



Perinatal Care Manual *3rd Edition*

MINISTRY OF HEALTH MALAYSIA



Perinatal Care Manual

DIVISION OF FAMILY HEALTH DEVELOPMENT
MINISTRY OF HEALTH MALAYSIA

2013 (3rd Edition)

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HOW TO USE THIS MANUAL

This manual is not intended to replace standard textbooks used for teaching. It is to be kept at hand at your work place which can be referred for guidance. The manual consist of five sections: pre pregnancy, antenatal, intrapartum, postpartum and neonatal care.

Section One – Pre Pregnancy Care

- Focuses on specific group of women in the reproductive age group with counseling on appropriate medical care to optimize pregnancy outcomes. It includes risk assessment check list and management of various conditions. In future editions the manual will include all women in reproductive age.

Section Two – Antenatal Care

- Describes activities and screening services for each trimester. It explains how to diagnose and manage common conditions, which can be identified during routine examination of the mother. It provides standard operating procedures for quick reference in the management of common complications and high risk cases.

Section Three – Intrapartum Care

- Understanding the process of normal labour and delivery allows optimal care for the mother and timely recognition and intervention of abnormal events.

Section Four – Postpartum Care

- Provides information for appropriate care, reassurance and early recognition of postpartum problems.

Section Five – Neonatal Care

- Outlines the comprehensive approach to neonatal care. Flow charts and checklists are available to aid health care workers to provide quality care and to initiate and facilitate referrals when necessary.

OBJECTIVES

General objective:

To develop a comprehensive training manual and reference for general use by health care provider who are entrusted with the care of mothers and their newborns.

Specific objectives:

1. To serve as a guide containing the basic knowledge and skills required in the care for women beginning at pre-pregnancy and extending to the neonatal period.
2. To provide management of certain common conditions which occur during the different stages of pregnancy and neonatal period.
3. To serve as a guide for primary health care providers to meet the expected standard of care in the delivery of the respective services in an endeavor to improve maternal and neonatal outcomes and reduce morbidity and mortality.



Section 1
Pre Pregnancy Care

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1.1 INTRODUCTION

‘Every mother has the right to expect her baby to be born alive and healthy just as every baby has the right to a living and healthy mother.’

Making pregnancy safer is an important component of maternal and child health (MCH) services. As our nation develops, the profile of a woman embarking upon pregnancy changes. A greater number of them are being categorized as high risk pregnancies. Early intervention and treatment can reduce the incidence of maternal and neonatal complications in these women.

The couple or women in reproductive age in good physical and psychological health, living in a good socio-economic environment, will benefit both the mother and child. As such, pre-pregnancy care and consultation can assist the couple and women in reproductive age to choose the appropriate time to conceive and thus reduce the risk of complications to the mother and baby.

- **Definition:**

A set of intervention that aim to identify and modify biomedical, behavioural, and social risks to a woman's health or pregnancy outcome through prevention and management, emphasizing those factors that must be acted on before conception or early in pregnancy to have maximal impact.

Samuel F, Kay J, Christopher P, et al. The National Summit on Preconception Care: A Summary of concepts and Recommendations. Maternal and Child Health J (2006) 10:S197-S

1.2 RATIONALE

In making pregnancy safer, policies are primarily focused on optimizing antenatal and intra partum care. Currently pre-pregnancy care is only limited to premarital counseling courses, HIV screening, Thalassemia screening program and screening for other medical conditions.

Evidence suggests that appropriate pre-pregnancy care has improved pregnancy outcomes. The increase in the number of high risk pregnancies requires readily available formalized pre-pregnancy care services. As such, pre-pregnancy care should be formalized into our health care services.

1.3 OBJECTIVES

General:

To provide couples, men and women in reproductive age group with an avenue to achieve a safe and successful pregnancy.

Specific:

- i. To screen and counsel future mothers appropriately for early intervention and treatment, aimed to reduce maternal and perinatal morbidity and mortality.
- ii. To enable prospective parents and women in reproductive age group to plan for pregnancy through:
 - Provision of appropriate and adequate information.
 - Health promotion and education
 - Counseling
- iii. To emphasize the practice of healthy life style and initiative in making pregnancy safer to prospective parents and family members.

1.4 TARGET GROUPS

General:

- i. Prospective couples intending to get married
- ii. Women who are married, planning a pregnancy
- iii. Women in reproductive age group (15–44 years of age; WHO definition on Women's Health Fact Sheet 334 Nov 2009)

Specific:

- i. Women above 35 years old without medical illness, planning a pregnancy
- ii. Clients with obesity
- iii. Clients with medical illnesses
- iv. Clients with previous miscarriages/stillbirths/early neonatal death.
- v. Clients with inherited abnormalities
- vi. Clients with babies who have inherited abnormalities
- vii. Clients with congenital structural abnormalities
- viii. Clients with babies with congenital structural abnormalities
- ix. Clients with family history of genetic disorders

1.5 ENTRY POINTS

- i. Outpatient Department (OPD)
 - Wellness Clinic
 - Premarital HIV Screening Program
 - Thalassemia Screening Program
 - Adolescent Clinic
 - Referral from General Practitioners/private medical centers
 - Community Outreach Program

- Klinik 1 Malaysia
- Non Communicable Disease Clinic
- ii. Maternal and Child Health Services (MCH Services)
 - Family Planning Services
 - Child Health Services
 - Postnatal Services
- iii. Specialist Clinic
 - Cardiology Clinic
 - Nephrology Clinic
 - General Medicine Clinic
 - Paediatric Clinic
 - Obstetrics & Gynaecological Clinic
 - Other specialist clinic
- iv. Hospital In patient (All Disciplines)
- v. Ambulatory Care Centre
- vi. Others

LPPKN (Lembaga Penduduk & Pembangunan Keluarga Negara)/RSAT (Rumah Sakit Angkatan Tentera)/PLKN (Program Latihan Khidmat Negara)/FPA (Family Planning Association)/Federation of Reproductive Health Association of Malaysia (FRHAM previously known as FFPAM – Federation of Family Planning Association Malaysia)/University Hospitals/General Practitioners/Private Medical Centers

1.6 PLACE OF PRE-PREGNANCY CARE SERVICES

- O&G Specialist Clinic - coordinator/provider of pre-pregnancy care services at hospital level, preferably under the supervision of Maternal Fetal Medicine Specialist.
- Other specialist clinics (medical/surgical/psychiatric etc.) should also actively involved in providing pre-pregnancy care services.
- Health Clinic – at primary care level. Pre-pregnancy care will be integrated into current (MCH/OPD) services, headed by Family Medicine Specialists/Medical & Health Officer (FMS/M&HO).
- Outpatient services at district hospitals
- Hospital without specialist (visiting O&G Specialists and other specialists of other discipline)

1.7 SETTING-UP OF A PRE-PREGNANCY CARE CLINIC *(Refer Appendix 1)*

1.8 FLOW PROCESS *(Refer Appendix 2)*

1.9 MAJOR ACTIVITIES DURING A PRE-PREGNANCY VISIT INCLUDE:

- i. Screening for risk factors
 - History taking
 - Physical examination
 - Clinical laboratory tests

- ii. Identification of pre-pregnancy risk factors (Appendix 3)
- iii. Appropriate management according to identified risk factors
- iv. Referral to pre-pregnancy care clinic
 - Health education
 - Counseling
 - Investigations
 - Appropriate treatment and management
 - Appropriate referral

1.10 STANDARD OPERATING PROCEDURE (SOP)

Standard operating procedure is designed to assist health care providers in managing the patient. The conditions are selected based on risk factors present.

