History of PET Multifetal gestation	Start Aspirin if one or more Risk Factors present
Low	Previous uncomplicated full term delivery	Do not use Aspirin

Use of Aspirin is not recommended for the following unless directly related to or is a side effect of PET

- ✓ Stillbirth
- ✓ Fetal Growth Restrictions
- ✓ Preterm Birth
- ✓ Early Pregnancy Loss

Risks with the Use of Low dose Aspirin in Pregnancy

Maternal	Fetal
No Increased Risk in Hemorrhagic Complications No Increased Risk in Abruption No Increased Risk in PPH	No increased risk of congenital abnormalities No increased risk of adverse fetal/neonatal effects

No increased Risk in Mean Blood Loss	Use in 3rd trimester not associated with premature ductal closure No increased risk of intracranial hemorrhage or other neonatal hemorrhagic conditions **Small risk of gastrochisis (little studies) – need more studies therefore always proceed with caution – Administer only on a case by case basis guided by risk factors.**

Contraindications with the use of Low Dose Aspirin

Absolute

- ✓ Aspirin Allergy
- ✓ Hypersensitivity to other Salicylates
- ✓ Allergy to other NSAIDs (Brufen, Voltaren etc)
- ✓ Asthma
- ✓ Nasal Polyps

Relative

- ✓ History of GI Bleed
- ✓ Active PUD
- ✓ Severe Hepatic Dysfunction

RECOMMENDATION FOR SAMOA

- ✓ Offer low Dose Aspirin to all women with any High Risk Factor for Pre-Eclampsia OR with more than 1 Moderate Risk Factor
- ✓ Dose should be 100mg daily as this is the only formulation currently available in Samoa.
- ✓ Take Aspirin in the evening after a meal or after dinner rather than in the morning.
- ✓ Aspirin to be started before 16 weeks of gestation for those that meet the criteria
    - Can be started as early as 12 weeks
    - There is no harm in starting after 16 weeks; up to 28 weeks
- ✓ Discontinue use of Low dose Aspirin at 36 -37 weeks.

- However, there are no major complications if this is missed and the patient goes into labour while still on Aspirin.

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1.6 MANAGEMENT OF CARDIAC DISEASES IN PREGNANCY

Purpose of the Guideline:

- To establish the optimum management of women with cardiac disease around pregnancy
- To identify the common cardiac conditions among women in Samoa and establish pregnancy and delivery plans of management

Optimal Outcome:

- The survival of the woman with cardiac disease during and after childbirth

Who's Responsible?

- Multidisciplinary Team – Minimum Team Requirements include Cardiologist (Medical Physiscians), Obstetrician, Anaesthetist, Neonatologist (Paediatrician) and Senior Registered Midwives.

- In cases needing Emergency admissions for exacerbation of cardiac symptoms, it is advised that the Primary Team be Cardiology/Internal Medicine Team. Support for Obstetric advice to be provided by the Obstetric/Paediatric/Anaesthetic Team.

Background:

Pregnancy is complicated by maternal disease in 1–4% of cases. Since all measures concern not only the mother but the foetus as well, the optimum treatment of both must be targeted.

Hypertensive disorders are the most frequent cardiovascular disorders during pregnancy, occurring in 5–10% of all. Among the other disease conditions, congenital heart disease is the most frequent CVD present during pregnancy in the western world (75–82%). Rheumatic valvular disease dominates in low income countries, comprising 56–89% of all CVDs in pregnancy.

Pre-Pregnancy Counselling

- All women with known cardiac disease require timely pre-pregnancy counseling
- Minimum for risk estimation – ECG, echocardiography, exercise test.
- Other aspects to be discussed – long term prognosis, fertility and miscarriage rates, risk of recurrence of congenital disease, drug therapy, estimated maternal risk and outcome and plans for pregnancy care and delivery.
- Address unhealthy habits – overweight, smoking and alcohol and diet.

Risk Assessment

- Modified WHO (mwho) Classification – currently the most accurate system of risk assessment in the developed world; however, cardiac lesions common to developing countries including Samoa are also included.
- New York Heart Association (NYHA) Classification most commonly used in Samoa.
- Re-evaluate risk during each pre-pregnancy visit as complications may change over time

Diagnosis

- In pregnancy – difficult to diagnose Heart Failure due to physiological changes in pregnancy.
- New onset of unexplained dyspnea during pregnancy and/or a new pathological murmur (all audible diastolic murmurs are abnormal) is heard warrants an echo.

- Routine Blood Pressure measurement, oxygen saturation and a urine dipstick for proteinuria should be performed
- ECG should be performed.
- Echo
- Chest XRay and CT – Even though the fetal exposure dose is <0.01 mGy, it should only be performed if other methods fail to clarify the cause of symptoms. CT is usually not necessary for cardiac disease during pregnancy and is not recommended except for diagnosis or exclusion of PE
- MRI –This is not available in Samoa and will not be part of this Guideline.

Fetal Assessment

1. Screening for Congenital Heart Disease – Nuchal Translucecy scan 12-13 weeks

2. Not yet available in Samoa BUT essential. Women with a congenital heart disease to have fetal echo 19-22 weeks gestation. If echo identifies a cardiac anomaly: Do:
   - Full fetal echo
   - Detailed scan to see associated anomalies elsewhere
   - Family History
   - Maternal medical history: medical disorders, viral illnesses or teratogenic medications
   - Referral for an opinion from overseas Maternal Fetal Medicine experts
   - Delivery in a Unit that can provide Neonatal Cardiac Care

3. In cases of Fetal growth restriction, the aim is to determine the time of delivery, balancing fetal and neonatal risks. Delivery should be determined by Fetal Dopplers when available in the local setting

Timing of Delivery (European Society of Cardiology (ESC) 2018)

- Induction of Labour to be considered at 40 weeks of gestation in all women with cardiac disease. This reduces the risk of CSection by 12% and risk of stillbirth by 50% (ESC 2018)
- Timing will depend on cardiac status, obstetric evaluation, fetal wellbeing and fetal lung maturity.

Induction

- Misoprostol 25mcg can be used safely. However mechanical methods such as cervical ripening balloon are preferable.
- Artificial Rupture of Membranes and Oxytocin infusion can be used safely

Vaginal vs Caesarean Delivery

- Studies show that Caesarean Delivery carries no maternal benefit and results in earlier delivery and low birth weight. It is only recommended for patients presenting in labour on oral anticoagulants and in Congestive Heart Failure. It is also advised in severe forms of Pulmonary Hypertension.

- Vaginal delivery is associated with less blood loss, lower risk of infection, venous thrombosis an embolism and should be advised for most women.

Women on Anticoagulants Planned for Caesarean Section (ESC 2018)

- Stop therapeutic low molecular weight heparin (LMWH) 24 hours before the surgery.
- In high risk women, unfractionated heparin can be restarted 6 hours post delivery
- In low risk women – a single prophylactic dose of LMWH (eg – Enoxaparin/clexane) 20mg if <50kg, 40mg if 50kg-90kg and 0.5mg/kg for higher BMIs can be given 6 hours after delivery before restarting therapeutic LMWH 12 hours later.

Vaginal Delivery (ESC 2018)

- Moderate and High Risk patients can be converted to an infusion of Unfractionated Heparin (regular APTT to optimize control) and the infusion stopped 4-6 hours prior to insertion of any local anesthesia or anticipated delivery.
- Low Risk – therapeutic LMWH to be stopped 24 hours prior to delivery. Restart post delivery as above.

Urgent Delivery on Therapeutic Anticoagulation

- Caesarean Section is preferred to reduce the risk of fetal intracranial hemorrhage.

Maternal monitoring during delivery

- Maternal BP and HR should be continuously monitored in all women with cardiac disease. Pulse oximetry and continuous ECG monitoring is advised to detect early signs of decompensation and to identify those in whom delivery should be expedited.

Labour

- Mobilization facilitates head descent and left lateral position attenuates the hemodynamic impact of vena-caval compression by the gravid uterus.

- Active second stage to be delayed by an hour to allow maximal descent of the fetal head.
- Assisted delivery is recommended to further reduce maternal effort.
- Continuous fetal monitoring is recommended.

Perimortem Caesarean Section

- In the case of an acute life threatening maternal event, immediate delivery should be performed to improve chances of successfully resuscitating the mother.

Post partum care (ESC 2018)

- Give Oxytocin 2units IV over 10 minutes immediately after birth followed by 8 units over 4 hours to prevent PPH with minimal impact on the heart.
- Misoprostol can be used to treat PPH
- Elastic support stockings and Early mobilization are important to reduce the risk of VTE.
- Fluid restriction to 80mls/hour – preferably oral fluids over IV fluids.
- Prophylactic antibiotics during delivery is not recommended however because of the high rates of Infection in our local setting, recommend IV Ampicillin 1g 6hourly in labor and a stat dose of Gentamicin 240mg to prevent Infective Endocarditis.

Figure 8: Summary of General Management of Women with Cardiac Disease in Pregnancy

Pre-Pregnancy Planning

Identify and Manage Risk Factors (Hypertension, Diabetes, Obesity, Cardiac Disease)

Optimise Medications

Discuss Pregnancy Complications

If has a cardiac lesion:

- Assess Pregnancy Risk using the Modified WHO

Pregnancy

Booking – Routine careful reading of Blood Pressure, Oxygen Saturation, Pulse

Urinalysis

Careful Auscultation of Heart Sounds (note diastolic murmurs new onset are abnormal)

Look out for new onset unexplained dyspnea

Routine Booking Bloods (FBC Serology G&H HbA1c)

Baseline Biochemistry Panel

Doctors High Risk Clinic

MULTIDISCPLINARY TEAM APPROACH

Categorize according to the Modified WHO Maternal CVD Risk

Severe – Category 3 -4 – Needs admission ICU/HDU (Routine blood panel – FBC, Biochem, Cardiac Enzymes, Coagulation Profile, Chest XRay)

- Discuss with Medical Team
- Multidisciplinary Team Management till Delivery
- Weekly Reviews in HRC upon discharge
- Recommendation is reviews in Medical Clinic
- Depending on clinical and obstetric status of the patient, aim delivery 40 weeks

Moderate & Mild – Category 2 & 1 – Chase baseline bloods and ECG and echo

- Optimize Blood Pressure and modify medications
- 2 weekly HRC reviews
- 2 weekly medical team reviews
- Aim IOL 40 weeks

of ~50%, mainly between the first and second trimesters, which increases the risk of maternal and foetal complications.

Mitral Stenosis

Mortality 0-3% in western countries and higher in less developed places

NYHA Class ≥2, severe stenosis and older age are more associated with maternal complications.

Maternal Complications

- Arrythmias (Atrial Fibrillations)
- Heart Failure
- Venous Thromboembolic Events (VTEs)
- Pulmonary Hypertension

Fetal Risks – higher in women with NYHA Class III-IV

- Prematurity
- IUGR
- Fetal Death

Management

Pre-pregnancy

- Counselling – Women with Severe disease should be counseled against pregnancy
- Exercise Test
- Echocardiography
- ECGs
- Control of Risk Factors – Blood Pressure, Arrythmias

Medical Therapy Recommendations During Pregnancy (MDT)

- When symptoms or clinically significant Pulmonary Hypertension develop, restrict activity and give beta 1 selective blocker (metoprolol available in Samoa)
- Diuretics can be added in low doses
- Anticoagulation should be considered in AF and thrombotic events
- Rate/Rhythm Control medications more important to give if absolutely indicated.

Followup during pregnancy

- Clinical and Echo followup monthly or bimonthly recommended depending on haemodynamic tolerance with Medical/Cardiology Team

- Mild MS – Cardiac status evaluation every trimester and prior to delivery

Labour and Delivery

- Vaginal Delivery – for mild MS and significant MS NYHA Class I/II without Pulmonary Hypertension
- Caesarean Section – for NYHA Class III/IV or with Pulmonary Hypertension

- Lasix 20mg IV after delivery of head

Aortic Stenosis

- follow same guidance as Mitral Stenosis

Regurgitant Lesions

Mitral Regurgitation

- Maternal Risks – Heart Failure

Management (MDT)

- Diuretics for symptoms of fluid overload
- Follow up cardiac status (clinical and echo) in every trimester for mild-moderate cases; more often in severe cases

Labour and Delivery

- Vaginal Delivery with shortened second stage by assisted delivery is recommended
- Diuretics (Lasix 20mg IV push) after delivery of the head

Post Delivery

- Management plan to be made by Medical Team for further follow-ups

1.6 (2) CARDIOMYOPATHY AND HEART FAILURE

1. Peripartum Cardiomyopathy

Heart Failure secondary to Left Ventricular Dysfunction towards the end of pregnancy and months after delivery, majority of which is diagnosed post partum.

- Ejection Fraction <45%
- Signs and Symptoms may be typical of Heart Failure but some may present with ventricular arrhythmias or cardiac arrest.

- Echo is the imaging modality of choice

2. Dilated Cardiomyopathy

Include conditions causing Left Ventricular Dilatation and Dysfunction (ie) history of past viral infections, drugs and ischaemia. 50% of cases are idiopathic within which 25% are found to be genetic

Maternal Mortality

Higher with NYHA Class III/IV, Ejection Fraction <40%

Adverse Risk factors include Ejection Fraction <20%, Mitral Regurgitation, RV failure and/or hypotension.

Pre-pregnancy Management

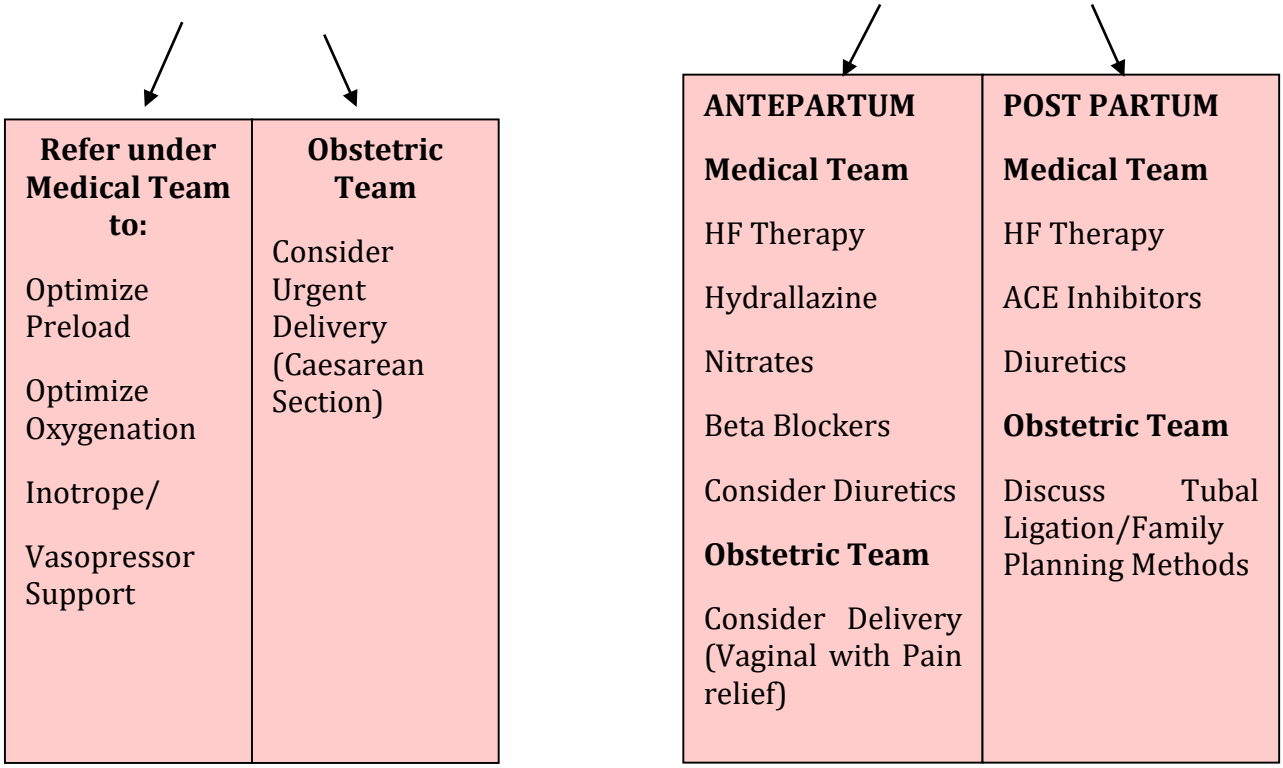
Modification of Medications – Stop teratogenic medications – ACE Inhibitors and Angiotensin Receptor Blockers (Samoa)

Can continue beta blockers with a switch to beta 1 blockers

Figure 9: Management during Pregnancy – Main Lead Team Cardiology/Medical

Acute/Sub acute Heart Failure or Cardiogenic Shock

Severe HF/Cardiogenic Shock	**Stabilized HF**
SBP <90, HR ≥120 or ≤ 60, Sats <90%, RR ≥25, Altered Mental State, Cold Skin,	ECG Echo

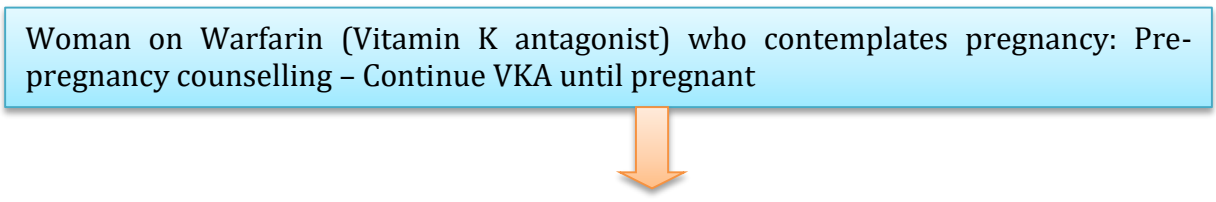


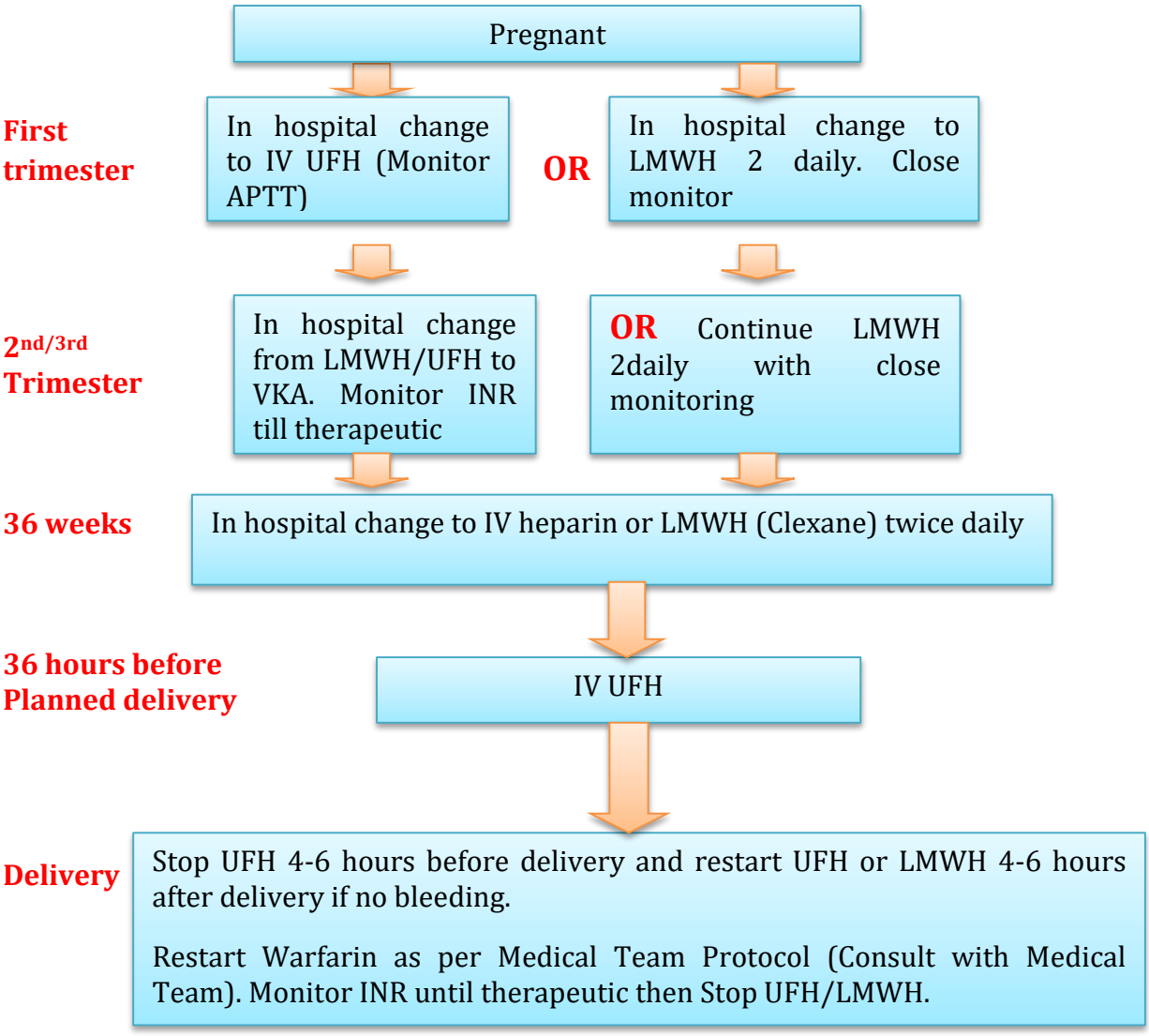
Management of acute heart failure during/after pregnancy (modified from Bauersachs et al). Adapted from European Society of Cardiology 2018)

Acute/Subacute Heart Failure

- Management goals are similar to non-pregnant acute HF, while avoiding foetotoxic agents (ACE inhibitors, ARB and atenolol).
- HF with pulmonary congestion is treated with loop diuretics and thiazides if required; however, diuretics should be avoided in the absence of pulmonary congestion, due to the potential reduction in placental blood flow
- Hydralazine and nitrates are safe in pregnancy and should only be used in the presence of hypertension, severe LV dysfunction, and/or evidence of congestion in decompensated HF.
- Beta-blockers should be initiated cautiously and gradually uptitrated to the maximum tolerated dose

Figure 10: MANAGEMENT OF WOMEN ON ANTICOAGULANTS (Warfarin)





Flowchart for Women on Anticoagulants. LMWH: - starting dose for LMWH is 1 mg/kg body weight for enoxaparin and 100 IU/kg for heparin, twice daily subcutaneously.

Delivery

- Planned delivery is necessary.
- Vaginal delivery requires a prior switch to i.v. heparin.
- Caesarean section should be performed if labour onset occurs while the patient is still on Vitamin K antagonists

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1.7 MANAGEMENT OF EPILEPSY IN PREGNANCY

Purpose of Guideline

To establish the clear management of Epileptic Women in Pregnancy
To establish referral pathways for Women with Epilepsy in Pregnancy

Optimal Outcome

Optimal seizure control with minimum fetal exposure to AEDs**.**

Who's Responsible?

All Public and Private practicing doctors
All midwives and nurses working in Antenatal Clinics in public and private hospitals and institutions in Samoa

Practice Points

Peripheral Hospitals, General Practice, Low Risk Antenatal Clinics, Outpatient and Emergency Departments

- Pregnant women who have not had a Seizure in the last 10 years are considered not Epileptic and therefore managed as low Risk
- Pregnant women who had Childhood Epileptic Syndromes only are not considered Epileptic and therefore managed as low Risk
- Pregnant women that fall outside of the above should:
- Be referred to the High Risk Clinic as Early as possible
- Not have their medications changed/stopped or reduced straight away without consultation witht eh O&G Team AND Medical Team.
- Be prescribed high dose Folic Acid 5mg daily from conception (and 3 months preconception) until the end of 1st trimester.

High Risk Clinic, Medical Clinic

- Risks of relapse is greater in Pregnancy if antiepileptic medications are stopped abruptly. It is therefore recommended that the pregnant woman is kept on her usual medications with a look at increasing the dose if she does have an epileptic fit.
- The exception are medications that are highly teratogenic causing NTDs – Sodium Valproate, and Lithium should be changed to another medicine with a safer profile.
- Avoid Polytherapy as much as possible
- Keep to low doses as much as possible
- With the risk of Congenital Abnormalities, all women are recommended to have an Anatomy Scan at 19-20 weeks.
- Women on Anti Epileptic Medications should have a detailed Fetal Echocardiography at this appointment. If images are not clear – repeat at 22 to 24 weeks. This is a guideline for use at such a time when this form of scanning is available in Samoa.
- Frequency of Antenatal Visits should follow Guidelines for Normal Pregnancy unless earlier visits are indicated
- There is no evidence to support the administration of steroids unless IUGR or another indication (Preterm Labour, PPROM etc)
- There is no evidence to support checking levels of AEDs (antiepileptic drugs) in antenatal period or within the postpartum period.
- There is no evidence to support an early delivery or an Induction of Labour
- There is no evidence to support Elective Caesarean Sections

Labour Guideline

- Adequate pain relief, adequate hydration, adequate sleep should be encouraged as much as possible when in labour to avoid epileptic fits
- Should have an IV Luer and bloods sent to the Lab upon admission
- Routine fetal monitoring as per labour Guidelines
- Morphine is the analgesic of choice over Pethidine
- Antiepileptic medicine should not be stopped when in labour
- There is no evidence to support Assisted Vaginal Deliveries; unless indicated for (fetal distress, maternal exhaustion, prolonged second stage)

Post partum

- Encourage Breastfeeding. The advantages of Breastfeeding far outweigh risks and is therefore recommended to continue after delivery.
- Antiepileptic doses should be revisited 10 days after delivery.
- Appropriate Contraceptives should be offered keeping in mind the interactions between some and Antiepileptic Medications
- Copper IUD and Mirena are ideal.

Emergency Management – If known Epileptic

- Call for Help + ABC
- Turn woman onto left lateral
- Diazepam 5-10mg IM/IV stat to control seizures.
- Inform Medical Officer on Duty or Registrar on Call and/or Obstetrician
- Insert IV Luer – FBC, Biochem, ABG (or VBG)
- Stabilise before transfer OR if Imminent delivery – Deliver baby (May need assisted delivery) before transfer

If fits of uknown cause

- Treat as Eclampsia (refer Guideline)
- Can also give diazepam 5-10mg to control seizures.

Antiepileptic Drugs (Order of Teratogenicity)

		Antenatal	
1	**Lamotrigine**	**√**	**Little Risk – if symptoms controlled - continue**
2	**Levetiricam**	**√**	**NTDs but safe in low doses**
3	**Carbamazepine**	**√**	**NTDs but safe in low doses**
4	**Phenytoin**	**√**	**Cardiac Malformations – use in low doses**
5	**Phenobarb**	**√**	**Congenital Gut Malformations – low dose or avoid. Use in low dose if absolutel indicated**
6	**Sodium**	**X**	**Avoid – nearly 50% risk of Congenital**

	Valproate		**Abnomalities**
7	**Benzodiazepines**	√	**Safe**

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1.8 MANAGEMENT OF NAUSEA AND VOMITING AND HYPEREMESIS GRAVIDARUM

Purpose of the Guideline

To facilitate the safe and effective care for patients who are pregnant that present to the Emergency Department (ED)/OPED/APCC AND MATERNITY WARDS TTM, MT2 AND DISTRICT HOSPITALS with **Nausea and Vomiting in Pregnancy and/or Hyperemesis.**

Optimal Outcome

- Correct hypovolemia, electrolyte imbalance and ketosis
- Provide symptomatic relief to break the cycle of vomiting and prevent further vomiting
- Provide vitamin supplementation
- Provide psychological support

Who's Responsible?

- DOCTORS Nurses MIDWIVES and Medical staff

History and Examination

- ***History***
  - Previous history of NVP/HG
  - Quantify severity using PUQE score
  - History to exclude other causes:
    - abdominal pain, urinary symptoms, infection, drug history, chronic Helicobacter pylori infection

- ***Examination***
  - Vital Signs – Temperature, Pulse, Blood pressure, Oxygen saturations, Respiratory rate, BSL
  - Weigh the patient
  - Abdominal examination
  - Signs of dehydration & muscle wasting
  - Other examination as guided by history

- ***Investigation***
  - Urine dipstick:
    - ketonuria as 1+ ketones or more
  - MSU
  - Full blood count, Biochemistry – RFTs, LFTs, ABG, TFTs, Serology
  - Ultrasound scan: confirm viable intrauterine pregnancy and exclude multiple pregnancy and trophoblastic disease

Assess Severity (PUQE Score) – Modified Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) index

1. On average in a day, for how long have you felt nauseated or sick to your stomach?

Symptom	Not at all	1 hour or less	2 – 3 hours	4 – 6 hours	> 6 hours
Score	(1)	(2)	(3)	(4)	(5)

2. On average in a day, have you vomited or thrown up…

Symptom	7+ times	5 – 6 times	3 – 4 times	1 – 2 times	Did not throw up
Score	(5)	(4)	(3)	(2)	(1)

3. On average in a day, how many times have you had retching or dry heaves without bringing anything up?

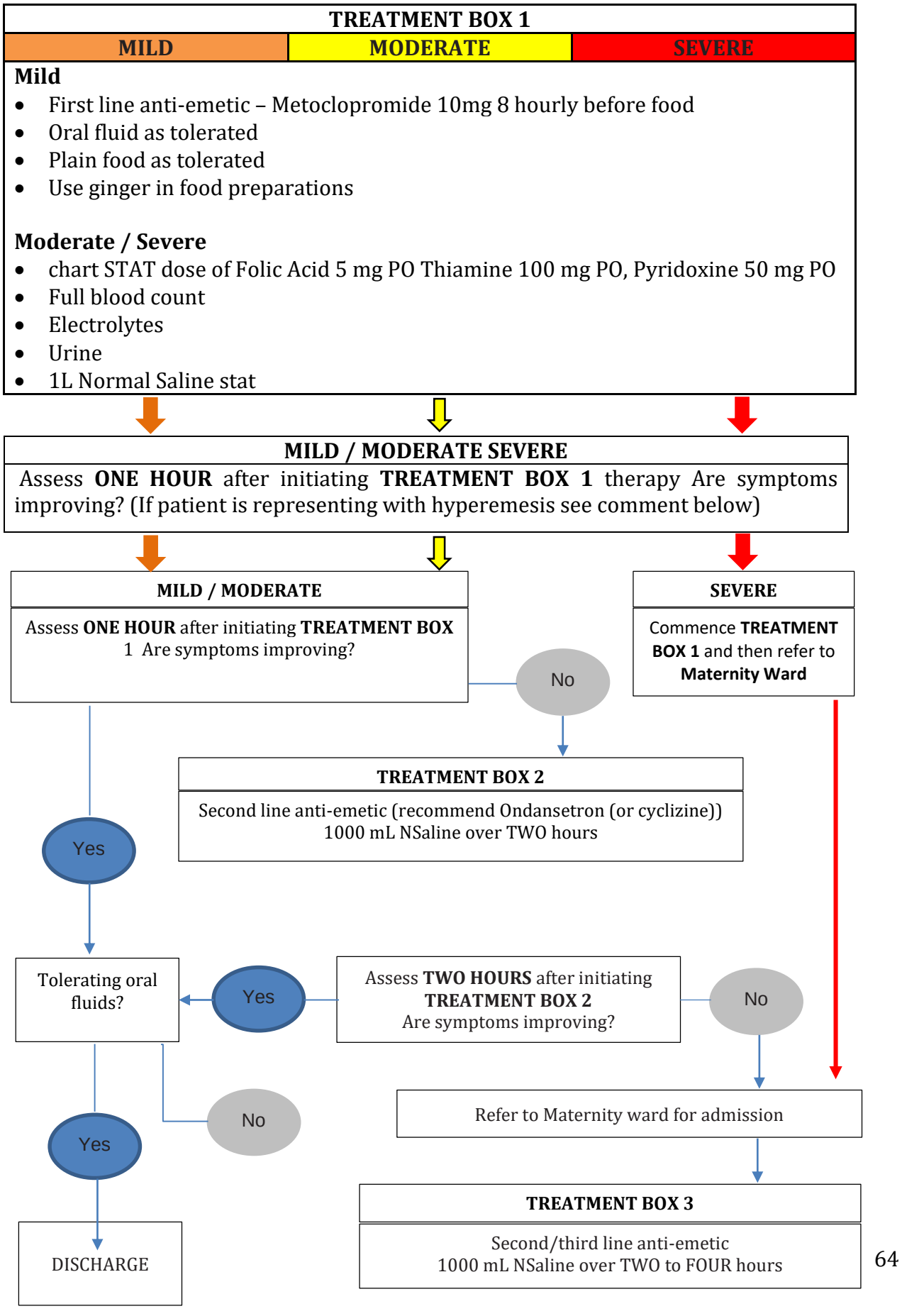
Symptom	Not at all	1 -2	3-4	5-6	7 or more
Score	(1)	(2)	(3)	(4)	(5)

Total Score for questions 1, 2 and 3: _____

Mild	≤ 6
Moderate	7 – 12
Severe	≥ 13

Severity Assessment and Treatment[1]

SEVERITY ASSESSMENT TOOL – Assign to pathway based on column with HIGHEST positive criteria			
PUQE SCORE	**Mild**	**Moderate**	**Severe**
	☐ ≤ 6	☐ 7 – 12	☐ ≥ 13
Duration	☐ Recent onset	☐ Ongoing symptoms	☐ Severe intractable vomiting
Oral fluid tolerance	☐ Tolerating oral fluids	☐ Tolerating minimal fluids	☐ Not tolerating oral fluids
Weight loss	☐ < 5%	☐ 5 -10%	☐ > 10%
MANAGEMENT	**Outpatient Antiemetics**	**Assess Clinically**	**Inpatient Management**


TREATMENT BOX 1
MILD
MODERATE
SEVERE
Mild
First line anti-emetic – Metoclopromide 10mg 8 hourly before food
Oral fluid as tolerated
Plain food as tolerated
Use ginger in food preparations
Moderate / Severe
chart STAT dose of Folic Acid 5 mg PO Thiamine 100 mg PO, Pyridoxine 50 mg PO
Full blood count
Electrolytes
Urine
1L Normal Saline stat
MILD / MODERATE SEVERE
Assess ONE HOUR after initiating TREATMENT BOX 1 therapy Are symptoms improving? (If patient is representing with hyperemesis see comment below)
MILD / MODERATE
Assess ONE HOUR after initiating TREATMENT BOX 1 Are symptoms improving?
SEVERE
Commence TREATMENT BOX 1 and then refer to Maternity Ward
No
TREATMENT BOX 2
Second line anti-emetic (recommend Ondansetron (or cyclizine))
1000 mL NSaline over TWO hours
Yes
Tolerating oral fluids?
Yes
Assess TWO HOURS after initiating TREATMENT BOX 2
Are symptoms improving?
No
No
Refer to Maternity ward for admission
Yes
TREATMENT BOX 3
Second/third line anti-emetic
1000 mL NSaline over TWO to FOUR hours
DISCHARGE

INPATIENT MANAGEMENT Check allergy status and contraindications				
ANTI-EMETIC order of preference				
Medication	**Dose**	**Route**	**Frequency**	**Notes**
Metoclopramide (1st line therapy)	10 mg	IV/Oral	8 hourly	Maximum duration of continuous use 5 days Beware risk of dystonic reaction.
Cyclizine (2nd line	25-50 mg	IV/IM/Oral	8	
Ondansetron (3rd line	4 mg – 8MG	IV/Oral	6-8	
CHLOPROMAZINE	10-25MG	PO/IV/IM	4-6	
Prochlorperazine	12.5MG	IM	STAT	Then 25 -10 mg oral 6 hours later
	5-10 mg	Oral	6 – 8	Prevention dose. Option for refractory cases
CORTICOSTEROIDS	HYDROCORT	100MG IV	BD	TILL CLINICALLY BETTER
	PREDNISONE	40-50MG	OD	TAPER TILL LOWEST TOLERABLE DOSE
ROUTINE PREGNANCY SUPPLEMENTS– Provide prescription at discharge				
Folic Acid	5 mG	Oral	Once	Healthy women until end of 12th week of
Iodine	150	Oral	Once	Until breastfeeding is discontinued
ADDITIONAL ORAL SUPPLEMENTS – May help alleviate symptoms				
Pyridoxine (Vitamin	50 mg	Oral	8	Iodine and Folic acid can be prescribed individually (funded). **Elevit ® with Iodine** also contains B1, B6 and Folic Acid
Thiamine (Vitamin B1)	100 mg	Oral	Once daily	
INTRAVENOUS FLUIDS				
Sodium Chloride 0.9%*	1000 mL	IV	First bag to be given over **ONE** hour. Second bag to be given over **TWO** hours. Consider KCl replacement Third bag to be given over **FOUR** hours. Consider KCl replacement Continous 1L every 4 hours thereafter till reviewed to be clinically better	
* No glucose containing fluids to be given until thiamine replacement in moderate and severity				

Complications

- ***Electrolyte Imbalance***

  Due to persistent vomiting there is a constant loss of electrolytes with Potassium being the one that always falls first. Normal levels 3.5 mmol/mol -5 mmol/mol

  Management

  1. Wait until electrolytes results are back from the Laboratory before initiating treatment
  2. Add 20mmols of Potassium Chloride into every 500mls of Normal Saline bag (or 40mmols into 1L) that is used for 24 hours.
  3. Continue same until repeat electrolytes (daily basis or every 48 hours) shows a revert back to normal values

4. If in the event that the patient can tolerate liquids and solid food, yet Potassium is still low, use Slow K tablets 600mg every 6 hours or at less frequency.
5. Dietary advice – food rich in Potassium include bananas, vegemite, food crops and some green vegetables.

- ***Abnormal Tranaminases***

  In severe forms of Hyperemesis the liver transaminases are offset and can double or triple or more; secondary to dehydration and increase in coagulability.

  Management - Aggressive IV Fluid Rehydration

- ***Hypercoagulability***

  Pregnancy is a hypercoagulable state. Dehydration from ongoing Hyperemesis increases the risk of blood stasis and hence the risk of Deep Vein Thrombosis

  Management

  - Low Molecular Weight Heparin (Clexane) prophylactic dose while the patient is admitted (ie) approximately 40mg daily (0.5-1mg/kg daily)
  - Compression Stockings – Every patient admitted should be advised for stockings while on the ward to prevent Deep Vein Thrombosis.
  - Early Mobilisation when able

- ***Acute Kidney Injury***

  Due to hypoperfusion of the kidneys as a consequence of dehydration and hypovolaemia

  Management – Fluid Resuscitation

- ***Wernickes Encephalopathy***

  In life threatening forms of Hyperemesis, there is a transient transition into acute neurological symptoms characterized by opthalmoparesis with nystagmus, ataxia and confusion. The main cause of WE is Thiamine (Vitamin B1) deficiency.

  Long term complications if not treated promptly - Korsakoff Syndrome, Ataxia, Lactic Acidosis, Opthalmoplegia, Neurological Injury etc

  Management

  Thiamine IV 500mg TDS

  Rule out other causes first via FBC, Biochemistry panel, ABG, Blood Cultures if febrile and/or CT Scan (MRI is the more sensitive imaging modality)

  Patients need admission in ICU

  Physiotherapy once symptoms improve

- ***Central Pontine Myelinolysis***

This occurs when there is too rapid a correction of low Sodium levels with IV Fluids during rehydration. The rise in Sodium levels pulls water out of brain cells therefore affecting myelin sheath especially of the pons. Symptoms can range from decreased level of consciousness, difficulty speaking and swallowing to impaired thinking, weakness and paralysis in arm and legs and stiffness of body.

Management - Supportive therapy only. Over time symptoms may improve

- ***Medications Complications***
    - Allergic Reactions
    - Etrapyramidal Side Effects (eg) Tardive Dykinesia or Oculogyric Crisis
    - Management – Diazepam 5-10 mg IM or Benztropine 10mg IM

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1.9 MANAGEMENT OF TWIN PREGNANCY and BIRTH

Purpose of Guideline

- To establish clear referral pathways for women with twin and multiple pregnancies
- To establish the best optimal management for women with twins or multiple pregnancies

Optimal Outcome

- The safe delivery of well and healthy babies
- A well mother

Who's Responsible?