SOP1 - Pre-existing chronic medical illness

SOP2 - Thalassemia

SOP3 - History of congenital anomalies

SOP4 - Previous surgical history

SOP5 - Recurrent miscarriage

SOP6 - History of unexplained perinatal death

SOP7 - Medication/substance abuse

SOP8 - Sexually transmitted illness

SOP9 - Subfertility

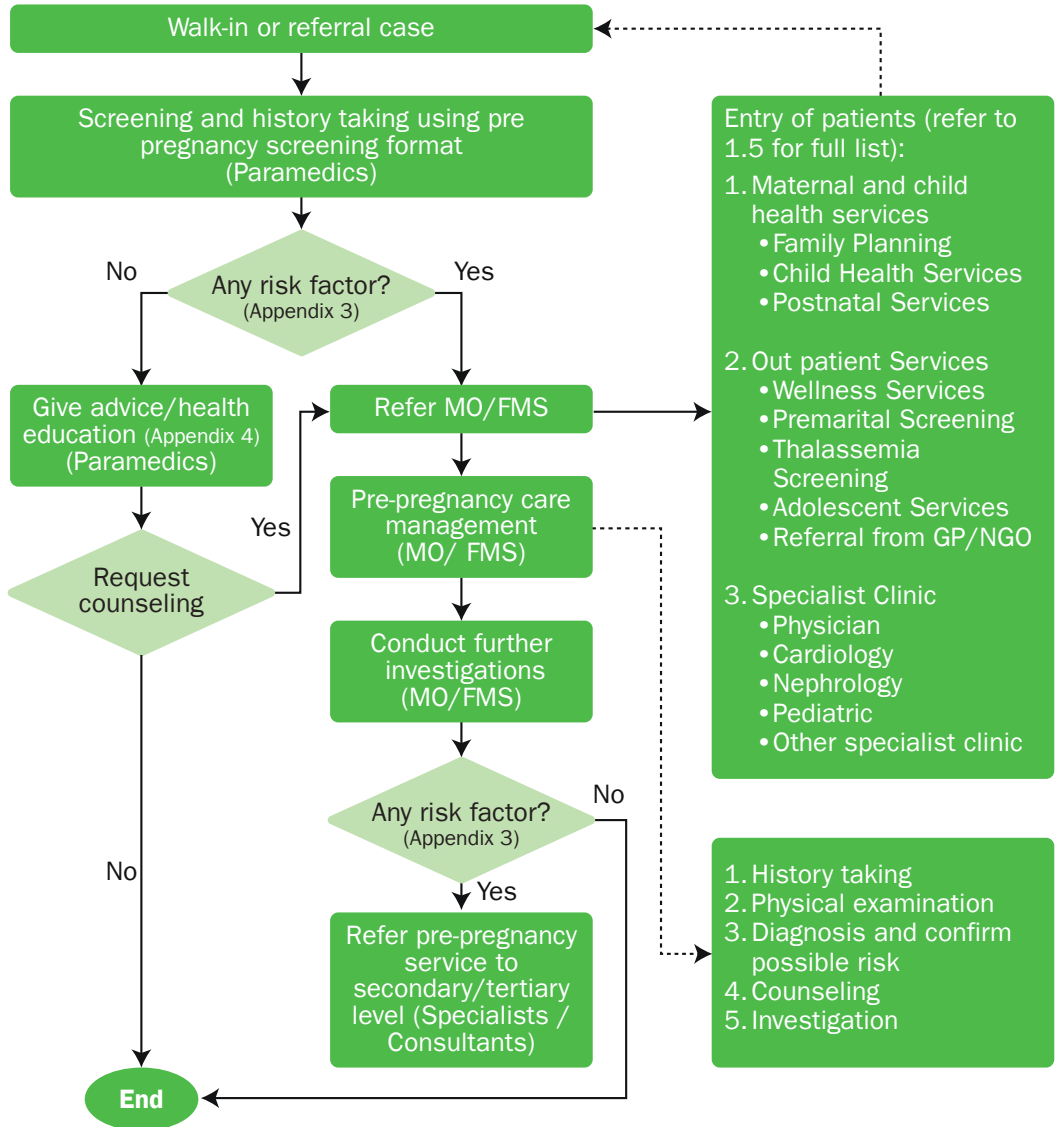
1.11 SUGGESTIONS FOR INCORPORATION

- i. In the curriculum of the following courses
 - Under graduate medical course
 - Post graduate training in all specialties
 - Midwifery course
 - Community nurse training program
 - Assistant Medical Officer training program
 - Diploma & Degree In Nursing/Public Health Nursing
- ii. Thalassaemia screening program
- iii. Premarital courses/marriage registry office
- iv. Breast feeding course
- v. NCD (Non Communicable Disease) Courses and Training Program
- vi. High Risk Pregnancy and Family Planning Course

SETTING UP OF A PRE PREGNANCY CARE CLINIC

1. Scope of activities
 - Screening
 - Diagnosis
 - Therapeutics
 - Referrals
 - Counseling (Refer Appendix 6)
 - Supplementation
 - Health education
 - Focus Group Discussion
2. Infrastructure
 - Examination room (ensure privacy)
 - Counseling room (ensure privacy)
 - Laboratory Support
 - Health Education Room
3. Clinic Schedule
 - As appropriate for the centre
 - Integrated/dedicated
4. Human Resources
 - As appropriate for the center
 - Obstetrician & Gynecologists
 - Other specialists
 - Staff Nurses/Community Nurses trained in PPC
 - Assistant Medical Officers
 - Family Medicine Specialists
 - Medical Officer
 - Staff Nurses With Midwifery
 - Nurses Educator example Diabetic Educator/Bronchial Asthma Educator
 - Nutritionists/Dieticians
 - Counselor
5. Training
 - Paramedics
 - Doctors
 - Counselors

FLOW CHART OF PRE-PREGNANCY CARE AT PRIMARY CARE LEVEL



PRE PREGNANCY RISK FACTORS

General Risk factors

1. Age

- **Women less than 18 years old:** Teenage pregnancies are associated with poor maternal and fetal outcome.
- **Women above 35 years old:** Advanced maternal age is associated with higher prevalence of medical illnesses and fetal chromosomal abnormalities.

2. Lifestyle

- **Smoking, alcoholism and substance abuse:** These may have teratogenic effect resulting in fetal abnormalities and growth restriction
- **High risk sexual behavior:** Increases the risk of maternal and fetal infection.
- **Obesity/underweight:** Metabolic disorders have a detrimental effect during pregnancy both on the fetus and mother. It may also affect mode of delivery.
- **Pets:** Some household pets such as cats and birds maybe associated with infections (example Toxoplasmosis, Psittacosis and Bird flu). Infections or exposure of these allergens to mothers with bronchial asthma can affect a pregnant mother and may result in poor fetal outcome.

3. Specific Risk Factors

i. Obstetric history

- Recurrent miscarriage
- Intrauterine death
- Previous abnormal baby
- Early neonatal death
- History of bleeding in pregnancy (ectopic, APH, massive PPH > 1.5L or requiring blood transfusion)
- Instrumental delivery
- Big baby (4kg and above)
- Poorly spaced pregnancy
- ABO incompatibility/Rhesus group
- Small baby (2.5kg or less)
- Grand multipara (Para 5 and above)
- Preterm delivery
- Previous history of retained placenta
- 3rd/4th degree of perineal tear

ii. Medical History (Chronic medical illnesses)

- Hypertension
- Heart disease
- Diabetes mellitus
- Thyroid disease
- Epilepsy

- Bronchial asthma
- Connective tissue diseases such as SLE
- Renal disorders
- Communicable Diseases (example TB, HIV, Malaria)
- Anemia
- Blood disorders
- Malignancy
- Other medical conditions

iii. Medications *(Refer to table 1.1 in Appendix 5)*

iv. Surgical history

- Caesarean section
- Uterine surgery
- Pelvic surgery
- Bowel surgery
- Transplant surgery (example liver & renal)
- Other abdominal surgery

v. Family history

- Consanguinity
- Familial or genetic disorders
- Congenital structural abnormalities

vi. Social history:

- Domestic violence
- Stress at work
- Stress in relationship
- Occupational hazard
- Lower socioeconomic status
- Marginalized group
- Single mothers

vii. Vaccination

- Active/Passive immunization
 - Rubella
 - Hepatitis B
 - Chicken pox

PRE-PREGNANCY HEALTH EDUCATION

1. Towards a Healthy and happy family

A healthy married couple is the basic foundation for a happy family. Factors which influence the health of an individual, family and the community include:-

- Lifestyle
- Genetics
- Familial factors
- Environmental factors

2. Practicing a healthy Lifestyle

| | |
|-------------------------------------|--|
| 2.1 Balanced diet | A diet which contains all the necessary nutrients in the right proportions according to caloric needs and right proportion based on the food pyramid. Ensure adequate fluid intake. |
| 2.2 Social interactions | Husband and wife must be supportive and actively participate in enhancing each other's health. Couples should practice mutual respect and consent for a satisfying and equitable sexual relationship. |
| 2.3 Good daily living habits | All men and women in reproductive age should have healthy lifestyle; avoid unhealthy habits like smoking, consuming alcohol and other types of drug abuse. |
| 2.4 Relaxation | Regular exercise decreases stress and lowers the risk of heart disease, stroke and hypertension. |
| 2.5 Adequate rest and sleep | Seven hours of sleep a day in order to stay healthy. |

3. Genetic factors

Couple, men and women with:-

- Consanguineous marriage (example autosomal recessive disorders)
- Previous child with genetic disorders (example Thalassemia)
- Family history of genetic disorders (example autosomal recessive disorders)
- Women at risk for genetic disorders at a particular age group (example Down's Syndrome)
- Male disorders (example X-linked disorders – Duchene Muscular Dystrophy, Haemophilia)
- Unexplained/uninvestigated fetal loss should be counseled for possible genetic problems.

4. Family Planning

It is encouraged for couples to plan their pregnancy in order to contribute positively to the eventual maternal and fetal outcome.

Health care provider should be consulted and be able to provide information regarding the appropriate and effective contraceptive method.

5. Birth and pregnancy

- **Physical maturity and age of the mother**

The appropriate age for a woman to get pregnant is at the legal age 18 and above. Women above 35 years are at higher risk of pregnancy complication.

- **Preventing infections**

Men and women in reproductive age group are advised about infections such as sexually transmitted diseases as well as lifestyle diseases which can affect reproductive potential and the unborn child. Hepatitis B, varicella and Rubella vaccinations may be advised to all women who are not immune.

- **Antenatal health care**

Couples who are planning to start a family should be in optimal health. A pregnant woman and her partner should attend antenatal clinic before 12 weeks of amenorrhea.

- **Supplementation**

Folic acid supplementation should be emphasized to all women at least 3 months prior to a pregnancy. Appropriate iron and folic acid supplementation should be advised by health care provider after screening for thalassemia.

- **Breastfeeding**

Breast milk is the best food for the newborn as it contains all the necessary nutrients, in the right proportions, for the optimum health and growth of the newborn. Exclusive breast feeding for first 6 months of the newborn and encourage to continue for 2 years.

- **Childbirth**

Each pregnant woman must be advised on the appropriate place of delivery.

- **Child care**

Every child must be immunized according to the recommended schedule.

6. Screening

- PAP Smear according to national guideline
- STI (sexually transmitted infection) screening as indicated.
- Clinical Breast Examination.
- Diabetes and hypertension screening should be offered at least annually.

PRE-PREGNANCY COUNSELLING

A recommendation for pre-pregnancy counseling should be given to all men and women with risk of pregnancy complications. Such counseling can reduce the incidence of maternal and fetal mortality and morbidity.

Objectives of pre-pregnancy counseling include:

1. Conducting an initial assessment

- a full history (personal, social, medical, surgical, past obstetric, psychiatric and family history)
- general physical examination
- identification of appropriate screening tests if necessary

2. Allaying or reducing anxiety

It is necessary to reduce anxiety in women with bad obstetric history example previous unsuccessful pregnancies or major obstetric complications.

Counseling should include:

- The effect of pre-existing disorder on pregnancy and pregnancy on the disorder.
- The likelihood of possible recurrence of previous complications and how this may possibly be reduced (e.g. intrauterine or neonatal death, hypertension, deep vein thrombosis, miscarriage or preterm labour, mechanical problems of labour or delivery).

3. Providing genetic information

The risk of familial or other handicapping disorder in a future child – expert advice from clinical geneticist/pediatrician will usually be needed, but factual preliminary guidance should be available in a pre-pregnancy clinic.

4. Determining fitness for pregnancy

Pregnancy should be deferred and contraception be offered to allow further evaluation and management of known disorders or new findings (example anemia, heart disease, diabetes and hypertension). Treatment and optimization of medical and surgical disorders may be required. Reproductive issues should be managed appropriately.

Health care providers who interact with men and women of childbearing age should understand the potential benefits of pre-pregnancy counseling thus preparing the health care providers to approach the pregnancy evaluation in a thorough manner.

5. Follow up intervals

- Minimum of 2 years or till further management

Factors Affecting Pregnancy

1. Social behavior

Common social behaviors affecting pregnancy:-

- Smoking - Miscarriage, low birth weight, placenta previa, placenta abruption, infant respiratory tract infection, sudden infant death syndrome, impaired fertility
- Alcohol - Miscarriage, fetal alcohol syndrome, placenta abruption, fetal intrauterine growth restriction, low birth weight, central nervous system abnormalities
- Cocaine - Abortion, premature birth, placental abruption, IUGR, congenital anomalies, neonatal CNS dysfunction
- Caffeine Low birth weight, IUGR

Any form of substance abuse can affect pregnancy and its outcome.

2. Medication

A potential preventable group of disorders are drug induced anomalies. Medications during pregnancy should be avoided as far as possible.

Table 1.1: Effects of medications on Pregnancy

| AGENTS | EFFECTS |
|-------------------|--|
| Anti-convulsions | Incidence of congenital malformations in children born to epileptic mothers is about 6%. This appears to be largely due to teratogenic effects of anticonvulsant. Combining drugs increases the incidence of congenital defects. |
| Sodium Valproate | Increase risk of neural tube defect to about 1/1000 pregnancies |
| Lithium Carbonate | Increase in cardiovascular abnormality |
| Warfarin | Various congenital malformations including abnormalities of the CNS and the nose and bony epiphyses |
| Alcohol | Low birth weight, microcephaly, congenital heart disease and mental retardation |
| Androgens | Teratogenesis in first trimester, virilisation of female fetus |
| Atropine | Fetal tachycardia |
| Beta –blockers | IUGR |
| Diazepam | Respiratory depression |
| Cyclophosphamide | Teratogenesis in first trimester |
| Diuretics | IUGR |

| AGENTS | EFFECTS |
|--|---|
| Diethyl-stilboesterol | Genital anomalies, female may develop clear cell carcinoma of the vagina many years later, male infertility |
| Methadone | Maternal symptoms of withdrawal inducing fetal compromise, abruption. Fetal complications are smaller-than-normal head size, low birth weight, IUGR, pre term delivery, unspecified structural anomalies and fetal withdrawal syndrome. Methothrexate Neural Tube Defects |
| Methothrexate | Neural Tube Defects |
| Phenytoin | Embryopathy includes dysmorphic facial features, microcephaly and motor and intellectual retardation. |
| Tetracycline | Tooth enamel hypoplasia and cataract |
| Terbutaline | Hypoglycaemia |
| Thalidomide | Phocomelia |
| Angiotension Converting Enzyme Inhibitor and angiotension receptor blocker | Oligohydramnios, bony malformation, prolonged hypotension, renal failure |

3. Nutritional Status

Nutritional deficiency in woman of reproductive age affects not only the general health condition but also the fertility capacity. Folic acid supplementation is essential to prevent neural tube defect.

4. Medical history

Pre-existing medical conditions may adversely affect mother and fetus. Pre-pregnancy intervention is important in counseling regarding risk and in optimizing medical management.

Table 1.2: Medical illnesses Affecting Pregnancy

| ILLNESS | RISK | PRE PREGNANCY INTERVENTION |
|--|---|---|
| Diabetes Mellitus | <p><u>Fetus :</u> multiple congenital malformations (VSD, NTD, skeletal malformation) fetal macrosomia</p> <p><u>Mother:</u> Pre-eclampsia, urinary tract infection, candidiasis, sepsis</p> | For poorly controlled Diabetes Mellitus, insulin should be initiated early before pregnancy. Blood glucose and HbA1c monitoring and control should be done prior to embark on a pregnancy. Folic acid supplementations. Screening diabetes complications at least annually. Appropriate management of complications and co-morbid conditions. Referral to appropriate secondary or tertiary centers when indicated. |
| <p>Thyroid disease:</p> <ul style="list-style-type: none"> • Hypothyroid <ul style="list-style-type: none"> • Hyperthyroidism | <p><u>Fetus:</u> Abortion, IUGR, fetal goiter and cretinism.</p> <p><u>Mother:</u> Impaired fertility and hypothyroid complications</p> <p><u>Fetus:</u> Thyrotoxicosis, IUGR</p> <p><u>Mother:</u> Thyroid storm, hypertension</p> | <p>Maternal Thyroid hormone replacement.</p> <p>Anti-thyroid therapy</p> |
| Deep venous thrombosis | <p><u>Fetus:</u> Fetal warfarin syndrome</p> <p><u>Mother:</u></p> <ul style="list-style-type: none"> • Bleeding complications, osteoporosis with prolonged heparin therapy • Heparin induced thrombocytopenia | <p>Warfarin interacts with oral contraceptive pills.</p> <p>Prophylactic therapy with LMWH is preferred to conventional heparin or warfarin therapy.</p> <p>Planned pregnancy with advise from health care providers</p> |

| ILLNESS | RISK | PRE PREGNANCY INTERVENTION |
|----------------------|---|--|
| Seizure disorder | <p><u>Fetus:</u> Congenital heart disease, Cleft lip and palate, skeletal, CNS, gastrointestinal, genitourinary abnormalities, increased risk of epilepsy.</p> <p><u>Mother:</u> 40% risk of increased seizures</p> | Try to minimize or stop medication prior to pregnancy ideally allow pregnancy after 18 months fit free. Folic acid supplement. Safety of the newer of anti-epileptic is not known. |
| Chronic Hypertension | <p><u>Fetus:</u> Placenta abruption, IUGR</p> <p><u>Mother:</u> Stroke, renal failure, cardiac failure, cardiac failure, pre-eclampsia</p> | <p>ECG at least annually. Aim BP below 140/90.</p> <p>Avoid angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blocker, anti-lipid agents and diuretics.</p> <p>May need to consider aspirin from 12 weeks onwards.</p> |
| Renal disease | <p><u>Fetus:</u> Stillbirth, 2nd trimester abortion, neonatal death, IUGR, premature labor and delivery.</p> <p><u>Mother:</u> Increase in Hypertension, pre-eclampsia, decrease in renal function</p> | <p>Assess kidney function and blood pressure.</p> <p>Pregnancy reasonably safe if renal function is normal.</p> <p>Target BP less than 140/90</p> <p>Advice against pregnancy for severe renal insufficiency.</p> <p>For specific renal disorders refer nephrologist or physician.</p> <p>Low dose aspirin should be given in first trimester.</p> |

| ILLNESS | RISK | PRE PREGNANCY INTERVENTION |
|------------------------------------|--|---|
| Heart disease in pregnancy | <p><u>Fetus:</u> 5-10% Increase incidence of congenital heart disease in the fetus of mother with congenital heart disease. Higher risk of IUGR in cyanotic heart disease</p> <p><u>Mother:</u> Primary Pulmonary Hypertension and Eisenmenger Syndrome have high risk of maternal mortality and should avoid pregnancy. Increased risk of pulmonary embolism, stroke and SBE more common in prosthetic valve.</p> | <p>Symptomatic mother should be seen by a cardiologist/physician. Mother with mechanical valve change to LMWH.</p> <p>Detail scan for fetal anomaly during pregnancy. Serial growth scans.</p> <p>Contraception continued until optimization of the heart condition. Specific disorders should be managed by the cardiologist</p> |
| Mechanical Prosthetic Heart Valves | <p><u>Fetus:</u> Fetal warfarin syndrome</p> <p><u>Mother:</u> Valve thrombosis</p> | <p>Lowest dose of warfarin to achieve therapeutic level. Counseling on outcome and management. Ideally not to convert to heparin. Consult specialists and combine care before embarking in a pregnancy.</p> |

**Table 1.3: Infectious Diseases commonly affecting pregnancy
(based on indication and risk behavior)**

| INFECTION | PRE PREGNANCY MANAGEMENT |
|---|--|
| Rubella | Rubella vaccination in women not immunized, avoid pregnancy for at least 3 months after immunization |
| Toxoplasma gondii | Good food hygiene and avoid eating under cooked meat/food (example sushi) |
| Chlamydia, gonorrhea, human papilloma virus, syphilis | Appropriate treatment of STI. Refer to dermatological clinic appropriately. Consider HPV vaccination for suitable women. |
| Hepatitis B | Counseling/screening for Hepatitis B surface antigen, consider vaccination. |
| HIV | Offer universal screening, counsel risk of transmission, offer ARV therapy. |

A photograph of a young man and woman smiling and making a heart shape with their hands, overlaid with a green tint. The text 'STANDARD OPERATING PROCEDURES' is centered over the image in white, bold, sans-serif font.