- All doctors midwives and nurses caring for pregnant mothers in al Public and Private Hospitals/clinics in Samoa

- All doctors midwives and nurses working in Labour Wards in both main hospitals and all district hospitals in Samoa

Background

Types

(i) DCDA – Dichorionic Diamniotic Twins (Each twin has its own amniotic sac and placenta
(ii) MCDA – Monochorionic Diamniotic Twins (Each twin has its own amniotic sac but they both share one placenta)
(iii) MCMA – Monochorionic Monoamniotic Twins (Both babies share 1 amniotic sac and 1 placenta)
(iv) Conjoined Twins – 2 babies are joined anatomically at different sites (eg, brains, abdomen, etc)

Predisposing Factors

1. Elderly Mother
2. History of Twins/Triplets in Family
3. Artifical Reproductive Technology

Complications

Maternal

1. Increase Risk of Hypertensive Disorder in pregnancy
2. GDM
3. PPH
4. Severe Nausea and Vomiting
5. Operative Delivery

Fetal

1. IUGR of one or both babies

2. Increased likelihood of Preterm Delivery
3. Twin to Twin Transfusion (higher risk with monochorionic babies)
4. Congenital Anomalies
5. Malpresentation of either Twin leading to labour difficulties

Suspect in cases of:
1. Severe Hyperemesis
2. Large for Dates
3. Multiple Fetal Parts on Abdominal Palpation

Diagnosis
1. Ultrasound Scan at any Gestation

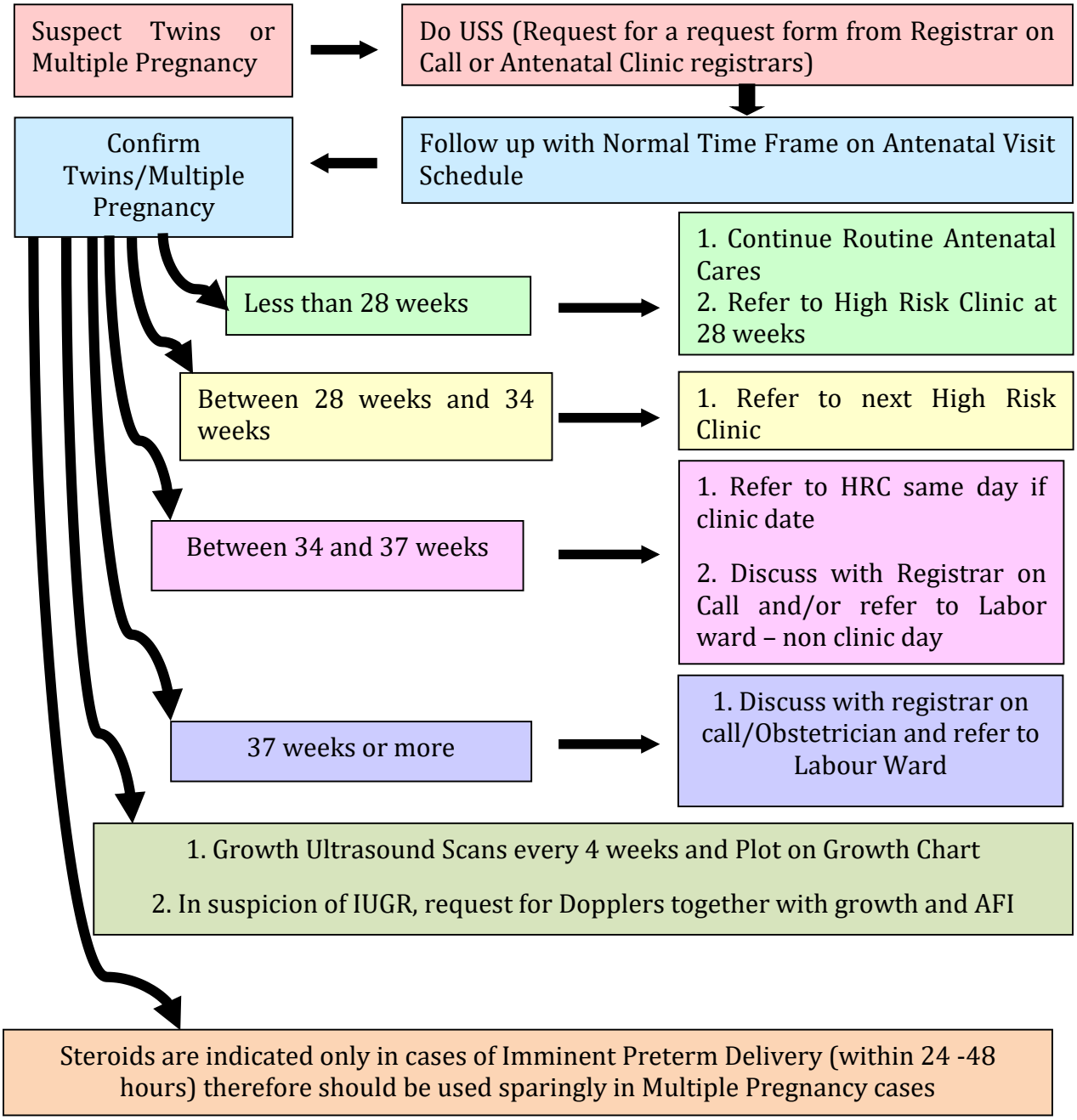
Timing of Delivery
The following is evidence based gathered from RANZCOG/RCOG Guidelines; and is considered ideal given the sophisticated technology and medicine available to NICU in developed countries. In Samoa, NICU supports 28 week old neonates and upwards. However, this is not 100 percent guaranteed given the scarcity in adequate resources for such small neonates. Therefore, it is a suggestion that twins (regardless of chorionicity) should be optimally delivered as close to term as possible; except if medically or obstetrically not feasible.

DCDA – 37 weeks
MCDA – 36 weeks
MCMA – 34 weeks

Indications for Induction of Labor – In addition to above:
1. Severe IUGR either one or both babies (with or without Abnormal Dopplers)
2. Abnormal Dopplers
3. Concurrent Maternal Medical Comorbidities – Uncontrolled

Management of Twins/Multiple Pregnancy in Labour
1. If twin 1 is not cephalic, Elective Caesarean Section is recommended
2. If twin 1 is cephalic, Induction of Labour with Foley catheter is recommended
3. Inform Registrar and Obstetrician on call once mother in labour. Routine examinations follow Labour Guidelines of Normal Labour.
4. Registrar on Call and/or Obstetrician on call to be present during delivery.
5. Every effort should be used to monitor both babies; using 2 CTG probes for each baby simultaneously
6. If the aftercoming 2nd twin is transverse or breech:
    - Inform Registrar on Call & Do not attempt to rupture the membranes
    - Registrar Responsibility:
    - Ultrasound Scan to confirm lie, Vaginal Exam to confirm same, Attempt Internal Podalic Version if ideal, Run oxytocin infusion during delivery of second twin.
7. Active 3rd Stage of Labour and PPH prophylaxis to be done.

Figure 11: Antenatal Care Management



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http:// GLM0064-Twin-Pregnancy-Birth.pdf

1.10 MANAGEMENT OF THE WOMAN WITH A PREVIOUS CAESAREAN SECTION

Purpose of Guideline

To establish a Guide regarding the management of women with 1 or more Caesarean Sections for Samoa

To outline scenarios in which a Trial of Labour of a Caesarean scar is favourable and those where this is deemed unfavourable

Optimal Outcome

The successful delivery and birth of a healthy neonate whether through a Trial of Labour of a Caesarean Scar or an Elective Repeat Caesarean Section.

Who is Responsible?

All midwives in all hospitals in Samoa, All maternal health care providers, Obstetricians, Obstetric Registrars, House Surgeons working with pregnant mothers, all Medical Officers in District Hospitals and all GPs looking after antenatal mothers.

Guideline

- All pregnant women with a history of Previous Caesarean Section; regardless of the number of vaginal births after Caesarean Section should be referred to the High Risk Clinic before 28 weeks.
- All pregnant women with a history of a previous Caesarean Section should deliver in TTM Hospital
- All effort should be made to retrieve patient's old file containing details of the previous Caesarean Section(s)
- Unless complicated by a medical condition or other (twin pregnancy, placenta praevia for example), all women with a previous Caesarean Section should follow the routine Antenatal Care Guidelines in terms of the number of visits during the current pregnancy
- If for some reason, an Induction of Labour is needed, a Foleys method is the most appropriate method of Induction for these patients; followed by an Oxytocin drip Augmentation the following day (See Guideline on Induction of Labour)
- All Elective Repeat Caesarean Sections should be done from 39+0 weeks onwards for maximal reduction of Respiratory Distress Syndrome in the neonate. If for some reason an elective repeat Caesarean Section should happen before 39+0 weeks, a rescue dose of steroids should be administered 24 to 48 hours prior (Refer Guideline Use of Steroids in Pregnancy)

Clinical Pearls

Successful VBAC Rate – 72%-75% (RCOG 2015)

This increases to 85% - 90% with 1 previous vaginal birth or 1 previous successful VBAC. (RCOG 2015)

Absolute Contraindications to having a VBAC (Vaginal Birth after Caesarean Section)

- Previous Classical Caesarean Section
- Previous Inverted T or J incisions
- Previous Uterine Rupture
- 2 or more previous Caesarean Sections. If a woman with 2 previous Caesarean sections presents in second stage to labour ward; and has not been booked; judgment is made by the Obstetrician on call regarding safer and faster mode of delivery depending on the patient's personal history, obstetric history, stage of descent and rotation, fetal size, fetal status and maternal consent.
- Other factors yet to be defined

Relative Contraindications

- Previous Uterine Surgery – myomectomy, septum removal
- IT IS IMPORTANT TO OBTAIN OLD SURGICAL NOTES TO MAKE THIS CERTAIN.

Indications for Elective Repeat Caesarean Section (ERCS)

- All the above Contraindicating factors
- Bad Obstetric History (ie) previous intrapartum fetal death
- Failed ECV (x1 – maximum 2 tries)
- Current Placenta Praevia
- Previous 3C and 4th degree perineal tears
- Symptomatic (fecal incontinence) 3B and 3A tears
- Current Macrosomic Baby (ie) >95th centile or estimated fetal weight >4.5kg correlating with Fundal Height measurement and growth chart.
- Current Breech Twin 1 Pregnancy
- Current Breech or Transverse Lie with previous history of Caesarean Section

Risks and Benefits

It is the responsibility of the Obstetrician/Obstetric Registrar in High Risk Clinic to counsel and explain to the patient in details all risks and benefits associated with:

Vaginal Birth after Caesarean Risks (RCOG)	Elective Repeat Caesarean Risks
• Repeat Caesarean Section	• Neonatal Respiratory Distress

(Emergency) • Uterine Rupture 1/200 (0.5%) • 5% increase in OASIS risk dictated by fetal weight • 39% increase in Instrumental deliveries • 0.04% delivery related perinatal deaths = rate for primips. • 0.08% HIE related to Uterine Rupture	Syndrome 40% (ASTECS Trial) • Transient Tachypnea of the Newborn (5%) RCOG 2015 • Placenta Praevia (1%,1.7%, 2.8% with 1 Caesarean, 2 and 3 respectively) RCOG 2015 • Placenta Accreta/Percreta/Increta • Postpartum Haemorrhage requiring Blood Transfusion • Surgical Morbidity (Injury to structures/organs around uterus) higher • Risks of Maternal Morbidity and Mortality higher • Longer Hospital Stay
Vaginal Birth after Caesarean Benefits	Elective Repeat Caesarean Benefits
• Early Mobilisation • Initiation of Breastfeeding Earlier and more likely • Nil surgical Morbidity and mortality risks • Less Risk of Neonatal Respiratory Distress • Less Risk of Severe PPH • No anaesthetic risks	• Less Risk of Uterine Rupture compared to VBAC • Timing Planned • Less stressful for patient and family.

Factors Affecting Success of having a VBAC

Favouring Success	Reducing Success
• Previous Successful Vaginal Birth • Previous Successful VBAC • Current Uncomplicated Risk Free Pregnancy • Normal BMI (<30-35) • Spontaneous Labour	• Induced Labour • Post Dates (More than 41 weeks) • No previous vaginal deliveries • BMI >35 • Short Stature • Macrosomia • Maternal Age >40 • Coexisting Medical Conditions

Management in Labour

- For low risk pregnancies, follow Routine Labour Guidelines
- Indications for Interventions
    1. Slow Progress in Labour
    2. Signs of Uterine Rupture
        i. Haematuria
        ii. Cessation of Contractions
        iii. Disappearance of Fetal presenting part
        iv. Pain at scar site without contractions
        v. Deteriorating Mother
        vi. Fetal Distress
        vii. Fresh PV Bleeding
    3. Fetal Distress
    4. Meconium Stained Liqour
- All moms should labour with an IV Luer in place
- All moms to have FBC and Group and Hold sent to lab on admission
- All moms to have admitting CTG then continuous in second stage
- Extreme caution to be taken when administering Oxytocin in labour. Do not administer without consultation and review by the On call doctor.

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1.11 USE OF STEROIDS IN PREGNANCY

Purpose of guideline

To provide recommendations for the use of antenatal corticosteroids in women prior to birth to improve neonatal outcomes

Optimal Outcome

The appropriate and effective use of steroids in Pregnancy
The absence of harm to the mother and/or her baby through the use of steroids

Who is Responsible

All Maternal Health Care Providers (Doctors, Midwives, Nurses) in main hospital and peripheral hospitals.

1. USE IN PRETERM LABOR

Background

1. Single dose of IM corticosteroids prior to preterm birth reduces mortality and morbidity in preterm neonates (Crowley, 1990).
2. Recent evidence demonstrates neonatal benefit from repeat dose(s) of corticosteroids to women at on-going risk of preterm birth more than 7 days and less than 14 days after initial steroids (Crowther, 2011; McKinlay 2015).

Best Practice

- Women at risk of Preterm Birth at gestational age <34/40
  - Some benefit even if given <24hrs before delivery
  - Effect maximum if delivery occurs in next 48 hours
  - No benefit if Preterm birth occurs >7 days after initial dose
  - No clear evidence on best interval for divided course
  - Dexamethasone is a valid alternative if Betamethasone is unavailable. It should be given as 24mg in divided doses completed in 24 hours

Type and amount of corticosteroid to use:

Drug Name	Dose	Route	Frequency
Betamethasone	11.4mg	IM	Total of 2 doses 24 hours apart
Dexamethasone	24mg	IM	In 2 divided doses (12mg) 12 or 24 hours apart

Guideline

Woman in Labour <34+6 weeks – 2 doses of steroids 12 hours apart IM. Assess if still at increased risk of Preterm Labour within 7 days, repeat doses. If not at an increased risk after initial doses – STOP

2. USE IN REDUCING RDS IN NEONATES BORN VIA ELECTIVE CAESAREAN SECTIONS

Background

Babies born via elective C-section have a 6 times higher rate of respiratory distress compared to those infants born via vaginal birth (3). Respiratory distress includes transient tachypnoea of the new-born, neonatal respiratory distress syndrome and pulmonary hypertension. Babies with these complications often require more intensive management in NICU and can require ventilation (4), which in turn is also associated with complications.

Pathophysiology

As part of the physiological progression to normal labour, the foetus is exposed to catecholamines and steroids. This is responsible for the production of surfactant in the foetal lung. Surfactant is important in reducing the surface tension in the alveoli so as to reduce the work of breathing. It is hypothesized that babies born via Caesarean section do not experience this normal physiological burst and so have lower levels of surfactant in their lungs. This lack of surfactant is responsible for the increased rate of respiratory distress seen (5).

This is a very similar mechanism to the one behind respiratory distress in preterm infants, for which steroids have been shown to be beneficial (6).

Planning Elective Caesarean Sections

Where possible, all elective Caesarean sections should be planned for at least 39 weeks' gestation. This is to ensure that the foetus has developed fully and to reduce the rates of respiratory distress in the neonate (7).

Planning for elective Caesarean sections prior to 39 weeks

Based on the ASTECS Trial, it is recommended that in cases where elective Caesarean sections are scheduled for prior to 39 weeks, two doses of 11.4mg IM betamethasone (12mg dexamthasone in Samoa) should be administered in the 48-hour period prior to their elective Caesarean section, spaced by 24 hours.

Where possible, the first dose should be given as an outpatient in the labour ward and the patient should then be admitted for the second dose in preparation for their surgery on the third day. As an example of this, if the mother is due to have an elective Caesarean section on Friday morning at 9am, she should come to the labour ward on Wednesday morning for her first dose at 9am and then return to the maternity ward on Thursday morning at 9am for her second dose and to be admitted to the ward in preparation for her operation on Friday.

Diabetic Mothers

Following NICE guidelines, diabetes should not be a contra-indication to steroid use and that women with insulin-controlled diabetes should be given additional insulin and monitored closely in hospital (12). On top of this, it is recommended that this group of patients be admitted for the 48 hours while the steroids are given so as their blood sugar levels can be monitored closely

Summary

- All elective Caesarean sections should be scheduled for 39 weeks gestation

- In cases where this is not possible, two 12mg doses of IM dexamethasone (11.4mg Betamethasone 2 doses) should be administered in the 48-hour period prior to surgery, spaced by 24 hours, to reduce the rates of respiratory distress in the neonate

- Diabetic mothers should be closely monitored in hospital for the duration of steroid therapy and insulin dose increased in those with insulin-controlled diabetes

- As safety of steroid usage at term is still not clear, mothers and infants should be closely monitored after delivery

Management in cases where steroid regime is not given prior to elective Caesarean section prior to 39 weeks - In cases where the steroid regime has not been given, thought must go into whether it is safe to delay the surgery until the next possible theatre slot. In cases where it is not considered safe to delay delivery, the surgery should still be performed without the steroids being given.

3. USE IN PRE-ECLAMPSIA

- Evidence suggests that Pre-Eclampsia is a systemic inflammatory maternal response to placental arteriolar stimulus. The rationale behind giving steroids in these cases is for its anti-inflammatory properties.

- Studies have shown that giving steroids early in the process of Severe Pre-Eclampsia not only lowers the Blood Pressure but also improves renal functions. Cochrane search identified in all these studies, that Blood Pressure dramatically increases back to Severe levels 4 days after administration of steroids; and subsequently underwent Emergency Delivery.
- In these cases, steroids also improve lung maturity in preterm pregnancies affected by Preeclampsia. Therefore, steroids are given for this purpose also anticipating imminent delivery.
- The use of steroids in HELLP Syndrome has also been studies and show and increase in platelets following administration. However, like the increase in Blood Pressure after 4 days of steroid administration, platelets also tend to drop again as well.
- IM route was compared to IV route and the IV route found to be superior due to faser delivery to cells. Dose 12mg Dexamethasone 12 hours apart IV.

Recommendations for Samoa

1. Give steroids (Dexamethasone 12mg IV (or IM) 2doses 12 hours apart) in cases of Preterm Severe Preeclampsia for all purposes above.

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4. USE IN MULTIPLE PREGNANCY

There has been no evidence to routinely give steroids for twin pregnancies that are:

- Not in Imminent Delivery within the next 24-48 hours.
- Not IUGR

Recommendation for Samoa

1. Give steroids in Twin pregnancies in Preterm Labour
2. Give steroids in Twin Pregnancies where one or both babies are IUGR
3. Give steroids for term twins who are planned for Elective Caesarean Section.

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1.12 MANAGEMENT OF SMALL FOR GESTATIONAL AGE (SGA/SFD)

Purpose of Guideline

To review risks associated with SFD and make targeted management for these
To establish screening and diagnostic tools for the management of SFD pregnancies
To establish delivery timing indications and mode of SFD fetus

Optimal Outcome

The optimal management of a mom with a small for dates fetus
The delivery of a healthy and well Small for Gestational Age neonate

Responsibility

All doctors, midwives and nurses caring for antenatal mothers in all Public and Private Hospitals and clinics in Samoa

Definitions

- Small–for–gestational age (SGA) - an estimated fetal weight (EFW)than 10th centile or abdominal circumference (AC) less than the 5th centile
- Severe SGA - EFW or AC less than the 3rd centile
- Fetal growth restriction - Growth restriction implies a pathological restriction of growth potential. As a result, growth restricted fetuses may manifest evidence of fetal compromise (abnormal Doppler studies, reduced liquor volume).
- A fetus with normal efw but parameters crossing centiles is considered growth restricted. If the AC is proportionally smaller than the rest of the parameters, this is an asymmetrical growth restricted fetus.
- Low birth weight (LBW) - An infant with a birth weight < 2500 g.

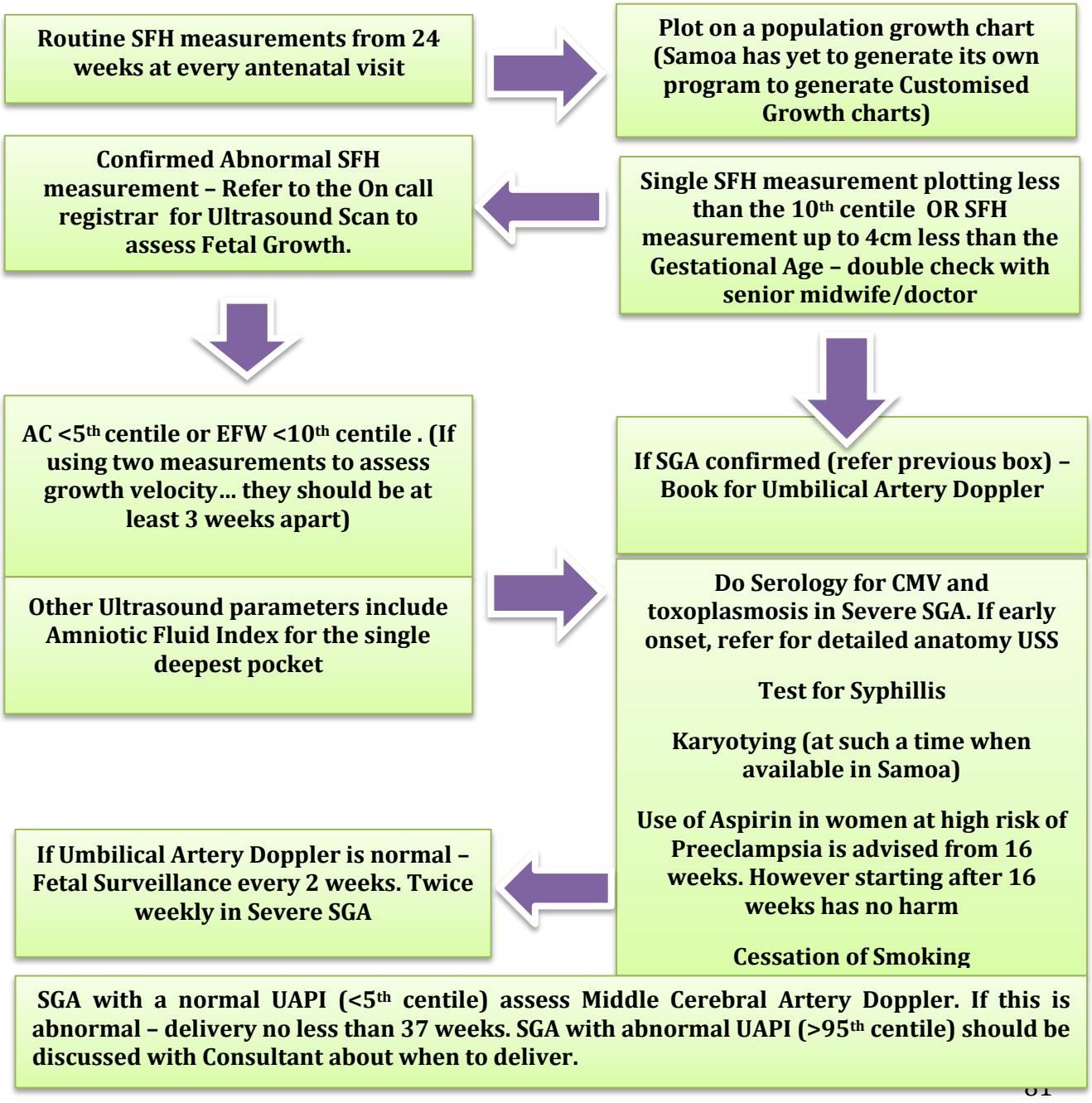
Risk Factors

- Previous SGA double the risk of another SGA fetus in subsequent pregnancy. This risk is further increased after 2 SGA births.
- Previous PET
- Previous stillbirth
- History of previous preterm unexplained stillbirth
- Maternal Medical Conditions – Diabetes with Vascular Disease, Moderate and severe renal impairment, Antiphospholipid syndrome, Chronic Hypertension
- Maternal Risk Factors – Maternal Age >=35 with a further increase in those >=40, nulliparity, social deprivation, BMI <20, maternal SGA, daily vigorous exercise and heavy PV Bleeding in the first trimester.
- Maternal exposure to domestic violence during pregnancy
- Smoking, Moderate alcohol intake and Drug (cocaine) abuse
- Others - maternal caffeine consumption in the third trimester, low fruit intake pre–pregnancy, pregnancies following IVF and paternal history of SGA birth.

Diagnosis

- AC <5th centile
- Discrepancy between head and abdominal circumferences (e.g. HC 75th centile and AC 20th centile which suggests wasting)
- AC is >5th centile but is crossing centiles by > 30th centile e.g. reduction from 50th centile to 20th centile
- A change in AC of <5 mm over 14 days
- EFW on the growth chart is <10th centile
- EFW on the growth chart is crossing centiles with >one third reduction in EFW percentile

Figure 12: SGA MANAGEMENT



Mode of Delivery

Absent or Reversed End Diastolic Velocity – Caesarean Section STAT

Normal UAPI or Abnormal UAPI with present End Diastolic Velocities – Induction of Labour (Mechanical) – needs continuous close monitoring during induction process and during labour

Early admission is recommended in women in spontaneous labour with a SGA fetus in order to instigate continuous fetal heart rate monitoring.

Inform Pediatrician on call

Note that giving steroids have no difference in terms of maternal and fetal outcomes compared to not giving steroids. However, benefits in cases of Imminent Preterm Labour have been widely studied.

Neonates to be referred to NEONATAL ICU for assessment and monitoring

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1.13 ANTEPARTUM HEMORRHAGE (APH)

Purpose of guideline

- To prevent complications and reduce morbidity and mortality associated with APH.
- All patients with APH are to be discussed with and referred to Labor Ward via the registrar on Call and Obstetrician

Optimal Outcome

- The successful delivery of an alive and healthy baby and mother following Antepartum Hemorrhage in Pregnancy or in Labour

Who is Responsible?

- All midwives, nurses and doctors working in Antenatal clinics and Labour Wards in all hospitals in Samoa.

Definition and Aetiology

- Any vaginal bleeding after 20 weeks gestation. The most common causes are: placenta praevia, placental abruption, vasa praevia and local causes (show in labour, cervicitis and infection)
- Other causes to consider – post coital bleeding (trauma), Bleeding disorders and undiagnosed cervical malignancy

Risk Factors for Placenta Praevia

- Previous Caesarean Section
- Previous uterine surgeries for other reasons
- Current uterine fibroids
- Previous Placenta Praevia
- Smoking

Risk factors for placental abruption

- Hypertension/pre-eclampsia
- Smoking
- Previous abruption
- Domestic violence

Assessment

Management of SEVERE APH (continuosly bleeding clots, hemodynamically unstable patient, severe abdominal pains)

- ABC
- Vital signs
- Associated abdominal pains versus painless bleeding
- Extent of bleeding (soaked pads, undergarments, clothing, linen etc)
- Fetal heart rate presence or absence

- Bloods for FBC (full blood count), group. If clinically a placental abruption or massive haemorrhage, request an urgent coagulation screen
- Order appropriate blood (group O negative, group specific or cross matched blood) and/or blood products for transfusion as necessary
- Also ask about events leading up to the onset of bleeding (trauma, intercourse, etc)
- Obtain hospital antenatal records (previous USSs to rule out placenta preavia)
- Expedite delivery & Inform Pediatricians.
    - Prepare patient for Caesarean Section if there is severe bleeding or maternal/fetal compromise. This is regardless of cervical dilatation
    - Note that if there is no praevia, the patient may deliver before Caesarean Section BUT preparing for a Caesarean Section prior is STILL HIGHLY RECOMMENDED

Placental abruption with viable fetus

- FBC and Urgent Group and Screen
- Intravenous access
- CTG
- If clinically an abruption i.e., tender tense uterus, vaginal bleeding (can be very little) do not wait for the CTG to deteriorate, deliver as soon as possible.
- Do a vaginal examination, vaginal delivery may be as quick as caesarean if patient is in advanced labour. If the cervix is favourable consider ARM and syntocinon with a low threshold for CS. Hypovolaemia and coagulopathy must be corrected early.
- If there is any maternal or fetal compromise, this is an obstetric emergency and delivery must be immediate.
- For smaller abruptions, a more conservative approach may be indicated.
- Inform Pediatricians

Placental abruption with fetal demise

These patients are at high risk of becoming hypovolaemic and of developing DIC and later sepsis. Delivery is required as soon as possible. Maternal condition is now the priority:

- Admit to ICU
- Urgent: coagulation screen; FBC; U&E; and blood available for transfusion as clinically indicated
- Correct hypovolaemia and coagulation defects. Be cautious of a “normal” BP in this context, it does not exclude pre-eclampsia/HELLP
- Monitor urinary output
- Vaginal birth is the recommended mode of delivery for most patients. Syntocinon must be used with extreme caution in the hypovolaemic patient
- Notify the anaesthetist on duty

SEVERE ANTEPARTUM HEMORRHAGE IN DISTRICT HOSPITALS

- ABC
- Vital signs
- Associated abdominal pains versus painless bleeding
- Extent of bleeding (soaked pads, undergarments, clothing, linen etc)
- Fetal heart rate presence or absence
- Bloods for FBC (full blood count), group. If clinically a placental abruption or massive haemorrhage, request an urgent coagulation screen
- Discuss with Registrar on Call/Obstetrician for urgent transfer to Hospital for rapid resuscitation. To be escorted by a Registered Midwife.

MANAGEMENT OF MILD APH (HISTORY OF BLEEDING AT HOME WHICH HAS STOPPED, HEMODYNAMICALLY STABLE PATIENT, NO ABDOMINAL PAINS)

- Admit to Ward
- Do FBC and Group and Hold after inserting large bore IV Luer (x2)
- Gentle Speculum to rule out local causes
- Admitting CTG
- Abdominal examination, assess Uterine tone and tenderness, Fundal height, Presenting part
- If no prior scan - do a bedside scan to assess placental position. If patient is stable, urgent USS at XRay department. An unstable patient should not be transferred to the ultrasound department

If Preterm; Also:

- Administer steroids (Dexamethasone IM 12 mg 12 hours apart (2 doses only)

Discharge Criteria

- No bleeding for for 24 to 48 hours
- Well mother and fetus
- Lives nearby the hospital
- Treat cause of bleeding – if local cause

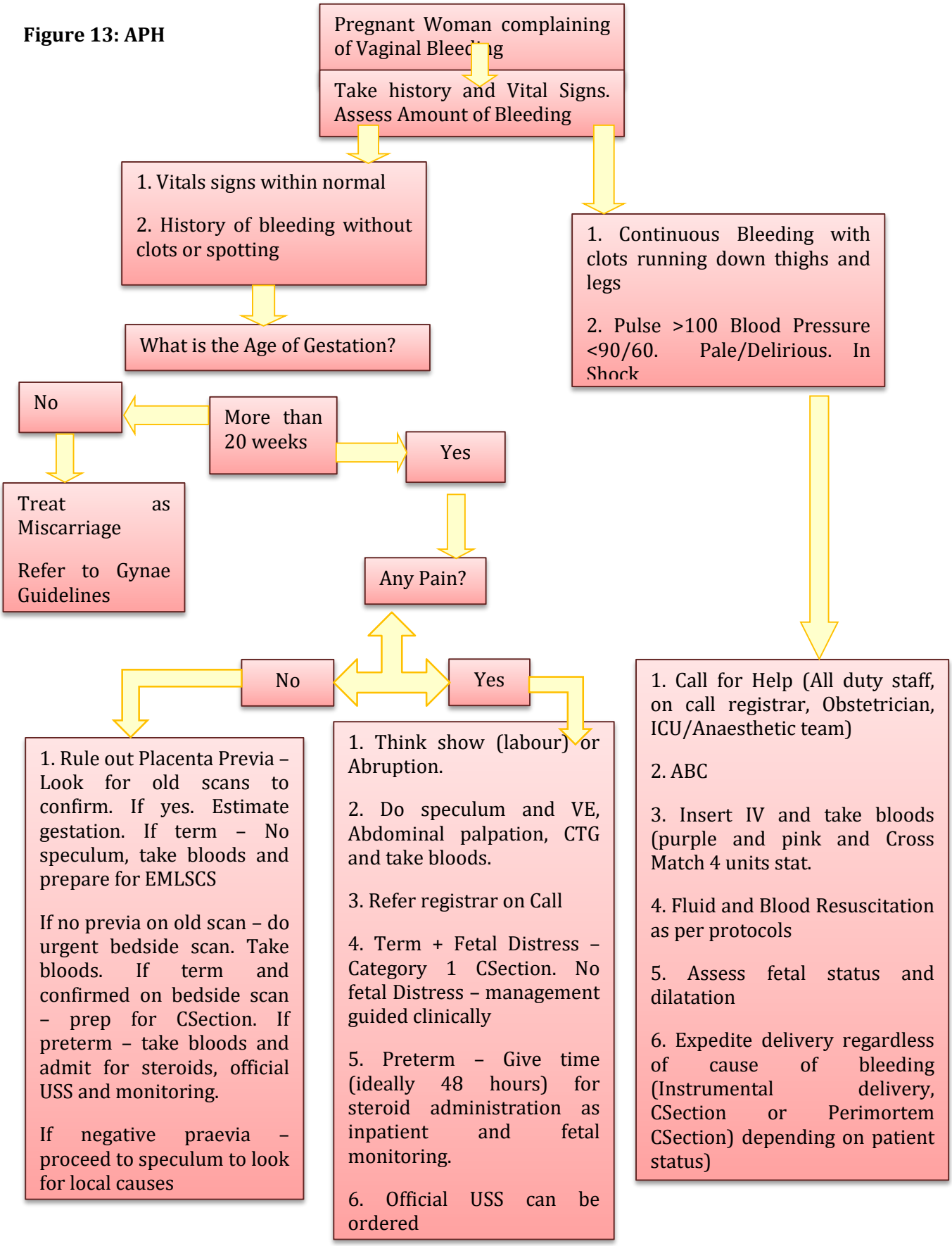
Follow up

- Discharge with a Discharge Summary
- Advise and Counsel to live as close to the main hospital s possible
- Counsel on prompt presentation to hospital if bleeds again, presence of abdominal pains, decreased fetal movement.
- Serial Growth Scans to assess growth as there is a high risk of SGA after APH
- Weekly Antenatal visits

Placenta praevia

- A placenta encroaching within 2cm of the internal os is a contraindication to attempting vaginal delivery. Elective CS should be planned for 38 weeks for an uncomplicated placenta praevia.

Figure 13: APH



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1.14 MANAGEMENT OF DECREASED FETAL MOVEMENTS

Purpose of guideline

The purpose of this guideline is to provide evidence-based advice to improve management of pregnant women with decreased fetal movements. **Note:** although women do sometimes report changes in fetal movements without the movements being decreased, there is no clinical guidance available about this situation. Clinical discretion is advised.

Optimal Outcome

The timely identification of reduced fetal movements on the background of risk factors
The timely delivery of a well newborn after identification of the above

Who is Responsible?

All doctors, midwives and nurses in antenatal care facilities private and public

All doctors midwives and nurses in Labour and Delivery Wards TTM, MT2, District hospitals and Health Centers

If a woman has concerns about strength or frequency of fetal movements, advise her to come in for assessment as soon as possible.

Risk factors for stillbirth

- Previous stillbirth
- Previous preterm birth with SGA
- Maternal overweight or obesity (BMI > 30)
- Infrequent antenatal care
- Advanced maternal age (>= 40 years)
- Parity of 0 or >= 4
- Multiple pregnancy
- Smoking / Substance abuse
- Socioeconomic deprivation
- Pre-existing or gestational diabetes
- PIH/ chronic hypertension
- Antepartum haemorrhage (APH)
- Presence of fetal growth restriction/SGA
- Previous reporting of DFM
- Gestation > 41 weeks

Examination

- Abdominal palpation to assess uterine tone & tenderness, fetal lie/presentation, SFH measured.
- Doppler auscultation of fetal heart
- Maternal pulse rate (confirm as different from fetal heart rate) BP, temperature and urinalysis

- CTG Perform for at least 20 minutes or until satisfactory
- Seek urgent medical review if CTG is not normal

- Ultrasound - Consider within 24 hours
- Include fetal biometry & liquor volume
- Placental and fetal Doppler assessment as indicated

Advice to women:

- Be aware of baby's movements daily
- 'Kick counting' is helpful for some women to increase awareness
- Come to hospital ASAP any time if concerned about decreased strength or frequency of baby's movements

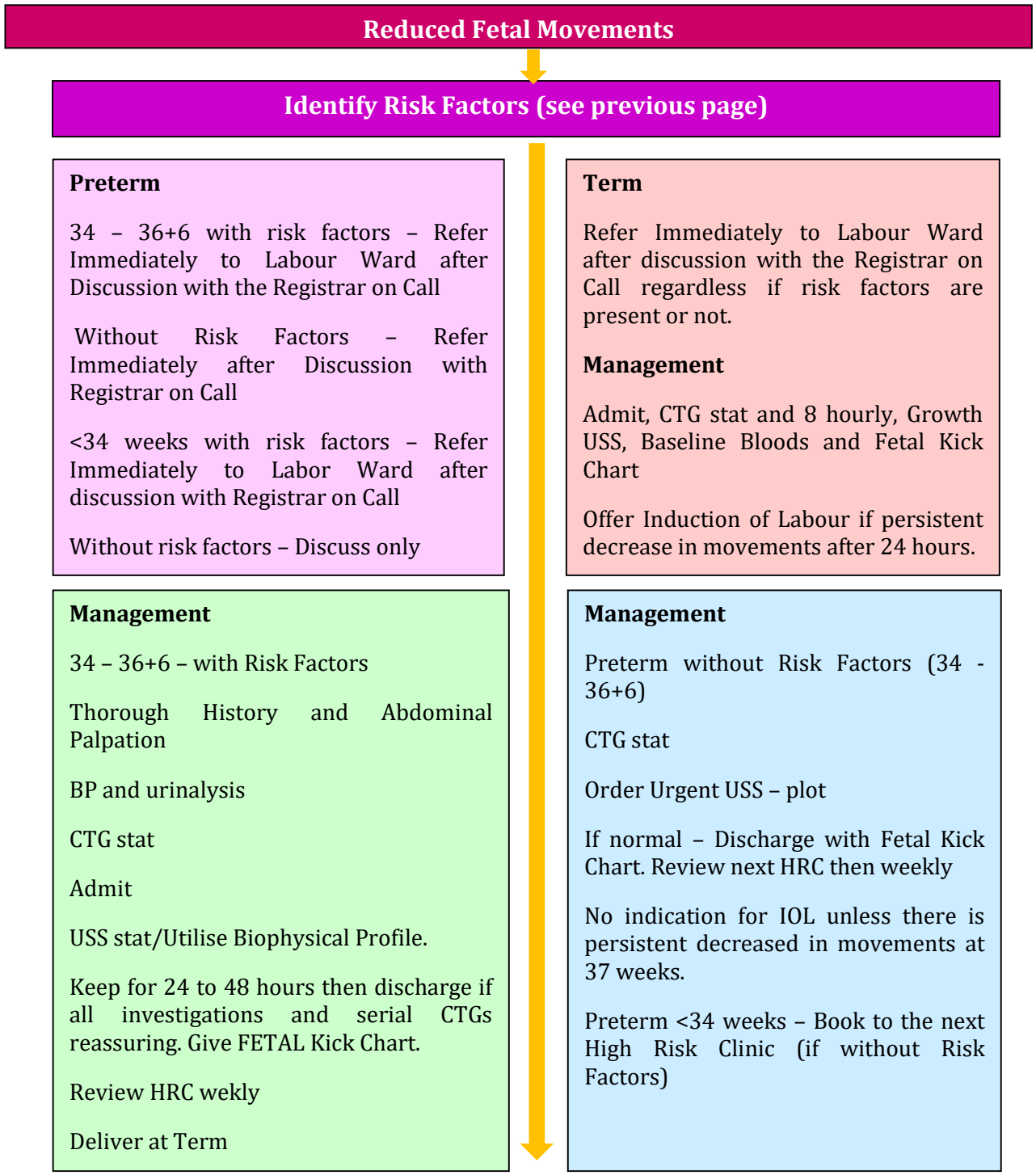

Figure 14: Decreased Fetal Movements

References:

1. Link to PSANZ-SANDA Clinical Practice Guideline for the Care of Women with Decreased Fetal Movements (https://stillbirth.centre.uq.edu.au/files/1156/DFM-Clinical-Practice-Guideline-Update-June-2017.pdf)

2. https://nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/Policies-and-guidelines/Decreased-reduced-fetal-movements.pdf

1.15 CARE OF THE IUFD/STILLBIRTH (Intrauterine Fetal Demise)

Purpose

- To identify risk factors associated with the occurrence of IUFDs
- To establish pathways for the proper management of IUFDs

Optimal Outcome

- The identification of risk factors and the prevention of repeat IUFDs in subsequent pregnancies
- A well mother

Who is Responsible?

- All doctors, midwives and nurses in the labour wards and antenatal and postnatal wards in Samoa

Definition:

- as the delivery of a fetus showing no signs of life as indicated by the absence of breathing, heartbeats, pulsation of the umbilical cord, or definite movements of voluntary muscles
- should be diagnosed before delivery by real time ultrasound scan (Prolonged observation of fetal heart for cardiac activity and fetal movements)
- these events occur after 28 weeks gestation

Causes of stillbirth

Major causes of stillbirth include:

- child birth complications
- post-term pregnancy
- maternal infections in pregnancy (malaria, syphilis and HIV, CMV, parvovirus, Zika)
- maternal disorders (especially hypertension, obesity and diabetes)
- fetal growth restriction
- congenital abnormalities

Other causes are:

- Twins and higher order multiples
- Extremes of Maternal Age – less than 15 years and more than 40 years (lethal congenital and chromosomal abnormalities)
- Elderly primips >35 years
- Antiphospholipid Syndrome
- Drug and Substance Abuse
- Assisted Reproductive Therapy
- Ascending Infections – Group B Strep and EColi or hematogeneous spread of infections like Listeria Monocytogenes or Syphillis.

- Umbilical Cord Events – Vasa Praevia, Cord Entrapment and evidence of occlusion and fetal hypoxia, or stricture with thrombi. Nuchal cord alone is not considered a cause of death.

FIGURE 15: MANAGEMENT APPROACH

IUD/STILLBIRTH EVALUATION

Key Components	Details	Comments
Patient History	Family History - Recurrent miscarriages - VTE - Congenital Anomalies - Developmental Delay - Consanguity	
	Maternal History - Previous VTE - Diabetes - Chronic Hypertension - Thrombophilia and SLE - Autoimmune Diseases - Epilepsy - Severe Anemia - Heart Diseases - Tobacco Alcohol Drug or Medication Use	
	Obstetric History - Recurrent miscariages - Previous congenital anomaly child - Previous Gestational Hypertension or PET - Previous GDM - Previous abruption - Previous fetal demise	
	Current Pregnancy - Maternal Age - Gestational Age of IUD diagnosis - Medical Conditions (OC) - Weight gain and BMI - Complications of multifetal pregnancy - Abruption - Abdominal Trauma - Preterm Labour/PPROM - Booking Date - Ultrasound Abnormalities - Infections/Chorioamnionitis	

Key Components	Details	Comments
Fetal Autopsy	If declined, external evaluation to be done by experienced pathologist. Can also include photos, XRays and other imaging or fetal tissue/skin biopsies	
Placental Examination		
Maternal Evaluation at time of Fetal Demise	- Trauma – Kleihauer (not available in Samoa yet) - Syphillis - Lupus anticoagulant - Anticardiolipin antibodies	
Other cases	- Indirect Coombs - OGTT/HbA1C - Toxicology Screen	
Karyotyping (overseas test)	-	

Timing of Delivery

- Patient Preference – most patients prefer to be delivered as soon as possible however, there is no evidence to support waiting for some days before delivery.
- A delivery plan however should be made before any onset of Disseminated Intravascular Coagulopathy.

Methods of Delivery

- This is dependent on the mode of delivery of previous babies.
- Previous 2 more Caesarean Section or Previous Classical Caesarean Section – Recommend repeat Caesarean Section if identified at term
- 1 Previous transverse lower segment Caesarean Section – Aim Induction

Induction Agents

- Follow National Guidelines for Induction of Labour

Labour and Delivery

- Progress should closely follow normal Progress of Labour Guidelines
- Can allow to labour in an isolation room
- Offer opioid pain reliefs at any stage of labour if not contraindicated
- Full Neonatal Exam to be carried out after delivery of IUD
- Examine the placenta and send for Histopathology
- Admit to an Isolation Room after delivery
- Offer lactation suppressants when discharged.
- Review 6 weeks post partum

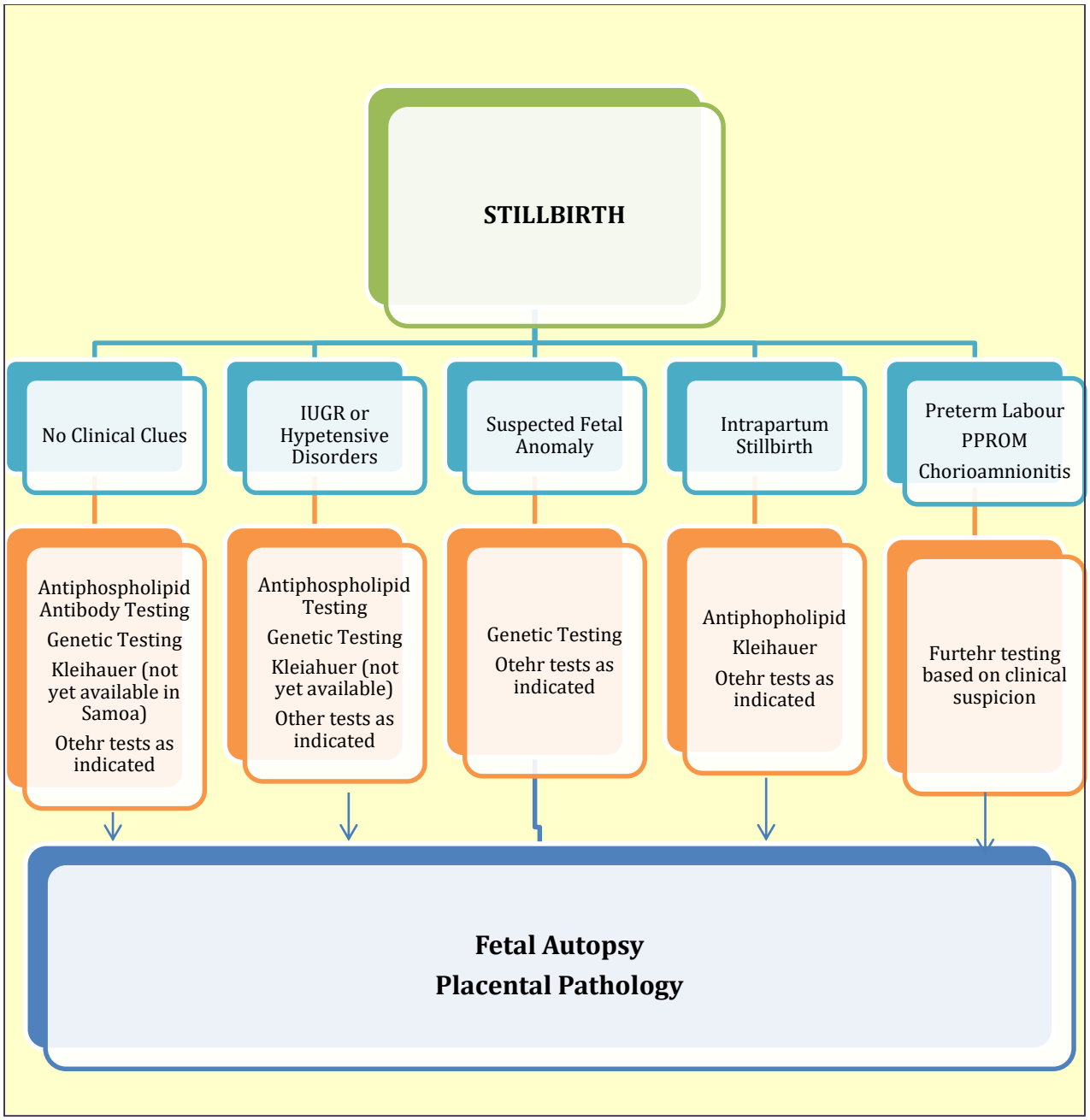

Figure 16: (Adapted from Page JM et al Diagnostic tests For Evaluation of Stilbirth Collaborative Research Network. Ostet Gynaecol 2017)

Care of the Mother and Family

- At diagnosis of IUD, care should be taken to explain to the mother and partner what has happened. Include images on ultrasound scan as you explain.
- Explain possible reasons but the definitive cause can only be identified after delivery
- Explain to the mother and partner that it was not either of their fault
- Offer condolences and allow them time to grieve
- Offer Counseling Services

- Explain next steps in management (see above)

Management of Subsequent Pregnancy after Stillbirth

Pre-pregnancy or Initial Prenatal Visit

- Detailed medical and obstetric history
- Evaluation and workup of previous stillbirth
- Determination of recurrence risk
- Smoking cessation
- Weight loss in obese women (prepregnancy only)
- Genetic counseling if family genetic condition exists
- Diabetes screen
- Acquired thrombophilia testing: lupus anticoagulant as well as IgG and IgM for both anticardiolipin and β2-glycoprotein antibodies (overseas tests to be sent off)
- Support and reassurance

First Trimester

- Dating ultrasonography & Support and Reassurance

Second Trimester

- Fetal sonographic anatomic survey at 18–20 weeks
- Support and reassurance

Third Trimester

- Sonographic screening for fetal growth restriction after 28 weeks then regular intervals (4 weeksy)
- Support and reassurance

Delivery

- Planned delivery at 39 to 40 weeks of gestation or as dictated by other maternal or fetal comorbid conditions.

References:

1. Fretts RC. The study of stillbirth. Am J Obstet Gynecol 2009;201:429–30.
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5. Lamont K, Scott NW, Jones GT, Bhattacharya S. Risk of recurrent stillbirth: systematic review and meta-analysis. BMJ 2015;350:h3080.
6. Management of the Stillbirth (2020). American College of Obstetrics and Gynaecology
7. Reddy UM. Prediction and prevention of recurrent stillbirth. Obstet Gynecol 2007;110:1151–64.)

1.16 MANAGEMENT OF ANEMIA IN PREGNANCY

Purpose of guideline

To guide the prescription and use of iron in pregnancy.
To guide the outpatient management of patients with Anemia
To guide the safe administration of Iron infusion for pregnant women when absolutely indicated.

Who is Responsible?

All clinicians, midwives and nurses in District hospitals and TTM and MT2 hospitals and Private Clinics

Definition

Iron deficiency anemia (IDA) Hb < 100g/L and Ferritin < 15 umol/l

Management of Women with Anemia in Pregnancy

- FBC at booking
- If <100mg/dL – start woman on oral Iron tablets once a day
- Repeat FBC at 26 weeks – Third Contact
- Follow up at 30 weeks. If <100mg/dL – increase Iron tablets to twice a day
- If <8g/dL – Discuss with Registrar on Call or Obstetrician +/- refer to High Risk Clinic for assessment
- Repeat routine FBC for all women at 36 weeks
- If <90mg/dL –Discuss and Refer to the High Risk Clinic if woman is not symptomatic. If symptomatic, discuss with registrar on Call and Refer to Labor Ward
- Note – Vitamin C increases the absorption of Iron therefore women should be advised to take their iron tablets with fruit juice.

Oral Iron Formulations available in Samoa

5. Ferrotabs (Ferrous Fumarate) 200mg = 65mg elemental iron/200mg tablet
6. Ferrogradumet (Ferrous Sulphate controlled release) = 105mg elemental iron/325mg tab
7. Pregamol = Ferrous Fumarate + Folic Acid

Dosage

Ferrotabs abd Ferrograd – 1 tab a day. High dose = 2 tabs a day
Pregamal – 1 tab a day

Parenteral Iron Formulations available in Samoa

- Iron Polymaltose: Amber ampoules containing 100mg iron (equivalent to 318 mg iron polymaltose) per 2ml solution
- Ferric Carboxtymaltose: 500 mg/10 mL ampoule (equivalent to 500 mg elemental iron in 10 mL)

USE OF PARENETERAL IRON

Indications

- Intravenous iron infusion is indicated in iron deficiency anaemia, which is unresponsive or intolerant to oral iron, or when a woman is unable to ingest the adequate dose (e.g. ongoing bleeding), or anaemia with impaired iron utilization (e.g. severe renal failure).
- Intramuscular iron is no longer the administration method, of choice for parenteral iron due to adverse effect profile.
- Anemic women at term that are of Jehovas Witness religion
- Hb can be expected to increase at a rate of 15 to 22 g/L/week during the first 2 weeks and by 7 to 16 g/L/week thereafter until normal values are attained
- Intravenous iron should not be administered in the first trimester of a pregnancy
- IV Iron Infusion should not be administered unless absolutely indicated

Dose and administration Iron Polymaltose

For slow administration calculate total replacement dose of iron using this equation.

Equation method: Iron dose (mg) = Body weight (kg) x (Target Hb – Actual Hb in g/L) x 0.24 + Iron depot
Target Hb = 150 g/L for patient over 34 kg
Iron depot = 500 mg for patients over 34 kg

NB: A dose lower than the total replacement dose can be used

Other references may give the dose in ml or number of ampoules.

1. Add required dose to **500 ml** sodium chloride 0.9%
2. Infuse test dose at 40 ml/hour for 15 minutes.
3. If tolerated, increase infusion rate to 120 ml/hour for remainder of infusion.

Fluid restricted or renal disease administration

1. Add 1000 mg (**1 g)** of iron to **250 ml** sodium chloride 0.9%
2. Infuse test dose at 20 ml/hour for 30 minutes
3. If tolerated, increase infusion rate to 80 ml/hour for remainder of infusion.

Complications and Side Effects:

Anaphylactoid reactions - Primarily occur in the first few minutes of an infusion, and present as respiratory difficulty, hypotension and tachycardia. If they occur:

1. Monitor patients every 5 minutes for the first 15 minutes, then every 15 minutes for the first hour of the infusion, and then every 30 minutes thereafter.
2. Monitor blood pressure, respiration and heart rate.

Dose and Administration Ferric Carboxymaltose

A woman with a booking weight of > 35 kg to be administered:

Ferric carboxymaltose 1000 mg **intravenously** (If late booker with significant weight gain of > 10kg compared to pre pregnancy, use pre pregnancy weight)

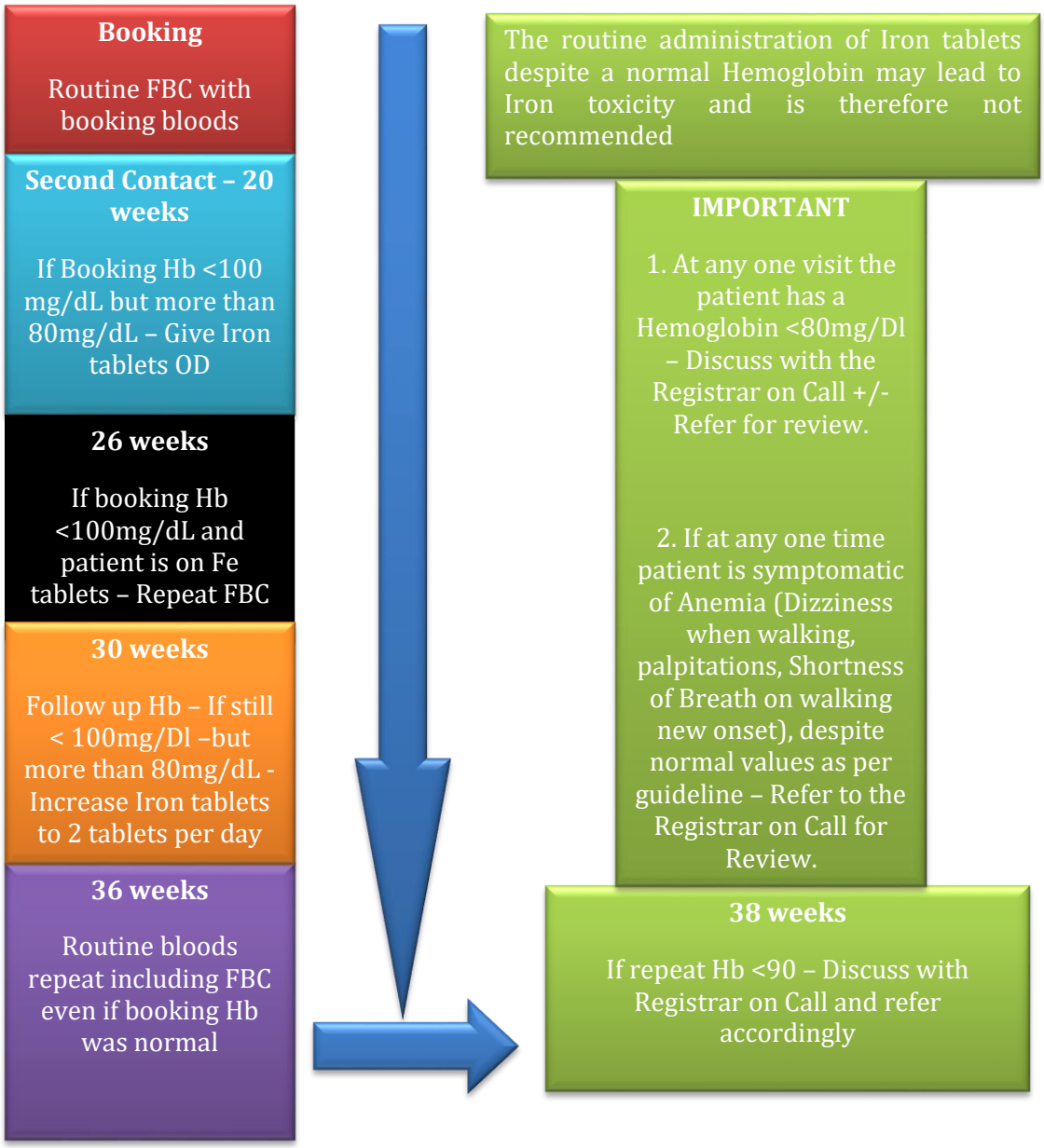
Repeat Blood Tests 2 weeks, if transfusion still needed – give extra 500mg – 1000mg
Note: Do NOT administer more than 1000 mg of iron per week (as ferric carboxymaltose)

Preparation and administration

1. Add required dose to 250 mL Normal Saline. (Normal Saline is the only diluent to be used)
2. Do not dilute to concentrations less than 2 mg/mL of iron
3. Infuse by intravenous infusion over 15 minutes

Note: Never give as IM or SC.

Figure 17: Management of Anemia



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2. Ferrum H (data sheet online). Aspen Pharmacare Australia Pty Ltd. (updated 31/07/2008). Available from: URL: http://www.medsafe.govt.nz
3. Newman E, Ahmad I, Thorton A, Gibson PR. Safety of Iron Polymaltose given as a total dose iron infusion. 2006. Internal Medicine Journal 36,672-674.
4. Guidelines for the administration of IV iron polymaltose in chronic kidney disease via a continuous intravenous infusion. Royal Perth Hospital Anaemia Co-ordinator Guidelines for Administration of Iron Polymaltose. March 2002.
5. https://nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/Policies-and-guidelines/Iron-Polymaltose-Infusions-in-Adults-.pdf
6. Haider, B. A., I. Olofin, et al. (2013). "Anaemia, prenatal iron use, and risk of adverse pregnancy outcomes: systematic review and meta-analysis." BMJ: British Medical Journal 346
7. M. Garg, G. Morrison, A. Friedman, A. Lau, D. Lau and P. R. Gibson. A rapid infusion protocol is safe for total dose iron polymaltose: time for change. Internal Medicine Journal 2011.548-554
8. Medsafe Datasheet for contra-indications, warnings, and precautions
9. Medsafe Prescriber Update – March 2014

1.17 ANTENATAL MANAGEMENT OF THE BREECH

Purpose of the Guideline

To define and identify the Breech in the antenatal mother
To establish a proper pathway for moms with Breech babies

Optimal Outcome

The timely identification, referral and management of the Breech during pregnancy before labour

Who is Responsible?

All midwives, doctors in O&G Unit and in the peripheral hospitals, General Practitioners and all private antenatal clinics.

Definition

Breech is the non cephalic presentation of the fetus and may or may not be longitudinal in lie.

Types:

- Frank Breech – Flexed at the hips and extended at the knees
- Complete Breech – Flexed at the hips and flexed at the knees
- Footling
- Compound Breech – when 2 body parts are presenting at the same time (eg) head with a hand
- Transverse Lie – Fetal lie is perpendicular to the maternal axis.

15.2 DIAGNOSIS OF BREECH PRESENTATION

- Suspect if – the presenting part is soft and may be globular(in comparison to a cephalic presentation where the head is smooth, hard, round and regular) OR if the fetal heart is heard above the level of the umbilicus.
- An ultrasound scan will confirm diagnosis.

Suspect clinically:

- abdominal palpation: if presenting part is irregular and not "ballotable", or if head ballotable at fundus of uterus
- pelvic examination: head not felt in pelvis (buttocks and or feet may be felt)
- very thick meconium present after ROM
- cord prolapse abnormal CTG
- fetal heart heard higher in abdomen (RWH CPG 2006)

Palpation may be confusing in some patients. This is usually because of some definite factor e.g.:

- Excess liquor,
- Excess fetal parts (possible twins),
- Tense patient, tense uterus (wait, it will relax!), or
- Because the head is out of range of easy palpation (either under the costal margin or deeply engaged. An ultrasound will definitely help with diagnosis).

If in doubt, and the uterine size is ≥ 32 cm, then arrange a scan to confirm, and incidentally to rule out twins and other complications.

Causes:

Maternal factors

- Polyhydraminos
- Uterine anomalies (bicornuate, septate)
- Space occupying lesions (e.g fibroids)
- Placental abnormalities (praevia, cornual)
- Contracted maternal pelvis
- Multiparity (in particular grand multips)

Fetal factors

- Prematurity
- Fetal anomalies (e.g neurological, hydrocephalus, anenecephaly)
- multiple pregnancy
- fetal death
- short umbilical cord

Antenatal Management

1. Refer the woman if breech is diagnosed at 36wks to 37 weeks gestation to HRC
2. Perform external cephalic version by capable registrars wherever possible at gestation ≥ 37 weeks.
3. Make a full assessment of all risk factors involved in breech delivery in each individual case and discuss with consultant. From ANC, following factors at 37 weeks ultrasound: Growth/ EFW/ AFI/ Neck flexion/ placental location.
4. Deliver by elective Caesarean section if risks are high – EFW >4.0; Hyperextended head/ placenta praevia/ Footling breech.
5. Allow labour to progress to full dilatation and vaginal delivery if risks not high and progress in labour is good.
6. Deliver by emergency Caesarean section if progress in labour is slow or complications develop. Prolonged labour with breech presentation is an indication for urgent caesarean section. Failure of labour to progress must be considered a sign of possible disproportion.

ASSESSMENT OF THE PERSISTENT BREECH

- Made when the gestation is estimated to be ≥ 36 weeks.
- **ULTRASOUND SHOULD ALWAYS BE USED**
    - To measure Growth/ AFI/ Presenting part of breech/ Placental position/ Neck flexion & Estimated Fetal Weight (EFW)
    - To rule out twins, hydrocephalus, anencephaly, placenta praevia.

- **Review of the patient for other complications** – will indicate that some patients cannot reasonably be delivered vaginally e.g. diabetics, bad obstetric history, large baby (> 4 kg), previous Caesarean for recurring indication.

    - **An elective Caesarean section delivery at 39 weeks SHOULD be planned**, the patient (& partner) informed, and a provisional date confirmed.

MANAGEMENT OF BREECH PRESENTATION

Diagnosis

- Perform a clinical examination
- If <36 weeks, document and follow up routinely in ANC
- If after 36 weeks' gestation, refer HRC and perform ultrasound to confirm diagnosis;
    - Assess fetal anatomy
    - Growth & Estimated Fetal weight
    - Amniotic fluid Volume (AFI)
    - Position of presenting breech – frank/complete/footling
    - Neck flexion
    - Placental location.

TERM (>37 completed weeks gestation)

Antenatal (not in labour)

Ultrasound to confirm diagnosis and exclude possible causative factors (eg polyhydraminos, low lying placenta, fetal anomaly)

Options for care

- External Cephalic Version (ECV)

The current evidence would suggest that ECV (where there are no contraindications), will reduce the number of breech presentations in labour and the number of caesarean sections for breech presentation with no increase in the perinatal fetal or maternal morbidity:

- Elective caesarean section (D/W consultant input)
- The Term Breech Trial found that compared to vaginal birth, planned caesarean section was associated with
    - Lower rates of perinatal and neonatal death,
    - Lower rates of short-term neonatal morbidity or perinatal death and fewer 5 minutes Apgar scores <7.
    - There was a small increase in the short-term maternal morbidity and planned caesarean section decreased the opportunity for spontaneous version, although pre-labour caesarean section was associated with a lower risk of adverse perinatal outcomes.

- There was no difference in outcome between the 2 groups at 2-year follow up.

The advantage therefore in a policy of planned elective caesarean section for breech presentation at term is to decrease the short-term perinatal and neonatal morbidity and mortality. However, an ECV should be routinely offered first in antenatal clinics when assessing a Breech.

References

1.18 EXTERNAL CEPHALIC VERSION (ECV)

Risk of External Cephalic Version:

- Tocolytic side effects
- Placental abruption
- Cord accidents and
- Premature labour

Absolute contraindications to external cephalic version: multiple pregnancy,

- antepartum haemmorhage,
- placenta praevia,
- rupture of membranes,
- established labour,
- hypertension, and
- fetal abnormalities

Relative contraindications:

- previous caesarean section,
- IUGR,
- oligohydramnios,
- early labour,
- Rhesus negative.

Tocolysis improves success of external version.

- Anti-D is required in women Rhesus-negative.
- The success rate is 50%-90%, but there appears to be no significant decrease in overall caesarean section notes.
- ECV should be attempted at any time from 37 weeks onwards unless contraindicated
- Up to 2 attempts are reasonable. The consultant should make at least the 2nd attempt. This is typically performed in the antenatal clinic.
- Check the fetal heart before and after for an hour.
- Portable unit Ultrasound and CTG after the ECV.
- Advice the woman to watch for
  - Fetal movements,
  - Bleeding
  - labour pains and
  - Spontaneous rupture of membranes, within the next 24 hours after ECV

  .

Return to Labour ward immediately should any problems occur.

EXTERNAL VERSION SHOULD ALWAYS BE GENTLE

- Should never be done when the uterus is tense
- Consider using nifedipine or salbutamol a for tocolysis.
- Attempts should be abandoned if they are painful to the mother or the baby is not readily shifted from its position
- Attempts may be made at any gestation without danger provided care and gentleness are always used.

1.19 INDUCTION OF LABOUR

Purpose of Guideline
To establish a Guideline for Induction of Labour for Samoa

Optimal Outcome
- The safe delivery and induction of labour
- The successful delivery of a healthy neonate and mother after an Induction of Labour

Who is Responsible?
All Obstetricians, obstetric registrars, House Surgeons, Midwives and Nurses in all Maternity Wards.

Target
3 Misoprostol and one Foleys IOL per day

Methods:
1.) Misoprostol tablets
2.) Foleys
3.) ARM + oxytocin

IOL should not be confused with Augmentation which is strengthening of contractions.

Indications:
Induction of labour should only be undertaken for valid reasons: eg-

- Post Dates > 41 weeks. If the woman has had an USS done at less than 13 weeks, take the EDD and book for Induction of Labour at 42 weeks; except if the pregnancy is complicated by Hypertension etc
    - If the woman has not had a scan less than 13 weeks, then book for Induction of labour at 41 weeks.
- Fetal Death in Utero
- Medical conditions: eg Pre eclampsia, GDM
- IUGR
- SROM >18hrs

GUIDELINE FOR USING TABLET MISOPROSTOL:
Contraindications to the use of Misoprostol for IOL.

- Allergy to prostaglandins
- Major placenta previa or vasa previa
- Previous hysterotomy, classical caesarean section, myomectomy or uteroplasty.
- Non cephalic Presentation

- Bronchial Asthma or other respiratory diseases
- Glaucoma

a. **All cases to be discussed with an OnG consultant before initiating IOL.**
b. **Primip – G5**
    I. **T. Misoprostol 50mcg is used.**
    II. **Frist Dosage is given by vaginal route and then followed dosages are given by oral route.**
c. **>G5**
d. **Tablet Misoprostol 25mcg is used in the same manner OR Foleys IOL is done.**
e. **In case of SROM- the first dose of misoprostol is given by oral route.**

FOLLOW UP OF INDUCTION OF LABOUR:

- Once the IOL is initiated the patient has to be monitored closely and to inform the staff if any labour pains, SROM or any other complications.
- The patient needs to be admitted in the ward. A pre IOL NST is done before starting the first dose. Then followed by a repeat NST after 1 hour of the first dose or when the Labour pains start (whichever is earlier).
- If the patient is NOT in Labour then repeated dosages can be done up to maximum number of 5. If required that the mom receives more than 5, administration is at the discretion and after discussion with the Consultant Obstetrician only.
- Misoprostol is given 6 hourly and prior to administration of the repeat dose, the patient should be reexamined for early signs of Labour. If the misoprostol tablet is still present when it is time for the next dosage, the next tablet should be inserted as prescribed.

Foley catheter:

- To be used if misoprostol is contraindicated e.g. Grandmultiparous, previous C-section, Severe IUGR, Oligohydramnios, Severe PET, Cardiac Disease
- Avoid using if: PV Bleeding, SROM, or vaginal infection.
- Use foley catheter size 20-22 Franks
- Insert into the cervix and inflate with 50-60 mls of water
- Tag it to the thigh with plaster
- If not in labour when it falls off, then ARM and oxytocin infusion
- Foley catheter should not be left in the cervix for more than 24hours

Artificial Rupture of Membranes (ARM) + Oxytocin Infusion

- Use if cervix is favorable or ripe or Bishop score >6
- Use 6 hours after last Misoprostol to prevent uterine hyper stimulation
- Add 2.5units or 5units in 500ml of Normal Saline; depending upon the parity.

- Start at 20 drops per minute and increase by 10 drops every 30mins until contractions are strong, then maintain until delivery. Maximum titration up to 60drops per hour.
- Ideally the use of the infusion pump is encouraged where the starting drip rate is 60mls per hour and maximum is 120 mls per hour
- Aim for 3-4 strong contractions each lasting 45seconds or more in 10minutes.
- There should be continuous electronic monitoring of the woman in labour
- All oxytocin inductions should be started in the morning and be finished by evening.

Discussion with the consultant is mandatory before starting the synto drip and to decide about the dosage.

BISHOPS SCORE

Pre-Labour scoring system used to assess the favourability of the Cervix for Spontaneous and/or Active Labour after an Induction.

	Score			
	0	1	2	3
Position	Posterior	Middle	Anterior	--
Consistency	Firm	Medium	Soft	--
Effacement	0-30%	40-50%	60-70%	80%+
Dilation	Closed	1-2cm	3-4cm	5+cm
Station	-3	-2	-1/0	+1/+2

Additional factors: +1 point for each previous vaginal birth, -1 point for first time birth givers

Add the score for each factor.

Scores lower than 5 suggest labour will not begin without induction.
Scores 9 and higher indicate labour will likely begin spontaneously.
Scores 3 and lower may indicate that an induction would not be successful

Source: www.ncbi.nlm.nih.giv

1.20 GBS – PREVENTION OF NEONATAL STREP INFECTION

Purpose of guideline

Prevent early onset neonatal GBS infection through safe and evidence based care of women requiring GBS prophylaxis within Upolu and Savaii.

Optimal Outcome

- Successful delivery of a Neonate to a GBS positive mother

Who is Responsible?

Doctors, Midwives, Nurses

Background

To date there has not been an audit or study to assess morbidity and mortality rates from GBS infection for Samoa. Guideline is based on the evidence of increasing preterm labour and subsequent neonatal morbidity. It is a significant cause of morbidity and mortality in other countries quoting an incidence of 0.26/1000 live births (1:4000 babies) in a NZ surveillance study from 2009-2011. GBS prophylaxis given in labour to a woman whose baby is at risk of neonatal infection from GBS in the first seven days of life has been shown to significantly reduce this risk.

Risk Factors

- Antenatal
  - Previous baby with GBS (does not mean GBS found in the mother in a previous pregnancy, only if a baby was affected with GBS)
  - GBS found in urine at any time during pregnancy
  - Incidental finding of positive GBS on vaginal swab at 35 – 37 weeks
  - Incidental finding of positive GBS on vaginal swab at any time of pregnancy (if not followed up by a negative repeat swab done specifically to detect GBS between 35-37 weeks' gestation)

- Intrapartum Risk Factors
  - Pre-term labour <37 weeks' gestation
  - Prolonged rupture of membranes (PROM) >18 hours
  - Maternal Fever (≥38°C). Assess for Chorioamnionitis as well

- All women with one or more risk factors (see above) with Pre-Labour Rupture of membranes should be advised to come to Labour Ward for an assessment ASAP
- All women with Risk Factors in District Hospitals in 2nd stage (or near 2nd stage) should be treated and delivered before referral
- All women with intact membranes having a Caesarean Section do not need GBS prophylaxis
- All women treated in labor with GBS prophylaxis; having Caesarean Section need Surgical Site Infection prophylaxis

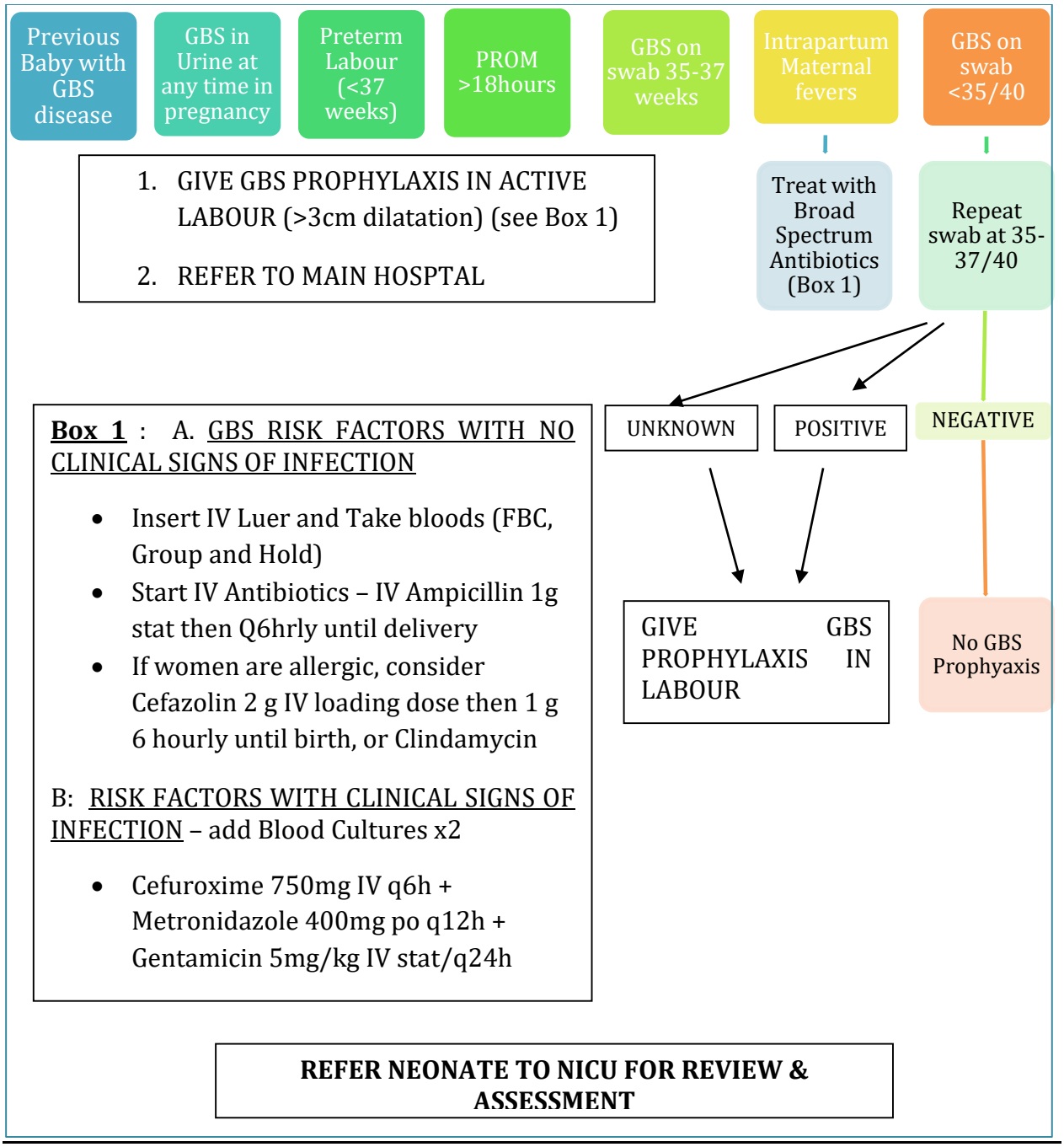

Figure 18: Prevention of GBS

References:

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5. Rupture of Membranes in Pregnancy
6. Preterm labour (PTL) - Management of Threatened and Active PTL

1.21 TETANUS INFECTION

Purpose of the Guideline

To Prevent Maternal and Neonatal Tetanus

Optimal Outcome

All women giving birth and their newborn babies should be protected against tetanus

Who is Responsible?

All doctors (peripheral and main hospitals), midwives and nurses that look after antenatal women

The table below on Tetanus toxoid immunization schedule for women of childbearing age and pregnant women without previous exposure to TT, Td or DTPa

Dose of TT or Td (according to Immunization card)	When to give	Expected Duration of Protection
1	At first contact or as early as possible	None
2	At least 4 weeks after TT1	1-3 years
3	At least 6 months after TT2 or during the next pregnancy	At least 5 years
4	At least 1 year after TT3 or during the next pregnancy	At least 10 years
5	At least 1 year after TT4 or during the next pregnancy	For all childbearing age years and possibly longer

Source: Core information for the development of immunization policy. 2002update.Geneva.WorldHealthOrganization,2002(documentWHO/ V&B/02.28),page130.

Note: WHO recommends any tetanus containing vaccine will suffice as record/evidence that the pregnant has been immunized. In Samoa we are using the Tetanus Diptheria vaccine in pregnancy and this practice is not recommended to change.

If the mother can show written proof of immunization in infancy, childhood, or adolescence with tetanus containing vaccine (eg. DPT, DT, Td, TT); follow the following table:

Age at last Vaccination	**Previous Vaccination (based on written records)**	**RECOMMENDED IMMUNIZATIONS**	
		Present	Later (Intervals of at least 1 year)
Infancy	3 DTP	2 doses of TT/Td (min of 4 weeks interval between doses)	1 dose of TT/Td
Childhood	4 DTP	1 dose of TT/Td	1 dose of TT/Td
School Age	3 DTP + 1 DT/Td	1 dose of TT/Td	1 dose of TT/Td
School Age	4 DTP + 1DT/Td	1 dose of TT/Td	None
Adolescence	4 DTP + 1 DT at 4-6 years +1 TT/Td at 14-16years	None	None

Adapted from:GalazkaAM. The immunological basis for immunization series. Module 3: tetanus.Geneva,WorldHealthOrganization,1993 (WHO/EPI/GEN/93.13), page17.

For the woman to be protected during pregnancy, the last dose of tetanus toxoid should be given at least 2 weeks before delivery

The woman should at all times have a record of her personal Immunization records on her at all times OR in her personal hospital file.

All cases of Maternal or Neonatal Tetanus should e reported to Public Health

If a case of Neonatal Tetanus is identified:

1. Give 1 dose to the mother ASAP and treat baby
2. Give 2nd dose at least 4 weeks later
3. Give 3rd dose at least 6 months after 2nd dose
4. Follow up all other un-Immunized women from the same area and provide

References:

1. Maternal Immunization against Tetanus (Integrated Management of Pregnancy and Childbirth). Standards for Maternal and Neonatal Care (WHO). 2006

1.22 MANAGEMENT OF HERPES SIMPLEX VIRUS in PREGNANCY

Purpose of Guideline

To establish a plan of care for women with Active and Recurrent Herpes in Pregnancy

Optimal Outcome

A healthy baby free of neonatal herpes and a healthy mother

Who is Responsible?