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURE

| Procedure number | | : | 1 | | | |
|-------------------|---|--|--|---|----------------------------------|--|
| Name of condition | | : | Pre-existing Chronic Medical Illness | | | |
| Risk Factors | Assessment | Laboratory investigation and physical examination | Classification | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Diabetes Mellitus | <ul style="list-style-type: none">• Disease severity• Complications• Co morbidities• Glycemic control and optimization | <ul style="list-style-type: none">• FBS• HbA1c• Lipid profile• Renal profile• LFT• Microalbuminuria• urine protein• Funduscopy• ECG• BP | <ul style="list-style-type: none">• Uncomplicated• Diabetes with TOD• Diabetes with TOF | <ul style="list-style-type: none">• Refer to appropriate disciplines• Management according to DM CPG• PPC counseling• Screening for complications and co-morbid conditions | MO/FMS/Physician/Endocrinologist | Hospital with/without specialist /Health Clinics |
| Hypertension | <ul style="list-style-type: none">• Disease severity• Complications• Co morbidities• Blood pressure control and optimization | <ul style="list-style-type: none">• FBS• Lipid profile• Renal profile• Microalbuminuria• Urine protein• ECG• CXR (if indicated)• BP• Ultrasound Kidney, ureter & bladder• (Look for renal artery stenosis and other conditions) | <ul style="list-style-type: none">• Uncomplicated HPT• Hypertension with TOD• HPT with TOF• Young HPT | <ul style="list-style-type: none">• Refer to appropriate disciplines• Management according to hypertension CPG• Family planning• PPC counseling | MO/FMS/Physician | Health Clinic/Hospital with/without specialist |

| Procedure number | | : | 1 | | | |
|-------------------|--|---|---|--|--------------------------------|--|
| Name of condition | | : | Pre-existing Chronic Medical Illness | | | |
| Risk Factors | Assessment | Laboratory investigation and physical examination | Classification | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Heart Disease | <ul style="list-style-type: none">• NYHA Functional Classification• Heart disease with co morbidity• Concurrent with other medical conditions | <ul style="list-style-type: none">• FBS• Lipid profile• ECG• CXR (if indicated)• Echocardiography• Renal Profile• Exercise Stress Test• BP | <ul style="list-style-type: none">• NYHA Class 1 & 2• NYHA Class 3 & 4• Heart disease with complication• Heart disease with co-morbidities | <ul style="list-style-type: none">• Refer to appropriate disciplines• NYHA Class 1 & 2 - Primary Care• NYHA 3 & 4 – Hospital Care• Management according to Heart Disease CPG• Family planning• PPC counseling | MO/FMS/Physician/ Cardiologist | Health Clinic/ Hospital with or without specialist |
| Renal Disease | <ul style="list-style-type: none">• CKD Staging (CKD 1 – 5 with or without proteinuria)• Renal disease with co morbidity• Assessment for other concurrent medical conditions | <ul style="list-style-type: none">• FBS• Lipid profile• Renal profile• Microalbuminuria• 24hrs urine protein• eGFR MDRD• Ultrasound KUB• ECG• CXR (if indicated)• BP | <ul style="list-style-type: none">• CKD Stage 1 & 2 (Primary Care)• CKD 3 – 5 (Hospital Care)• Renal Disease with co morbidity (Hospital Care) | <ul style="list-style-type: none">• Refer to appropriate disciplines• Management according to CKD CPG• Family planning• PPC counseling | MO/FMS/Physician/ Nephrologist | Health Clinic/ Hospital with or without specialist |

| Procedure number | | : | 1 | | | |
|-------------------|--|--|---|--|--|---|
| Name of condition | | : | Pre-existing Chronic Medical Illness | | | |
| Risk Factors | Assessment | Laboratory investigation and physical examination | Classification | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Thyroid Disease | <ul style="list-style-type: none">• Hypothyroid and hyperthyroid symptoms• Thyroid disease with complications• Thyroid disease with co morbidity• Stability of thyroid disease on treatment | <ul style="list-style-type: none">• FBG• Lipid profile• TSH/freeT4/free Free T3• ECG• BP• FBC• thyroid ultrasound If indicated | <ul style="list-style-type: none">• Complicated/uncomplicated• Thyroid disease with co morbidity | <ul style="list-style-type: none">• Refer to appropriate disciplines as indicated• Management according to thyroid disease CPG or other guidelines• Family planning• PPC counseling | MO/FMS/Physician/Endocrinologist/surgeon | Health Clinic/ Hospital with or with specialist |
| Bronchial Asthma | <ul style="list-style-type: none">• Severity of BA according to guidelines (example GINA guidelines)• BA with recurrent admissions• BA with co morbidity | <ul style="list-style-type: none">• PEFR• Spirometry• Asthma Control Test Assessment• CXR (if indicated) | <ul style="list-style-type: none">• Control/fairly control/poorly control• BA with co morbidity | <ul style="list-style-type: none">• Refer to appropriate disciplines• Management according to CPG or other guideline• Family planning• PPC counseling | MO/FMS/Physician/Respiratory physicians | Health Clinics/ Hospital with or without specialist |

| Procedure number | | : | 2 | | | |
|-------------------|--|--|---|---|-----------------------------------|---|
| Name of condition | | : | Thalassaemia | | | |
| Risk Factors | Assessment | Laboratory investigation and physical examination | Classification | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Thalassaemia | <ul style="list-style-type: none">• Symptoms and effort tolerance assessment• Consanguinity marriage• Severity of anemia | <ul style="list-style-type: none">• Family Screening• FBP• Peripheral blood film• HB electrophoresis for both couple (blood serum to be sent to nearby hospital with facility)• DNA analysis (where indicated) <p>Symptomatic:</p> <ul style="list-style-type: none">• Lethargy• Breathlessness• Malaise• palpitation• Abdomen distended• Pallor• Jaundice <p>Look for</p> <p>Hepatosplenomegaly</p> <ul style="list-style-type: none">• FBP• BUSE• LFT• Serum Ferritin | <ul style="list-style-type: none">• Mild• Moderate• Severe• Symptomatic/asymptomatic | <ul style="list-style-type: none">• Counsel regarding consanguinity• Counseling on risk of pregnancy• Advice family spacing and limit no. of children• Advice on vitamin supplement for folic acid, Vitamin C, Vitamin B and good nutrition• Family Planning• HB<8 gm% should refer to hospital.• Transfusion where indicated• PPC• Refer to hospital for further management | MO/FMS/Physician/ Pediatrician | Health Clinics Hospital with or without specialist |

| Procedure number | | : | 3 | | | | |
|--|---|---|--|--|--|--|--|
| Name of condition | | : | History of Congenital Anomalies | | | | |
| Risk Factors | Assessment | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | | |
| | | | | Management | Level of personnel | Level of care | |
| History of neural tube defects | Asymptomatic | Oral glucose tolerance test | Diabetes Mellitus | Pre-pregnancy folic acid at least 3 month before and 1st month into pregnancy | MO/FMS Combine care with O&G/peadiatrician/MFM unit | Health Clinic Hospital with specialist/sub specialist | |
| | Symptomatic <ul style="list-style-type: none">• Polyuria• Polydipsia• Polyphagia• Nocturia | | | Advise on balanced diet and diet rich in folate Advise on early booking and detailed scan at least 18- 20 weeks | | | |
| Chromosomal disorders History of previous child with chromosomal disease | <ul style="list-style-type: none">• Age> 35• Family history of chromosomal disorders | Chromosomal studies to be done at hospital level with facility | Genetic disorders | <ul style="list-style-type: none">• Counseling on genetic screening• Refer to MFM unit | FMS/Geneticist/ Maternal fetal Specialist | Health Clinic/Hospital with specialist/ subspecialist | |
| Congenital structural abnormalities or previous child with congenital structural abnormalities | <ul style="list-style-type: none">• Family history of congenital anomalies• Children with congenital anomalies | <ul style="list-style-type: none">• Parental karyotyping• Physical abnormality• Screen for diabetes | | <ul style="list-style-type: none">• Refer to geneticist/ O&G/pediatrician/ MFM specialist• Genetic counseling | MO/FMS/Geneticist/ Pediatricians/O&G specialist/MFM unit | Health Clinic/Hospital with specialist/sub specialist | |

| Procedure number | : | 4 | | | | |
|--------------------------------------|---|--|--|--|--|---|
| Name of condition | : | Previous Surgical History | | | | |
| Risk Factors | Assessment | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Previous uterine surgery: Myomectomy | <ul style="list-style-type: none">• Sub fertility• Menorrhagia• Dysmenorrhoea• Irregular menses• Abdominal mass | <ul style="list-style-type: none">• Hb (if indicated)• PAP smear• Ultrasound• Endometrial sampling (if indicated, done at hospital level) | Recurrent fibroid | <ul style="list-style-type: none">• Advise on family planning/ spacing• Refer to hospital if suspected of recurrent fibroid | <ul style="list-style-type: none">• FMS• MO• O&G specialist• Community health nurse• Staff nurse | <ul style="list-style-type: none">• Health Clinic• Hospital with/ without specialist |
| Caesarean Section | | | | | | |
| Pelvic surgery Example cystectomy | | | | | | |

| Procedure number | : | 5 | Recurrent Abortions | | | |
|---|---|---|---|---|--|---|
| Name of condition | : | | | | | |
| Risk Factors | Signs and symptoms | | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | |
| | | | | | Management | Level of personnel |
| Recurrent abortions (3 times and above) | Symptomatic Chronic vaginal discharge | | STI work out (vaginal discharge) | Toxoplasmosis • Rubella • Cytomegalovirus Herpes Simplex Syphilis (not cost effective to do in all mothers thus screen only when indicated) | Treatment given according to known and treatable causes (investigation findings) | MO/FMS Physician O&G specialist • Genitourinary Medicine (GUM) specialist (where indicated) |
| | | | | | | |
| | Chronic medical illness: DM | | OGTT | Diabetes mellitus | Follow latest edition CPG | |
| | Collagen diseases | | Lupus anticoagulant • Thrombophilic screening | Collagen disease | Refer physician/O&G specialist Refer to O&G specialist/ | |
| | Substances abuse: alcohol, drugs and others | | Ultrasound | Uterine abnormality | Fetomaternal specialist | Health Clinic • Hospital with specialist or without specialist |

| Procedure number | : | 6 | | | | |
|--|-------------------------------------|---|--|---|--------------------|--------------------|
| Name of condition | : | History of Unexplained Perinatal Death | | | | |
| Risk Factors | Signs and symptoms | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| History of unexplained perinatal death | Asymptomatic | OGTT | Toxoplasmosis | Treatment given | MO/FMS Physician | Health clinic |
| | Symptomatic | Lupus anticoagulant | Rubella | according known and | O&G specialist | Hospital with or |
| | Chronic medical illness | ANA/ds DNA | Cytomegalovirus | treatable causes | | without specialist |
| | Signs & symptoms of diabetes | Uterine abnormality (pelvic ultrasound) | Herpes Simplex | Follow latest edition CPG/guideline | | |
| | Connective Tissue Disease | | Syphilis | Refer Physician | | |
| | Any Substance abuse: alcohol, drugs | | Diabetes mellitus | Refer to O&G specialist/Maternal Fetal Specialist | | |
| | Congenital anomalies | | Collagen disease | | | |

| Procedure number | : | 7 | | | | |
|--|---|---|--|--|-------------------------------|---|
| Name of condition | : | Medication/Substance Abuse | | | | |
| Risk Factors | Signs and symptoms | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Substances abuse (example benzodiazepine/opiates/stimulants/recreational drugs) Smoking | Thin, lethargic, drug withdrawal symptoms, needle marks, pallor | Urine for drugs HIV screening VDRL Hepatitis screening | Substance abuse/addiction Social problem (domestic violence, neglect, marital disharmony, work stress and others) | Positive lab findings for symptomatic patients refer to Hospital Asymptomatic: • Counseling • Advise on family planning • Advise on risk of complications of pregnancy • Offer methadone replacement therapy Refer quit smoking clinic | FMS/MO Physician/psychiatrist | Health Clinic/Hospital with or without specialist |

| Procedure number | | : | 8 | | | |
|---|--|---|---|---|---|---|
| Name of condition | | : | Sexually Transmitted Infection (STI) | | | |
| Risk Factors | Signs and symptoms | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| HIV Positive AIDS Sex workers Lower Socioeconomic status | Asymptomatic | <ul style="list-style-type: none">• FBC• LFT• HBV/HCV• CD4/CD8 ratio• VDRL & other STI screening• Renal profile• FLP• Renal profile• physical examination for opportunistic infections/AIDS defining complex• STI work out | WHO clinical classification criteria of severity | ART as indicated in accordance to the CPG OCP/Implant/IM injections/Condoms BTL Counseling for safe sexual practices PPC Family Planning | MO/FMS/Infectious Disease Physician/ General Physician | Health Clinic/ Hospital with or without specialist |
| | Symptomatic | | | | | |
| Hepatitis B positive Healthy carrier Chronic hepatitis | Asymptomatic/ symptomatic (example nausea, dyspepsia, loss appetite) | <ul style="list-style-type: none">• LFT• Hepatitis B antibody• Hepatitis B e antigen/antibody• Hepatitis C screening• Alpha fetoprotein• USG HBS• HIV screening• STI workout if indicated | Raised Liver Enzymes (> 3XUNL) – refer to gastroenterologist Liver enzymes normal – F/u at primary care | Continue medical follow up (surveillance) Refer to gastroenterologist/physician Management according to CPG or other guidelines Family planning (hormonal/barrier method) Offer vaccination PPC | MO/FMS/Physician/ gastroenterologist | Health Clinic/ Hospital with or without specialist |

| Procedure number | : | 8 | | | | |
|--|--|--|--|--|--------------------------------------|---|
| Name of condition | : | Sexually Transmitted Infection (STI) | | | | |
| Risk Factors | Signs and symptoms | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Syphilis Gonorrhea Chlamydia Herpes Simplex Toxoplasma | Asymptomatic Symptomatic: Vaginal discharge Vulval ulcer Viral warts Pruritus | <ul style="list-style-type: none">Refer Guidelines on Modified Syndromic Approach (MSA) or other guidelinesSTI work out | Classify according to guidelines | Advise on regular follow up and treatment of the STI. Family planning (hormonal/barrier method) Comply to medication. Safe sexual practices PPC Early booking | MO/FMS/GUM specialist/O&G specialist | Health Clinic/ Hospital with or without specialist |

| Procedure number | : | 9 | | | | |
|-------------------|--|--|--|---|--------------------|---|
| Name of condition | : | Subfertility | | | | |
| | | | | | | |
| Risk Factors | Signs and symptoms | Laboratory investigation and physical examination | Diagnostic criteria and differential diagnosis | Care Plan | | |
| | | | | Management | Level of personnel | Level of care |
| Subfertility | Asymptomatic PCOS/signs of metabolic syndrome | <ul style="list-style-type: none">• FSH• LH• Serum Prolactin• Seminal Fluid for analysis• Thyroid function test• VDRL• Day 21 Progesterone | Failure to conceive despite normal uninterrupted coital activity | General counseling Refer to Infertility Clinic | FMS/O&G Specialist | Health Clinic/Hospital with or without specialist |



Section 2 *Antenatal Care*

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2.1 INTRODUCTION

Antenatal care should address both the psychological and medical needs of the woman. Periodic antenatal health check-ups are necessary to establish rapport between the woman and health care provider and to individualize health promotional messages.

A. Antenatal visit

Early antenatal care (1st trimester) is important to screen woman for risks factors, identify those with bad obstetric history and manage women with medical complications as these may have bearings on the progress of the pregnancy and its outcome.

Activities during the antenatal visits should include the spouse or family members as it will provide emotional support to the expectant mother. Their involvement enhances mother’s compliance; identify her needs and wants; and discuss the plan for delivery.

B. Frequency of visits

Recommended schedule for antenatal follow-up for normal, healthy mothers and uncomplicated pregnancy (**white tag only**) is as follows:

| Primigravida (weeks) | Multigravida (weeks) |
|----------------------|----------------------|
| <12 | <12 |
| 18 | 18 |
| 24 | 24 |
| 28 | 28 |
| 32 | 32 |
| 36 | 36 |
| 37 | 38 |
| 38 | 40 |
| 39 | |
| 40 | |

Reference: NICE Guideline (published March 2008)

For high risk pregnancy and other colour tags, more frequent visits are required.

C. Booking visit

The first visit is most important and should be done as soon as possible (preferably before 12 weeks POA). Even if the first visit may be late in pregnancy, it is still regarded as the booking visit. The following information should be recorded:-

History

- Detailed menstrual history
 - Last normal menstrual period (LNMP)
 - Regularity of cycles
 - Contraceptive usage

*refer for dating by ultrasound if patient's period is irregular, stopped contraceptive pills less than 6 months or unsure of LNMP
- Medical history
 - Allergies
 - Blood transfusion
 - Medical problems
 - Infections
 - Drug history (Traditional medication and other self-prescribed medicines)
- Past obstetric history
 - Previous recurrent miscarriage or termination of pregnancy
 - Intrauterine growth restriction and preterm labour
 - Previous LSCS, instrumentation, PPH, anaemia etc
 - Intrauterine death
 - Early or late neonatal death
- Family history:
 - Chronic Medical Disorders such as diabetes mellitus, hypertension
 - Multiple pregnancy
 - Congenital anomalies
- Socio-economic background
 - Occupation of both the woman and her partner
 - Smoking, drugs and alcohol consumption
 - Education level

Physical examination:

- Relevant physical examination should be performed General examination
 - Height
 - Weight
 - Blood pressure
 - Pallor, cyanosis, jaundice
 - Oral hygiene
 - Clubbing
 - Thyroid enlargement & signs of hypo/hyperthyroidism
 - Cardiovascular system
 - Respiratory system
 - Breast
 - Abdomen
 - Scars of previous operation
 - Palpation – uterine size/other masses
 - Vaginal examination – when indicated
 - Oedema
 - Varicose veins
 - The mother's gait – any bony deformity of pelvis
 - Spine – kyphosis/scoliosis

Laboratory Investigations:

- Urinalysis: protein (albumin), sugar (glucostix), UFEME (when indicated)
- Blood
 - » Haemoglobin, ABO and Rhesus group
 - » Syphilis (VDRL) – if positive perform TPHA and refer for treatment.
 - » HIV (Rapid test) – if reactive proceed with confirmatory test
 - » Hepatitis B (HBs Ag) antigen (if indicated)
 - » Thalassaemia screening (if indicated)

Ultrasound scan for viability/dating

- is recommended during booking visit, if facilities are available

Management:

- Folic acid supplementation: (Hematinics supplement to be given at booking if patient can tolerate)
- Nutritional advice
- Health education e.g. smoking cessation
- Give information on the antenatal screening test i.e. benefits and limitations

D. Subsequent visits

During the visits

- Haemoglobin level monthly
- Ask relevant symptoms if present and problems if arise
- Weight and blood pressure
- Urine for protein and glucose
- Symphysis-fundal height – to be plotted on SFH chart to alert the observer to possible growth restriction
- Assess the lie and presentation of the fetus especially after 36 weeks.

E. Screening for risk factors

Checklist should be assessed and documented. The care plan should be based on the protocol given. (Appendix 1)

F. Immunisation

Anti-tetanus vaccination (ATT)

- Primigravida – at quickening and 2nd dose 4 weeks later
- Multigravida – a single dose is given between quickening and before 37 weeks of gestation

G. Antenatal classes

Should be provided for both mother and spouse/family member. The topics should include:

- Diet during pregnancy (Appendix 3)
- Exercises during and after pregnancy
- Development of the baby
- How to overcome common discomforts in pregnancy
- Preparation for safe delivery – place of delivery, technique of delivery
- Labour process
- Pain relief methods
- Relaxation and breathing techniques
- Basic baby care
- Coping with problems in the first few weeks after delivery
- Education on common disorders in pregnancy e.g. Hypertensive diseases in pregnancy
- Breastfeeding (Appendix 2)
- Partners and family/ community role in supporting breast-feeding mothers.

H. Home visits

Home visit should be provided for new case, patients who defaulted follow-up and for high-risk mothers (Appendix 4) as soon as possible.

2.2 ANTEPARTUM FETAL MONITORING AND SURVEILLANCE

There is a higher incidence of fetal compromise in pregnancy with hypertension, diabetes, heart disorders and other medical disorders.