Doctors and Midwives looking after Antenatal Mothers (Public and Private Settings), Paediatricians

Background

- Herpes Simplex 1 and 2 can manifest as genital or orofacial.
- The vertical transmission rate is higher (about 40%) in women with new onset HSV 6 weeks before delivery compared to women with recurrent disease or onset in the first trimester (0-3%)
- Neonatal Herpes poses a high morbidity and mortality rate if mom is untreated towards term or if disease is undiagnosed.

Figure 19: Management - First Episode

First or Second Trimester up to 28

1. Refer to the High Risk Clinic same day OR Discuss with Registrar on Call and refer to Labor Ward

2. 400mg Aciclovir 3 time a day PO for 5 days

3. Refer for PCR staining

4. Providing delivery does not ensue n following 6 weeks, manage expectantly and Aim for NVD.

5. Post treatment at this gestation, restart suppressive therapy from 36 weeks until delivery. Aciclovir 400mg 3 times a day.

Third Trimester

1. Refer Labor Ward

2. Start treatment straight away if not in labour Aciclovir 400mg 3x a day and continue on to 36 weeks until delivery

3. Rate of transmission very high approx. 41 percent in 1st time cases within 6 weeks of delivery – therefore Caesarean Section is r ecommendede

4. Refer for viral PCRs and/or viral antibodies testing

Recurrent Episodes

- Suppressive therapy from 36 weeks.

- Can aim for Normal Vaginal Delivery

Management of Vaginal Lesions at Onset of Labour

- Take a good history regarding onset of lesions and prior history if any. This is because PCR tests will be too late to wait for.
- If new onset or if onset within last 6 weeks of pregnancy – Caesarean Section
- If Recurrent – Aim Expectant Management
- Note: Artificial Rupture of Membranes has a theoretical risk of increasing the transmission rate by <1% (from 3%) but should not be a reason not to perform ARM if absolutely necessary.
- IV Aciclovir (5mgkg 8hrly) can be offered intrapartum for the mother who prefers awaiting normal vaginal birth. However, this has not shown to decrease the transmission rate during labour.

Preterm Prelabour Rupture of Membranes

- New Onset HSV

  Expectant Management

  IV Aciclovir 5mg/kg 8 hourly for 5 days then switch to Aciclovir 400mg TDS thereafter

  Steroids in anticipation of Preterm Delivery

  Antbiotics (Erythromycin or Amipicillin) as per PTL Protocol

  If labors in following 6 weeks – plan for Caesarean Section delivery

- Recurrent Episodes

  Expectant Management – oral Aciclovir 400mg TDS

  Aim for Normal Vaginal Delivery

Management of Neonate

- **1st time Episode Vaginal Delivery** - Refer NICU for IV Aciclovir 20mg/kg tds
- Also needs swabs for PCR testing by Paediatrician
- **1st time Episode Caesarean Section -** Transmission Rate is low but still needs referral to NICU for Observation for 24-48 hours. This is the same for Recurrent Episodes.
- In all cases, Breastfeeding is encouraged
- There is a risk of Postnatal transmission (from mother or close relatives) – Hygiene is encouraged (hand washing etc) and those with orofacial lesions to be discouraged for hugging, carrying, kissing the newborn.

References:

1. Foley E. Clarke et al (2018): Royal College of Obstetricians and Gynaecologists: Management of Genital Herpes in Pregnancy
2. https://www.cdc.gov/std/tg2015/herpes.htm
3. https://www.jogc.com/article/S1701-2163(17)30456-5

1.23 URINARY TRACT INFECTIONS & ASYMPTOMATIC BACTERIURIA

Purpose of Guideline

To establish pathways and management of Acute Cystitis, Asymptomatic Bacteria and Pyelonephritis in Antenatal Mothers

Optimal Outcome

The effective treatment of UTIs
The successful prevention of preterm labours and deliveries and maternal sepsis in women with UTIs

Who is Responsible?

All midwives, Obstetricians, nurses in private antenatal clinics, general practitioners and all doctors in the OPED setting, Emergency Department and peripheral hospitals.

Background

1-4 % of pregnancies have acute cystitis. 2-10% develop asymptomatic bacteria (positive urine culture in an asymptomatic woman).

Cause is secondary to hormonal effect and mechanical compression of the ureters causing dilation during pregnancy. The risk of developing pyelonephritis increases as this dilation causes the spread of bacteria from the bladder to the kidneys.

1. Acute Cystitis

Dysuria, Frequency and urgency without any systemic symptoms

Management – Send a Mid Stream Urine

Empiric Treatment with (in order of preference) until sensitivities return:
1. Nitrofurantoin 50mg 4x a day (Avoid at 36+ weeks)
2. Trimethoprim 300mg daily (avoid 1st trimester)
3. Cephalexin 500mg BD

Course should be 7 days in total
Repeat Urine for Test of Cure 2 weeks after completion of full dose.
Increase Water Intake.

2. Asymptomatic Bacteriuria

Associated with an increased risk of Preterm Labour and IUGR
20-40% develop Pyelonephritis if untreated

Management

Screen for Asymptomatic Bacteriuria by doing MSU at 12-16 weeks
Treat with the following (in order of preference) if positive
1. Amoxicillin (if sensitive) 250mg 3x a day
2. Nitrofurantoin 50mg 4x a day (Avoid at 36+ weeks)
3. Trimethoprim 300mg daily (avoid 1st trimester)
4. Cephalexin 500mg BD

Course should be 7 days in total
Repeat Urine for Test of Cure 2 weeks after completion of full dose.
Increase Water Intake.
Regular Urine Cultures till term
If initial screening at 12-16 weeks is negative – there is no need for regular cultures thereafter while pregnant.

Group B Strep on MSU at screening – treat at time of diagnosis with Amoxicillin or Cephalexin
Prophylactic antibiotics to be given during delivery.

3. Pyelonephritis

Systemic symptoms (fevers) flank pain and nausea or vomiting with or without dysuria, frequency or urgency.

Complications – Maternal Sepsis, Preterm Labour and Preterm Delivery

Management

1. Admit to Ward
2. Start IV antibiotics
3. Keep on IV antibiotics until patient is fever and symptom free for 48 hours
Continue oral antibiotics for 10-14 days thereafter.
4. Do not forget to take MSU prior, do USS (including KUB) and repeat MSU 2 weeks post treatment for test of cure.

References:

1. Delzell JE et al. Urinary Tract Infections during Pregnancy. Am Fam Physician 2000
2. Hooton TM. Urinary Tract Infections and Asymptomatic Bacteriuria in pregnancy. UptoDate 2010
3. Royal College of Obstetricians and Gynaecologists. Prevention of Early Onset Neonatal Group B strep 2003

1.24: VAGINAL DISCHARGES AND SEXUALLY TRANSMITTED INFECTIONS

Purpose of Guideline

To establish a pathway for the diagnosis and management of women with PV discharge in pregnancy

Optimal Outcome

The detection of a positive pregnant mother and timely treatment given for vaginal discharges and/or STIs

The timely referral of a newborn with a positive Syphillis mother for treatment after birth

The survival of both mother and a healthy newborn

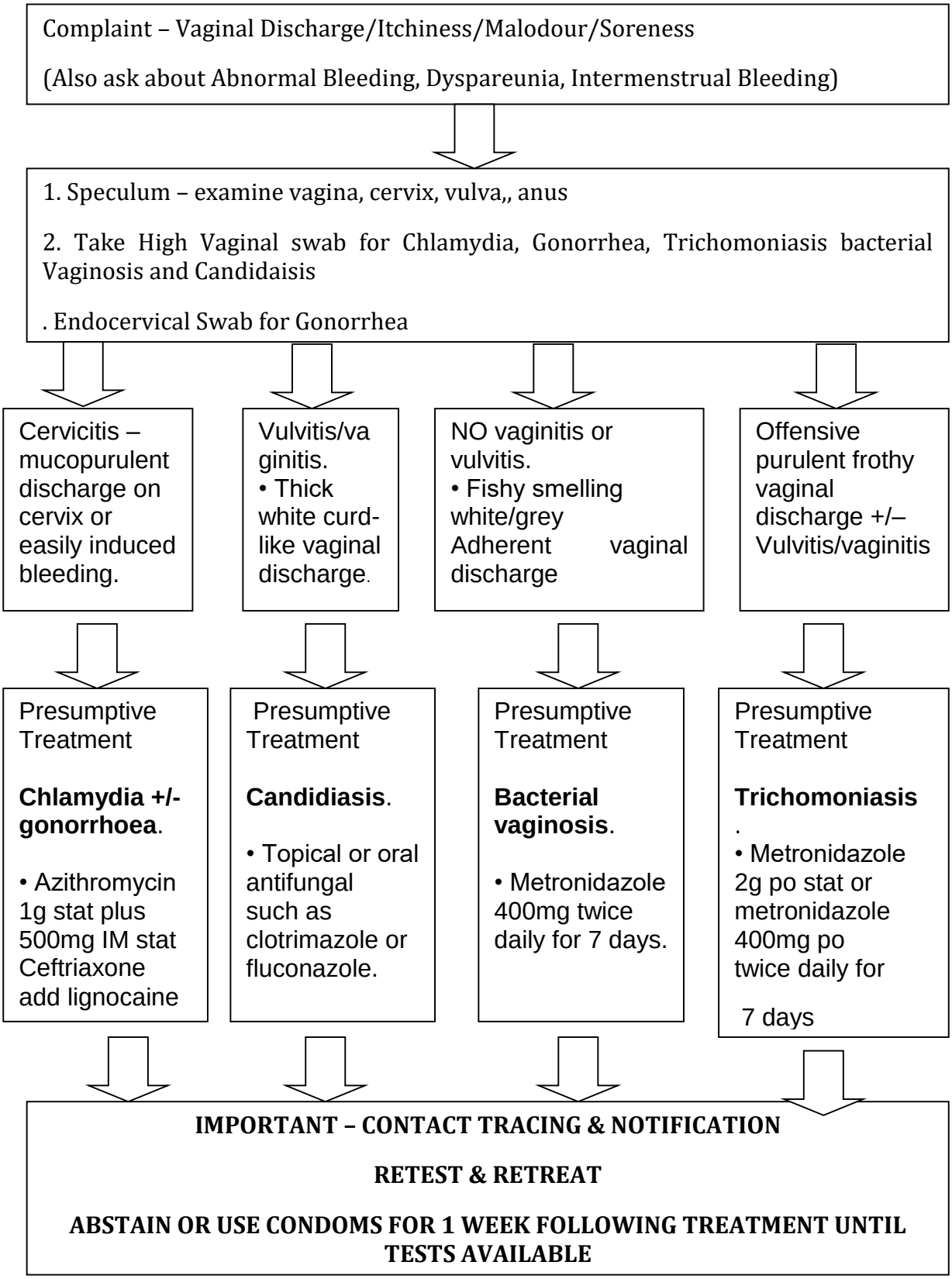
Effective Contact Tracing resulting in Treatment of Partners preventing spread.

Halting of Disease Progression from Primary to other stages

Who is Responsible?

Doctors (Obstetricians and Primary Health), Midwives and Nurses, Sexual and Reproductive Health Nurses, Public Health, Pediatricians.

Figure 20: VAGINAL DISCHARGES MANAGEMENT



1.25 : SYPHILLIS

Natural History

Caused by Treponema Pallidum – motile spiral shaped gram negative bacterium

Transmitted by direct contact with infectious lesion or vertical transmission in pregnancy or acquired

Stages include Primary (ulcer stage), Secondary (systemic involvement), Early Latent (within 2 years of acquisition but no symptoms), Late Latent (>2 years) and Late Stage (gummas, neurosyphillis, CVS)

Pregnancy

Adverse Pregnancy Outcomes – miscarriage, stillbirth, neonatal deaths, low birth weight, small for gestational age, congenital syphilis

Fetal Infection is through hematogeneous spread from a positive mother' rarely at birth from primary lesions. Highest in first 4 years of maternal disease acquisition and negligible if more than years.

Directly related to Stage – 100 % risk for Congenital Syphillis in Untreated mothers in Primary and Secondary Stages, 80% Early Latent and 10% Late Latent Syphillis
Congenital Abmormalities identified after 20 weeks on USS – hepatomegaly, placentomegaly, polyhydramnios and ascites. Less frequent findings include bowel dilatation and long bone abnormalities

Testing & Diagnosis

Non Treponemal Specific Tests (RPR) and Treponemal Specific Tests (TPPA)

RPR	TPPA	Comments
Reactive	Reactive	Confirmed Syphillis
Reactive	Non Reactive	False Positive/Very Early Pregnancy Repeat 2 weeks
Non Reactive	Reactive	Past Treated Syphillis/Latent Infection
Non Reactive	Non Reactive	Possible Early Primary, Latent or False Positive Repeat 1 month
Not tested	Not tested	No evidence of Syphillis or too early Repeat 1 month if strongly suspicious

(NZSHS 2017 Guidelines)

- A 2 titre or 4 fold RPR rise after previous result indicates new infection or treatment failure
- A 2 titre or 4 fold decline after treatment indicates adequate response to treatment
- Reactive RPR may become non reactive after treatm,ent whereas TPPA ia usually reactive for life even after treatment.

Treatment

- Parenteral Penicillin is treatment of choice for Syphillis in Pregnancy

- Early Syphillis (Primary, Secondary, Early Latent)
    - 1st trimester (up to 27 weeks) – IM Benzylpenicillin 2.4MU IM SINGLE DOSE
    - 3rd trimester (from 28 weeks to term) – Benzylpenicillin 2.4 MU IM on DAYS 1 AND 8 (2 doses)

- Late Syphillis & Syphillis of Unknown Duration (in all 3 semesters)
    - Benzylpenicillin 2.4 MU weekly on Days 1,8 and 15

Missed Doses – Repeat Full Course

Surveillance

- Fetal Ultrasound

Labour and Birth

- Advise women treated for syphilis in pregnancy that they can expect to have usual intrapartum care for labour and birth.
- Breastfeeding is not contraindicated unless there is an active syphilis lesion on the breast.
- Send the placenta for histology and syphilis PCR testing if congenital infection is suspected
- Notify Paediatricians

References

1. Gomez GB, Kamb ML, Newman LM, Mark J, Broutet N, Hawkes SJ. Untreated maternal syphilis and adverse outcomes of pregnancy: a systematic review and meta-analysis. Bull World Health Organ.2013;91(3):217–26.
2. Qin J, Yang T, Xiao S, Tan H, Feng T, et al. Reported Estimates of Adverse Pregnancy Outcomes among Women with and without Syphilis: A Systematic Review and Meta-Analysis. PLoS ONE 2014;9(7): e102203.
3. Berman S. M. Maternal syphilis: pathophysiology and treatment. Bull World Health Organ.2004; 82(6): 433–8.
4. Holmes KT, Sparling PF, Stamm WE, Piot P, Wasserheit JN, Corey L, et al., editors. Sexually transmitted diseases. 4th ed. New York: McGraw-Hill; 2008. Chapter 82
5. Sheffield JS, Sánchez PJ, Morris G, et al. Congenital syphilis after maternal treatment for syphilis during pregnancy. Am J Obstet Gynecol. 2002; 186:569-73.
6. Centers for Disease Control and Prevention. Sexually Transmitted Diseases Treatment Guidelines 2015: Syphilis. Available on-line on https://www.cdc.gov
7. New Zealand Sexual Health Society Best Practice guidelines 2017. Available onlineat: www.nzshs.org/docman/guidelines/management-of-sexual-health-nditions/syphilis/174-syphilis-guideline/file.
8. Kingston M, French P, Higgins S, et al. UK national guidelines on the management of syphilis 2015. Int J STD AIDS. 2016;27:421-6.

1.26 MANAGEMENT OF THE RHESUS NEGATIVE MOTHER

Purpose of Guideline
To provide guidance based on International Standards for the management of Rhesus negative mothers in pregnancy

Optimal Outcome
The safe antenatal care of the Rhesus negative mother
The timely prevention of Rhesus alloimmunization in pregnancy between a Rhesus negative mother and Rhesus positive baby

Who is Responsible?
All Obstetricians, Registrars, midwives and nurses working with Antenatal mothers

NOTE

- In the last couple of years, there has been an increasing number of Rhesus negative moms seen in our Antenatal High Risk Clinics; and managed through Labour. This raises the need for a Guideline to assist Health Professionals in looking after these patients.
- Universal Guidelines from Australia, New Zealand and Europe were consulted therefore; the following Local Guide is adapted from these.

Indications for Anti-D (RhoGam) in 2nd and 3rd Trimesters (625 International units IM)

- Maternal Haemorrhage
- Ante partum Hemorrhage
- External Cephalic Version
- Abdominal Trauma
- Manual Removal of Placenta (within 72 hours)
- Time of Diagnosis of an IUD (within 72 hours)

Indications for Anti-D in First trimester (250 International units IM)

- Ectopic Pregnancy
- Molar Pregnancy
- Dilatation and Curettage for Miscarriage after 10 weeks

Prophylactic Anti-D in Pregnancy for women not previously Sensitised

- Offer 625 International Units Anti D at 28 weeks and 34 weeks of gestation routinely

- If antibodies are present and there is doubt as to how the mother acquired these, administer Anti-D anyway 625 International Units
- The administration of the prophylactic dose does not take the place of a repeat anti-D in the event of a sensitizing incident. Conversely, having received anti D for a sensitizing incident should not stop the mother from receiving the prophylactic dose.
- If the mother has missed her 28 week prophylactic dose, give as soon as possible
- If the mother is non compliant and does not turn up for her second dose, a preparation of 1250 International Units can be made to give at a time when she turns up in hospital.
- Offer same dose to Rhesus negative moms who deliver Rhesus positive babies. Ideally, a degree of fetomaternal hemorrhage should be ascertained first via a Kleihauer test; however this is not available in Samoa.
- If a Rhesus negative mom is missed after 3 days of giving birth, ensure that she is tracked and given anti-D up to a maximum of 10 dasy.

Newborn of Rhesus Negative moms

- All pregnancies should be discussed with the Paediatricians during the Antenatal Period.
- All newborns to Rhesus negative mothers should be referred to the NICU when born

REFERENCES

- https://www.nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/Policies-and-guidelines/Anti-D-Administration-December-2020.pdf
- https://www.nice.org.uk/guidance/dg25/resources/clinical-guideline-rhesus-rhd-negative-antenatal-management-bristol-university-hospital-pdf-4368966308
- RANZCOG (2019) Guideline for the Use of Rh D Immunoglobulin 9Anti-D) in Obstetrics
- USE OF RH D IMMUNOGLOBULIN (Anti-D Immunoglobulin) DURING PREGNANCY AND THE POST PARTUM PERIOD (2020).New Zealand Blood Service from https://www.nzblood.co.nz/assets/Transfusion-Medicine/PDFs/111G130.pdf
- Viser H.A.G et al (2021) FIGO/ICM Guidelines for Preventing Rhesus Disease: a call to Action. International Journal of Obstet and Gynaecol: Vol 152; 144-147

1.27 MANAGEMENT OF CERVICAL INCOMPETENCE

Purpose of Guideline

To establish the diagnosis and management of women with Cervical Incompetence

Optimal Outcome

The timely diagnosis of Cervical Incompetence

The successful prevention of pregnancy loss after the diagnosis of Cervical Incompetence

The successful delivery and birth of healthy neonates after timely management

Who is Responsible?

All Obstetricians, Registrars, midwives and nurses looking after pregnant mothers. All Medical Officers in Peripheral hospital and Private Clinics.

Definition

The inability of the uterine cervix to retain a pregnancy in the second trimester, in the absence of uterine contractions

Prematurity is the leading cause of perinatal death and disability

CLINICAL FINDINGS

- Women may have no symptoms or can present with mild symptoms, eg. painless vaginal spotting, increased vaginal discharge, premenstrual-like cramping or backache or pelvic pressure
- Women may present with these symptoms from as early as 14 to 20 weeks of gestation.
- On physical examination, the cervix may be soft and closed with minimal effacement (occurs early in the course of cervical insufficiency)
- Transvaginal ultrasound cervical length is typically short (less than or equal to 25mm) and debris may be seen in the amniotic fluid. If serial ultrasound examinations have been performed, a decrease in cervical length overtime will be noted.

DIAGNOSIS

- This is based on either a classic past obstetric history alone or on a combination with transvaginal ultrasound (TVU) measurement of cervical length whereby the cervical length is 25mm or less.

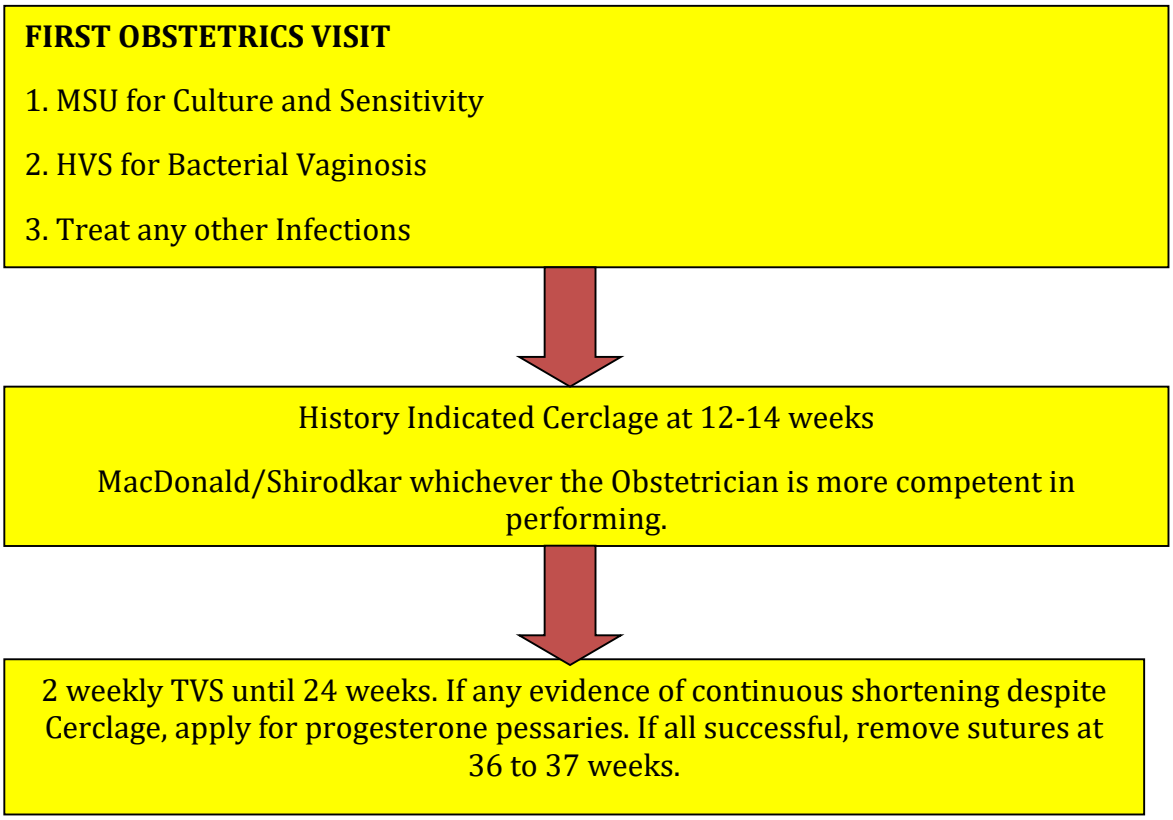
- Diagnosing those women with advanced cervical dilatation and/or effacement by physical examination alone is sufficient.

- The diagnosis of cervical insufficiency is usually limited to singleton gestations because the pathogenesis of delivery at 14 to 28 weeks in multiple gestations is usually unrelated to a weakened cervix.

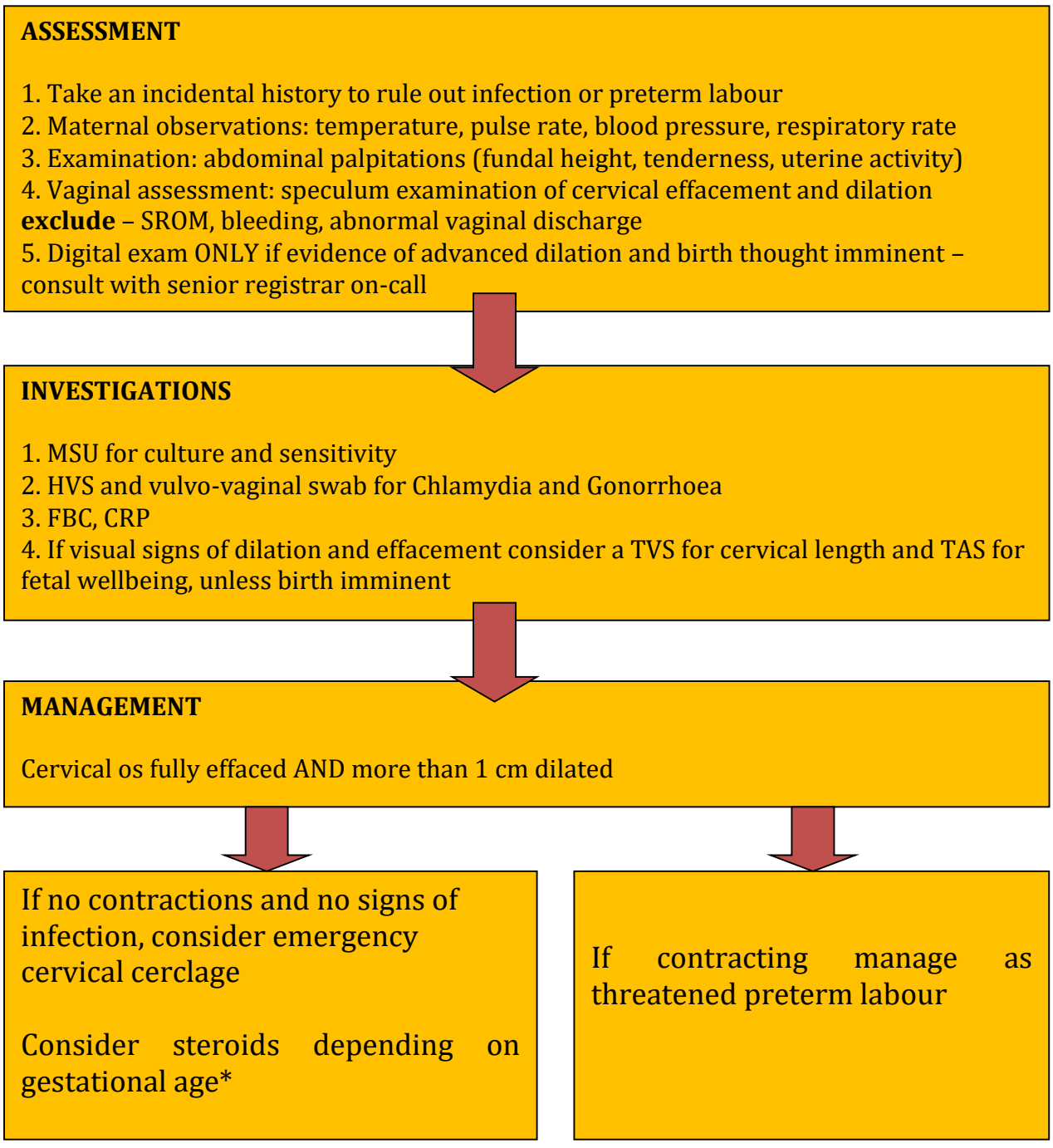
MANAGEMENT

1. Surgical Management

Suspected history of cervical insufficiency is: Three or more preterm births < 34 weeks (with progressively earlier deliveries in successive pregnancies) and/or second trimester losses



2. ACUTE PRESENTATION WITH SUSPECTED CERVICAL INSUFFICIENCY



3. MEDICAL MANAGEMENT

- Progesterone pessaries are widely used to prevent preterm Birth in Cervical Insufficiency. However, this is not yet available in Samoa and therefore will not be a part of this Current Guideline.
- This is subject to change at a time when it is available locally.
- Steroids are recommended for Use depending on the gestation of presentation and fetal viability and support in NICU
- Paediatricians should be informed for all cases.

REFERENCES

https://edu.cdhb.health.nz/Hospitals-Services/Health-Professionals/maternity-care-guidelines/Documents/GLM0055-236966-Cervical-Insufficiency.pdf

https://www.uptodate.com/contents/cervical-insufficiency

CHAPTER 2: LABOUR AND DELIVERY GUIDELINES

2.1 CARE IN THE NORMAL BIRTH

Purpose of Guideline

The purpose of this guideline is to:

- Promote consistent evidence-based labor and birthing care for women with low risk pregnancies. "Low-risk" refers to women who do not meet the "High-risk" criteria as detailed in the "Secondary Care Referral" Guideline
- Promote that labor and birth are normal physiological events
- Provide guidance for midwives, doctors and support staff to promote and facilitate physiological birth safely, only interfere if there are clear medical or clinical indications, and to recognize any deviations from "normal" labor and refer accordingly.

Optimal Outcome

- Mother and infant who are in good condition following birth
- Effective care of women in the second stage of labor

Who is Responsible?

- Doctors, Midwives, Nurses

Definitions:

Physiological labor and birth includes the following: (NZCOM, 2006)

- Singleton pregnancy
- Vertex/Cephalic presentation
- Gestation of 37 - 42 weeks
- Spontaneous onset and progression
- Previous low-risk pregnancy (pregnancies)
- Intact membranes or spontaneous rupture of membranes
- Support from family members (2 if space allows), mobilisation, positioning, adequate hydration, and a competent birth attendant
- If required, support with low level forms of pharmacological measures to decrease labor pain, including paracetamol and cool towels
- Free of surgical or medical intervention, e.g. artificial rupture of membranes and Syntocinon augmentation
- Free of complications throughout labor and birth
- Spontaneous vaginal birth of the infant and placenta without the need for instrumental or surgical delivery
- Early skin-to-skin contact between the mother and infant
- A birth resulting in a healthy mother and baby

The following should be encouraged in supporting a normal labor and birth, as they have been demonstrated as useful and effective (WHO, 1997):

- Early assessment of risks in in labor
- Respecting the woman's informed choice and consent in the Labor Ward

- Respecting the right of any woman to privacy in the birthing room
- Limiting the number of staff in the room if not necessary (includes nursing and medical students), and introducing each staff member to the woman
- Empathetic support from caregivers and healthcare workers during labour and birth
- Giving the woman clear and accurate information throughout labour, including progress and plan (e.g - dilatation and time of next examination)
- Fetal monitoring when necessary
- Freedom in position and movement throughout labour, avoiding long periods in supine position
- Early skin to skin contact between mother and infant

Stages of Labor:

- Latent first stage of labor (of a normal physiological birth) - Painful contractions, cervical changes and effacement, dilatation up to 4cm in a primigravida and multiparous women (WHO 2017)

- Active first stage (of a normal physiological birth) - Regular painful contractions, rapid dilatation from 4cm until full dilatation in primigravida or multiparous women (ADHB, 2020)

- Second Stage of Labour - Time from full dilatation until the expulsion of the baby. In multips this can take up to a maximum of 1 hour whereas in primips, second stage can last up to 2 hours; and provided the baby and mom are stable; can last up to 3hours.

- Third Stage of Labour - Time from the delivery of the baby until the full expulsion of the placenta and membranes (NICE 2018)

Best Practice Principles

a. Monitoring progress of Labor

The assessment of labour should be made by observing the woman, her appearance, behavior, contractions and descent of the presenting part. Once in active labor (cervix > 4cm) vaginal examinations (VE's) should be carried out every 4 hours and findings to be documented on the Labour Partogram. If the alert line is crossed, the next VE should be repeated within 2 hours. Once the "action" line is crossed, alert the On-Call doctor for a review and to discuss possible augmentation.

b. Cervical dilatation & Normal labour progression

It must be noted that labour may not naturally accelerate until cervical dilatation has reached or passes a threshold of 4cm. Therefore, the use of medical interventions to accelerate labour and birth (such as oxytocin augmentation or caesarean section) before this threshold is not recommended, provided that fetal and maternal monitoring remain reassuring (WHO, 2018).

c. There is evidence that the following practices should <u>only</u> be used in Second Stage of Labour where there is a clinical indication:

- Intravenous fluid infusion
- Supine position during labour or birth
- Valsalva manoeuvre type of pushing (bearing down continuously) during the second stage of labour
- IDC Insertion
- Episiotomy
- Nasal or oral suctioning of the infant at birth

d. Practices for which there is insufficient evidence to support use:

- Routine spontaneous rupture of membranes
- Active manipulation of the fetus at the moment of birth
- Restriction on food and fluid during labour unless medically indicated (CDHB 2020)

Practice Actions Recommendations

	Actions
Labour Management Plan	• On arrival, ensure that the woman's folder is available and check to ensure the woman is a low-risk, routine case. • Ensure the woman is clear on plan to anticipate a normal vaginal delivery and discuss and concerns.
Admission	• Document admission details and take note of antenatal notes. • Include reason for admission. • Rule out any ROM and ask about fetal movements and vaginal loss. • Perform abdominal examination and take first set of vital signs. • Ensure the examining clinician signs their name, the date and time.

	Actions
Observations	In active labour, auscultation should be carried out and documented every 3 hours minutes in the first stage, and every 5 minutes in second stage. When auscultating, begin at the end of a contraction and listen for at least 30 - 60 seconds. Continue CTG monitoring is only needed if fetal compromise or other risk factors exist. Take maternal vital signs on admission and then every 4 hours. Urine Output should also be documented.
Liquor	ARM is not a routine practice. If performed, there should be a clear indication and this should be documented. Document the indication, volume, color and odour (if any). Ask client to wear pad and report amount, color and change if seen.
Contractions	See Partogram Guideline
Progress in labour	Inform a woman and gain verbal consent before you perform any VE Carry out abdominal palpation before any VE Document findings clearly; descent of head, dilatation and presence of membranes. Once there is SROM or ARM is done - minimize VE's to avid risk of infection. When possible, have the same clinician do the VE eat time to avoid multiple examiners. These finding should be documented on the partogram immediately. **Do not commence Partogram until labour**

	Actions
	is established (cervix >4cm, fully effaced)
Environmental safety	The environment is vital to support the natural oxytocin release. Support person are to be mindful of safety and cleanliness of the room. Staff should be mindful of opening doors and entering without proper introduction and reason to enter the room. All equipment should be checked daily to ensure safety, hygiene and working order. Room should be warm to anticipate the delivery.

References:

1. Auckland District Health Board (ADHB), I*ntrapartum Care - Physiological Labour and Birth Guidelines* (2020). Retrieved from www.adhb.govt.nz
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6. Retrieved from: https://www.midwife.org.nz/midwives/professional-standards/consensus-
7. statements
5. Department of Health (2018), *Clinical Practice Guidelines.* Canberra: Australian Government Department of Health
6. New Zealand Resuscitation Council (2016). *Section 13 Neonatal Resucitation.* Retrieved from https://www.nzrc.org.nz/guidelines/

2.2 MANAGEMENT OF THE SECOND STAGE OF LABOUR

Purpose of Guideline

This guideline provides information for midwives and obstetric staff on how to effectively manage the second stage of labour

To provide guidance on how to identify and manage suspected delay in progress of first and second stages of labour in a low risk woman and refer accordingly

Optimal Outcome

- Mother and infant who are in good condition following birth.
- Avoid complications secondary to poor monitoring in labour

Who is Responsible?

- Doctors, Midwives, Nurses and Labor Ward Staff

Definitions:

Positive Birth Experience:

It is imperative to treat all women with respect, regardless of their history, antenatal care or other factors. Staffs are to ensure that all in the second stage of labour, as the woman prepares to birth her baby - she is treated with empathy and is made to feel safe while in a vulnerable position. To assist with this, build rapport with the woman early - be aware of words, tone and facial expression when guiding the woman through effective pushing and labour. This will greatly increase the chances of a positive birth experience for both the woman and birth attendant.

Active Second Stage of Labour

Regular painful contractions and full dilatation in primigravida or multiparous women (ADHB, 2020)

Full Dilatation

Full effacement of the cervix and dilatation to 10cm, without any cervical tissue felt on vaginal examination. The presenting part may or may not be at Station 0 to +1.

Delay in Second Stage

Recognizing abnormal labor progression and initiating appropriate intervention are important because prolonged labor is associated with increased risks for operative delivery and maternal and neonatal morbidity.

Delay is suspected if:

- For a Primigravida woman – progress in terms of rotation and descent of the presenting part is not evident after one hour of active 2nd stage. (An acceptable tie frame for second stage is 2 to 3 hours – 1 to 2 hours of passive descent and an hour hour of active pushes)

- For a Multiparous woman - progress in terms of rotation and descent of the presenting part is not evident after 30 minutes of active 2nd stage. (The accepatabe time frame for second stage inmultiparous women is up to an hour)

- When delay is suspected, offer a vaginal examination and amniotomy (ARM) if membranes are still intact. Alert the On-Call Registrar/Doctor before the amniotomy/ARM is done.

- The On-Call doctor must then attend to assess the need to undertake an operative vaginal birth or surgical delivery as appropriate

- The On-Call Registrar should be called directly by phone and if the On-Call is unavailable, escalate the call to the On-Call Consultant.

Best Practice Principles:

Observations in Second Stage of Labour:

- Frequency of passing urine
- Vital signs every hour (BP/HR/Temp/SpO2)
- Offer a vaginal examination every hour
- Monitoring of contractions with CTG and Tocography
- Assess progress including mother's behaviour, effectiveness of pushing and reassuring status of CTG
- Intermittent auscultation every 15 mins after a contraction
- Ongoing attention to the mother's hydration, position, coping with pain and pain relief

Slow progress in labour may arise due to:

- Fetal malposition or malpresentation
- Inadequate/poor uterine contractions
- Inadequate pelvic size & disproportion with fetal head
- Pelvic soft tissue abnormalities

Where delay is suspected:

- Evidence-based interventions such as an amniotomy (ARM) and/or Syntocinon infusion can be offered to facilitate contractions and labour. This may also help to decrease the risk or a caesarean section, and decrease the risk of fetal and sternal morbidity (NICE, 2017 & RANZOG 2016)
- If no signs of descent after active pushing efforts - (30 minutes - Multiparous and 60 minutes for Primigravida) consider the following:
- Offer vaginal examination and ARM if the membranes are intact
- Insert IDC to empty the bladder
- Allow mother to change her position (side, on all fours, sit at edge of bed)

Where delay is confirmed:

- Alert the OnCall Registrar/Doctor for a review

- Start continuous fetal heart monitoring if not already done
- Consider Syntocinon Augmentation with 15-30 minute reviews by the On-Call Doctor. If nil progress - On-Call to discuss and decide with the woman the options ie - operative versus instrumental delivery.

Best Practice Recommendations:

Syntocinon Augmentation

- Consider the use of oxytocin if contractions are inadequate at the onset of the second stage

(Please see Syntocinon Augmentation Guideline)

Position and Pushing:

- The woman may be encouraged to adopt a position that is more comfortable, taking into account the experience of the birth attendant
- Allow "freedom of pushing", guided by her own urge to push
- If pushing is seen to be ineffective, offer support, change of position, bladder emptying and verbal encouragement

Interventions:

- "Hands on technique" (guard the perineum and flex the baby's head" or "hand's off" (hands off but positioned ready) to facilitate birth
- Do use an episiotomy if there is a clinical need – instrumental birth or fetal compromise.
- Any woman with tears should be examined carefully and if required (Stage 2 onwards) a skilled attendant should be called to attend to suturing
- Educate women with perineal trauma in the first birth does not necessarily increase the chance of a repeat episode in subsequent pregnancies
- Any woman with previous 3rd or 4th degree tears should have a discussion with a Registrar or Consultant about the future mode of delivery including
    - Incontinence symptoms
    - Degree of previous trauma
    - Risk of recurrence
    - Success of repair
    - Management of future pregnancies and labour
- Episiotomy– recommended technique is a mediloateral cut originating at the vaginal fourchette and directed to the right side of the patient. Angle 60 degrees
- Local anaestheisa should be provided when possible.