Fetal monitoring during the antepartum period consists of tests for:

- Fetal growth
- Fetal well being

A. Fetal growth

- Symphysio-fundal height (SFH) tape measurement should be performed routinely from 22 weeks onwards in all pregnancies where the POA is expected to correspond to the centimeters of the SFH. These measurements should be regularly charted in the 'Carta Tumbesaran Janin' graph of the antenatal card (KIK/1(a)/96). If there is a discrepancy between the SFH and POA of ± 3 cm, the patient needs to be re-evaluated with regards to the accuracy of the **LNMP AND REFERRED FOR AN ULTRASOUND**. This can be an early indicator of impaired fetal growth.
- Maternal weight gain: The antenatal mother should be weighed at every antenatal visit.
- There should be a progressive increase in weight of approximately 10 – 12.5 kg (25% of her non-pregnant weight) throughout the pregnancy. Generally the weight gain should be about 0.5 – 0.75 kg/month for the first 20 weeks and 0.5 – 0.75 kg/week from 20 weeks onwards.

B. Ultrasound scanning

- Ultrasound scanning for dating is reliable if the parameters are taken before 24 weeks (if possible at booking). Serial scan should be done every 2 – 3 weeks for fetal growth assessment if there is suspicion of IUGR or other disorders.

C. Fetal monitoring

- Fetal kick chart is an indirect tool for monitoring of fetal wellbeing. All mothers should be given the fetal movement chart (Cardiff 'count-to-ten') for recording of fetal movements from 28 weeks gestation onwards and should be told to report to any health facility if movements are less than 10 in 12 hours. This observation should be done at regular intervals every day.
- Fetal heart auscultation: should be routinely practiced from 24 weeks onward using a Pinards Fetoscope. If Daptone is available, fetal heart can be detected as early as 14 weeks. Fetal heart rate should be taken for at least 30 seconds to determine the rate, rhythm and/or variability.
- CTG should be performed in cases where there is an abnormal FHR by daptone and high risk of fetal compromise such as poorly controlled hypertension/diabetes, IUGR or postdates.

2.3 MANAGEMENT OF COMMON DISORDERS IN PREGNANCY

Anaemia in pregnancy

A. Introduction

A pregnant mother is considered to be anaemic if her haemoglobin is less than 11 gm%. Anaemia in pregnancy places a woman at a disadvantage compared to a mother with normal haemoglobin as an anaemic woman is unable to tolerate an equivalent amount of blood loss as the latter.

B. Causes of anaemia

- Physiological anaemia – due to haemodilution
- Nutritional anaemia – deficiency of protein, iron, folic acid and vitamins
- Chronic blood loss – repeated abortions, closely spaced pregnancies, bleeding gums, ulcers or piles, menorrhagia or worm infestation.
- Haemolytic anaemia – thalassaemia, malaria or drug induced.
- Aplastic anaemia – drug induced or idiopathic
- Myeloproliferative disorders - leukaemia

C. The effect of anaemia on pregnancy

- i. Intrauterine growth restriction
- ii. Increase maternal morbidity and mortality rates
- iii. Risk of postpartum haemorrhage
- iv. Risk of heart failure

D. Investigations

Full blood count should be done in all patients who are anaemic.

Additional investigations should be considered for patients whose haemoglobin is less than **9 gm% or not responsive to medical treatment.**

- Peripheral blood film (PBF)
- Serum Ferritin
- TIBC
- Serum folate and Vitamin B12 if blood film suggests macrocytic anaemia (option)
- Hb electrophoresis if haemoglobinopathy is suspected
- BFMP (if indicated)
- Stool ova and cyst (optional)

E. Management

For purposes of management, the following classification of anaemia can be used:-

| | | |
|------------------|---|-------------------------|
| Severe anaemia | - | Haemoglobin < 7 gm% |
| Moderate anaemia | - | Haemoglobin 7 – < 9gm% |
| Mild anaemia | - | Haemoglobin 9 – < 11gm% |

(WHO. 1992)

Management of anemia in pregnant mother with thalassemia minor is according to severity of anaemia.

| Severity of anaemia | Haemoglobin level (g/dl) | Management according Period of Gestation (weeks) | | | |
|-----------------------|--------------------------|---|---------|---------|-----|
| | | < 12 | 12 – 28 | 29 – 35 | ≥36 |
| Normal (white tag) | ≥ 11gm% | <u>Heamatinic supplement</u> (to be taken weekly) - Ferrous fumarate 400 mg - Folic 5 mg - Vitamin Bco 1 tablet - Vitamin C 100 mg <u>Option:</u> - Other preparation of supplement | | | |
| Mild (green tag) | 9.0 – <11.0 | Asymptomatic Lab Investigation: - Full blood count - Stool ova and cyst (Optional) | | | |
| | | <u>Haematinics</u> - Ferrous fumarate 400 mg daily/200 mg bd - Folic 5 mg daily - Vitamin Bco 1 tab daily - Vitamin C 100 mg daily <u>Option:</u> Other preparation of supplement Refer to MO & HO for assessment. If patient is anemic and symptomatic on follow up, refer to FMS. | | | |
| Moderate (yellow tag) | 7.0 – <9.0 | <u>Laboratory investigation:</u> - Peripheral blood film (PBF) - Serum Ferritin - TIBC - Serum folate and Vitamin B12 if blood film suggest macrocytic anaemia - Hb electrophoresis if haemoglobinopathy is suspected - BFMP (if indicated) - Stool ova and cyst (optional) *Repeat FBC 2 weekly. | | | |

| Severity of anaemia | Haemoglobin level (g/dl) | Management according Period of Gestation (weeks) | | | |
|-----------------------|--------------------------|--|-------------------|--|-------------------|
| | | < 12 | 12 – 28 | 29 – 35 | ≥36 |
| Moderate (yellow tag) | 7.0 – <9.0 | <u>Haematinics</u> Ferrous fumarate 400 mg bd Folic 5 mg daily Vitamin Bco 1 tab daily Vitamin C 100 mg daily <u>Option:</u> Other preparation of supplement | | Continue oral heamatinics If poor compliance, not tolerating orally or fail to increase Hb level. Patient should be counselled for parenteral treatment. (option I/M or I/V) If patient symptomatic refer hospital | Refer to Hospital |
| Severe (red tag) | < 7.0 | Refer to Hospital | Refer to Hospital | Refer to Hospital | Refer to Hospital |

Adapted from WHO 2003.

(a) Moderate anaemia

Patients with Hb between 7 – <9 gm%.

Full blood count should be performed and patient counseled regarding diet and therapy which includes:

- Ferrous fumarate 400 mg daily/200 mg bd
- Folic 5 mg daily
- Vitamin Bco 1 tab daily
- Vitamin C 100 mg daily

If the patient is not reliable or is unable to tolerate oral therapy, iron dextran therapy is indicated either by intramuscular injection or by IV infusion in divided doses.

Iron dextran therapy by intramuscular injection can be given in the health clinic, after test dose 0.5ml given by a Medical Officer. During this therapy, oral iron should be omitted. If the patient is moderately active injection may be given daily into alternate buttocks in zig zag manner. New Iron complexes have been developed to be better tolerated and can be used for rapid repletion of Iron storage.

After the completion of iron dextran therapy, oral hematinics may be continued. Reassess patients' general condition and haemoglobin level 2 weeks later.

Cases which do not respond to treatment should be referred to FMS/hospital for further management.

(b) Severe anaemia

Patient with Hb < 7 gm%

Refer case to hospital for management

Assess the patient for reliability and compliance.

If the patient is asymptomatic and compliant to all medications before 32 weeks, oral therapy is sufficient.

If the patient is asymptomatic and not compliant to all medications after 2nd trimester, parenteral iron (Iron Sucrose or Dextran) is indicated.

If the patient is symptomatic and clinically pale, blood transfusion is necessary.

NOTE:

All cases of cardiac failure and intrauterine growth retardation must be referred to hospital for further management.

(c) Formula to calculate the amount of iron dextran to be given:-

(Normal Hb – patient's Hb in gm%) x body weight (kg) x factor* + 500 mg
= _____ mg of elemental iron

One ampoule of iron dextran (2ml) contains 50 mg of elemental iron per ml (100 mg).

Test Dose IM 0.5ml (undiluted solution) to be given by a doctor in the hospital or clinic (with adequate resuscitation equipment). Iron dextran to be given under supervision by doctor.

*factor - for iron dextran = 0.24
 - for iron sucrose = 2.4 } *Factors vary depending on drug preparation

Adverse reaction:

- | | |
|-----------------|--------------------|
| i. Pruritis | iv. Serum sickness |
| ii. Anaphylaxis | v. Bronchospasm |
| iii. Arthritis | vi. Hypotension |

Contraindication:

- | | |
|-----------------|---------------------------|
| i. Thalassaemia | ii. Known allergy to iron |
|-----------------|---------------------------|

Pregnancy and diabetes mellitus

Approximately 4% of all pregnancies are complicated by Gestational Diabetes Mellitus (GDM).

A. Classification

Pregnant women complicated with diabetes can be classified as:

- i. Pre-existing diabetes
- ii. Gestational diabetes

Gestational Diabetes Mellitus is defined as a state of carbohydrate intolerance resulting in hyperglycaemia of variable severity, with onset or first recognition during pregnancy and resolved within the puerperium period.

B. Screening of GDM (Flow Chart Fig 2.1)

Pregnant women should be screened if they have any one of the following risk factors:

- Glycosuria $\geq 2+$ at any prenatal visit
- BMI $> 27\text{kg/m}^2$ or weight $> 80\text{ kg}$
- First - degree relative with diabetes
- Previous macrosomic baby weighing 4kg and above
- Women ≥ 25 years
- Previous unexplained stillbirths, recurrent abortions, birth defects
- Previous history of gestational diabetes
- Current obstetric problems such as polyhydramnios, suspicious macrosomia and use of steroids

C. Confirmatory Test

| Time | Venous plasma glucose level (mmol/l) | |
|---------|--------------------------------------|-------------------------------|
| | Normal | Gestational Diabetes Mellitus |
| Fasting | < 5.6 | ≥ 5.6 |
| 2HPP | < 7.8 | ≥ 7.8 |

(ADA 2008)

NOTE:

- a. Women who has significant risk factors with normal MOGTT, a repeat MOGTT may be performed at 28 - 32 weeks gestation
- b. In women whose MOGTT is abnormal, 'blood sugar profiles' (BSP) is indicated

MOGTT is done after 12 – 14 weeks gestation for mother with risk factors identified as above.

D. Management of diabetes in pregnancy

1. Early diagnosis of GDM and meticulous glycaemic control are the key elements to a successful pregnancy complicated with GDM

| | |
|-----------------|---|
| Diet | All women with GDM should receive dietary counseling (refer H: Medical Nutrition Therapy Guidelines for Diabetes Mellitus (Malaysian Dietitians' Association & Ministry of Health Malaysia; 2005) |
| Exercise | Women with active lifestyle should be encouraged to continue a programme of moderate exercise, which has been shown to lower maternal glucose concentrations. |
| Insulin | Regular monitoring of blood glucose levels should guide the dosage and timing of the insulin regimen. The initial recommended dose of soluble insulin is 4-6 unit tds. Initiation of insulin can be done at health clinic under surveillance of Family Medicine Specialist |

2. Known diabetic mother

- i. Oral hyoglycaemic agent may be continued under the advice from FMS/O&G/Physician.
- ii. Those patients on insulin may continue the same dosage and preparation or convert to short acting insulin type.

E. Monitoring

Periodic blood sugar profile with home-based glucose monitoring (HBGM) or BSP should be done to assess glycaemic control, modification of insulin dosage and diet.

- i. GDM on diet control alone, BSP should be performed every 4 weekly from the point of diagnosis till delivery before 40 weeks unless there is evidence of fetal complication such as polyhydramnios and macrosomia (Fig. 2.1)
- ii. GDM on insulin, BSP is indicated for every 2 weeks till delivery at 38 weeks.
- iii. Acceptance range for pre-meal glycaemic controlled level is between 4 – 6 mmol.
- iv. HbA1c may be performed at least 4-6 monthly.
- v. Serial ultrasound is necessary to detect fetal complication such as polyhydramnios and macrosomia.
- vi. Fetal surveillance in the form of Antenatal CTG has a poor sensitivity to predict fetal IUD (NICE Guideline 2008). It may be indicated especially in poorly controlled diabetes.
- vii. Additional investigation such as renal profile and urine albumin is necessary.
- viii. A detailed ultrasound and fundoscopy should be done (if facilities are available).

F. Timing of delivery

- Diabetic on diet without complication - delivery not to go beyond 40 weeks
- Diabetic on insulin - delivery at 38 weeks
- Poorly controlled diabetic - early delivery maybe indicated.

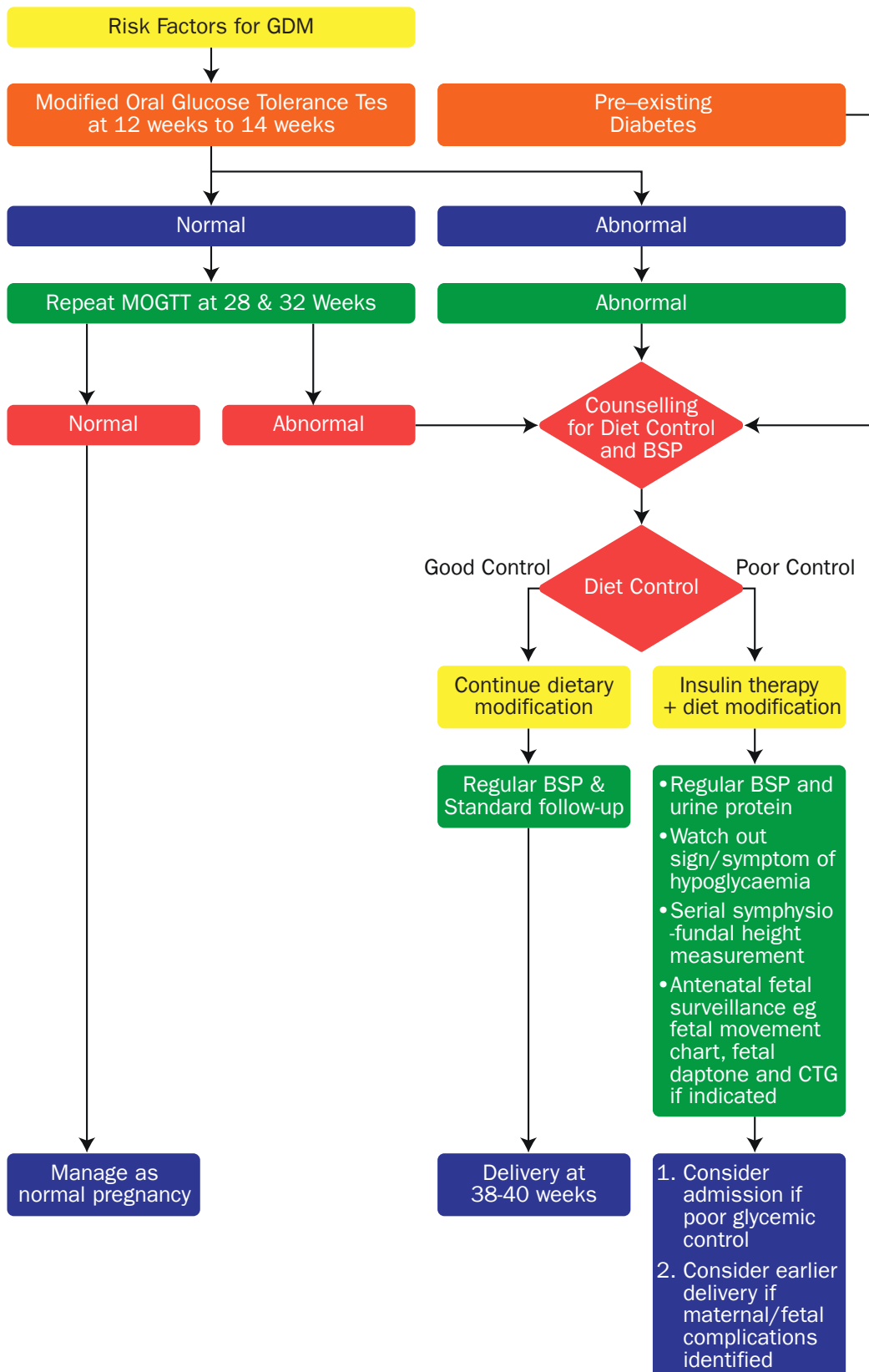
G. Postpartum Management

- Insulin should be withheld after delivery of all GDM mother.
- Mother with preexisting diabetes should be put back on their previous pre-pregnancy treatment.
- Breastfeeding is not contraindicated.
- Women with GDM are at risk for the development of Type 2 Diabetes therefore:
 - i. MOGTT should be performed at 6 - 8 weeks in the postpartum period
 - ii. Patient should be educated regarding lifestyle modifications including maintenance of normal body weight through dietary modification and physical activities.
 - iii. Pre-pregnancy care should be given to all women with diabetes before they embark on future pregnancy.
 - iv. Oral contraception is not contraindicated and should be allowed in well controlled diabetes.

Further reading:

- i. Garis Panduan Pengendalian Diabetes. KKM (2005)
- ii. WHO (2005)
- iii. Diabetic Diet – Medical Nutrition Therapy Guidelines
- iv. NICE Guideline 2008.
- v. CPG – Management of Type 2 Diabetes Mellitus (4th Edition) 2009

Fig. 2.1: Flow chart for pregnancy and diabetes mellitus



H. Diet counselling for diabetic mother

| Makanan perlu dielakkan | Makanan perlu di kawal | Makanan bebas di makan |
|--|---|--|
| <p>Rasional: Mengandungi gula ringkas yang akan meningkatkan aras glukosa darah dengan cepat</p> | <p>Rasional: Mengandungi gula kompleks yang diperlukan sebagai sumber tenaga tubuh, diuraikan dengan perlahan-lahan, maka tidak meningkatkan aras glukosa darah dengan mendadak</p> <p>Nota: Makanan dalam kumpulan ini diambil mengikut nasihat Pegawai Dietetik/ Pegawai Sains Pemakanan</p> | <p>Rasional: Tidak mengandungi gula ringkas, maka tidak mempengaruhi aras glukosa darah</p> |
| <ul style="list-style-type: none"> • Gula putih, gula merah, gula melaka, gula batu, gula-gula, glukosa • Madu, jem, kaya, halwa, susu pekat manis, sirap, minuman ringan, minuman cordial • Biskut manis, roti manis, kuih manis, kek, aiskrim, coklat • Air tebu, air kelapa muda, nira • Minuman dan makanan yang ditambah/disalut gula (Contoh: jeruk, buah-buahan dalam tin) | <ul style="list-style-type: none"> • Bijirin dan hasilnya: Nasi, roti, biskut, oat, mihun, mee, kueh teow, capati, tosai, putu mayam, iddli, macaroni, spaghetti. • Sayuran berkanji: • Ubi kayu, ubi kentang, ubi keledek, keladi, labu, jagung, kacang peas, kacang panggang, dhal • Susu : Susu tepung, susu segar, susu sejat, yogurt • Buah-buahan : Semua jenis buah-buahan <p>Tips: Buah-buahan dan susu hendaklah diambil selepas/semasa makan utama (sarapan, lunch, dinner). Elakkan semasa perut kosong</p> <p>Tips: Sebaiknya elak ambil jus buah tetapi ambil buah dibolehkan</p> | <ul style="list-style-type: none"> • Minuman : Air (panas/sejuk), kopi/teh 'O' tanpa gula, teh herba, teh cina, air mineral, air limau tanpa gula, sup cair • Sayur-sayuran: Semua jenis sayur/ulam (kecuali sayuran berkanji). Contoh: Sawi, kobis, bayam, kailan, kangkung, kacang panjang, kacang bendi, daun salad, bunga kobis, peria, pucuk paku, tomato, taugeh, cendawan, terung dan lain-lain • Perasa dan perencah: Bawang putih/ merah, halia, cuka, serai, daun pandan, serbuk kari, cili, herba, akar kayu, kunyit dan lain-lain |