Instrumental Birth and Delayed Second

- Consider an Instrumental Delivery if second stage is delayed
- The method depends on the clinical equipment and experience of the practitioner

- Adequate anaesthesia
- A pudendal block can be administered by an experienced physician, but if time does not allow – a pudendal block with local anaesthesia to the periumen can be offered for an instrumental deliver
- A caesarean section should be offered if vaginal birth is not imminent

Expediting Birth:

If birth needs to be quickened, consider:

- Clinical findings of VE and palpation
- Ventouse versus Forceps
- Anticipated degree of difficulty
- Availability of Theatre if instrumental is unsuccessful
- Availability of Paeds Team for resuscitation if required
- Document all decisions made and discussions held
- Explain to the woman and family about the reasons and options
- Inform team and SMO re: urgency

References:

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2.3 MANAGEMENT OF THIRD STAGE OF LABOUR

Purpose of Guideline

The purpose of this guideline is to:

- Provide safe and effective care for women in the third stage of labour where physiological management is not appropriate/safe
- Recognise that the time immediately after the birth is when the woman and her birth support person(s) are meeting and getting to know the baby
- Ensure that any care or interventions are sensitive to this and minimise separation or disruption of the mother and baby

Optimal Outcome

- Mother and infant who are in good condition following birth
- Family members who were made to feel welcome as part of the birth process

Who is Responsible?

- Doctors, Midwives, Nurses, Maternal Health Care Providers

Definitions:

• ***Third Stage of Labour:***

The third stage of labour is the time from the birth of the baby to the expulsion of the placenta and membranes.

• ***Active Management of the Third Stage:***

Involves a routine use of ebolics/uterotonic drugs, clamping and cutting of the cord "soon" after birth and controlled cord traction after signs of separation of the placenta (gush of blood, lengthening of cord, firm, globular uterus).

• ***Physiological Management of the Third Stage:***

Involves no routine use of ebolic/uterotonic drugs, no clamping of the cord until pulsation has stopped and delivery of the placenta by maternal effort.

Best Practice Principles

Indications for Active Management

For ALL situations deemed high risk;

- Anaemia
- Induction and/or augmentation of labour
- Multiple pregnancies
- Previous LSCS
- Previous history of PPH
- Grand - multiparous (> 4 births)

Active Management of the Third Stage

- For high risk women or maternal choice, active management of the third stage is recommended to be used
- Active management with the use of ergometrine (on its own or in combination with syntocinon) is associated with an increased risk of nausea vomiting and raised blood pressure, (Rogers et al, 1998).
- For this reason, consideration must be taken when administering syntometrine (syntocinon and ergometrine), and must not be used when women have hypertensive disorders.

Advise the woman to have active management of the third stage, because it is associated with a lower risk of a postpartum haemorrhage and/or blood transfusion. [2014]

If a woman at low risk of postpartum haemorrhage requests physiological management of the third stage, support her in her choice. [2014]

Document in the records the decision that is agreed with the woman about management of the third stage. (NICE 2020)

Best Practice Recommendations

Procedure

- For active management, administer 10 IU of oxytocin by intramuscular injection with the birth of the anterior shoulder or immediately after the birth of the baby and before the cord is clamped and cut. After administering oxytocin, clamp and cut the cord.
    - Do not clamp the cord earlier than 1 minute from the birth of the baby unless there is concern about the integrity of the cord or the baby has a heart rate below 60 beats/ minute that is not getting faster.
    - Clamp the cord before 5 minutes in order to perform controlled cord traction as part of active management.
    - If the woman requests that the cord is clamped and cut later than 5 minutes, support her in her choice
    - After cutting the cord, use controlled cord traction
    - Perform controlled cord traction as part of active management only after administration of oxytocin and signs of separation of the placenta
- Record the timing of cord clamping in both active and physiological management
- Do not use either umbilical oxytocin infusion or prostaglandin routinely in the third stage of labour
- Full set of Vital Signs within the first 30 minutes of delivery

• Assessment is then made of Estimated blood loss Location and uterine tone The woman's perineum

- The placenta is checked for completeness
- Ask the woman if she wishes to keep the placenta before its' removal from the delivery room

Drug dose and method of administration
Syntocinon 5IU IM or slow IV push
Syntocinon 10 IU IM only

Syntometrine 1ml IM only

Caution must be taken:

- with the administration of intravenous syntocinon (give as slow push)
- with syntometrine as it contains syntocinon 5 units and ergometrine 0.5mg. Not to be given in women with high blood pressure.

Documentation
All drugs administered must be prescribed on the woman's medication chart. Any adverse reaction to medication should also be noted. Third stage management and time should be noted in the labour and birth record.

Contraindications
- Maternal refusal. This should be documented in the woman's notes.

Prolonged Third Stage

- Diagnose a prolonged third stage of labour if it is not completed within 30 minutes of the birth with active management

  Or
- Within 60 minutes of the birth with physiological management. Follow recommendations on managing a retained placenta

Observations in the Third Stage
Record the following observations for a woman in the third stage of labour

- her general physical condition - colour, respiration and how she feels
- vaginal blood loss volume

If there is postpartum haemorrhage, a retained placenta or maternal collapse, or any other concerns about the woman's wellbeing:

- Activate PPH protocol
- Notify the Registrar or Consultant On-Call for immediate management

Active and Physiological Management of the Third Stage:

Explain to the woman that active management:
• shortens the third stage compared with physiological management
• is associated with nausea and vomiting
• carries a lower risk of PPH

Explain to the woman that physiological management:
• is associated with nausea and vomiting in about 50 in 1,000 women
• is associated with a higher risk of haemorrhage of more than 1 litre
• is associated with an approximate risk of 40 in 1,000 of a blood transfusion.

Retained Placenta

- Secure intravenous access if the placenta is retained, and explain to the woman why this is needed. Do not use intravenous oxytocic agents routinely to deliver a retained placenta
- Give intravenous oxytocic agents if the placenta is retained and the woman is bleeding excessively
- If the placenta is retained and there is concern about the woman's condition:
  - offer a vaginal examination to assess the need to undertake manual removal of the placenta
  - explain that this assessment can be painful and advise her to have analgesia
- If the woman reports inadequate analgesia during the assessment, stop the examination and address this immediately
- If uterine exploration is necessary and the woman is not already in an obstetric unit, arrange urgent transfer (following the general principles for transfer of care
- Do not carry out uterine exploration or manual removal of the placenta without an anaesthetic

References:

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Hutt Valley Maternity Care (2017), Physiological Management of the Third Stage of Labour Policy. Retrieved via: http://www.huttmaternity.org.nz/content/e129939a-e34f-45c6-8dce-46d5e9bb31a9.cmr

2.4 USE OF THE PARTOGRAM

Purpose of the Guideline

To establish the proper Use of the Partogram in Labour Wards in Samoa

Optimal Outcome

The early recognition of slow progress in Labour

The timely intervention in managing Slow Progress in Labour

The birth of a healthy neonate and a healthy mother after a prolonged labour.

Who is Responsible?

All midwives and nurses working in Labor Wards in Samoa, All Obstetricians, Registrars in Obstetrics, Medical Officers working with Labouring Mothers in all hospitals in Samoa

Clinical Pearls

Partogram is the best method to assess progress of labour. It is the graphical recording of stages of labour including cervical dilatation, descent and rotation of the head.

The main purpose of the partogram is to avoid prolonged labour and intervene timely.

Once labour is diagnosed, its progress is charted by abdominal and vaginal examination.

The latent phase of labour is up to 4 cm dilatation, and should not be more than 8 hours. In the active phase which extends from 4 cm to complete cervical dilatation, labour is expected to progress at the rate of at least 1 cm cervical dilatation per hour.

The action line is drawn 4 hours to the right and parallel to the alert line. Labour is considered normal as long as the progress of cervical dilatation is to the left of the alert line.

Prolonged labour is diagnosed, once the alert line is crossed. This is considered an indication for intervention.

If the patient is in a peripheral hospital, once the alert line is crossed, it is an indication for referral to either TTM or MT2.

Plotting

- ✓ The Alert Line is plotted according to the Estimated Time of Delivery starting from 4cm of dilatation
- ✓ The Action line is plotted 4 hours to the right of the Alert Line and represents a time in labour when Action should be taken to correct the progress of labour.

Causes of Slow Progress

- ✓ Cephalopelvic Disproportion (CPD)
- ✓ Inadequate Uterine Contractions
- ✓ Asyntllitc Positioning
- ✓ Others - ?short umbilical cord, cord wrapped around a limb or neck (should show signs of fetal distress

Actions/Interventions

1. Perform Abdominal Examination – Assess if fetal head still above the symphysis pubis, assess for presence of Bandl's band or a full bladder (Empty the bladder)

2. Palpate the frequency and strength of contractions. Adequate contractions to be 3 to 4 strong (>40seconds) within 10 minute windows.

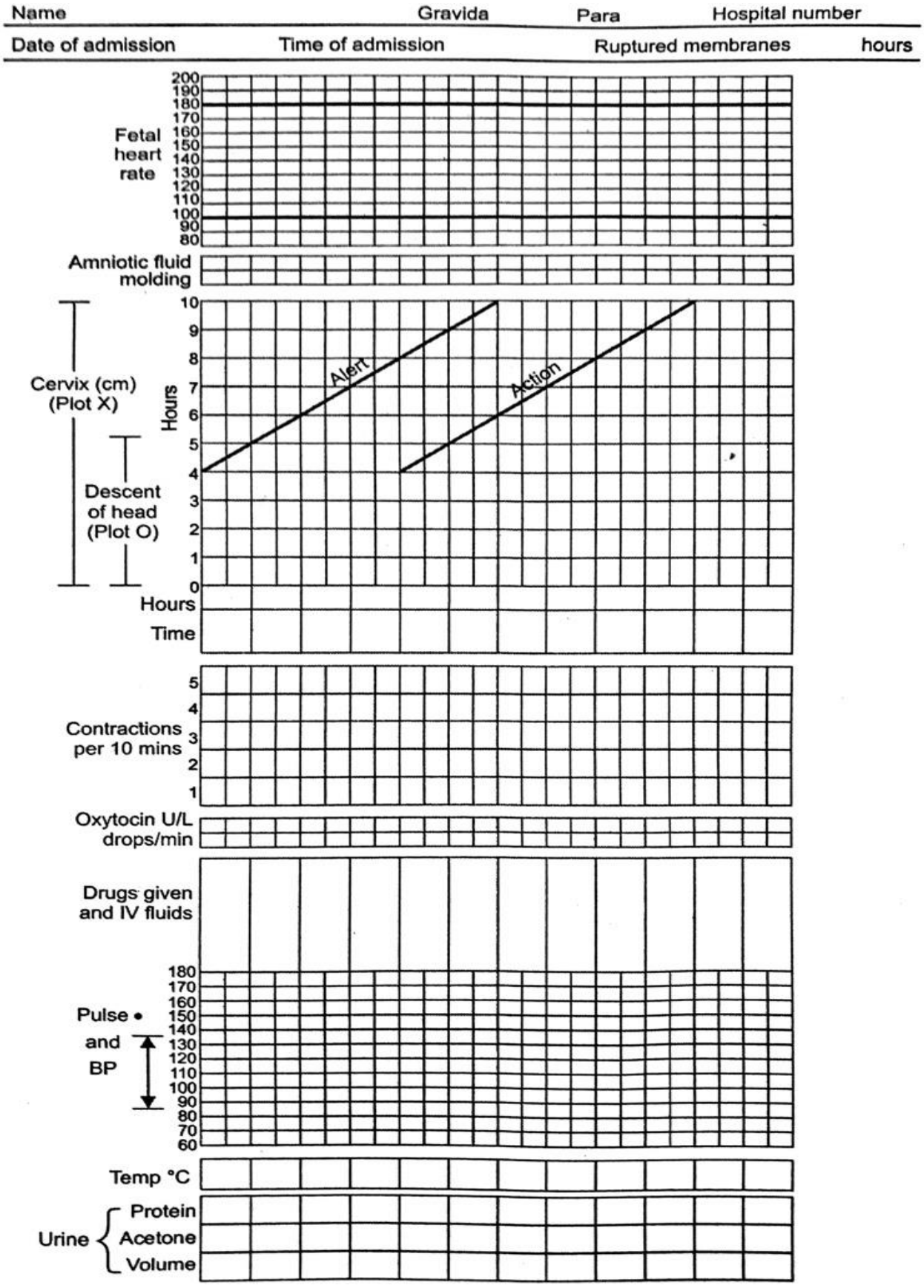
- ✓ If inadequate contractions, can perform a Vaginal exam and perform amniotomy. If liquor is clear and feta heart rate is normal – reassess after 2 hours of amniotomy and start Oxytocin Augmentation if no progress.

3. If adequate contractions are felt, perform a vaginal exam and assess fetal head position, fetal head descent and station, presence of caput formation and/or moulding.

- ✓ If descent has been adequate (station -1 and below) without caput or moulding; and position is Occipital Transverse or asynctillitic, rotation of the fetal head to direct OA or OP can be performed by an Obstetrician or experienced Registrar. Do not perform this manoeuvre if you have no prior experience.
- ✓ If there is a large caput or presence of moulding in direct OA or OP; and fully dilated cervix– reassess mode of delivery. Registrar on call or Obstetrician to make this decision; for either Instrumental Delivery (High Rotational Forceps/Vacuum) or fully dilated Caesarean Section (also has many risks)

4. If not fully dilated – prep for Caesarean Section for Obstructed Labour.

5. Inform Paediatrician


Name
Gravida
Para
Hospital number
Date of admission
Time of admission
Ruptured membranes
hours
Fetal heart rate
200
190
180
170
160
150
140
130
120
110
100
90
80
Amniotic fluid molding
Cervix (cm) (Plot X)
Descent of head (Plot O)
Hours
10
9
8
7
6
5
4
3
2
1
0
Alert
Action
Hours
Time
Contractions per 10 mins
5
4
3
2
1
Oxytocin U/L drops/min
Drugs given and IV fluids
Pulse • and BP
180
170
160
150
140
130
120
110
100
90
80
70
60
Temp °C
Urine
Protein
Acetone
Volume

Examples of Abnormal Prolonged Labours

- ✓ The following images show 2 examples of Abnormal Partographs whereby Obstructed Labour was not recognized resulting in sick babies and PPH.
- ✓ Both patients underwent Emergency Caesarean Sections in the end.
- ✓ Both cases show prolonged 1st stage where both the Alert and Action Lines were not met and acted upon.

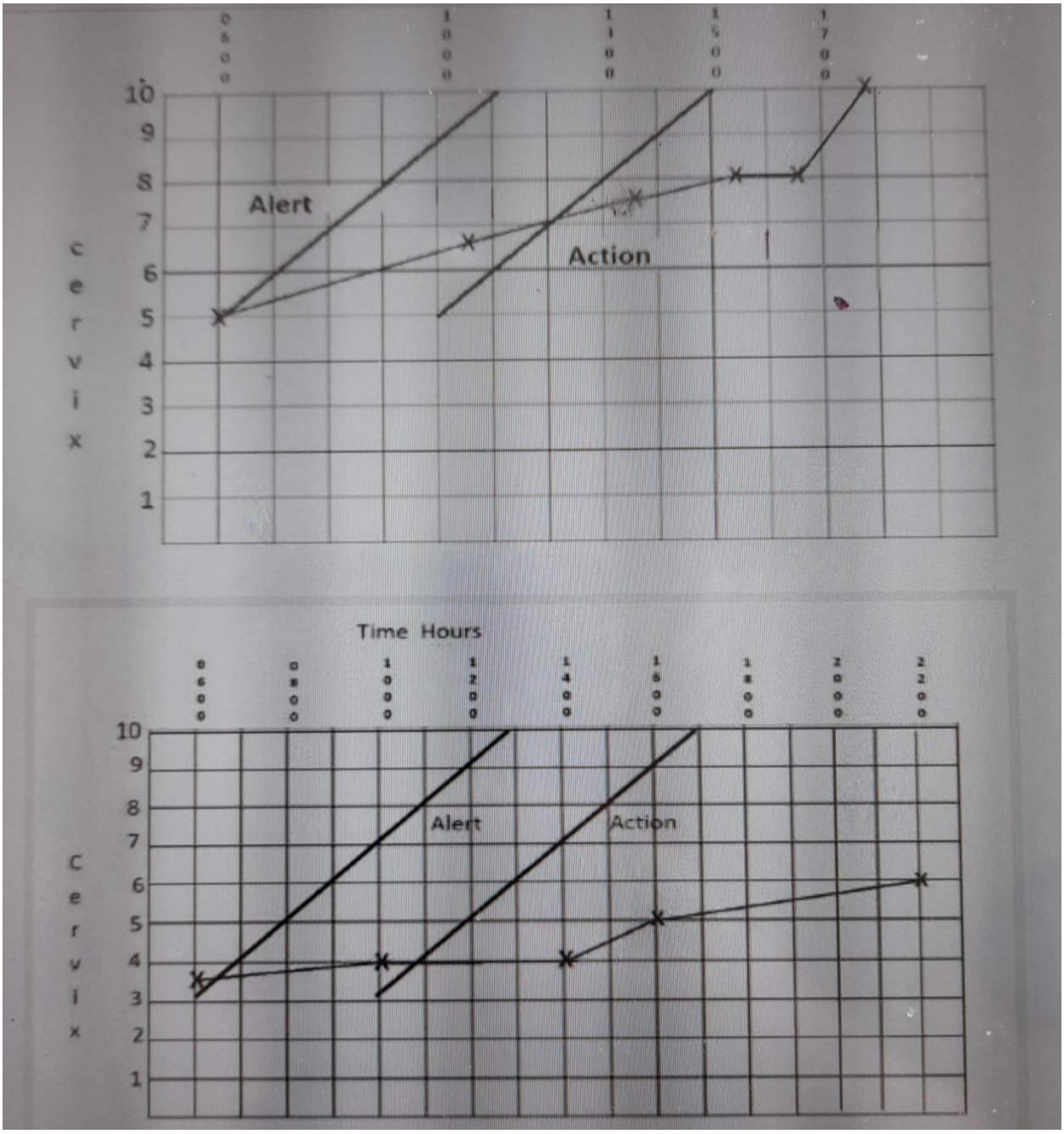


Figure 22: Abnormal Partogram Examples

Complications

Maternal

- ✓ Massive PPH
- ✓ Maternal Exhaustion and Anemia
- ✓ Maternal Pelvic Infections and Post Partum Sepsis
- ✓ Traumatic Experiences

Fetal/Neonatal

- ✓ Acidosis
- ✓ Fetal Lacerations
- ✓ Intracranial Bleeding
- ✓ Asphyxiation
- ✓ Convulsions secondary to Hypoxia and HIE
- ✓ Hypoglycemia
- ✓ Neonatal/Intrapartum Fetal Death

Note: IT IS IMPERATIVE THAT PARTOGRAMS ARE COMPLETED AND SLOW PROGRESS IN LABOUR RECOGNIZED AND ACTIONS TAKEN ON TIME IN ALL LABOUR WARDS IN SAMOA.

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2.5. MANAGEMENT OF PRETERM LABOUR

Purpose of Guideline

To establish a guidance for the management of Preterm Labour in Samoa

To identify risk factors and their management

Optimal Outcome

An alive and healthy preterm baby

The successful prevention of the occurrence of Preterm Labour

Who is Responsible?

All Obstetricians and Obstetric Registrars, all midwives and nurses working with pregnant moms and all Medical Officers in peripheral hospitals in Samoa

Clinical Pearls

- Preterm – Considered less than 37 weeks of gestation established by either sure dates or an Ultrasound Scan.
- Labour – The presence of regular contractions (felt by palpation or toco) accompanied by cervical changes on Vaginal Examination.
- Latent Phase – contractions (irregular or regular) with cervical dilatation less than 4cm
- Active/Established Labour – regular strong contractions (3 to 4 within a 10 minute window) where 1 contraction lasts more than 40 seconds with a cervical dilatation of 4cm and more.
- False Labor/Braxton Hicks Contractions – Irregular contractions (ie) contractions without a pattern that can be alleviated with simple pain relief (ie) Paracetamol.
    - There are no cervical changes

Risk Factors for Preterm Labour

- Previous Preterm Labour(s)
- Smoking
- Infection of any foci. The most common is a Urinary Tract Infection.
- Trauma
- Polyhydramnios
- Twin (or more) Pregnancy
- Congenital Abnormalities

Lung maturity has been studied to be established at/after 34 weeks of gestation; women presenting in labour before 37 weeks and after 34 weeks; can therefore allowed to progress with labour; without the use of tocolysis.

Tocolysis is done to give time to achieve the optimum use of steroids (48 hours) of fetal lung maturation.

Management

1. Determine gestation – If less than 34/40 (33 weeks and 6 days)

2. Determine if False Labour or Established Labour

3. Rule out any other cause of abdominal pain if these are not urerine contractions clinically and treat (ie) UTi, Appendicitis, Gastroenteritis, etc

4. If Established Labour – Take Bloods and start tocolysis

5. Start steroids (as per Guideline)

6. Take Mid Stream Urine

7. Admit to Antenatal Ward

8. Start antibiotics IV Ampicillin 1g 6 hourly

9. Daily Fetal Heart/CTGs

10. Order Ultrasouond Scan for Growth if not done recently

11. All treatment ceased after 48 hours.

12. Repeat rescue steroid dose if still at risk of preterm delivery within 7 days.

13. Counsel patient on likelihood of going into labour again when discharged.

14. Inform Paediatricians.

15. If presents to labour ward again before 37 weeks. Allow to progress with labour (ie) no tocolysis

Tocolytic Drugs (available in Samoa)

1. Nifedipine – 10mg every 30 minutes for maximum of 4 doses followed by 20mg PO

6 hourly (48 hours)

2. Salbutamol IV diluted Iv push every 30 minutes until no more contractions felt. Watch for tachycardia. Stop if Heartrate above 120.

3. Terbutaline/Rotodrine – not available in Samoa YET but is first line in majority of countries.

4. Magnesium Sulphate – Evidence has shown MgSO4 use in preterm deliveries to prevent the incidence of Cerebral Palsy (CP) in later life.

- Administer stat 4g in 100mls of NSaline and run over 20 minutes in cases less than 32 weeks of gestation where delivery is IMMINENT within the next 24 hours.

REFERENCES

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2.6 MANAGEMENT OF PRELABOUR PRETERM RUPTURE OF MEMBRANES (PPROM)

Purpose of Guideline

To identify risk factors in pregnancy and ways of prevention and management

Optimal Outcome

The prevention of PPROM in high risk patients

The early recognition of PPROM and early referral to main hospital

An alive and healthy neonate and mother

Who is Responsible?

All Obstetricians and Obstetric registrars, All midwives and nursing looking after pregnant mothers, all medical officers in peripheral hospitals in Samoa

Clinical Pearls

- ✓ PPROM – Rupture of membranes confirmed by a sterile speculum exam at gestations less than 37 weeks.
- ✓ Always rule out Infection – Group B Strep by performing a High Vaginal Swab during speculum examination
- ✓ Avoid Vaginal Examinations before speculum exam UNLESS the patient is complaining of having labour pains.
- ✓ Avoid multiple vaginal examinations thereafter if the patient is not in labour to prevent ascending infections causing chorioamnionitis and so forth.

Management

1. Take history and establish age of gestation

2. Assess by history and abdominal palpation if the patient is in labor

3. Take vital signs

4. Let the woman lie flat on the bed for 30 minutes. Can attach CTG machine at this time

5. Inform the on call registrar

6. Ask patient to lie in lithotomy

7. Assess the colour of liquor by looking at perineum and or pads being used.

8. Under sterile conditions – wash perineum and vaginal area with chlorhexidine, insert speculum until the cervix is fully viewed.

9. Take a vaginal swab and send for Microscopy Culture Sensitivity

10. IF no liquor is seen in the vaginal canal, ask the woman to cough and watch for drainage of liquor from the cervix to posterior fornix (Valsalva)

11. Document if negative or positive.

12. Also view the cervix for the presence of a cord, presence of any other discharges, presence of ectropion or cervicitis and assess if the cervix is open or not.

13. If cervix is open, remove speculum and perform a gentle digital exam to determine the dilatation. If closed, there is no need for a digital exam.

If the gestation 34+6 or less

1. Admit patient to Antenatal Ward

2. Counsel on diagnosis

3. Insert IV Luer and take bloods

4. Start steroids Dexamethasone 12mg IM stat and repeat in 12 hours

5. Ask the patient to keep pads and to inform stat if liquor turns green or bloody

6. Book for an Obstetric scan for growth, lie and Amniotic Fluid Index (AFI)

7. Start antibiotics straight away

Erythromycin 250mg BD and titrate upwards accordingly OR

IV Ampicillin 1g 6 hourly

8. After 48 hours, and woman has not gone into labour, there is no evidence of infection and all investigations completed – Can discharge patient home

Plan

1. Return ASAP if has any signs and symptoms of Infection – tender abdomen, green liquor on pad, fevers or decreased fetal movements

2. If all well, weekly to twice weekly reviews in High Risk Clinic where a bedside USS needs to be done in all visits to assess the liquor volume.

3. Follow vaginal swab done on admission and plan accordingly (See Guideline on preventing Neonatal Group B Strep Infection)

3. Erythromycin to continue until 36 weeks gestation

4. Book for Induction of Labour at 37 weeks

If also assessed and initially found to be in labour – manage as per Guideline on Preterm Labour.

If less than 32 weeks and in imminent delivery – Add Magnesium Sulphate as per protocol.

All preterm babies with PPROM should be referred to NICU when delivered.

If gestation is 35 weeks and above

1. Admit to Antenatal Ward to await events if not in labour

2. Allow to labour with re gular IV Ampicillin if found to be in active labour.

If PPROM unlikely from speculum examination and history

1. Can perform a bedside ultrasound scan to assess liquor volume

2. If normal liquor volume – reassure the patient and discharge home with advice to return ASAP if further episodes of PV discharge.

3. Give appropriate antibiotics/antifungals as presumptive treatment for discharge seen on Speculum Examination.

4. Book for review High Risk Clinic within 1 week.

2.7. MANAGEMENT OF TERM RUPTURE OF MEMBRANES (TPROM)/SPONTANEOUS RUPTURE OF MEMBRANES (SROM)

Purpose of Guideline

To establish a Guide on the identification and management of SROM

Optimal Outcome

A healthy neonate and mother after diagnosis of SROM

The successful delivery of an alive neonate after admission and Induction for SROM

Who is Responsible?

All midwives, nurses, Obstetricians and Obstetric registrars in Labour Wards and Antenatal clinics and wards in Samoa

Clinical Pearls

- ✓ Term PROM is rupture of membranes confirmed by a speculum examination at gestations after 37week
- ✓ 80% of patients will go into labour within 24 hours of Membrane Rupture and increases to 90% in 48 hours.

Management

1. On admission, manage as per Guideline on PPROM

2. If confirmed SROM, admit patient to await events

3. Start antibiotics after 18 hours of membrane rupture if has not laboured.

4. Plan for Induction of Labour after24 hours – oral misoprostol as per guideline

5. If patient not keen, can continue to await events a further 24 hours and induce the following day. Its important to counsel the patient on risk of ascending infection while awaiting events.

6. If however, patient is in active labour, await events in Labour ward and follow routine Labour Guidelines.

The presence of meconium on Speculum exam

1. Labour to be expedited

2. If in active labour – Synto augmentation provided there is no fetal distress

2.5mg Oxytocin in 500mls NSaline (grandmultip) or 5mg in 500mls NSaline (non grandmultips) and run according to Guideline

3. Prepare resuscitaire for possible neonatal resuscitation

4. Stop and assess for an alternative mode of delivery if there is fetal distress on CTG OR Instrumental Delivery to shorten the 2nd stage.

5. If not in labour – Admit and start Induction of Labour straight away

6. Monitor patient closely for any signs of fetal distress by regular CTGs (ie) 2 hourly – 4 hourly.

7. All neonates to be referred to the NICU after delivery.

PROM and Previous Caesarean Section

1. For Oxytocin Augmentation after 24 (or 48 if patient wishes to wait) hours as per Guideline.

2.8 MANAGEMENT OF MECONIUM STAINED LIQOUR

1. *Purpose of Guideline*

To provide evidence-based guidance to the management of a mother in labour with meconium stained liquor and facilitate a favourable delivery to avoid Meconium Aspiration Syndrome (MAS)

To equip Labour Ward Staff to prepare for efficient and safe neonatal resuscitation in an infant exposed to meconium

2. Optimal Outcome

A healthy neonate following meconium-stained liquor

3. *Responsibility*

Doctors, Midwives, Nurses, Paediatricians, Operating Theatre Staff

4*. Definitions*

- Meconium aspiration
- Meconium exposure
- Suctioning

5*. Key points*

- Any woman who have MSAF prior to the onset of labour should have a CTG and full assessment in the Labour Ward.
- If the amniotic fluid has been clear in labour and then becomes meconium stained, this may indicate fetal compromise and requires immediate attention and action.
- The birth should be attended by a neonatal RMO and Registrar competent in neonatal intubation and tracheal suctioning (NZRC 2016)

6. Best Practice Guidelines

In first and second stage of labour:

- Continuous electronic fetal heart rate monitoring is required
- All women admitted to District Hospitals with MSAF must be discussed with the TTMH On-Call Doctor and where appropriate, transferred to secondary care.
- There should be a clear handover from the attending Midwife/Nurses of the relevant antenatal and intrapartum factors so that a decision can be made.
- The decision to transfer should take into account the woman's parity and stage of labour, and the level of skill of available birth attendant.

- Suctioning 'on the perineum' of the neonates mouth and pharynx before birth of the shoulders is not recommended for routine practice.

7. Best Practice Actions

- *Immediate Care:*

- Clean the infant's mouth and nose of any visible meconium.

- Suctioning is not required if the neonate is term and vigorous at birth and the neonate can be dried and remain with the mother.

- A vigorous preterm neonate shall be assessed on the neonatal warmer under adequate light.

- A non-vigorous neonate at birth shall not be stimulated (including drying) and receive a laryngoscopy and tracheal suctioning under direct vision by a skilled clinician.

- The Paediatrics Team should be notified immediately if not done already.

- Tracheal suction must be carried out before any assisted or spontaneous respirations.

- Repeated intubation may cause further delays in resuscitation and is not routinely encouraged

- *Subsequent care*

- Routine observations including SpO2 every hour (NZRC, 2016)

- After the initial routine hourly observations, assess 3 hourly (until 12 hours of age), and document Respiratory rate, SpO2. heart rate, temperature.

- Report and respiratory distress (e.g. abnormalities in chest wall movements, pattern & effort), colour, activity/ tone /feeding to the Paediatrics/NICU team immediately

- If any observations are outside the normal parameters, notify Paediatrics and trash to NICU if not done already

- Explain the need for regular observations to the parents to promote understanding, reduce anxiety, and increase parental confidence

- All meconium exposed babies should have monitoring for at least 24 hours

Management of Symptomatic Infant

- Consider antibiotics if unwell

- Take blood cultures with full septic screen

- Do CXR if tachypnea or distress is noted
- Capillary or arterial blood gases
- Give oxygen to maintain SpO2 > 95% *(see Neonatal Resuscitation Guidelines)*

Admission to NICU:

Admit babies who:

- Had significant asphyxia > 10 minutes resuscitation to establish breathing
- Are symptomatic for MAS
- Have any significant risk factors for infection (maternal fever, prolonged ROM) (Wylie, J. Et al, 2015)

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2.9 MANAGEMENT OF OBSTETRIC ANAL SPHINCTER TEARS (OASIS)

Purpose of Guideline

To establish the early identification of OASIS

To identify measures used as prevention of OASIS

To establish the management of OASIS post repair and in subsequent pregnancies.

Optimal Outcome

The successful vaginal delivery of a newborn without any resultant 3rd or 4th degree tears.

The prevention of OASIS in all deliveries

The prompt and rapid identification and management of OASIS after a delivery

Who is Responsible?

Obstetrician and O&G Doctors, Medical Officers in peripheral Hospitals, Midwives in hospitals and in peripheral hospitals.

Practice Points

The anal sphincter is made up the external anal sphincter (EAS) and the internal anal sphincter (IAS). The EAS is under voluntary control as opposed to the IAS which is involuntary.

The anal sphincter can be involved as a complication of vaginal birth resulting in short and long term complications for the patient. These include fecal incontinence, formation of anovaginal fistulas, shame and loss of interest in intercourse as well as infection, bleeding, formation of haematomas and so forth.

Classifications/Grading

1st Degree Perineal Tear – Superficial Vaginal Wall Tear involving the mucosal layer only

2nd degree – Involvement of perineal muscles (deep to the mucosa)

3rd degree – Involvement of the External Anal Sphincter

3A – Less than 50% of the EAS involved

3B – More than 50% of the EAS involved

3C – Involvement of both the EAS and the IAS

4th degree – Break in the rectal mucosa or laceration traversing all layers of the vaginal canal and involving both anal sphincters and rectal mucosa.

Buttonhole Tear – Isolated recto-vaginal tear sparing the sphincters.

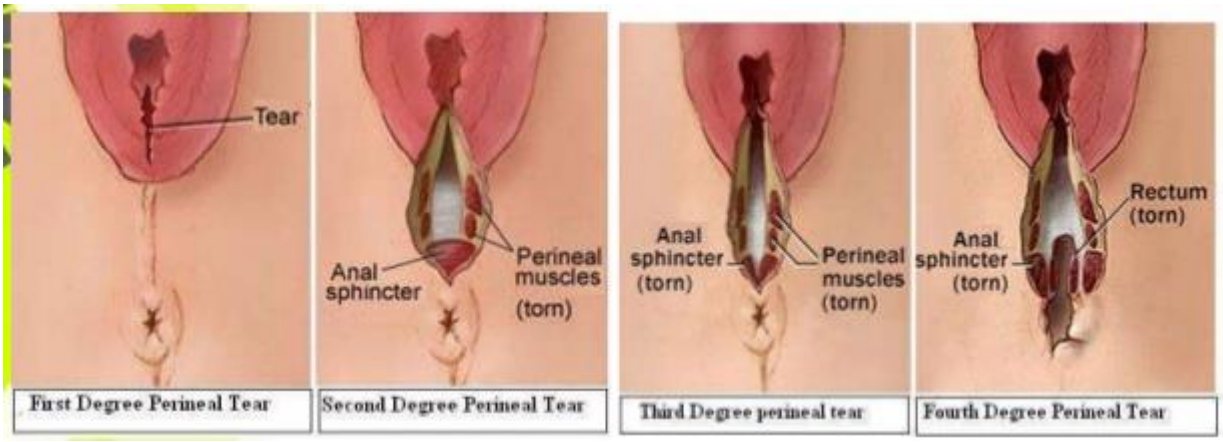

Figure 23: 3rd and 4th Degree Tears

Source: https://autoprac.com/perineal-tear

Diagnosis

- Always perform a PR exam in cases where there is perineal tearing during childbirth.
- Identification of 3rd and 4th Degree tears is by palpation of the sphincters using the pill-rolling technique.
- Pill Rolling – the act of holding something between the thumb and index fingers or other fingers (like rolling a pill). In Obstetrics, the thumb is plsced within the vaginal canal while at the same time, the index finger is performing the PR. Simultaneously bring 2 figers together and "roll" them towards the perineum to feel for deficiencies in the anal sphincters.
- An intact sphincter is felt as a thick bulk towards the end of the rectum.
- Once identified, inform the doctor on call for second opinion and further management.

Management

- Inform Registrar on call
- Place an IV Luer on patient's hand and take bloods for FBC and Group and Hold
- Inform and counsel patient and partner on the diagnosis and what is planned.
- Keep nil per oral
- Inform Theater and Anaesthetic Team.

- 3rd degree tears more than 3A and 4th degree tears should be repaired under sterile conditions in Theatre under direct visualisation, adequate lighting and adequate pain relief.
- Repair should be performed by an Obstetrician or experienced Registrar and/or midwife trained in repairing the OASIS.

Prevention

- Use of the Episiotomy
- Angle at which the Episiotomy is performed – 60 degrees from the midline
- Perineal Support during delivery of the head
- Allowing the perineum to stretch in periods of no contractions when the head has crowned
- Warm flannels to massage the perineum during second stage
- Some studies around perineal massage in the antenatal period.

Repair

- To be done in Theater by an Experienced Registrar or Obstetrician
- To be repaired using either the End to End Method for 3A 3B tears OR
- Overlapping Method for 3B and 3C tears
- Fourth Degree tears to be repaired by continuous rectal stitches first before approximation of the torn sphincter muscles.
- Sutures – PDS (polydioxanone) is generally recommended however in absence can use Vicryl Suture.

Post Repair

- IV Antibiotics
- Laxatives
- Fluid and Soft Diet
- Review of Repair for Breakdown the following Day

Follow up

- Review of Perineum 6 weeks post partum

- Review of Symptoms – Ask for Incontinence, Pain, Vaginal Discharge, Passage of stools through the vagina and vice versa. Also ask for Sexual Problems since having repair.

- Use of Endoanal Scan – at a time when available to Samoa

Management of Subsequent Pregnancies

- 3A– Can trial NVDs with an Episiotomy done early in the 2ns stage to avoid repeat OASIS

- 3B – If symptom free, aim for NVD with an episiotomy provided at 2ND stage. . However, if patient reports incontinence still, book for Elective Caesarean Section

- 3C and 4th degrees – Elective Caesarean Section

References

OASIS Course RANZCOG

2.10 MANAGEMENT OF WOMAN WITH RHEUMATIC HEART DISEASE IN LABOUR

Purpose of Guideline

This Guideline aims to help midwives, skilled birth attendants, maternal health workers and doctors manage the woman with Rheumatic Heart Disease in Labor.

Patients

Woman diagnosed with Rheumatic Heart Disease by Echocardiogram, with or without treatment

Action using Best Practice Principles

- All women diagnosed with Rheumatic Heart Disease should:
    - Be referred and followed up in the High Risk Clinic
    - Have evidence of an Echocardiogram performed
    - Have an assessment and documentation of her New York Health Assessment (NYHA) Status
    - Subsequently referred to the Medical Clinic/Team for co-management
    - Be planned to labour and deliver in Secondary/Tertiary Level Hospital (TTM and MT2 Hospital)
    - Have Registrar on Call present during delivery

Labour Management

- First Stage – Cervical Dilatation >3cm – 10cm
    - Admit to Labour Ward
    - Insert IV Luer and take bloods – FBC, Biochemistry and G&H
    - Inform Registrar on Call or Obstetrician
    - Consider offering pain Relief (see Guideline)
    - Restrict use of IV Fluids – increase oral fluid consumption
    - Keep accurate Fluid Balance (Total Fluid Input = 80 – 85 mls/hr and Total Urine Output of 0.5-1 ml/kg/hr)
    - IV Ampicillin 1g stat and Q6hrly until 48hrs after delivery
    - IV Gentamicin 240mg stat only
    - Observations 3-4 hourly
    - CTG tracings 3-4hrly (20 minute traces)
    - If unstable – DO NOT LEAVE PATIENT ALONE
    - Observations q30 minutes
    - Continuous CTG monitoring

- Second Stage – Fully dilated (10cm) – Delivery of neonate
    - For Assisted Delivery by Registrar on Call/Obstetrician

- Third Stage – delivery of baby to delivery of placenta
    - IV Furosemide 20mg push after delivery of placenta
    - DO NOT GIVE ERGOMETRINE/SYNTOMETRINE
    - Active 3rd Stage Management

- Post Partum
    - Continue IV Ampicillin X 24-48hrs
    - Strict Fluid Balance
    - Limit IV Fluids
    - Medical Team Review before discharge
    - Offer appropriate family planning methods in 6 weeks after delivery

2.11 MANAGEMENT OF DIABETES IN LABOUR

Purpose of Guideline

- To establish a Guide on the management of Diabetic moms in Labour

Optimal outcomes

- Minimization of obstetric intervention
- Maintenance of maternal normoglycaemia
- Healthy mother and healthy baby

Patient

- Women with gestational diabetes or pre-existing diabetes

Staff

- Midwives, nurses, doctors

Best Practice Principles

Women with diet-controlled diabetes:

- Blood glucose level (BSL) on admission then every 4 hours provided remains normal (between 4.0 – 7.0 mmol/L)
- If BSL abnormal, treat with insulin/dextrose as below
- BSL should be measured within 1 hour post delivery and daily prior discharge.

Women on insulin:

- Give light breakfast if being induced
- Insert IV cannula with 5% Dextrose, add 20 units of Actrapid plus 10mmols of KCL (potassium) then rate at 25mls/hr
- Check urine for ketones. Notify doctor if level is ≥ 3 +
  - Line A: Add Actrapid 20U to Normal saline 500ml – run at 25mls/hr (IU/hr)
  - Line B: 5% Dextrose 500ml – run at 50mls/hr
- Second cannula must be inserted if oxytocin required
- Monitor each specimen of urine for ketones. Notify doctor if levels ≥ 3+
- Monitor BSL hourly
- Titrate insulin infusion against Dextrose infusion to maintain BSL between 4.0-7.0 mmol/L
- Following third stage of labour, cease insulin infusion but continue Dextrose until the woman resumes eating
- Most women with insulin-controlled gestational diabetes will no longer require insulin postpartum.

- Women with pre-existing diabetes will need a reduced dose of insulin after birth.

- If labour commences spontaneously and the woman has had her usual dose of insulin, a Dextrose infusion will be required to prevent hypoglycaemia during labour.

2.12 MANAGEMENT OF A WOMAN WITH HYPERTENSION IN LABOUR

Purpose of Guideline

- To establish a Guide for the Management of women with Hypertensive Diseases in Labour

Optimal Outcome

- Successful delivery of a live healthy neonate and mother with Hypertension
- The prevention of adverse outcomes in a Hypertensive mother in Labour

Staff

- All midwives, doctors and Nurses in labour Wards

Gestational Hypertension

Labour Management

- 4 hourly Blood Pressure and Assessments
- Continue antihypertensive. Restrict IV Fluids

Manage as per Normal Labour Progress

Preeclampsia

All women with PET should

- receive their regular anti-hypertensives in labour
- be monitored closely. Blood Pressures and CTGs every 4 hours if Blood Pressures are <140/90.
- NOT receive SYNTOMETRINE/ERGOMETRINE after delivery.
- Continue Blood Pressure profiling after delivery.
    - Start antihypertensive medications if Blood Pressures remain above 140/90.
    - Refer Medical Team for review if Blood Pressures remain >160/110 despite maximum doses of dual therapy.
    - Repeat PET Bloods, do urine PCR and target Renal USS before referral.

- If Blood Pressures are > 140/90 but <160/110 measure Blood Pressure every 2 hours. Inform Registrar on Call or Obstetrician. Insert IV canulla and repeat PET bloods. Limit Fluids to oral fluids only. Aim to bring Blood Pressures to about 140/90 with Hydrallazine 5mg IV pushes every 30 minutes (maximum 4 doses). Continuous CTG monitoring.

- If Blood Pressures >160/110. See Management of Acute Severe Hypertension
- Continuous CTG. Inform on call Registrar or Obstetrician. Prepare for expedited delivery (instrumental or Caesarean Section)

Acute Severe Hypertension

Labour Management

- Inform on call Registrar/Obstetrician
- Keep on Oxygen
- Continuous CTG
- Take FBC/Group and Hold, Biochemistry and Coagulation Profile
- Limit IV Nsaline to 80mls/hour
- KNPO
- Hydrallazine 5mg IVP every 30 minutes (4 doses)
- Magnesium Sulphate 2 vials in 100mls and run over 20 minutes
- Insert IDC – take urinalysis and monitor urine output
- Perform VE to assess progress
- Registrar/Obstetrician to decide mode of delivery on arrival
    - Expedited Instrumental Delivery if in 2nd stage OR
    - Emergency Caesarean Section

Eclampsia

Labour Management

- Call for Help
- Helpers to Inform on call Registrar and Obstetrician
- Turn woman onto the side
- Administer Oxygen
- Insert IV Luer and give Magnesium Sulphate 2 vilas in 100mls NSaline run over 20 minutes.
- If cant get an IV – Give 5mg IM Diazepam stat OR
- 10mg IM Magnesium Sulphate (5mg each buttock) – 4 vials of MgSO4
- CTG or Fetal Doppler
- Perform VE to assess progress
- On call Registrar or Obstetrician to decide mode of delivery

- Expedited Instrumental Delivery if in 2nd stage OR
- Emergency Caesarean Section

CHAPTER 3: PERIOPERATIVE GUIDELINES

3.1 CAESAREAN SECTIONS AND CATEGORIZATIONS

Purpose of the Guideline

To establish a Guide on the Classification of Emergency Caesarean Sections for Samoa

Optimal Outcome

The successful delivery of an alive and healthy neonate and mother following an Emergency Caesarean Section

Responsibility

All Obstetricians and Obstetric Registrars, midwives and Nurses in all Labour Wards.

All Anaesthetists, OT nurses and OT STAFF

Definition

Abdominal delivery, commonly known as caesarean section is a surgical procedure that permits delivery of the infant through incisions in the abdominal and uterine wall.

These cases should be discussed with consultant and then the decision should be made. Patient should be made aware of the consequences of the operation.

Categories of Caesarean Sections

Categories 1-3 – Emergency Caesarean Sections
Category 4 – Elective Caesarean Section

1. Category 4 - Elective LSCS

Cat 4 Caesarean Sections are Caesarean Sections prebooked for a set_date and time for some Obstetric reasons; as below. Patients are counselled and informed in clinic and their names booked in the Operating Theater Book.

Every effort to be made to book for Caesarean Section at 39 weeks onwards. If for some absolute indication that the Caesarean Section should happen between 37 weeks and 39 weeks, administer steroids in the 48 hours prior.

Indications:

Maternal Indications:

- Placenta previa
- Pelvic tumors impacting over the lower segment
- Pelvic fracture
- 2 previous C/S
- Cervical or Ovarian malignancy
- Genital warts (HPV) – newly diagnosed at term

- Previous pelvic floor injury (3C perineal tears and 4th degree tears)
- Previous classical C/S
- Mothers with some disabilities rendering them unable to go through the second of labour (eg) quadriplegic, spinal conditions, hip (single or bilateral) surgeries, history of Cerebrovascular Disease/Events with remaining Neurological Deficits, known CPD (from Pelvimetry studies or assessment of type of pelvis) or in relation to maternal height and fetal size and weight.
- Failed Induction of Labour after having employed 1 or more methods without an improvement or any change in cervical findings.

Fetal Indications:

- Twin pregnancy (when twin1 non cephalic, discordant twins, monoamniotic twins)
- Malpresentation at term (footling breech and transverse lie)
- Congenital anomaly of fetus (Hydrocephalus, myelomeningocele etc)
- Macrosomia (>4.5kg) in comparison to previous fetal weights and parity.

2. Emergency Caesarean Sections

Category 1 Caesarean Section

This subtype of Emergency Caesarean Section entails that from when the Emergency is recognized and called to delivery of the neonate, the time span should be no more than 30 minutes. In such cases, there immediate threat to the life of the mother and/or baby if delivery is not within this time frame.

IMPORTANT – IN SITUATIONS WHERE A CATEGORY SECTION IS CALLED:

WRITTEN CONSENT IS NOT REQUIRED. RATHER, VERBAL CONSENT SUFFICES

DO NOT WAIT FOR A PORTER TO TRANSFER THE PATIENT TO THEATER. ON DUTY MIDWIVES AND REGISTRAR/OBSTERICIAN SHOULD USE THE LABOUR WARD BED TO PUSH THE PATIENT TO THE OPERATING THEATER THEMSELVES.

INFORM OT REGARDING WHAT HAS NOT BEEN GIVEN/DONE PRE-OPERATIVELY (eg) IDC not inserted, pre medications and antibiotics not given, preop bloods are not ready.

EVERY ATTEMPT SHOULD BE MADE FOR A BRIEF PREOP SURGICAL LIST TIME OT BEFORE INCISION/GENERAL ANAETHESIA HOWEVER, IS NOT MANDATORY

THE USUAL ANAESTHETIC EMPLOYED IS GENERAL ANAESTHESIA THEREFORE PAEDIATRICIANS SHOULD BE WARNED OF A FLAT NEONATE FROM THE ANAESTHETIC IN ADDITION TO AN ALREADY NEAR COMPROMISED STATE FROM THE OBSTETRIC EMERGENCY.

INCISION IS ADVISED TO START ONCE THE ENDOTRACHELA TUBE IS IN PLACE

Indications

- Severe pre Eclampsia/ eclampsia
- Severe Antepartum Hemorrhage with maternal and /or fetal signs of compromise
- Cord Prolapse with Fetal Decelerations and/or Bradycardia
- Hand Prolapse with Fetal Decelerations and/or Bradycardia
- Breech or Transverse Lie in Second Stage with no membranes
- Thick Meconium with Fetal Distress (Tachycardia, Late decelerations, decreased or no variability)
- Two or more previous Caesarean Sections with signs of Uterine Rupture or Wound Dehiscence
- Shoulder Dystocia with failing Obstetric maneuvers
- Signs of Obstructed Labour with Fetal Distress
- Signs of Obstructed Labour and/or with signs of uterine rupture

Category 2 Caesarean Section

These are Emergency Caesarean Sections are Categorised as such because there is a need for the delivery of the fetus; however at present there are no signs of imminent threat to the lives of the mother and/or fetus. These should ideally be prepared and done (delivery of the fetus) within an hour of recognizing and calling the Emergency.

Indications:

- Fetal Distress – Type 1 decelerations in presence of clear liquor and no other CTG changes or maternal risk factors.
- Chorioamnionitis
- Antepartum Hemorrhage (mild) with Reassuring Fetal and Maternal Status
- Breech or Transverse Lie in Active First Stage of Labour (with or without membranes)
- Cord Prolapse with Reassuring CTG
- Severe Pre-Eclampsia with Stable mom and CTG trace
- Two or more previous Caesarean Sections in early labour
- Brow and/or Mentum Posterior Face Presentation in Active 1st stage or in 2nd stage of labour

Category 3 Caesarean Section

This group is so called and are indicated for such cases whereby both mother and fetus are both stable but delivery of the baby cannot wait more than 8-12 to 24 hours. Such cases are booked (via the on call Anaesthetist and OT nurses) for the same day the Emergency is recognized however, can wait until an Operating Room is available or until appropriate time is achieved for a fasting state for the patient.

Indications

- Non Progress of Labour with Reassuring CTG and stable mother

- Rupture of Membranes with Meconium Liqour and Reassuring CTG and Stable mother
- Breech or Transverse Lie in Early Labour
- Non fasted Mother with a Macrosomic Baby in Labour
- Sick Mother in ICU Needing early Delivery to Stabilise her Medical Condition

IMPORTANT – AT ANY ONE TIME A CATEGORY 3 CAN BE UPGRADED TO A CATEGORY 2 OR 1 WHILE WAITING SHIFT TO THE OPERATING THEATER. THE SAME IS APPLIED TO CATEGORY 2 CASES.

INFORM THE OT TEAM WHEN THERE IS A CHANGE IN THE LEVEL OF THE EMERGENCY

THIS IS WHY IT IS IMPERATIVE THAT, PATIENTS ARE CONTINOUSLY MONITORED ONCE AN EMERGENCY IS CALLED

Caesarean Section on Personal Request

Extensive counselling of the mother should be thoroughly undertaken first outlining all risks there are to herself and her unborn child if she opts for an Elective Caesarean Section without undergoing a trail of Labor. These include surgical, anaesthetic, post-operative complications and death.

Decision for a C/S must always be discussed with the consultant on call.

Extreme Cases whereby Maternal Request can be Granted for Elective Caesarean Sections include:

- Previous Intrapartum IUDS – Offer Caesarean Section from 37 weeks depending on pervious pregnancy risk factors and findings). Give steroids prior to Caesarean Section if booked before 9 weeks.
- Previous Traumatic Births (eg) Previous Shoulder Dystocia – depending on current fetal weight, offer Caesarean Section from 40 weeks
- Incapacitating Symphyseal Pubic Diasthesis (SPD) in current pregnancy – Offer Caesarean Section from 39 weeks
- Elderly Mothers (>40 years) with Large Gap between last child birth and current pregnancy (>5 years) – Offer Caesarean Section from 40 weeks
- Major psychological trauma from a previous Birth – Mother should have a psychiatric assessment beforehand.

Calling for a Caesarean Section

Pre Operative Preparation

- Keep nil by mouth for at least 6-8 hours
- FBC, Group, Cross Match, Biochem if indicated
- Inform Anesthetist, Paediatric oncall , OT staff via the Supervising Nurse (PCC) and Midwife
  - Inform 2nd call
  - Meds: Maxolon 10mg IV, Zantac 50mg IV and Zinacef 1.5g IV
  - Shave and insert Foleys by sterile technique
  - Consent must be signed (Risks and complications should be discussed with patient before OT)

PROPHYLAXI ANTIBIOTICS FOR CAESAREAN SECTIONS

Old Rationale:
Antibiotics given after cord clamping to:
1. Prevent the masking of newborn positive culture results if they were exposed to antibiotics before birth
2. Prevent an increase in colonization or infection of fetus with antibiotic resistant organisms
3. To avoid the risk of severe fetal compromise in event of maternal anaphylaxis

However:
Evidence suggests that antibiotics given prior to skin incisions reduce the risk of Surgical Site Infection and ndometrititis by 50% (RANZCOG).
In these same trials, there was no observed rise in neonatal sepsis rates.

Accordingly:
1. Antibiotic prophylaxis should be given for all Caesarean Sections
2. Effective antibiotic prophylaxis is maximally observed if administered 30 minutes before Caesarean Section.
3. Narrow spectrum antibiotic effective against both gram positive and gram negative bacteria with some anaerobic properties is antibiotic of choice
4. First generation cephalosporin (eg) 2g IV Cephahzolin
5. Allergic to Penicillin – use Clindamycin 600mg IV and gentamicin 2mg/kg/IV (RANZCOG)
6. MRSA or at high risk of being colonized with MRSA, add Vancomycin 15mg/kg IV. This is at the discretion of the Consultant Obstetrician and the Medical/Infectious Disease experts (RANZCOG)

Current Practice in Samoa
1. Cefuroxime 1.5g is used pre-operatively

Recommendation
1. To make a switch to Cephazolin

2. This is also in line with the current Samoa National Antibiotic Guideline

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3.2 CONSENTING FOR A CAESAREAN SECTION

Purpose of Guideline

To enumerate risks and complications associated with Caesarean Sections

To define descriptors according to universal guidelines for use in Samoa

Optimal Outcome

A successful Caesarean Section with both mother and her baby well

A mother and her family completely understands all risks involved and all possible complications that may arise, and fully consent to these.

Responsibility

Obstetricians and Registrars in Obstetrics and Gynaecology Unit

The following Guideline has been formatted using the Royal College of Obstetricians and Gynaecologists (RCOG) Clinical Governance Advice 2009 on Consenting for an Obstetric Procedure. Statistical rates quoted are also derived from these same guidelines.

It is the expectation that these rates will change in the near future with more studies and researches; and the following guidelines to be adjusted according to these future changes.

Explaining Risks and/or Complications

- Very common 1/1 to 1/10 A person in family
- Common 1/10 to 1/100 A person in street
- Uncommon 1/100 to 1/1000 A person in village
- Rare 1/1000 to 1/10 000 A person in small town

Very rare Less than 1/10 000 A person in large town

1. Frequent risks

Maternal:

- Wound and Abdominal discomfort first few months after surgery (9/100)
- Increased risk of repeat Caesarean Section when VBAC attempted in subsequent pregnancy (1/4)
- Readmission to hospital (5/100)
- Hemorrhage (5/100)
- Infection (6/100)

Fetal:

- Lacerations (1-2/100)

2. Serious risks

Maternal:

- Emergency Hysterectomy (7-8/100)
- Ned for further surgery at a later date (eg) DnC (5/1000)
- Thromoembolic disease (4-16/10000)
- Bladder Injury (1/1000)
- Ureteric Injury 3/10000)
- Death (1/12000)

Future pregnancies:

- Increased risk of uterine rupture in subsequent pregnancies (2-7/1000)
- Increased risk of antepartum stillbirth (1-4/1000)
- Increased risk of placenta previa and accrete in subsequent pregnancies (4-8/1000)

Any extra procedures which may become necessary during the procedure

- Blood Transfusion
- Repair of damaged bowel or other viscera

- **NOTE**
- Women who are obese, who have significant pathology, who have had previous surgery or who have pre-existing medical conditions should be counseled and made to fully understand that all the above risks will be increased.
- All above complications are much increased for Intrapartum Caesarean Sections as compared to Elective Caesarean Sections (24/100 vs 16/100).
- Rates are also higher for Caesarean Sections performed at advanced dilatation or full dilatation as compared to early labour (33/100 vs 17/100)
- A Caesarean Section should only be advised when absolutely indicated. All risks discussed should be discussed in details with the patient and her support person before a final decision is made.

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3.3 POST-OP CARE AND CARE OF THE WOUND

Purpose of Guideline

To outline the proper care of a patient and the wound after Caesarean Section

To highlight the need for the prevention of VTE post op

Optimal Outcome

A healthy mother following a Caesarean birth

Responsibility

All Obstetricians, Obstetric registrars, nurses and midwives, OT staff and peripheral hospital staff looking after post Caesarean mothers.

Pain Relief

- Adequate pain relief post-op is important because a woman who is in severe pain does not recover well. Over sedation should also be avoied as it hinders early mobilization.
- Regimen in Practice
- Paracetamol 1g 4-6 hourly PO
- NSAIds (Ibuprofen 400-800mg 6-8 hourly). Other options used include Diclofenac tablets and Naprosyn tablets.
- Low dose and class opioids – Tramadol 50-100mg 8hrly.
- Low dose narcotics – Morphine (0.1mg/kg) Subcut 6-8 hourly or Pethidine intramuscular 50mg – 100mg depending on weight. These are ithin the immediate post-op period with a look at stopping after 24 hours once patients are fully mobile and able to tolerate pain with non-narcotics. The use of anti-emetics when needed is advised in conjunction with narcotics.

Gastrointestinal Function

- GI function is usually expected to return rapidly after Obstetrics procedures/surgery. Passing a bowel motion should be normal within 12 hours of surgery (WHO 2017).
- Uncomplicated procedures – Patient is encouraged to drink fluids and liquid diet immediately post-op with the addition of regular diet as tolerated.
- For complicated procedures (ie) with signs of infection or if the indication was Obstructed Labour or Uterine Rupture, it is best advised to wait until bowel sounds are present before initiating oral fluids. This equates to keeping the patient nil by mouth until assessment during ward rounds 24 hours later or the next morning.
- In cases of ileus (vomiting, distended abdomen, no or sluggish bowel sounds), confirm first with an abdominal XRay (erect and supine films) followed by: inserting a nasogastric tube, keeping the tube on free drain,

keeping the patient nil by mouth, starting IV fluids and assessment twice a day for signs of relief or worsening symptoms.

- Before discharge, ensure the patient has passed good bowel motions and is eating a regular diet

Bladder Care

- Early catheter removal reduces the risk of infection and encourages the patient to walk. If the urine is clear, remove in 8 hours or after 1 post-op night. If not, it is best to leave the catheter in place until it clears.
- Leave the catheter in place for up to 48 hours in cases of uterine rupture, obstructed labour and massive perineal edema.
- Prophylaxis against cystitis (if not on any antibiotics) – Nitrofurantoin 100mg daily until catheter is removed.
- Suspected Bladder Injuries – Consider leaving the catheter in for up to 7 days.

Prevention of VTE

- Early mobilization enhances circulation, encourages deep breathing and stimulates the return of normal GI function
- The use of compression stockings post-op before active mobilization is greatly encouraged.
- Every post-op Obstetric patient should be started on anti-antithrombolytc agent (if not contraindicated)6-8 hours after surgery until they are fully mobilized. Clexane 0.5mg – 1mg per kg stat and daily is the recommended (and has been the practice) agent of choice**.**

Dressing and Wound Care

- Because of the high rates of Infection in the local setting, the following has been the practice and is recommended to remain the standard of practice.
- Keep the dressing on the wound for maximum of 3 days post-op to protect against infection while the wound undergoes re-epithelialization. Thereafter, one is not needed.
- If blood or fluid leaks through immediately post-op, do not remove dressing but rather re-enforce it. Draw on the dressing the area of leak then compare and monitor every 3 to 4 hours. If bleeding increases or if the stain covers up to half of the dressing, remove the dressing and inspect for the cause of bleeding or leaking. Replace with another sterile dressing. Use sterile technique.
- The wound should be clean and dry without evidence of infection or seroma before the patient is discharged from the hospital.
- All post-op women should be discharged with instructions on how to care for their wound, betadine solution or other (alcohol based solution) for use to clean and care for their wound at home

- For non absorbable skin sutures, remove all on Day 5 post op. However, in women who are Obese with large pendulous abdomen, it is advised to remove all stitches on Day 10 post op to avoid dehiscence and prevent infection.

Antibiotics

- Routinely, IV antibiotics are continued for 24 hours post-op then switched to oral formulations. Because of the high rates of post-partum infections we experience, it is therefore the practice to continue oral antibiotics up to 7 days when discharged; inclusive of IV and oral doses given as an inpatient.
- In addition, because of the high rates of resistance to Penicillin in Samoa, the practice since 2016 and has worked so far (however no yet audited) is the use of IV Zinacef (Cefuroxime) in the first 24 hours followed by oral Cefaclor. This will cover for any ascending infections as well that cause endometritis and pelvic infections.

Follow up

All post op patients should be discharged with a Discharge Summary

All post-op patients should be booked for a wound review within 2 weeks in our Wound Clinic.

References:

1. Managing Complications in Pregnancy and Childbirth. A guide for midwives and doctors (2017). World Health Organisation

CHAPTER 4: OBSTETRIC EMERGENCIES

4.1 CARDIAC ARREST IN PREGNANCY

Purpose of Guideline

To facilitate effective resuscitation of a pregnant mother in Cardiac Arrest
To establish successful emergency codes and response pathways during resuscitation of a pregnant mother
To establish Cardiac Arrest Team(s) response and responsible in Cardiac Arrests of a pregnant mother
To facilitate effective assessment of causes of Cardiac Arrest and management

Who is Responsible?

All main hospital staff in all/any ward housing a pregnant woman
All District hospital staff
All first responders (FESA, Ambulance drivers, Paramedics)
All midwives, nurses, doctors Labour Ward, Maternity Ward and District hospitals
All anaesthetists, paediatricians, intensivists, Emergency Departments

NOTE:

- *Resuscitation of the Pregnant Mother follows ALS and ACLS Guidelines*
- *Left Lateral Turn 15-30 degrees to assist in effective CPR increases maternal survival*
- *Early involvement of Obstetrician ensures timely delivery of fetus to assist in resuscitation*

How to Identify a Collapsed Mother

1. Loss of Consciousness
2. Unresponsive to Questions, Sternal rub, painful stimuli etc
3. Pulseless
4. Not breathing, Snoring

CALL for Help

Manage Airway (Head Tilt, Chin Lift, Jaw Thrust) Apply Rebreathable Mask with 100% Oxygen Establish an advanced airway Add airway adjuncts (Guedel etc)	Turn onto left lateral (30 degrees) or apply wedge Start effective Chest Compressions 30:2 perpendicular to chest

Effective CPR every 2 minutes at rate of 30:2. Review rhythm every 2 minutes to assess if shockable or not.

Shockable: VF, pVT – Deliver first defib at 150KJ (or follow AED)

Non-Shockable: Asystole, PEA

Minimise to 5 seconds the duration of assessing the rhythm on the monitor and restarting chest compressions

Medications: Adrenaline 1mg every 3-5 minutes, Amiodarone 300mg then can repeat 150mg (Lidocaine is an alternative) - Timing of Medications is dependent on Rhythm

4 Ts

THROMBOSIS – ACS, MI, PE, AFE

TAMPONADE – suspect in cases of trauma (signs of triad not always evident)

TENSION PNEUMOTHORAX – main cause of PEA - decompress

TOXINS – can give antidotes

Calling off Resuscitation

1. Asystole for 20 minutes despite active CPR/Defibrillation/Resusciation
2. If thrombosis given, can continue up to 60-90 minutes of effective CPR

Post Resusciation Care

No ROSC – Family Counselling/ Conference and Debrief

- Arrange Mortuary
- Coroners Form if Cause of Arrest and Death Unknown
- Follow up ALL Investigations done during resuscitation
- Staff Debrief

ROSC – ICU care under Intensivists and Anaesthesits

- Family Counselling and Debriefs
- Care of Neonate
- Long Term Plan (Pregnancies, Family Planning etc)

C – 2 large bore IV luers, fluid resus according to guidelines

Take ABG (or VBG), FBC, Group and XMatch, Biochem including electrolytes and glucose, Cardiac Enzymes and Troponin

IMPORTANT

If there is no sign of ROSC (return of spontaneous circulation) after 4 minutes of effective CPR, PERIMORTEM CAESREAN SECTON SHOULD BE PERFORMED to aid in improving maternal survival AND to increase chances of a resuscitatable fetus.

This should be performed by an Obstetrician or Experienced Registrar. However if it is in the periphery and outside of a main referring hospital, a senior clinician with experience in resuscitation should perform

There is no value in performing an USS for fetal viability prior to performing a perimortem Caesarian Section.

The presence of a Paediatrician/Neonatologist to perform fetal resuscitation is mandatory. However, in cases of cardiac arrest in the periphery, the senior medical officer and an experienced midwife or registered nurse with experience in NICU should be on hand to carry this out.

4HS

HYPOXIA – Recheck Airway if Effective Maneuvers and Tube Placement and Ventilation Delivered.

HYPOVOLAEMIA – Caused by Hemorrhage an evident as PEA. Stop Hemorrhage and restore intravascular volume with fluids and blood products

HYPERKALAEMIA, hypokalaemia, hypocalcaemia, acidaemia and other metabolic disorders are detected by biochemical tests or suggested by the patient's medical history (e.g. renal failure). Give IV calcium chloride in the presence of hyperkalaemia, hypocalcaemia and calcium channel-blocker overdose.

HYPOTHERMIA – suspect based on history (eg drowning)

IMPORTANT

TEM LEADER - ANYONE CAN ASSUME THE ROLE OF THE LEADER. THE LEADER USUALLY STANDS BACK AND ASSUMES A HELICOPTER VIEW OF THE SITUATION.

DOCUMENTATION – ANYONE SHOULD ALSO ASSUME THE ROLE OF THE SCRIBE. THIS PERSON DOCUMENTS ALL TREATMENT GIVEN, TIMING OF TREATMENT, VITALS SIGNS AND TIMING AND SO FORTH.

TEAM EFFORT – EVERYONE WITH A ROLE TO BE CLEAR AND CONCISE AND LOUD IN LETTING THE TEAM KNOW WHAT THEY ARE DOING

Reversible Causes

In Pregnancy

1. Pulmonary Embolism
2. Amniotic Fluid Embolism
3. Shock secondary to Hemorrhage
4. Others – Anaphylaxis, Post Ictal Phase Eclampsia, Acute Coronary Syndrome.

Perimortem Caesarean Section

Kits

- Blade
- Betadine
- To be available in all areas of any referral hospital where pregnant women are seen. These include Emergency Department, OPED/APCC, ICU, Labor Wards, Antenatal Wards and Operating Theaters.

Indication

- Ineffective resuscitation of a pregnant mother more than 20 weeks pregnant afer 4 minutes of Effective Cardiopulmonary Resuscitation.
- To be performed by an O&G Registrar with skills to perform a Caesarean Section or in areas where there are no O&G specialists (peripheral hospitals), a Senior Medical Officer.
- Performing an Ultrasound Scan is not indicated prior to performig a perimortem Caesarean Section
- Absolute care should be taken to counsel relatives regarding the procedure and its indication. This can be done by a medical personnel involved in the resuscitation process; rather than the surgeon performing it. However, consent is not required.

References:

1. https://www.ahajournals.org/doi/10.1161
2. https://www.resus.org.uk/library/2015-resuscitation-guidelines/guidelines-adult-advanced-life-support
3. https://www.uptodate.com/contents/advanced-cardiac-life-support-acls-in-adults

4.2 CORD PROLAPSE

Purpose of Guideline

To help facilitate all skilled birth attendants in successfully delivering healthy babies diagnosed in any maternity facility with a Cord Prolapse

Definition

Cord Prolapse is when the baby's cord is felt before the presenting fetal part either within the vagina, outside of the introitus or behind the cervix; at a viable gestation.

Women at Risk

- Ruptured Membranes – in labour or not in labour
- Malpresentations
- Polyhydramnios
- Uterine Anatomical Variants – Bicornuate uterus etc

Best Practice Principles

- All women diagnosed with Polyhydramnios at Term (Single Deepest Pocket by scan > 10cm or Total Amniotic fluid Index >40) should deliver in TTM or MT2
- All women with known uterine anatomical variants should be referred and followed up in the High Risk Clinic. All women should have a delivery plan.
- All women with malpresentations after 36 weeks should be referred to the High Risk Clinic
- All women with suspected Rupture of Membranes at any gestation should be discussed with the Registrar on Call or Obstetrician and arrange for transfer to Labour Ward; accompanied by a Registered midwife.

Management in the Community

- Call for Help – all duty midwives/staff including Medical Officer for your hospital.
- Medical Officer of your hospital to call Registrar and/or Obstetrician on call in main hospital.
- DO NOT REMOVE HAND FROM VAGINA
- Support the presenting part – DO NOT HOLD OR PINCH OR PRESS THE CORD. Rather hand in the vagina should support the presenting part up towards the cervix
- Turn the patient on all fours – knee-chest position
- DO NOT INSERT and INDWELLING CATHETER
- Assess the dilatation of the Cervix with the same hand supporting the cord
- Feel for pulsation of the cord and Listen for fetal Heart via Doppler
- If cord is pulsating – baby is alive – proceed.

- If not fully dilated – proceed with protocols
- If fully dilated – assess other factors that may make a vaginal delivery unlikely. If none, facilitate safe delivery vaginally by skilled birth attendant
- If cord is not pulsating – Baby has demised therefore await normal vaginal delivery if safe for the mother 9after discussion with Registrar and Obstetrician on call)
- Arrange for Transfer to TTM or MT2 while NEVER REMOVING HAND FROM THE VAGINA and WOMAN IS ON ALL FOUR POSITION
- Insert IV Luer – Take FBC, Group and Hold
- If available, give salbutamol 0.5 mg IV slowly over 1 minute (and every 30 minutes) to reduce contractions; Consider administration of Nifedipine 20mg stat orally (if salbutamol not available)
- Counsel the mother and family regarding what is happening, what could happen and what the prognosis is for the baby.
- Transfer to main hospital by 2 registered midwives.

Management in TTM and MT2 Hospitals

- Call for Help – All duty midwives and include registrar and Obstetrician on call
- DO NOT REMOVE HAND FROM VAGINA
- Support the cord – DO NOT HOLD OR PINCH OR PRESS THE CORD. Rather hand in the vagina should support the cord up towards the cervix
- Turn the patient on all fours – knee-chest position
- DO NOT INSERT and INDWELLING CATHETER
- Assess the dilatation of the Cervix with the same hand supporting the cord
- Feel for pulsation of the cord and Listen for fetal Heart via Doppler
- If cord is pulsating – baby is alive – proceed.
- If cord is not pulsating – Baby has demised therefore await normal vaginal delivery if safe for the mother.
- Insert IV Luer – Take FBC, Group and Hold
- If unfavourable cervix – Prep for a Category 1 Emergency Caesarean Section with verbal consent. Inform Anesthetist on call, OT Team and Paediatrician on call.
- Councel the mother and family regarding what is happening, what could happen and what the prognosis is for the baby.

Registrar/Obstetrician on call can additionally;

- If cervix is fully dilated with a favourable station in a multip – can expedite delivery with a Ventouse or Forceps.

- If available, give salbutamol 0.5 mg IV slowly over 1 minute (and every 30 minutes) to reduce contractions; Consider administration of Nifedipine 20mg stat orally (if salbutamol not available)

4.3 BREECH IN LABOUR

Purpose of Guideline

To identify Breech in Labour and make timely delivery management safe for both mother and baby.

Optimal Outcome

The successful breech delivery of a live healthy neonate

The successful Delivery of Breech presentation baby via an Emergency Caesarean Section

A healthy mother

Who is Responsible?

All Doctors, Midwives and Nurses iin labour Ward. Paediatricians, Anaesthetists and OT Staff

Vaginal Breech Delivery

Confirm with ultrasound (labour ward)

Review history (risk factors such as placenta praevia, twins) full examination (including vaginal speculum and / or digital)

Continuous CTG monitoring until delivery (if mom prefers to trial vaginal birth)

If delivery not imminent, caesarean section to be arranged

Vaginal delivery should only be undertaken where

Delivery is Imminent

Senior Medical, Anaesthetic, Paediatric and midwifery staff have been called to attend

There is no absolute contraindication to vaginal birth

Frank or complete Breech

Indications for Caesarean Section

- Poor progress in spite of good contractions
- High station of presenting part
- Fetal Distress. Note that Meconium is at most times a sign of buttocks presentation
- All Footling Breeches
- Macrosomic Babies
- Small Pelvis
- Previous Caesarean Section for CPD

- Placenta Praevia
- Cord Prolapse if Membranes Rupture
- Hyper-extended Head (Star Gazing)
- In the presence of other complications
- Maternal Preference

Complications

Fetal complications of breech presentation include:

- Cord prolapse
- Birth trauma as a result of extended arm or head, incomplete dilatation of the cervix or cephalopelvic disproportion
- Asphyxia from cord prolapse, cord compression, placental detachment or arrested head;
- Damage to abdominal organs;
- Broken neck.
- Stuck Head

Indications for Vaginal Breech Delivery

- Favorable Bishop Score in 2nd stage (fully dilated, breech at perineum)
- Complete or frank breech (engaged)
- Fetus is not too large
- No previous caesarean section for cephalopelvic disproportion
- Flexed Buttocks.
- Maternal Preference and above points met
- No other complications

DELIVERY OF THE BREECH PRESENTATION DIAGNOSES IN LATE LABOUR

- The common method is Hands Off Approach
- Lithotomy position, clean the perineum and drape
- Catheterize the bladder
- Employ analgesia if needed
- Perform episiotomy and local analgesia

1. Breech born by maternal expulsive efforts up to the scapulae (Hands Off Approach)
2. After the knees have delivered, flex the knees by pressing on the popliteal fossa to deliver the legs.
3. Place a gauze/cloth over the breech and with the next contraction place hands on the baby's thighs and pull gently down towards the floor.
4. Rotate 90 degrees anticlockwise to deliver the anterior shoulder. Hooking a finger onto the cubital fossa and pulling the arm down over the baby's abdomen to deliver the anterior arm

5. Then rotate 180 degrees clockwise to deliver the posterior shoulder. Hook finger into cubital fossa to deliver the left arm.
6. Perform Mauriceau Smellie Veit Manouvre to deliver the aftercoming head.

DELIVERY OF BUTTOCKS AND LEGS

- Once the buttocks have entered the vagina and the cervix is fully dilated, tell the woman she can bear down with the contractions.
- If the **perineum is very tight**, perform an episiotomy.
- Let the buttocks deliver until the lower back and then the shoulder blades are seen
- Gently hold the thighs in one hand, but do not pull
- If the legs do not deliver spontaneously, deliver one leg at a time:
    - Push behind the knee to bend the leg
    - Grasp the ankle and deliver the foot and leg
    - Repeat for the other leg.

DO NOT PULL THE BABY

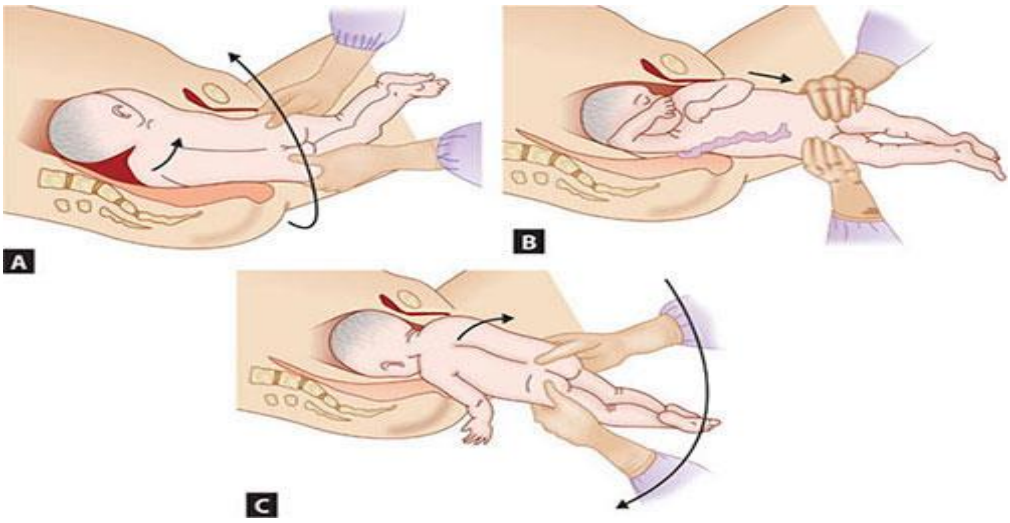
- Hold the baby as shown below. Do not hold the baby by the flanks or abdomen as this may cause kidney or liver damage. **Do not Pull**

DELIVERY OF THE ARMS

Use the Lovset's manouvre (Figure below):

- Hold the baby by the thgihs and turn half a circle, keeping the back uppermost and applying downward traction at the same time, so that the arm that was posterior becomes anterior and can be delivered under the pubic arch
- Assist delivery of the arm by placing one or two fingers on the upper part of the arm. Draw the arm down over the chest as the elbow is flexed, with the hand sweeping over the face.
- To deliver the second arm, turn the baby back half a circle, keeping the back uppermost and applying downward traction, and deliver the second arm in the same way under the pubic arch.

Lovset's manoeuvre

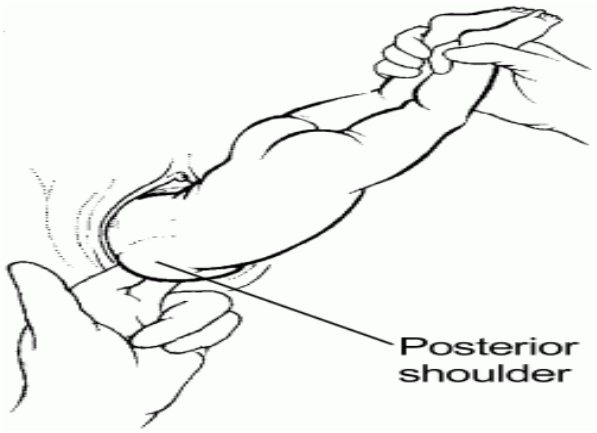


BABY'S BODY CANNOT BE TURNED

If the **baby's body cannot be turned to deliver the arm that is anterior first**, deliver the shoulder that is posterior:

- Hold and lift the baby up by the ankles
- Move the baby's chest towards the woman's inner leg. The shoulder that is posterior should deliver
- Deliver the arm and hand
- Lay the baby back down by the ankles. The shoulder that is anterior should now deliver
- Deliver the arm and hand.

Delivery of the shoulder that is posterior

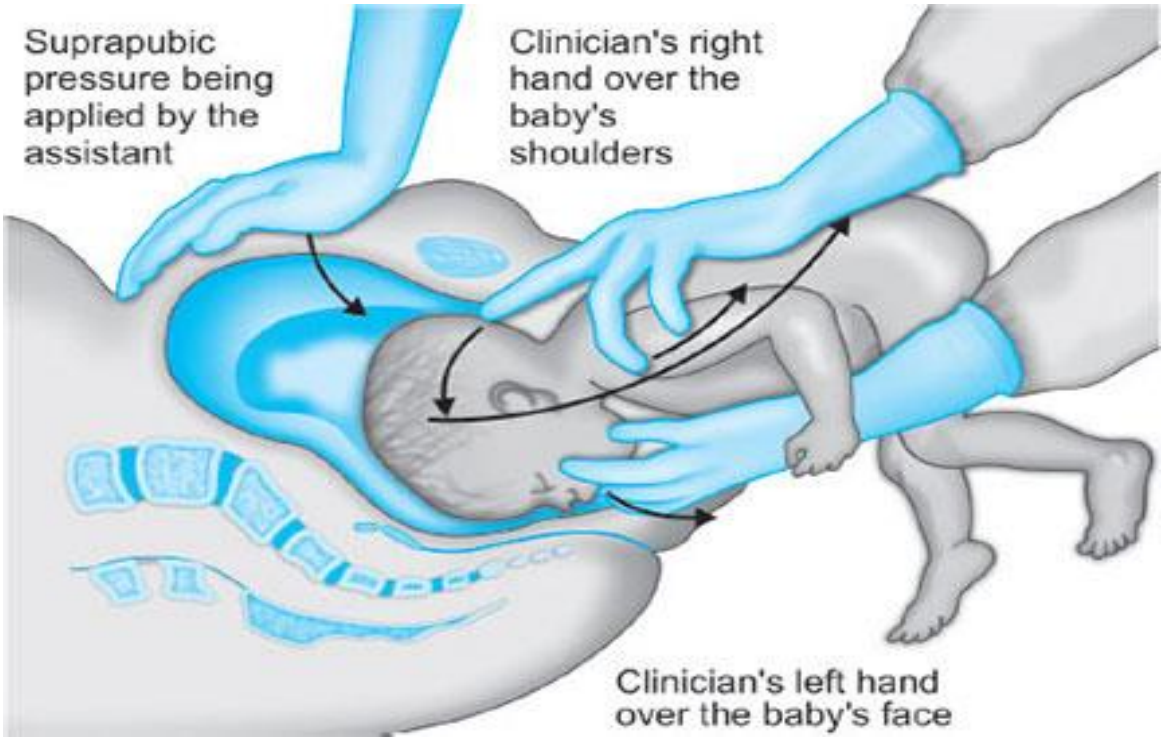


DELIVERY OF THE HEAD

Deliver the head by the Mauriceau Smellie Veit manouvre (Fig P-17) as follows:

- Lay the baby face down with the length of its body over your hand and arm
- Place the first and third fingers of this hand on the baby's cheekbones (malar aspects) and flex the head.
- Use the other hand to grasp the baby's shoulder.
- With two fingers of this hand, gently flex the baby's head towards the chest, while applying downward pressure on the cheeks to bring the baby's head down until the hairline is visible
- Pull gently to deliver the head
- Raise the baby, still astride the arm, until the mouth and nose are free.

The Mauriceau Smellie Veit manoeuvre



Entrapped (Stuck) Head) – to be performed by an experienced Obstetrician only

- Catheterize the bladder
- Have an assistant available to hold the baby while applying long forceps
- Be sure the cervix is fully dilated
- Wrap the baby's body in a cloth or towel and hold the baby up
- Place the left blade of the forceps
- Place the right blade and lock handles
- Use the forceps to flex the baby's head and deliver the head

- If **unable to use forceps**, apply firm pressure above the mother's pubic bone to flex the baby's head and push it through the pelvis.

FOOTLING BREECH

A footling breech baby should usually be delivered by caesarean section.

Single footling breech presentation, with one leg extended at hip and knee

- Limit vaginal delivery of a footling breech baby to:
  - Advanced labour with fully dilated cervix
  - Preterm baby (<28 weeks)
  - Delivery of additional baby(s) / twin 2 (footling).

- To deliver baby vaginally:
  - Grasp the baby's ankles with one hand;
  - If only one foot presents, insert a hand (wearing high-level disinfected gloves) into the vagina and gently pull the other foot down
  - Gently pull the baby downwards by the ankles
  - Deliver the baby until the buttocks are seen
  - Proceed with delivery of the arms

Breech Extraction

- Wearing high-level disinfected gloves, insert a hand into the uterus and grasp the baby's foot
- Hold the foot and pull it out through the vagina
- Exert traction on the foot until the buttocks are seen
- Proceed with delivery of the arms

Post Delivery

- Suction the baby's mouth and nose.
- Clamp and cut the cord
- Give oxytocin units IM within 1 minute of delivery and continue active management of the third stage
- Examine the woman carefully and repair any tears to cervix or vagina or repair episiotomy.

Reference

PEMNET Manual

4.4 SHOULDER DYSTOCIA

Purpose of Guideline

To establish the Importance of recognising a Shoulder Dystocia

To Outline the Emergency management of Shoulder Dystocia

Optimal Outcome

The timely delivery of a healthy neonate with little to no complications after Shoulder Dystocia

The prevention of Maternal Complications following a Shoulder Dystocia

The early recognition and emergency management of a case of Shoulder Dystocia in Labour

Background

Shoulder Dystocia is defines as vaginal delivery of a cephalic presenting neonate with the use of additional obstetric manoeuvres

The most common cause is impaction of the anterior shoulder under the pelvic symphystic or less commonly, impaction of the posterior shoulder on the sacral promontory.

Complications are various fetal and/or maternal in nature. These include, clavicular or humeral fractures, Brachial Plexus injuries and neonatal death. Maternal complications include PPH and vaginal and perineal lacerations.

It is important to assess for Risk Factors antenatally and during labour. These include:

- Antenatal – previous shoulder dystocia, macrosomia, GDM/Diabetic mothers, high maternal BMI; and
- Intrapartum – Prolonged 1st stage and/or prolonged 2nd stage (turtle sign),

In saying that, not all shoulder dystocias fit the above risk factors. Nearly half occur in normal sized babies and hence deemed an unpredictable labour occurrence.

Management

If shoulder dystocia is anticipated:

- Inform Registrar on Call and Obstetrician. Registrar on Call (and Obstetrician) to be present in labor ward during second stage of labour.
- Inform Paediatrician and/or OT and/or Anaesthetist to be aware of possible Emergencies needing OT r neonatatal resuscitation

Emergency Management

Prompt Recognition of:

- Difficulty of delivery of head and chin
- Failure to restitute

- Head remains tightly applied to the vulva and may retract (turtle sign)
- Failure to deliver shoulder with routine downward traction of the head

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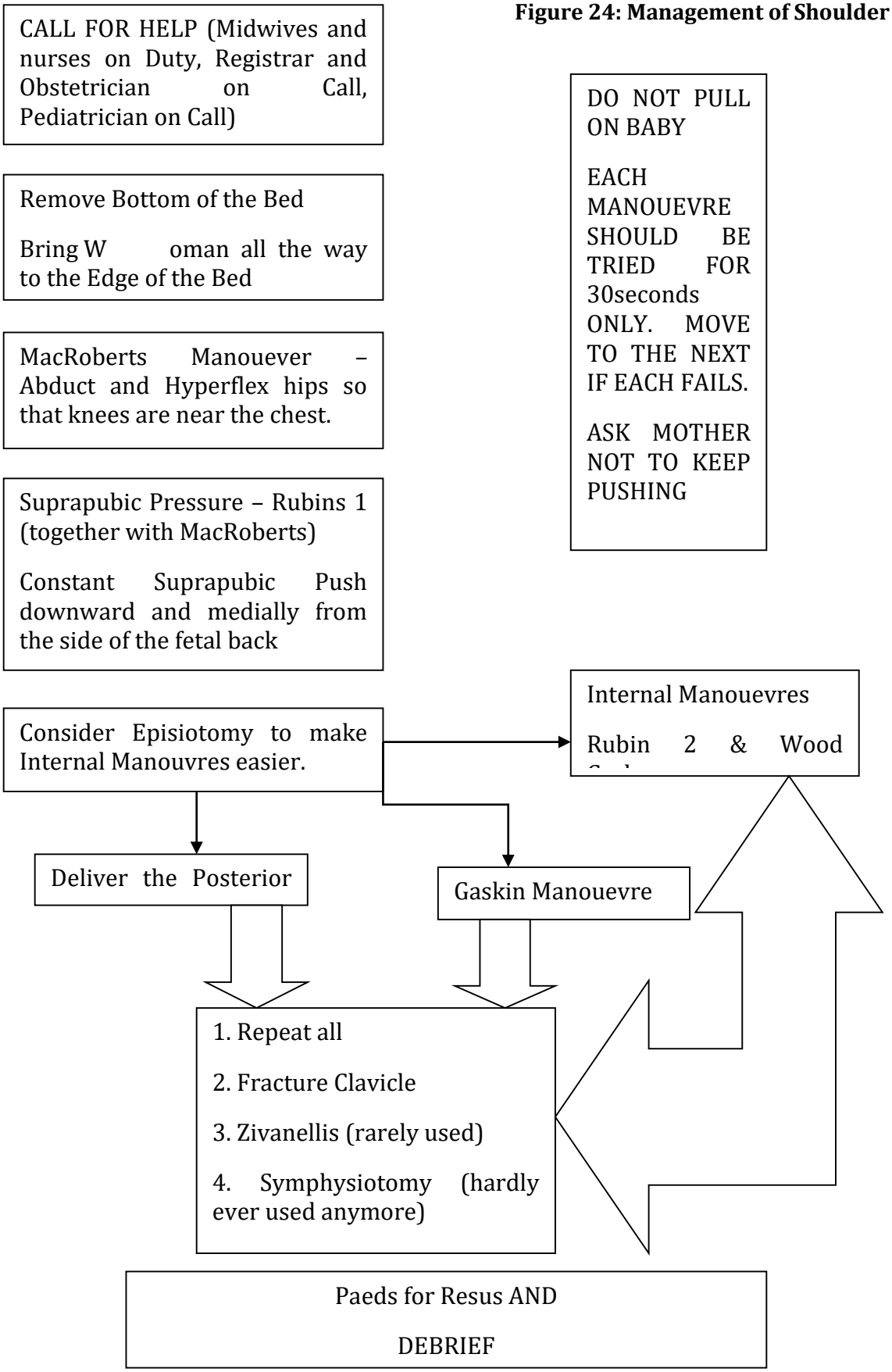
References:

1. **Cochrane Database 2005 Issue 4**; Copyright 2005 the Cochrane Collaboration. John Wiley & Sons, Ltd.
2. **Examination Obstetrics & Gynaecology. 2nd edition**. Judith Goh & Michael Flynn.
3. **IMPAC**. WHO 2000

Figure 24: Management of Shoulder Dystocia



4.5 POST PARTUM HEMORRHAGE

Optimal outcome

The rapid and effective management of PPH to minimize adverse effects to the woman.

Optimal Outcome

Effective Management of PPH

Successful Prevention of PPH

Successful Delivery of Mother with PPH

Who is Responsible?

All Doctors, Midwives in TTM, MT2 and in all District Hospitals and Labour Wards

Which Patients

- All women having blood loss of more than 500mls in the first 24 hours after birth; OR
- Any woman showing signs of haemodynamic compromise (eg hypotension, tachycardia, pale, restless) following birth.

Common causes of PPH

4 T's; - Tone - atonic uterus is the commonest cause of PPH

Trauma - lacerations in the genital tract or ruptured uterus

Tissue - retained placental tissues

Thrombin - coagulation disorders

Action using best practice principles

- Call for help and apply fundal massage if placenta is already delivered (remember the "Golden Hour")
- Do not leave the patient to seek help
- Ensure IV access(2 lines 14G or 16G) and start IV fluids 2 – 3 litres of NaCl or Hartmans
- Take blood for FBC, group and x-matching
- Give syntocinon 10 units im if not given already
- Add 40 units oxytocin in 1 litre of N/Saline (20 units if 500mls) and run at 40 drops
- per minute
- IV tranexamic Acid 1g stat
- Give nasal oxygen at 6 to 8 l/min

- Insert urinary catheter
- If uterus still not contracting then can use syntometrine 0.5/5mg im, or misoprostol 600 micrograms oral (or pr 800mcg if unconscious) and/ or do bimanual compression
- If bleeding continues while uterus is well contracted
- Examine the patient under good lights for lacerations, or retained placental tissues
- Prepare for transfusion if necessary. Use Blood Group "O" or same group (Packed Red Cells or whole blood)
- Deliver placenta (if not delivered) and check for completeness
- Prepare to transfer to operating theatre if still bleeding
- In OT: administer pain relief, perform US examination, evacuate uterus or repair
- genital tract.

Clinical pearsl

- PPH is the main cause of maternal mortality around the world
- Some women are significantly compromised with blood loss of much less than 500mls especially those with anaemia in pregnancy. These women should be treated as if they had a PPH.
- Active management of the third stage of labour as a routine preventative measure is associated with a 2-3 fold reduction in the incidence of PPH.
- The response time following IM syntometrine is 2 ½ minutes. The response time for ergometrine alone is 7 minutes.
- The uterotonic effect of syntometrine lasts for several hours compared with only ½ to 1 hour when syntocinon alone is used.
- Ergometrine is associated with nausea, vomiting and hypertension.
- Ergometrine should not be used in women with hypertension or cardiac diseases. However, the adverse effects of PPH must be weighed against the risks of not using syntometrine.
- Adequate analgesia is required for manipulative procedure, eg, manual removal of placenta

Identifying Risk Factors in the Antenatal Period

- Previous PPH
- Grandmultiparity
- Multiple Pregnancy
- Polyhyrdramnios
- Anaemia in pregnancy

Risk Factors in Labour

- Prolonged Labours
- Induced
- Instrumental Deliveries
- Shoulder Dystocias

- **ALL WOMEN WITH RISK FACTORS FOR PPH SHOULD BE REFERRED TO THE HIGH RISK CLINIC IN THE ANTENATAL PERIOD FOR CONSULTATION**
- **ALL WOMN SHOULD DELIVER IN A HOSPITAL WITH EASY ACCESS TO BLOOD PRODUCTS AND/OR OPERATING FACILITIES**
- **ALL RISK FACTORS NEED TO BE ADDRESSED IN THE ANTENATAL PERIOD AND THE COUPLE COUNSELLED REGARDING RISKS AND PLAN IN DELIVERY**
- **IN LABOUR – HAVE AN IV LUER ON ADMISSION AN SEND OFF FBC, GROUP & HOLD**

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4.6 UTERINE INVERSION

Optimal outcomes

Restoration of uterus to a normal position

Maintenance of maternal well-being

Patient

Women with uterine inversion following delivery

Who is Responsible

All doctors, midwives, nurses in all Labour Wards in Samoa

Best practice principles

- Doctor to be called immediately
- Uterus should be replaced immediately by midwife if possible. If placenta is still attached, the uterus should be replaced without removing the placenta
- Appropriate maternal resuscitation and transfer to operating theatre if still unable to replace uterus
- If immediate replacement is unsuccessful, manual replacement should be attempted under anaesthesia/sedation as available
- If manual replacement under anaesthesia is unsuccessful, then hydrostatic pressure should be used, using IV fluids and a rapid IV giving set. Packs should be used to occlude the vagina to increase hydrostatic pressure
- If hydrostatic pressure is unsuccessful, then a laparotomy should be performed. If surgical reversion is unsuccessful, hysterectomy may be required
- Once reversion has been achieved, the uterine position should be maintained manually and oxytocin infusion commenced
- Give IV antibiotics
- Always deliver placenta ONLY when fundus firmly contracting

Hazards/unwanted outcomes

- Postpartum haemorrhage
- Uterine trauma
- Hysterectomy
- Maternal death

NOTE

The uterus is easier to return to normal if this is attempted soon after the diagnosis is made.

The longer it remains inverted, the more difficult in becomes to replace due to oedema of the lower segment of the uterus.

4.7 NEONATAL RESUSCITATION

Purpose of Guideline

To have a Guide to be used in Resuscitation of Flat Newborns in all Labour Wards in Samoa

Optimal Outcome

The early identification of a neonate that needs resuscitation

The successful resuscitation of a neonate

Responsibility

All Doctors in Labour Wards, midwives and nurses

All Paediatricians

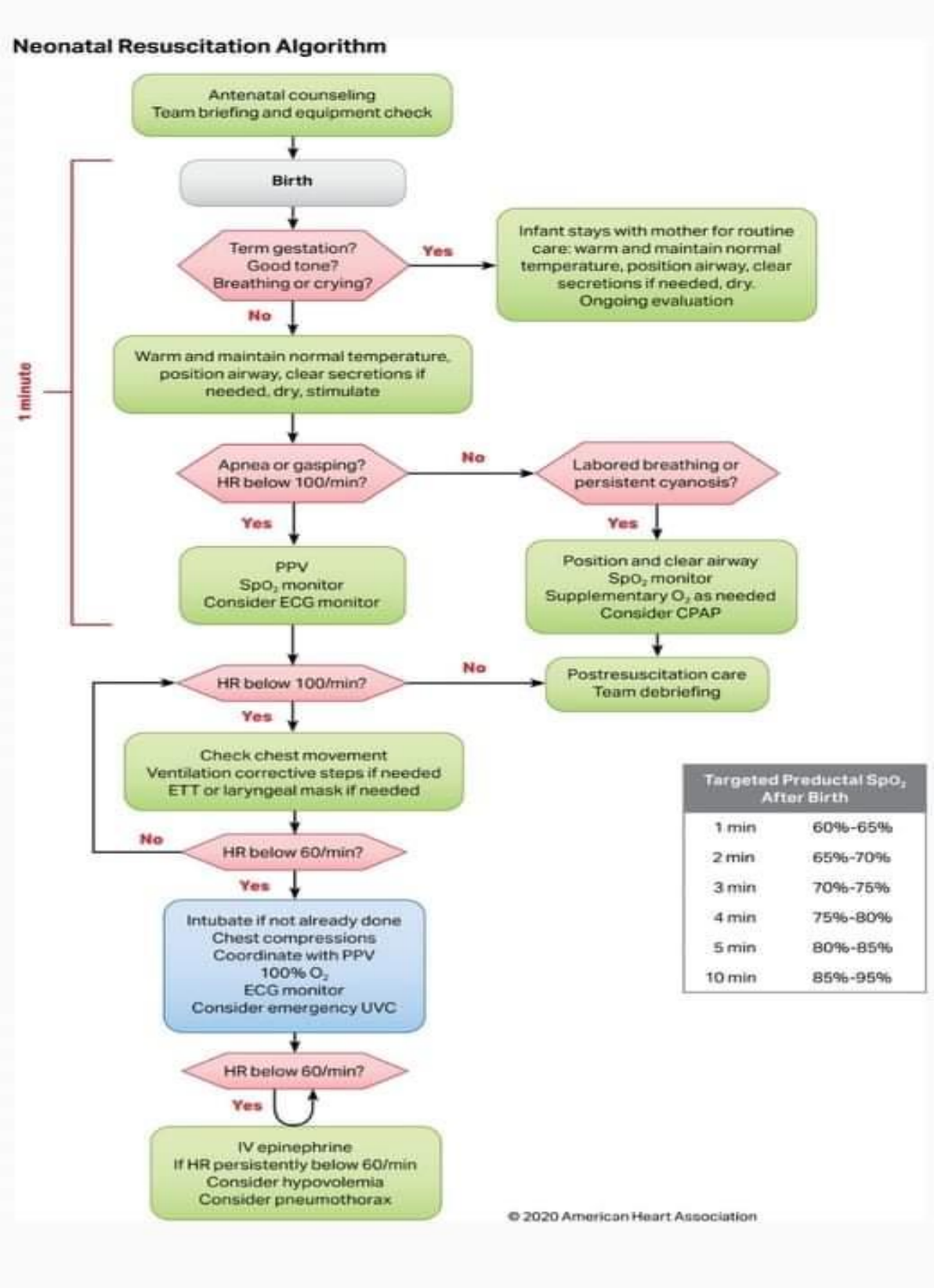

Figure25:NeonatalResusciation(AHA2020)

CHAPTER 5: SUPPORTING GUIDELINES

5.1 INTIMATE PARTNER VIOLENCE

Purpose of Guideline

1. To identify Women at Risk
2. To establish screening tools that are universally endorsed, non stigmatizing and protective of affected and high risk pregnant women.
3. To establish referral pathways for women identified to be affected and/or at risk of IPV.

Who is Responsible?

All doctors seeing women, GPs, midwives and nurses

Definition

'Intimate partner violence' includes any behaviour within an intimate relationship that causes physical, psychological (and emotional) or sexual harm to those in the relationship, including physical aggression, psychological abuse, forced intercourse & other forms of sexual coercion, various controlling behaviours (WHO 2013).

Practice Points

1. IPV is a significant public health problem associated with adverse health consequences for victims.
2. Pregnant women represent an important cohort of patients that should be routinely screened for IPV to ensure positive health for both mother and fetus.
3. Structured screening tools may provide better detection than the standard patient interview.
4. Screening should be continuous in very trimester and in the postnatal period

Identifying Factors

- adverse reproductive outcomes, including multiple unintended pregnancies and/or terminations, delay in seeking ANC, adverse birth outcomes, repeated STIs;
- unexplained or repeated genitourinary symptoms;
- symptoms of depression and anxiety;
- alcohol and other substance use;
- self-harm, suicidality, symptoms of depression and anxiety
- traumatic injury, particularly if repeated and with vague or implausible explanations
- having experienced previous acts of violence, estrangement from partner, threats to life, threats with a weapon, previous nonfatal strangulation, and partner access to a gun
- intrusive partner or husband present at consultations

Strategies to Screening for IPV

1. Screen for IPV in a private and safe setting with the woman alone and not with her partner, friends, family, or caregiver.
2. Use professional language. avoid questions that use stigmatizing terms such as "abuse," "rape," "battered," or "violence"
3. Offer a framing statement in the beginning to show that screening is done universally and not because IPV is suspected.
4. Inform patient about Confidentiality.
5. If the clinician ascertains that a patient is involved in a violent relationship, he or she should acknowledge the trauma and assess the immediate safety of the patient and her children while assisting the patient in the development of a safety plan. Do not try to force patients to accept assistance or secretly place information in her purse/bag because the perpetrator may find the material and increase aggression
6. Offer information about referral institutions
7. Refer (with consent) to partner agencies (SVSG, Faataua le Ola, Social Worker, etc) and/or the Police Department
8. Documentation - Accurate reflection of the patient's condition, including any pertinent photographs or body maps, should be included with direct and specific quotations.

Despite encountering violence, a patient may deny her circumstances based on fear of retaliation from her partner, fear of involvement with law enforcement and the justice system, embarrassment, or shame. Even if women do not reveal violence to their physicians, hearing validating messages and knowing that options and resources may be available could help prompt them to seek help on their own in the future.

RADAR

Remember to ask routinely about IPV as a matter of routine patient care.

Ask directly about violence with such questions as "At any time, has a partner hit, kicked, or otherwise hurt or frightened you?" Interview your patient in private at all times.

Document findings related to suspected intimate partner violence in the patient's chart.

Assess your patient's safety. Is it safe to return home? Find out if any weapons are kept in the house, if the children are in danger, and if the violence is escalating.

Review options with your patient. Know about the types of referral resources in your community (eg, shelters, support groups, legal advocates).

Summary

Step 1: Review Medical History for Warning Signs of Intimate Partner Violence
• Previous medical visits for injuries • History of abuse or assault • Repeated visits • Chronic pelvic pain, headaches, vaginitis, irritable bowel syndrome • History of depression, substance use, suicide attempts, anxiety
Step 2: Review Medical History for Pregnancy-related Factors
• Unintended pregnancy • Unhappiness about being pregnant • Young maternal age • Single marital status • Higher parity • Late entry into prenatal care/missed appointments • Substance use or abuse (tobacco, alcohol, drugs)
Step 3: Observe Woman's Behavior
• Flat affect • Fright, depression, anxiety • Post-traumatic stress disorder symptoms   ○ Dissociation, psychic numbing, startle responses • Overcompliance • Excessive distrust
Step 4: Observe Partner's Behavior
• Being overly solicitous • Answering questions for the patient • Being hostile or demanding • Never leaving the patient's side • Monitoring the woman's responses to questions
Step 5: Ask Directly
• Ask questions in private apart from male partner, family, or friends • Explain issues of confidentiality • Be aware of mandatory reporting laws in your state and inform the woman of them • Face-to-face talk more effective than written questionnaires • Ask caring and empathetic questions • Be prepared to hear your patient's answer

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2. https://www.who.int/violence_injury_prevention/publications/violence/IPV-SV.pdf?ua=1
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4. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2012/02/intimate-partner-violence
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5.2 NUTRITION IN PREGNANCY

Eating Healthy for Pregnant Women

Eat a variety for healthy foods every day from each of the 3 main foods below

1. Starchy Foods and whole grains
2. Fruits and Vegetables
3. Lean meat, seafood, chicken, eggs, nuts and seeds

- Limit intake of fatty (especially saturated fat), salty and sugary foods and drinks by;
- Preparing foods with little added fat, salt and sugar
- When shopping, reading labels and looking for foods that are lower in fats (especially saturated fats), salt and sugar.
- If using salt, choose iodized salt
- Drink plenty of fluids each day, especially water and reduced or low fat milk.
- It is best not to drink alcohol during pregnancy
- Keep a healthy weight by eating well and being physically active each day (unless advice not to be physically active)

Eat a Variety of Foods

You need a variety of healthy foods from the three food groups' everyday to provide your growing baby as well as to maintain your own health.

1. Starchy and Wholegrain, Breads

These provide carbohydrates (sugar and starch), fibre and nutrients such as B vitamins and minerals.

- Eat plenty of taro, yam, bread fruit, green bananas, rice and breads
- Choose local and varieties because they provide extra nutrients and fibre. They also help prevent constipation.

Choose ***at least six*** servings of carbohydrates (taro, bread fruit, green bananas, rice, and breads) each day.

2. Vegetables and Fruits

Vegetables and fruit provide carbohydrates (sugar and starch), fibre, vitamins and minerals and are low in fat

- Eat plenty of vegetables and fruit
- Enjoy fresh, local, well washed vegetables and fruit or frozen or canned varieties.
- Include vegetables and fruit of a variety of colours
- Limit juice and dried fruit intake because these foods have high sugar content

*Eat **at least six** servings per day of vegetables and fruit- **at least four** servings of vegetables and **two** servings of fruit. Only **one** serving of juice or **one** serving of dried fruit counts towards your total number of servings for the day*

3. Lean Meats, Chicken, Seafood, Eggs, Cooked Dried Beans, Peas and Lentils, Nuts and Seeds

These foods give protein, iron, zinc and other nutrients.

- Your body needs more iron and zinc during pregnancy
- Iron is important for healthy blood and for the development of the baby. Iron deficiency can occur during pregnancy. It is important that pregnant women have a good iron intake to help prevent iron deficiency.
- Iron in lean meats, chicken and seafood is well absorbed by the body. Eggs, cooked dried beans, peas and lentils, nut and seeds also contain iron, but the iron is not as easily absorbed.
- Include foods rich in Vitamin C with your meals to help absorb iron. Fresh vegetables and fruit, especially cooked taro leaves, tomatoes, oranges, pawpaw, mangoes and pineapple, are rich sources of vitamin c. This especially important for vegetarian and vegan women who may find it hard to get enough iron.
- Liver is a good source of iron, but eat no more than a small piece (100g) once a week.

- Make sure that vegetables, fruit meat, chicken and seafood are fresh and that cooked food is cooked well, served hot and eaten immediately after cooking.
- Seafood and eggs are also useful sources of iodine.
- Fish is an important source of long-chain polyunsaturated fatty acids, so its intake is recommended.
    - Some fish have higher levels of mercury, and high intakes of mercury are unsafe for your baby. Some longer-loved and larger fish can contain more mercury so consumption of these should be limited to three servings (150g per serving) per week. For example, uncanned wild-caught (not farmed) salmon, uncanned albacore tuna or mackerel, as well as kahawai, red cod, orange roughly and ling.

Choose ***at least two*** servings from this group each day.

Drink Plenty of Fluids Every Day

Use your thirst as a guide. Aim for nine cups of fluid each day.

Extra fluid may be needed during hot weather, after activity of if you are vomiting or constipated.

Water or reduced- or low-fat milk are the best choices.

Limit drinks containing caffeine, such as coffee, tea and cola drinks. Have no more than six cups of tea or instant coffee (or three 'single' espresso-type coffees or one 'double' espresso-type coffee) each day.

Be cautious about drinking herbal teas. Discuss this with your Doctor or Midwife

Tea should not be drink with meals. The tannins in tea mean you will not absorb the iron in the meal as well as you could.

Limit soft drinks. Flavoured waters, fruit drinks, cordials and diet drinks as these are low in nutrients and may be high in sugar. Energy drinks or 'smart' drinks are not recommended as they may contain high levels of caffeine and other ingredients not recommended for pregnant women.

Choose and Prepare Foods Low in Fat, Salt and Sugar

The best way to meet your extra needs is to choose foods from the four food groups. These are good source of fibre, vitamins and minerals

When shopping, read labels and look for foods that are lower in fat (especially in saturated fat), salt and sugar. If using salt, choose iodised salt.

Cut down on your intake of fat (especially saturated fat), salt and sugar by:

- Choosing polyunsaturated or monounsaturated margarine (fortified with vitamin D) rather than butter or dripping, and spreading margarine thinly
- Choosing foods rich in polysaturated fat and omega-3, including green leafy vegetables, nuts and seeds, oily fish (canned tuna, sardines, salmon or mackerel; warehou, eel), and oils (soybean, canola, flaxseed and walnut oils)
- Choosing lean meats – trim off the fat, skim fat off stews, remove skin from chicken after cooking, skim fat off the top of boil-ups and eat more grilled, boiled or steamed fish
- Reducing intake of sausages or processed meats, which can high in fat – if eating these foods, grill rather than fry them and always heat until piping hot then serve them hot to reduce the risk of illness such as listeria .
- As often as possible when cooking, choosing to grill, steam, microwave, boil or bake foods without adding fat
- Eating meals without adding extra salt
- Choosing foods with no added sugar.
  Many fast foods, takeaways and processed snacks are high in fat, salt and/or sugar. These include such foods as fish and chips, fried chicken, hamburgers, pies, chocolate bars, muesli bars, chippies, lollies, fruit leathers, cordials and soft/fizzy drinks. Limit intake of these foods and drinks. Only consider eating foods such as fried chicken, hamburgers and pies if they have just been made, are well cooked and are served piping hot.
  Examples of Low Fat, Salt and Sugar – include vegetables




Eat and Keep Active for a Steady Weight Gain

A healthy weight gain during pregnancy is best for you and your baby.

While healthy is no exact healthy weight gain, thin women may need to gain more weight and overweight women less. Talk to your Doctor or Midwife if you are concerned about your weight gain

The weight you gain during pregnancy goes to the baby but also results from:

- The growth of the placenta and the uterus
- Fluid around the baby

- Breasts getting bigger for breastfeeding
- More blood being made
- Fat stories, which will be needed as energy for breastfeeding

In early pregnancy, your energy /kilojoule or calorie) needs increase by small amount. You can expect to eat more food as the pregnancy progresses, but this does not mean you need to 'eat for two'. A good appetite and a steady weight gain – especially after the first three months – will usually mean you are eating enough.

Dieting during pregnancy is not recommended as it may result in a smaller and less healthy baby, and it could also affect your health.

Snack Ideas

- **Sandwiches** – different fillings such as banana, yeast extract spread, cheese, baked beans, jam or peanut butter. Try a variety of bases, for example, wholegrain bread rolls, bread, crackers, rice cakes, , muffins and baked bread fingers.
- **Vegetable sticks** – keep these in the fridge. Serve with plain unsweetened yoghurt or peanut butter.
- **Fruit** – try fresh, canned (unsweetened). Frozen or dried, served whole, cut up with yoghurt or in an egg-free smoothie.
- **Cereal** – choose cereals low in fat and sugar, for example, porridge, untoasted muesli, corn flakes, bran flakes and wheat biscuits.
- **Popcorn** – pop using a little oil or margarine or use a microwave. Go easy on the salt
- **Reduced- or low-fat milk products**- try yoghurt, cubes of cheese, reduced- or low-fat milk and milk puddings, for example, creamed rice
- Egg free smoothie, freshly made





Keeping active is important

Being physically active each day can help you avoid putting on excess weight, strengthen your heart and lungs and give you the extra energy and strength needed

for the birth. Unless your Doctor or Midwife advises otherwise, aim for at least 30 minutes of moderate physical activity on most, if not all, days of the week

Choose activities you enjoy that match you level of fitness. Suitable activities include brisk walking, swimming, aqua-jogging or any activity that is comfortable for you and leaves you with enough breath to hold a conversation.

Wear suitable clothes when being physically active, for example, a good support bra, loose clothing and supportive footwear.

Take breaks for a drink, food or a rest if you need to.

Contact sports and vigorous physical activity is not recommended. Avoid physical activity in extremely hot weather.

Don't start a new sport during pregnancy.

You may need more rest. Listen to your body. If you are, rest.

Food Safety in Pregnancy

In pregnancy, your immunity is lower so you and your unborn baby are more susceptible than usual to the kinds of food-borne illnesses that affect everyone. Bacteria like listeria, salmonella and campylobacter and pathogens like toxoplasma can cause food-borne illness. In pregnant women this can cause infection in you and your baby and miscarriage and stillbirth in extreme cases. Following some simple food safety steps, including avoiding some foods when you are pregnant, can prevent most food-borne illness and keep you both healthy. To keep food safe, all foods should be safely handed, stored and protected from cross-contamination. For example the bacteria transfer from raw chicken to cooked chicken if using the same chopping board for both.

You can keep food safe by:

- Keeping cooked foods and ready-to-eat foods separate from raw and unprocessed foods so there is no cross-contamination
- Washing your hands, utensils and chopping boards before preparing a different food, to avoid cross-contamination
- Cooking food thoroughly, especially meat, which should be cooked till the juices run clear
- Eating freshly cooked food as soon as possible after cooking
- Eating canned food immediately after opening the can
- Using cooked, prepared and canned food that has been stored in the fridge **within two days**

- Reheating cooked food thoroughly so that it is piping hot, that is, above 70◦C(take special care to heat food thoroughly and evenly when using a microwave oven by stirring frequently.) Do not reheat food more than once
- Washing and drying whole raw fruit and vegetables thoroughly
- Ensuring that food is eaten before the use-by date
- Cleaning the fridge regularly and checking that the temperature is between 2-4◦C
- Avoiding prepared ready-to-eat foods such as those bought from a supermarket deli or restaurant buffet unless they are heated until piping hot
- Not eating prepared ready-to-eat foods such as shop-bought sandwiches where you can't be certain of product age, storage conditions or staff food handing.

There are a number of foods which are considered high risk with regards to listeria and other bacterial contamination.

Eat Well to Cope with Pregnancy Symptoms

Nausea and vomiting are common during early pregnancy, and this first sign of being pregnant. This is referred to as morning sickness but may occur at any time of the day or night, especially when you are tired or hungry.

Eat as well as you can. Your extra nutrition needs are small during early pregnancy so nausea and vomiting rarely cause any nutritional problems. However, if vomiting is severe and you are unable to keep any food or fluids down, do seek advice from your LMC.

- Eat regularly, choosing smaller meals or snacks.
- Have fewer high-fat and spicy foods.
- Try a carbohydrate snack (such as a slice of dry toast, a cracker of a fruit) before getting out of bed in the morning.
- Drink small sips of flat lemonade or ginger ale.
- Try ginger or foods flavoured with ginger.
- Give yourself extra time in the morning. Ruching can make you feel worse.
- Try and rest more
- If cooking smells make you feel sick, cut down on cooking as you can Have someone else help with cooking.

Indigestion and heartburn

These are common towards the end of pregnancy.

- Eat regularly. Choosing smaller meals or snacks

- Have fewer high-fat and spicy foods
- Avoid drinking fluids with meals.
- If a certain food upsets you, leave it for the time being.
- Avoid lying down straight after a meal.
- Going for a walk may help.
- Raise the head of the bed or use extra pillows
- Check with your LMC before taking antacids

Alcohol is not recommended
Your baby is sensitive to alcohol. The full effects of alcohol on your baby are unknown

Alcohol, even in small amounts, will enter the baby's bloodstream, so whatever the mother drinks, the baby is having too. Alcohol could affect the development of your baby, especially of its brain.

Being smoke free is recommended
Smoking reduces the oxygen and food supplied to the baby and can slow down its growth and development.

Avoid smoky environments. Second-hand smoking (inhaling other peoples smoke)
Has the same effect as smoking.

Mothers who smoke generally have more premature births and more underweight babies. A small baby does not mean an easier birth.

If you want to quit smoking, seek advice from a Doctor, Nurse or Midwife

Seek advice about taking medication
Use medication only as advised by your LMC, as they know which medications are safe for you and your baby.

Taking any other sort of drugs, for example, illicit drugs or party pills, is not recommended because these can affect the baby's growth and development

Folic Acid

Folic acid is a vitamin that is needed for the formation of blood cells and new tissue. During pregnancy, your need for folic acid is higher. Lack of folic acid has been linked with neural

tube birth defects (NTDs) such as spina bifida. The risk of having a child with these birth defects is low and can be reduced by taking a folic acid tablet.

- ***Take a folic acid*** (0.8 mg) daily for four weeks (one month) before you might become pregnant through to 12 weeks (three month) after actually becoming pregnant. If you find out you are pregnant and haven't been taking a folic acid tablet, start taking tablets straight away and continue until the 12th week of your pregnancy. This recommended registered tablet can be purchased at pharmacies (or at a lower cost, when prescribed by your doctor or midwife)
- A high close folic acid tablet is also available for women with a higher risk of NTD pregnancy. Talk to your doctor or midwife about which folic acid tablet is best for you.
- Choose foods naturally high in folate or fortified with folic acid, such as:
  - Well-washed, fresh, raw or lightly cooked vegetable
  - Raw fruit, well-washed or peeled (citrus is especially high in folate)
  - Bread and cereals, especially wholegrain
  - Cooked dried beans and peas
  - Yeast extracts
  - Freshly cooked liver and kidney (no more than one serving a week)
  - Folic acid-fortified breakfast cereals, bread or fruit juice.

Remember: eat **at least six** servings of vegetables and fruit per day, aiming for **10** servings per day

Supplements

The only supplements recommended for all pregnant women folic acid-only tablets and iodine-only tablets, which can be purchased from pharmacies at a reduced cost with a prescription from your midwife or doctor.

Choosing a variety of foods from the four food groups will meet your other requirements, and supplements will not be necessary.

Using vitamin and mineral or herbal supplements always let your LMC know. It is best to only take supplements when recommended by your LMC or dietitian. Make sure they know you are pregnant

Iodine Deficiency

Iodine is an essential nutrient required in small amounts to support normal growth and development including normal brain development. It is important that unborn babies and infants receive enough iodine. Requirements for iodine increase during pregnancy and breastfeeding. Even with well balanced diet. It is difficult to get enough iodine from food alone.

Therefore pregnant and breastfeeding women are advised to choose foods that are important sources of iodine and to take a daily iodine-only tablet throughout their pregnancy and breastfeeding.

Important sources of iodine in foods include well cooked seafood's, milk eggs, some cereals, sea meal custard and fortified bread. If salt is used, choose iodised.

- Take one 0.150 milligram (mg)/150 microgram (mcg or) iodine-only tablet daily when pregnant and breastfeeding.
- The recommended registered tablet can be purchased at pharmacies (or at lower cost, when prescribed by your doctor or midwife).

For further information, contact a health professional such as your doctor, midwife, dietitian, nurse or pharmacist.

Supplements containing seaweed, kelp and iodine are not recommended for pregnant women because the iodine content and quality of the supplements is variable.

Vitamin D

Vitamin D is needed for strong bones and joints as well as healthy muscle and nerve activity. While it is found in some foods in the diet, the man source of vitamin D is sunlight. Vitamin D is made in the body through the action of sunlight on the skin. Example of foods that contain vitamin D are fresh and canned oily fish (tuna, sardines, salmon, herring, mackerel, eel,) eggs and vitamin D-fortified margarine. It is important to balance being in the sun with protection yourself from potential harm such as skin cancer. Try to spend some time in the sun everyday but never let yourself get sunburnt. . If you are in the sun during this time be sun smart. Wear a sun hat, protective clothing, sunglasses and SPF 30+ sunscreen. Some women are at particular risk of not making enough vitamin D in their skin from the sun. This includes women who:

- Have dark skin (their skin takes a longer time to make vitamin D in the sun)
- Stay inside most of the time
- Keep their skin covered for religious or cultural reasons.

If you are concerned about not getting enough vitamin D, discuss this with a health partitioner, such as you doctor (GP) or health staff

Cravings and aversions

Most women experience strong likes and dislikes (cravings and aversions) for certain foods at some time during pregnancy. If you eat a variety of foods from the four food groups every day, cravings and unlikely to affect your pregnancy.

If you are experiencing problems with cravings. (for example, Craving for unhealthy foods), having other eating problems or unable to eat a variety of foods, ask your Doctor to arrange for you to see a Dietician or Nutritionist

5.3 SCREENING FOR ANTEPARTUM and POSTPARTUM DEPRESSION

Purpose of Guideline

To establish a Guide and Tool for Recognition of Postpartum Depression

Optimal Outcome

The early identification of high risk women and referral and interventions

Who is Responsible

All doctors, nurses and midwives in all hospitals in Samoa

All Counselling Services

RECOMMENDATION – Samoa recognizes and adopts the use of the Edinburgh Postnatal Depression Scale to be used for patients identified as High Risk of Developing Depression

EPDS Score Interpretation Action

Less than 8 Depression not likely - Continue support

9–11 Depression possible Support, re-screen in 2–4 weeks. Consider referral to primary care provider

12–13 Fairly high possibility of depression - Monitor, support and offer education. Refer to Primary Care Provider.

14 and higher - (positive screen) - Probable depression Diagnostic assessment and treatment by PCP and/or specialist.

Positive score

(1, 2 or 3) on question 10 (suicidality risk) - Immediate discussion required. Refer to PCP ± mental health specialist or emergency resource for further assessment and intervention as appropriate.

Urgency of referral will depend on several factors including: whether the suicidal ideation is accompanied by a plan, whether there has been a history of suicide attempts, whether symptoms of a psychotic disorder are present and/or there is concern about harm to the baby

References:

1. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. The British Journal of Psychiatry. 1987; 150(6):782-786.
2. BC Reproductive Mental Health Program and Perinatal Services BC. (2014), Best Practice Guidelines for Mental Health Disorders in the Perinatal Period. Available at: http://tiny.cc/MHGuidelines

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

Here is an example, already completed.

I have felt happy:

- ☐ Yes, all the time
- ☒ Yes, most of the time — This would mean: "I have felt happy most of the time" during the past week.
- ☐ No, not very often — Please complete the other questions in the same way.
- ☐ No, not at all

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   - ☐ As much as I always could
   - ☐ Not quite so much now
   - ☐ Definitely not so much now
   - ☐ Not at all

2. I have looked forward with enjoyment to things
   - ☐ As much as I ever did
   - ☐ Rather less than I used to
   - ☐ Definitely less than I used to
   - ☐ Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   - ☐ Yes, most of the time
   - ☐ Yes, some of the time
   - ☐ Not very often
   - ☐ No, never

4. I have been anxious or worried for no good reason
   - ☐ No, not at all
   - ☐ Hardly ever
   - ☐ Yes, sometimes
   - ☐ Yes, very often

*5 I have felt scared or panicky for no very good reason
   - ☐ Yes, quite a lot
   - ☐ Yes, sometimes
   - ☐ No, not much
   - ☐ No, not at all

*6. Things have been getting on top of me
   - ☐ Yes, most of the time I haven't been able to cope at all
   - ☐ Yes, sometimes I haven't been coping as well as usual
   - ☐ No, most of the time I have coped quite well
   - ☐ No, I have been coping as well as ever

*7 I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

*8 I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Not very often
   - ☐ No, not at all

*9 I have been so unhappy that I have been crying
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Only occasionally
   - ☐ No, never

*10 The thought of harming myself has occurred to me
   - ☐ Yes, quite often
   - ☐ Sometimes
   - ☐ Hardly ever
   - ☐ Never

Administered/Reviewed by _____ Date _____

[1]Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786 .

5.4 FAMILY PLANNING

Purpose of Guidelines

To establish a Simplified Guide on the Screening and Initiation of Different Family Planning Methods for Women

Optimal Outcome

The successful Implementation and safe practice of Family Planning Methods

Responsibility

All Doctors in Samoa

All midwives and Nurses in all hospitals in Samoa

All staff in Family Planning Facilities in Samoa

Types of Contraceptives available in Samoa

1. Long Term Reversible Contraceptives (LARCS)

- Jadelle – Currently practiced in Samoa since 2016, 2 rods are inserted under the skin on the inside of the arm in women that meet the criteria
    - The effectiveness in prevention of pregnancy is more than 98%
    - This method delivers Progesterone only hormone to prevent ovulation and also helps thicken the cervical mucus to prevent fertilisation after intercourse
    - Effect lasts up to 5 years for women with normal BMIs; however reduced to 4 years in wmen with higher BMIs
    - Can be inserted straight after delivery.
    - What to expect – erratic bleeding for up to 6 months, increased in appetite and weight gain and mood changes
- Copper IUCD – non hormonal method of contraception
    - Helps prevent fertilisation by increasing the acidity of the vaginal, cervical environment hampering the entry of sperm into the uterine cavity after intercourse
    - Effectiveness to prevent pregnancy is more than 95%
    - Effect lasts up to 5 – 10 years
    - Inserted after 6 weeks of delivery. There is no need for antibiotic use prior to insertion. The patient should be educated on how to check for the string after menses to ascertain that the strings are not lost.
- Mirena – Progesterone method that is delivered via an IUCD placed in the uterine cavity.
- Not available widely in Samoa but can be ordered through Chemists and certain General Practices in Samoa; at a price.
- Effectiveness to prevent Pregnancy more than 99%

- What to expect – erratic Bleeding up to 6 months after insertion. Effect lasts up to 5 – to years. Added effectiveness in treating Menorrhagia and Irregular Heavy Menses.

2. Others

Tablets

- Microgynon – Combined Oral Contraceptive comprising of both progesterone and Estrogen in different amounts. Action is through the prevention of Ovulation.
    - Effectiveness with Proper Use is more than 95% and drops with normal Use. Proper Use dictates that the woman takes 1 pill at the same time every day continuously without stopping.
    - Issues – Patient may forget to take the pill at subscribed time hence increasing likelihood of a pregnancy
    - Medical Conditions contraindicated are dictated through the use of the World Health Organisation Medical Eligibility Criteria (WHOMEC)
    - Cannot be taken within 6 weeks after delivery OR while breastfeeding
- Microlut – Progesterone Only Pill taken every day at the same time. Action is through the prevention of Ovulation.
    - Effectiveness with Proper Use is more than 95% and drops with Usual use due to patient forgetting to take the pill
    - Can be taken during Breastfeeding
    - Safety Profile is wider than the Combined Pill and therefore is safe to be taken by most patients without some comorbidities. Use the WHOMEC.

Injectables

- Depo Provera – Progesterone injection delivered Intramuscularly every 3 months
    - Advantages – 3 months duration between injections
    - Side Effects – Weight Gain, Amenorrhea (some women prefer to have menses as a way of reassurance that everything is well) or Menorrhagia.
    - With Proper Use the effectiveness in preventing pregnancy is more than 97%

Barrier Methods

- Male and Female Condoms – rubber sterile contraceptives used as barrier methods during intercourse.
    - Effectiveness with use is low and therefore has a higher chance of getting pregnant compared to others
    - Advantage – can prevent Sexually Transmitted Infections.

3. Non Reversible/Permanent

- Tubal Ligation – Effectiveness with use is more than 99%

    - Irreversible
    - Failure Rate – 1/200 (2%)
    - Also has higher rate of regret afterwards if not counselled properly before the procedure is carried out
- Vasectomy – Currently not widely offered in Samoa due to lack of experience however; should be offered in the future.

4. Other less reliable methods

- Withdrawal Method – The act of withdrawing after intercourse so that ejaculation does not occur
    - Effectiveness and Reliability very low
    - Does not protect against STIs
- Calendar Method – Method reliability up to 80% with proper use; however this is dependent on how educated the patient is recognising signs of Ovulation.
    - Method includes avoidance of intercourse during the Ovulation Period which typically occurs around Day 14 of a 28 Day Cycle.
    - Does not work for women with irregular cycles.
- Emergency Pill (Postinor) – A progesterone pill which is prescribed to prevent pregnancy after an incident of Unprotected Sexual Intercourse (UPSI)
    - For maximum effect this is taken within 72 hours of UPSI, any later and the chances of a pregnancy increases dramatically.
    - After UPSI, and after taking the Emergency pill, the woman is counselled to have an additional barrier method used in the 7 days following to be certain that pregnancy does not occur.

Medical Eligibility Criteria

Samoa endorses and recommends the use of the World Health Organisation medical Eligibility Criteria to screen all women requesting for Family Planning in all Family Planning Clinics.

This is widely found on the Internet or for ease of use, the app can be downloaded on ones phone or the MEC wheel can also be used.

Other countries also have screening Tools that are very similar; example United Kingdom Medical Eligibility Criteria (UKMEC) and others.

Pre-counselling

It is important that prior to insertion and use of any Family Planning Method, that the woman and her partner are extensively counselled regarding all properties and aspects of each method.

REFERENCES

1. Medical eligibility criteria for contraceptive use (who.int)
2. Quick Reference Chart for the WHO Medical Eligibility Criteria for Contraceptive Use | FHI 360
3. Contraceptive and Family Planning Manual (World Health Organisation) 2018/ A Global Handbook for Providers

5.5 ACKNOWLEDGMENTS

This 3rd edition will be the first encompassing all aspects of Maternal Health from Antenatal care at the District and Primary Health Care level, to Clinical Care in Wards and Labour Wards and progressing through to Peri-Operative Care and the Post Partum Periods.

It is monumental also as it addresses other vital aspects of Pregnancy which are equally important yet under recognised and either not made a priority often or not talked about due to religious, and cultural barriers (ie) Mental Health, Intimate Partner Violence, Diet and Family Planning. A first for Local Antenatal Care Guidelines for Samoa.

Acknowledgment should be made of all Key Individuals and Organisations that have funded and developed this Guideline. All evaluations and re-evaluations over the last 2 years have made this project come into fruitition.

This immense contribution will lead and guide Antenatal Health Care in Samoa for years to come. The valuable insight into developing such an important document for Antenatal Care in Samoa by the Ministry of Health is one of great many achievements and should be acknowledged.

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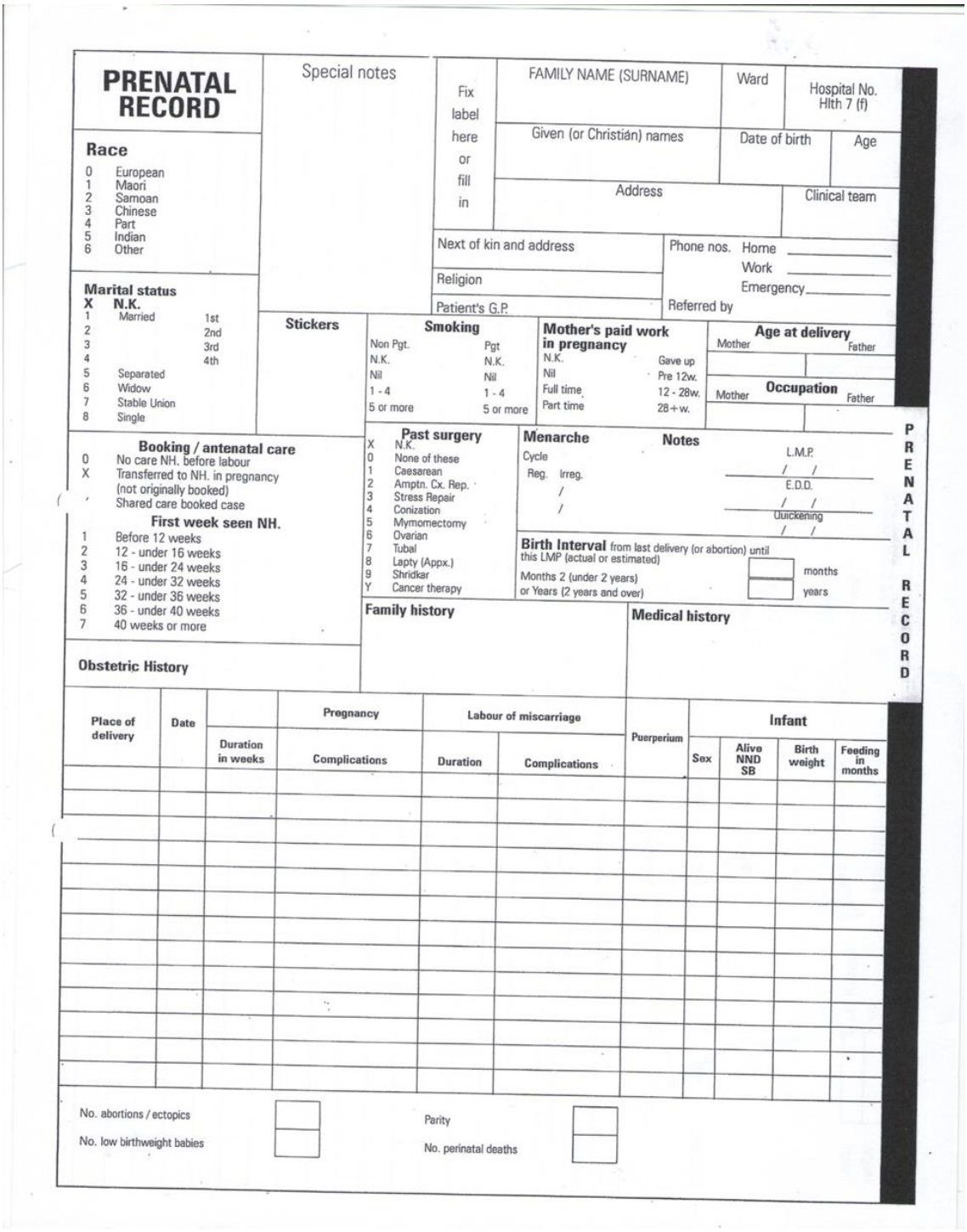
11. Nutrition Division Ministry of Health (Ms Analosa Manuele)

Dr Manatua Iati
Author/Editor 3rd Edition
Antenatal Guidelines
O&G Registrar TTM Hospital

APPENDICES



PRENATAL RECORD

Special notes

Fix label here or fill in

FAMILY NAME (SURNAME) | Ward | Hospital No. Hlth 7 (f)

Given (or Christian) names | Date of birth | Age

Address | Clinical team

Next of kin and address | Phone nos. Home / Work / Emergency

Religion | Referred by

Patient's G.P

Race
0 European
1 Maori
2 Samoan
3 Chinese
4 Part
5 Indian
6 Other

Marital status
X N.K.
1 Married 1st
2 2nd
3 3rd
4 4th
5 Separated
6 Widow
7 Stable Union
8 Single

Stickers

Smoking
Non Pgt. / Pgt
N.K. / N.K.
Nil / Nil
1 - 4 / 1 - 4
5 or more / 5 or more

Mother's paid work in pregnancy
N.K. / Gave up
Nil / Pre 12w.
Full time / 12 - 28w.
Part time / 28+w.

Age at delivery Mother / Father

Occupation Mother / Father

Booking / antenatal care
0 No care NH. before labour
X Transferred to NH. in pregnancy (not originally booked)
Shared care booked case

First week seen NH.
1 Before 12 weeks
2 12 - under 16 weeks
3 16 - under 24 weeks
4 24 - under 32 weeks
5 32 - under 36 weeks
6 36 - under 40 weeks
7 40 weeks or more

Past surgery
X N.K.
0 None of these
1 Caesarean
2 Amptn. Cx. Rep.
3 Stress Repair
4 Conization
5 Mymomectomy
6 Ovarian
7 Tubal
8 Lapty (Appx.)
9 Shridkar
Y Cancer therapy

Menarche
Cycle
Reg. Irreg.
/
/

Notes
L.M.P. / /
E.D.D. / /
Quickening / /

Birth Interval from last delivery (or abortion) until this LMP (actual or estimated)
Months 2 (under 2 years) ____ months
or Years (2 years and over) ____ years

Family history

Medical history

Obstetric History

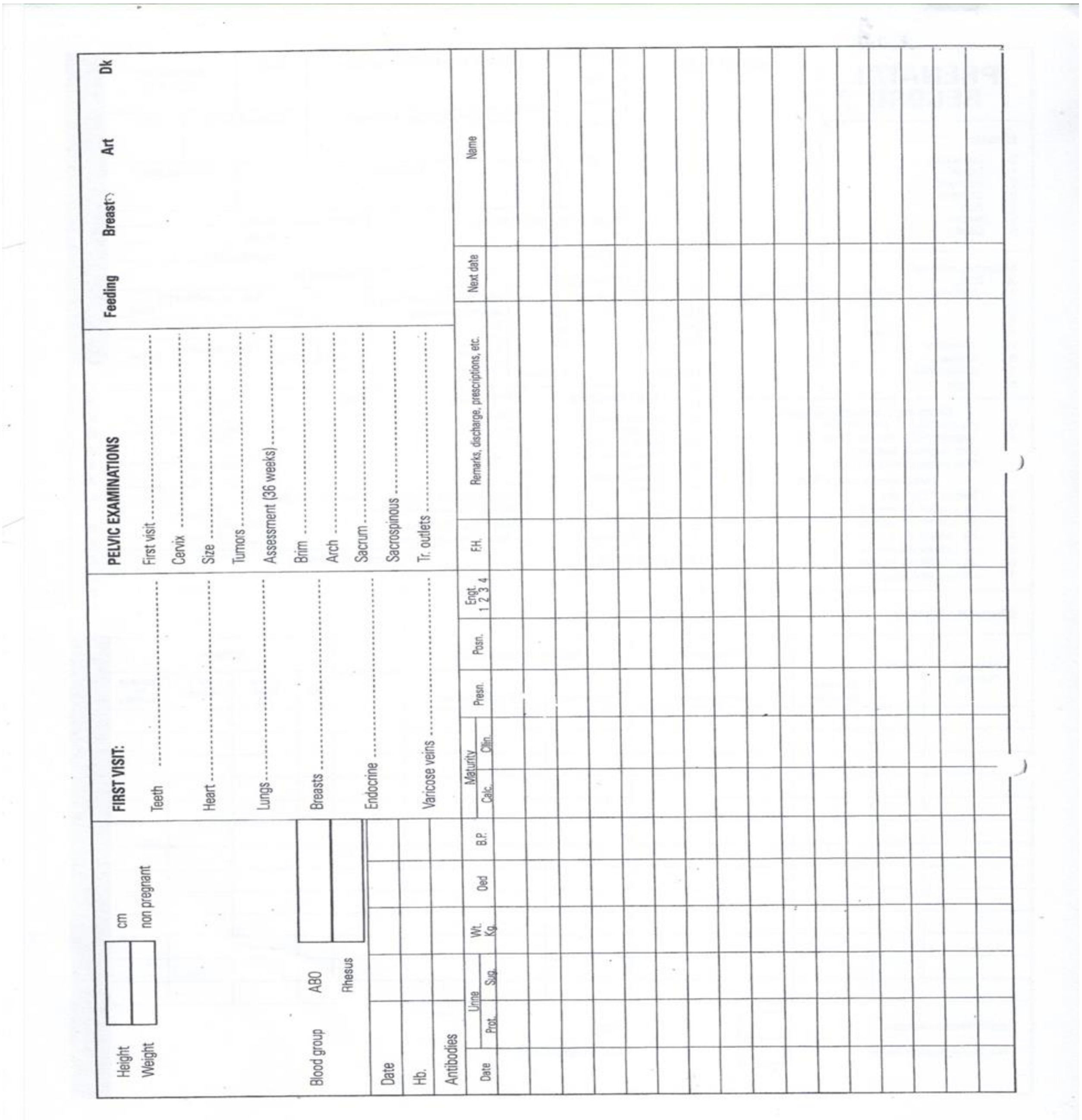
PRENATAL RECORD

Place of delivery	Date	Pregnancy: Duration in weeks	Pregnancy: Complications	Labour of miscarriage: Duration	Labour of miscarriage: Complications	Puerperium	Infant: Sex	Infant: Alive NND SB	Infant: Birth weight	Infant: Feeding in months

No. abortions / ectopics ____ Parity ____

No. low birthweight babies ____ No. perinatal deaths ____

1. Samoa Prenatal/Antenatal Card



Height [ ] cm

Weight [ ] non pregnant

Blood group ABO

Rhesus

Date				
Hb.				
Antibodies				

FIRST VISIT:

Teeth ....

Heart ....

Lungs ....

Breasts ....

Endocrine ....

Varicose veins ....

PELVIC EXAMINATIONS

First visit ....

Cervix ....

Size ....

Tumors ....

Assessment (36 weeks) ....

Brim ....

Arch ....

Sacrum ....

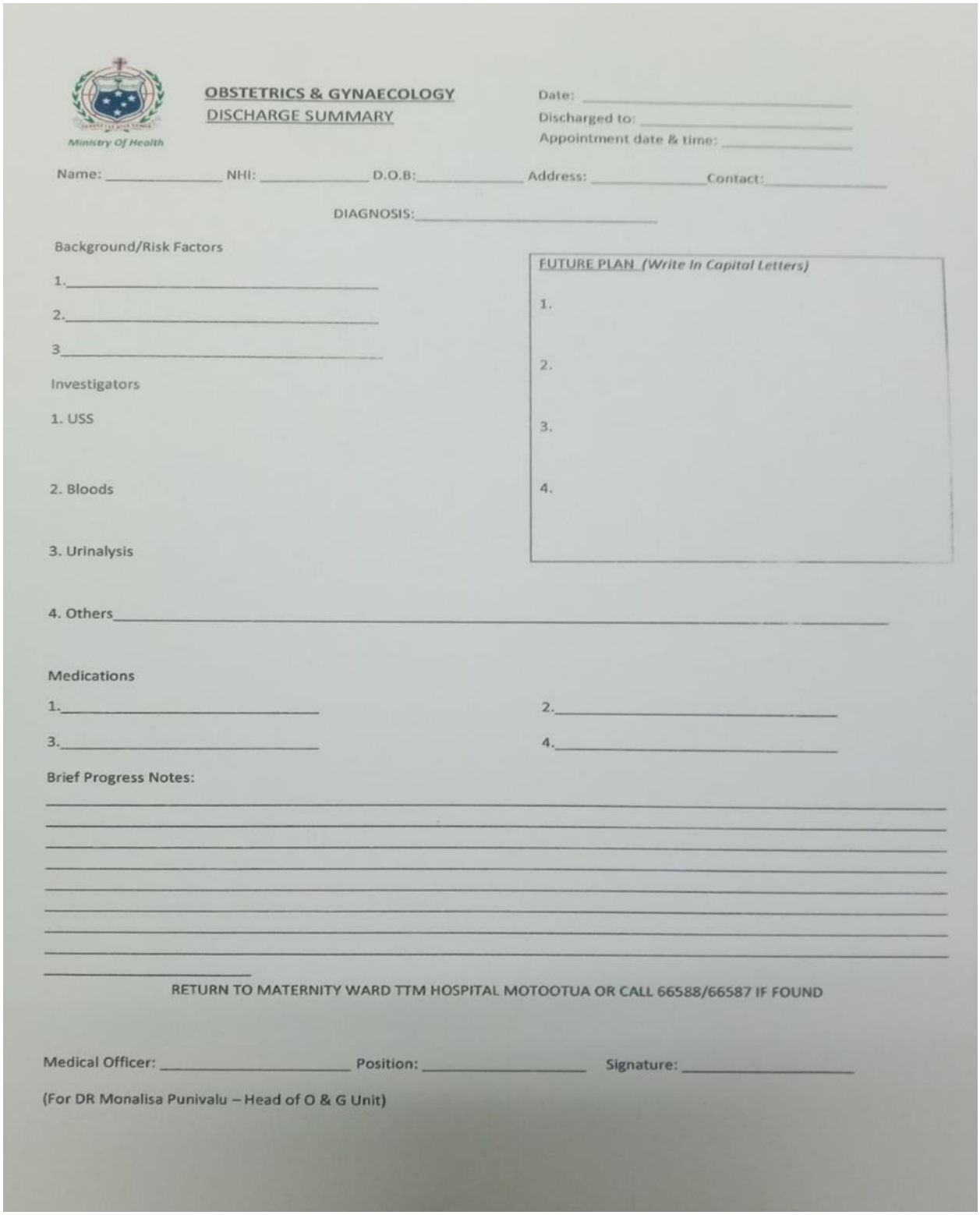
Sacrospinous ....

Tr. outlets ....

Feeding **Breast** **Art** **Dk**

Date	Urine Prot.	Urine Sug.	Wt. Kg	Oed	B.P.	Maturity Calc.	Maturity Clin.	Presn.	Posn.	Engt. 1 2 3 4	F.H.	Remarks, discharge, prescriptions, etc.	Next date	Name

2. Antenatal Record Visits



Ministry Of Health

OBSTETRICS & GYNAECOLOGY
DISCHARGE SUMMARY

Date: _____
Discharged to: _____
Appointment date & time: _____

Name: _____ NHI: _____ D.O.B: _____ Address: _____ Contact: _____

DIAGNOSIS: _____

Background/Risk Factors

1. _____
2. _____
3. _____

Investigators

1. USS
2. Bloods
3. Urinalysis
4. Others _____

FUTURE PLAN *(Write In Capital Letters)*

1.
2.
3.
4.

Medications

1. _____ 2. _____
3. _____ 4. _____

Brief Progress Notes:

_____
_____
_____
_____
_____
_____
_____
_____

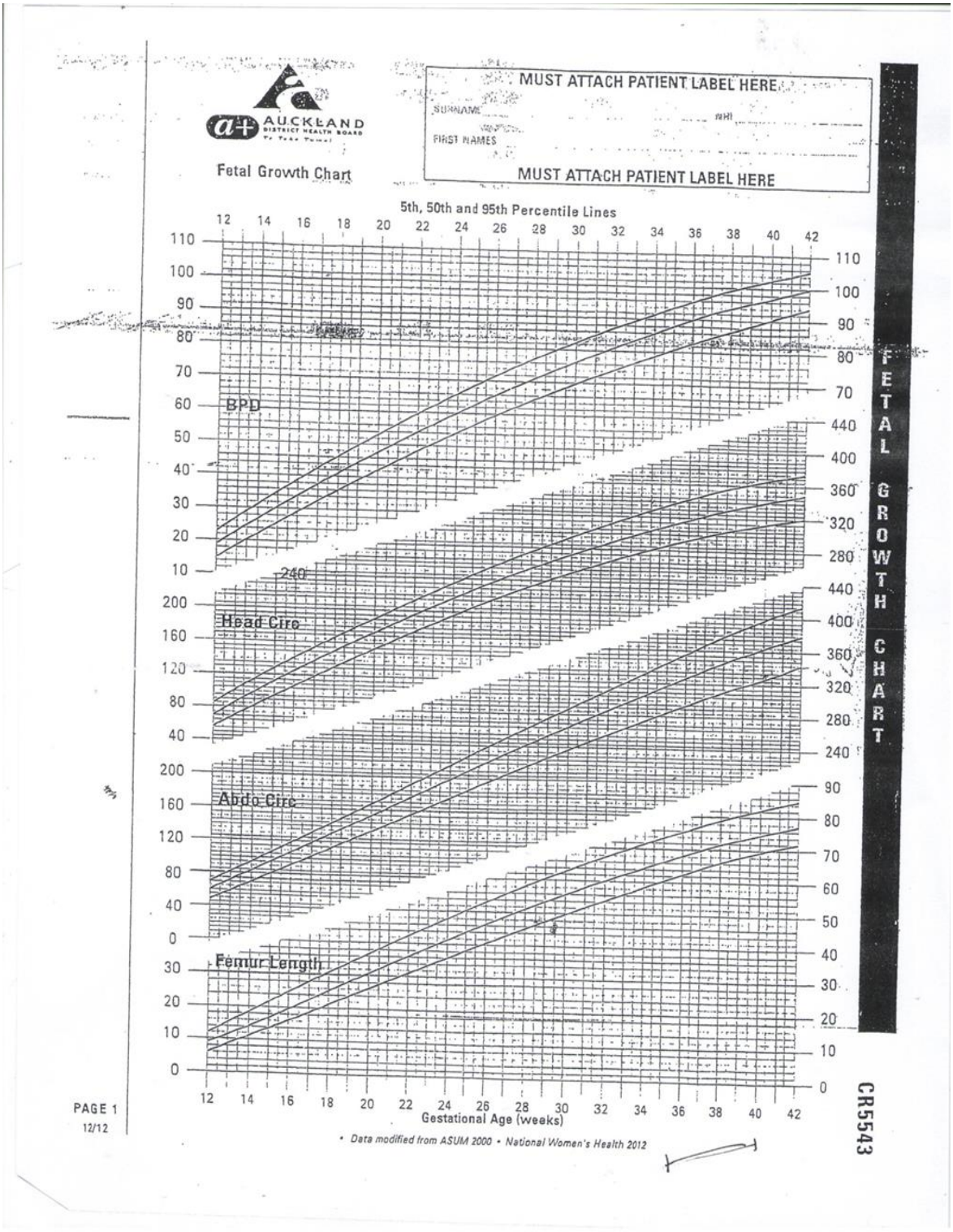
RETURN TO MATERNITY WARD TTM HOSPITAL MOTOOTUA OR CALL 66588/66587 IF FOUND

Medical Officer: _____ Position: _____ Signature: _____

(For DR Monalisa Punivalu – Head of O & G Unit)

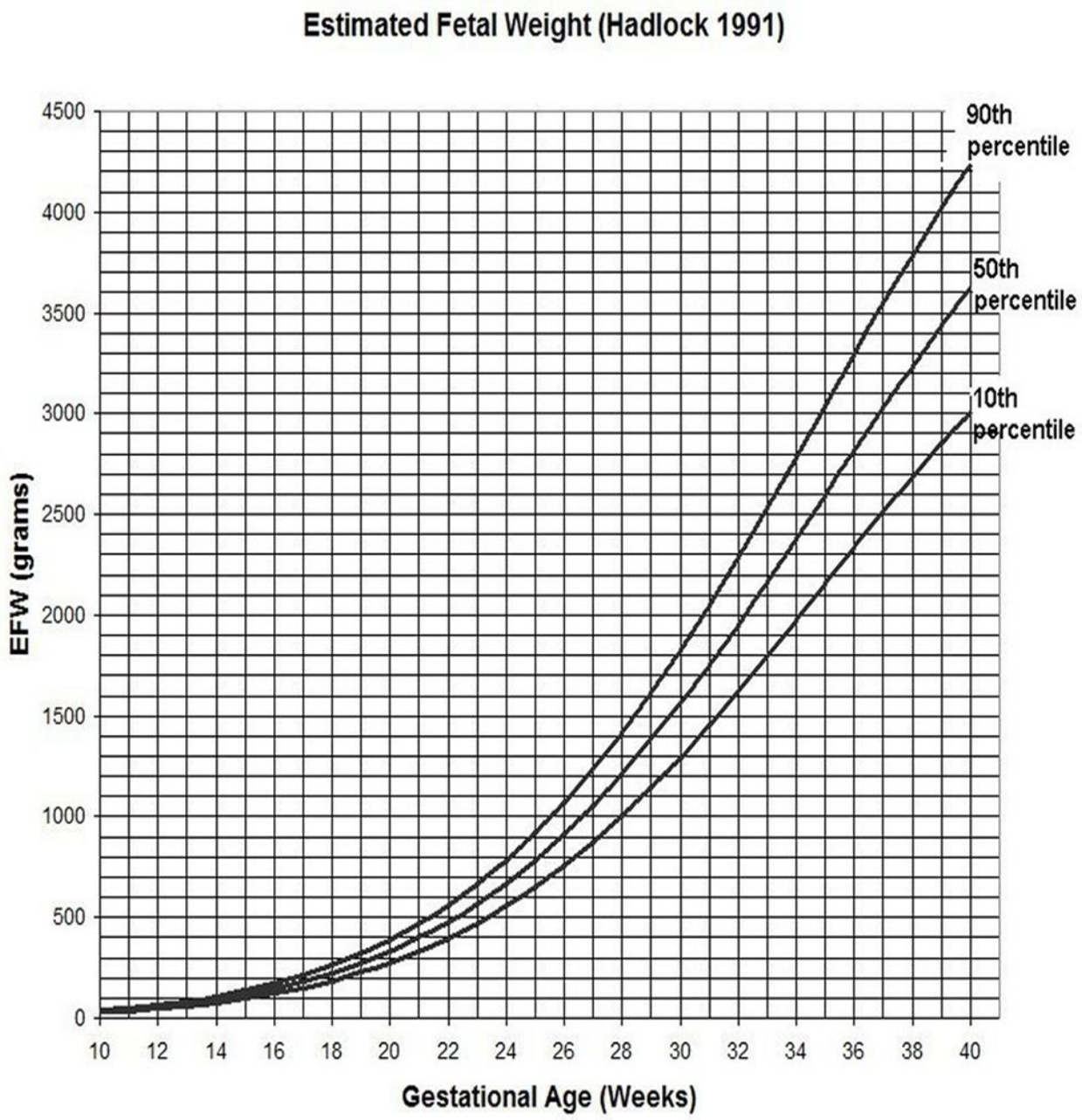
3. Discharge Summary O&G Unit

4. Population Growth Chart



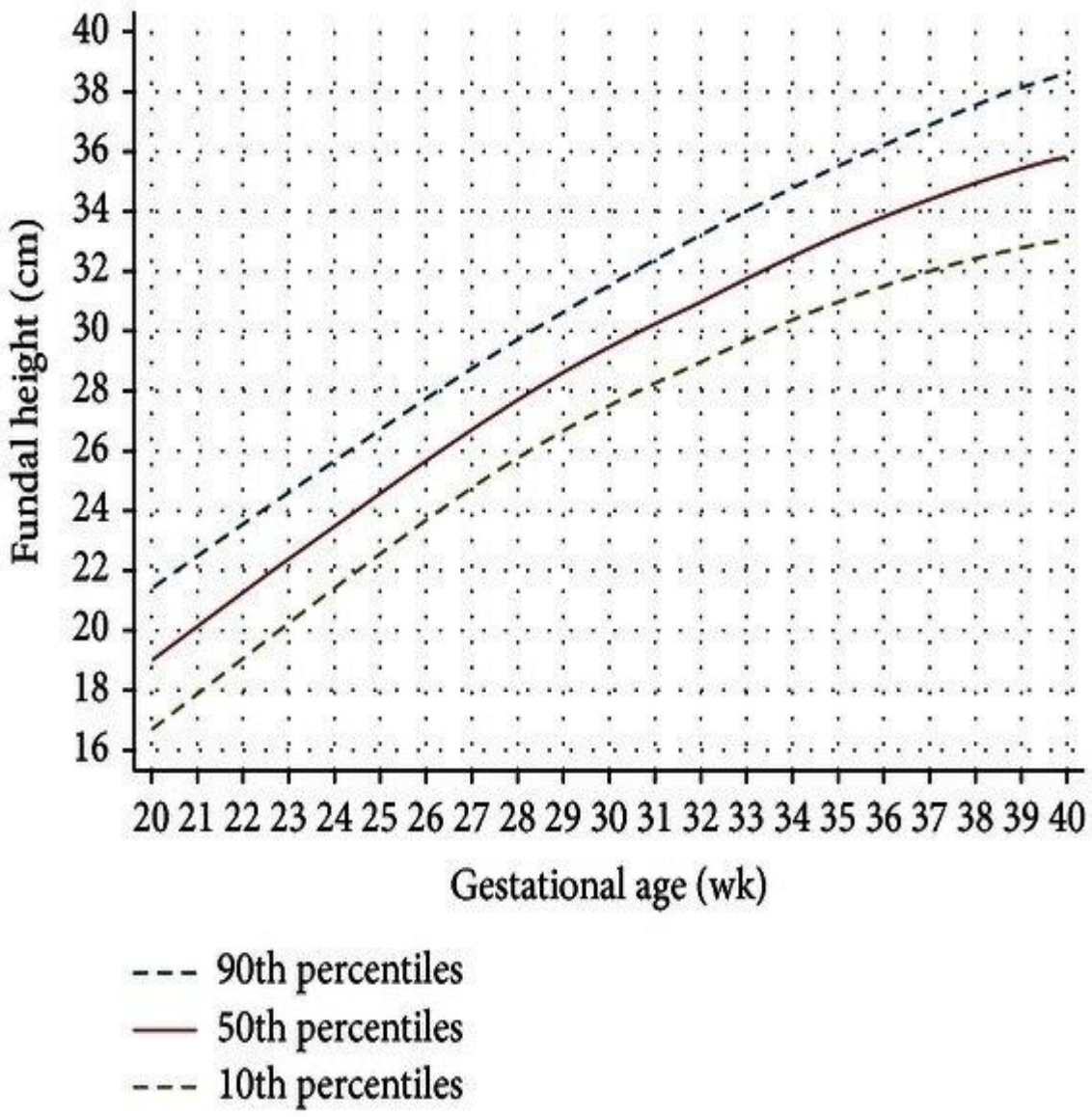
5. Fetal Weight Chart

Source:
https://perinatology.com/calculators/Estimation%20of%20Fetal%20Weight%20and%20Age.htm



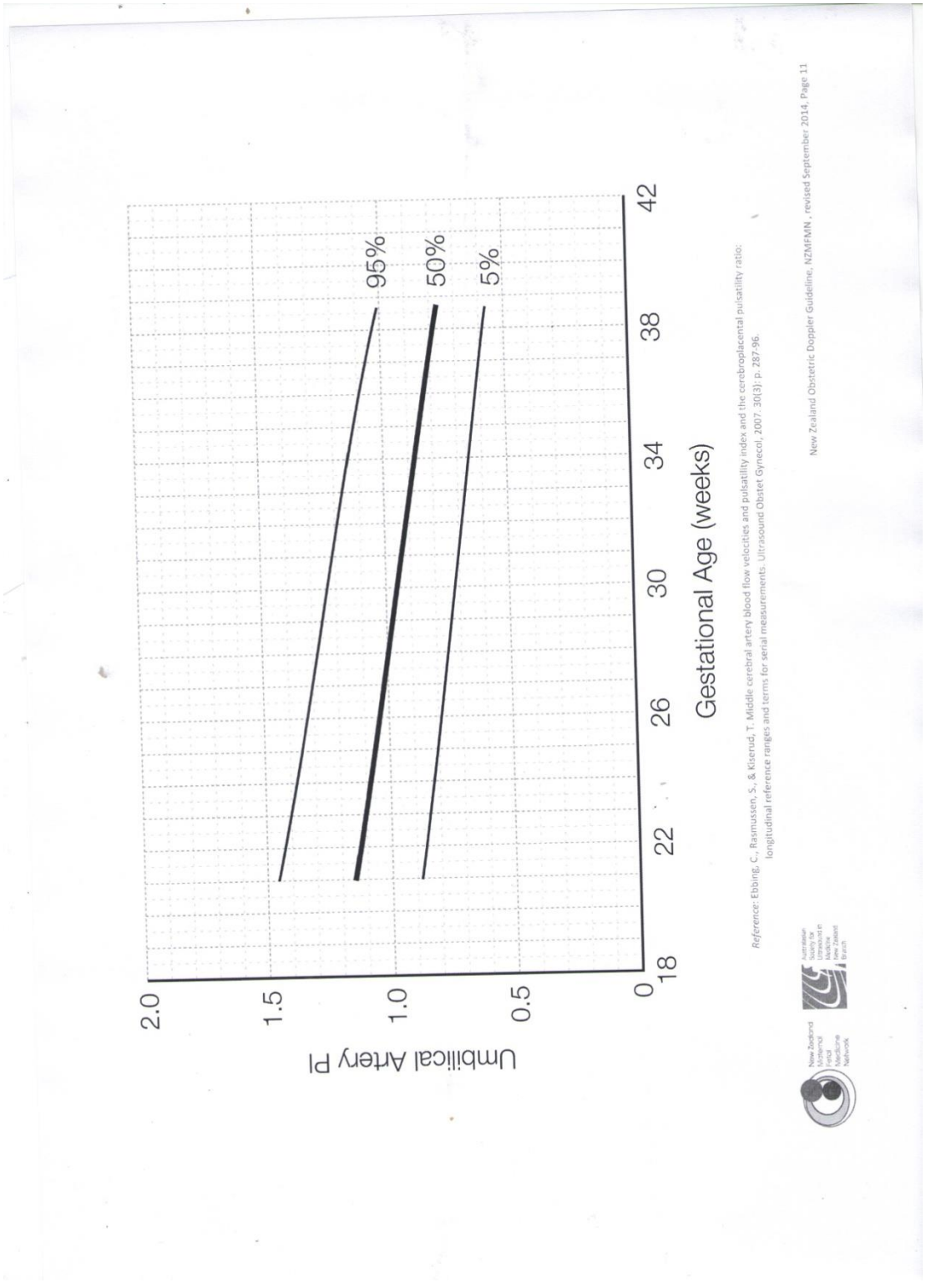
6. Fundal Height Growth Chart

Source:https://www.researchgate.net/figure/Fundal-height-growth-curve-at-the-90th-50th-and-10th-percentiles-based-on-1-038-normal_fig2_236925514



7. Umbilical Artery Pulsatility Index (UAPI)

Source: NZ Obstetric Doppler Guidelines NZMFM 2014



8. New York Heart Association Classification

Source;https://www.researchgate.net/figure/NYHA-classification-of-heart-failure_tbl1_298420570

Class I	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation or dyspnoea.
Class II	Slight limitation of physical activity. Comfortable at rest but ordinary physical activity results in fatigue, palpitation or dyspnoea.
Class III	Marked limitation of physical activity. Comfortable at rest but less than ordinary activity results in fatigue, palpitation or dyspnoea.
Class IV	Unable to carry out any physical activity without discomfort. Symptoms at rest. If any physical activity is undertaken, discomfort is increased.

NYHA: New York Heart Association.