Medical Nutrition Therapy Guidelines for Diabetes Mellitus (Malaysian Dietitians' Association & Ministry of Health Malaysia; 2005)

CONTOH MENU (2000 kcal)

SARAPAN PAGI

- 2 keping roti bijirin penuh bijirin
- 1 biji telur rebus
- 1 gelas susu rendah lemak

MINUM PAGI

- 1 keping karpap
- 1 gelas air kosong

MAKAN TENGAHARI

- 1 ½ cawan nasi
- 1 ketul dada ayam masak sup
- ½ cawan bayam goreng
- ½ biji jambu batu
- 1 gelas air kosong

PETANG

- 3 keping biskut lemak
- 1 gelas air kosong

MAKAN MALAM

- 1½ cawan nasi
- 1 ekor ikan kembung asam pedas
- ½ cawan sawi goreng
- 1 potong tembikai susu
- 1 gelas air kosong

MINUM MALAM

- 1 gelas susu rendah lemak

Anterpartum Haemorrhage

A. Placenta Praevia

1. Classifications of Placenta Praevia

- | | |
|----------|---|
| Type I | Placenta within 2 cm from the cervical os |
| Type II | Placenta encroaching the os but not covering it |
| Type III | Placenta partially covering the cervical os |
| Type IV | Placenta completely covering the os |

2. Risk factors:

- Multiple gestation
- Multiple Previous Caesarean Section or uterine scar
- Uterine structural anomaly
- Assisted conception

3. Clinical features:

- Asymptomatic (incidental findings)
- Painless vaginal bleeding
- High presenting part
- Maternal cardiovascular compromise if bleeding is severe
- Fetal condition satisfactory until severe maternal compromise

4. Management guidelines:

- Referral to hospital with operative facilities (Fig. 2.2)
- Keep nil orally
- Large bore cannula (Gauge 16,18)
- Full blood count
- Fetal monitoring
- Maternal monitoring
- Corticosteroids if gestation < 36 weeks
- Group screening and hold (GSH) or group and cross match (GXM) if indicated

RESUSCITATION AND OPTIMISATION OF THE SHOCKED PATIENT IS OF PARAMOUNT IMPORTANCE

B. Abruptio placenta

Uterine bleeding following premature separation of a normally sited placenta before onset of labour. It is concealed in approximately one-third of cases (i.e. no blood loss is seen per vagina) and revealed in two-thirds of cases.

1. Risk factors:

- Pregnancy induced hypertension
- Direct abdominal trauma
- External cephalic version
- High parity
- Uterine overdistension (polyhydramnios, multiple pregnancy)
- Smoking

2. Clinical features:

- Abdominal pain with/without vaginal bleeding
- Uterine contraction
- Tender and tense uterus

3. Effect on mother:

- Hypovolaemic shock
- Disseminated intravascular coagulation
- Post partum haemorrhage
- Acute renal failure
- Maternal morbidity and mortality

4. Effect on fetus:

- Perinatal mortality & morbidity

5. Management guidelines:

- Referral to hospital with operative facilities immediately
- Keep nil orally
- Large bore cannula (Gauge 16, 18)
- Blood taken for full blood count, group & cross-match to accompany on transferring patient
- Fetal monitoring
- Maternal monitoring
- Corticosteroids if gestation < 36 weeks

THIS IS AN ACUTE OBSTETRIC EMERGENCY AND A LIFE THREATENING CONDITION. RESUSCITATION AND OPTIMIZATION OF THE SHOCKED PATIENT IS OF PARAMOUNT IMPORTANCE. THE DEGREE OF SHOCK MAY BE OUT OF PROPORTION TO THE SEVERITY OF PER VAGINAL BLEEDING

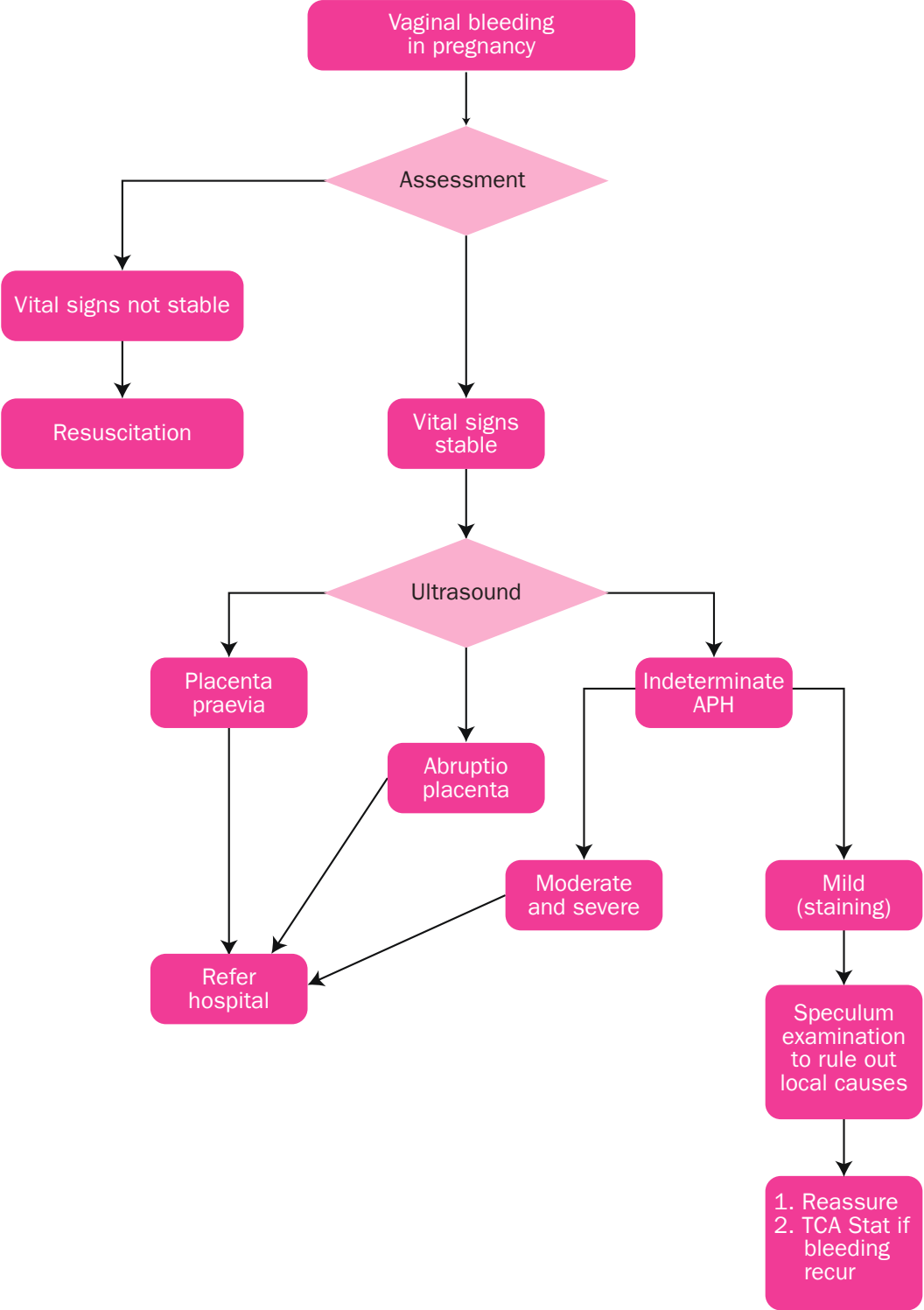
C. Indeterminate APH

Unknown cause of vaginal bleeding, varies from mild to moderate severity patient is usually hemodynamically stable.

Ultrasound needed to exclude placental causes. In mild vaginal bleeding, speculum examination is necessary to exclude local vaginal causes. Treatment is reassurance and symptomatic. In moderate cases, patient may require hospitalization and bedrest.

In view of risk of recurrent bleeding, delivery should be carried out before 40 weeks.

Fig. 2.2: Flow Chart for management of vaginal bleeding in pregnancy



Group β Streptococcal infection in pregnancy

A. Screening

Mothers at risk for Group β Streptococcal infection:

- Preterm labour or preterm prelabour rupture of membranes at less than 37 weeks of gestation
- Rupture of membranes for more than 18 hours
- Maternal intrapartum fever (temperature of 38°C)

B. Antenatal Management

- Eradication of colonization during pregnancy is ineffective
- The culture at delivery correlates better if the specimen is taken at late pregnancy.

C. Intrapartum management

1. Indication for chemoprophylaxis:

- Women who had a previous infant with invasive Group β Streptococcal infection
- Women who are Group β streptococcal bacteriuria in the present pregnancy
- Women who are Group β Streptococcal carriers who go into labour or rupture the membranes before 37 weeks of gestation
- Women who are Group β Streptococcal carriers with PROM

2. Regimens for chemoprophylaxis of Group β Streptococcal infection.

- IV Penicillin G 5 million units, followed by 2.5 million units 4 hourly till delivery (after test dose) OR IV Ampicillin 2 gm followed by 1 gm 4 hourly.

D. Neonatal management of infants born to mothers with risk factors

- Neonates with signs of systemic infection should be given antimicrobial therapy (Penicillin and Gentamicin) and supportive treatment as indicated.
- Neonates regardless of gestation who are asymptomatic should be treated as low risk group and observed for 48 hours without any antimicrobial treatment provided mothers have been given at least 2 doses of intrapartum antibiotics.

HIV

Refer to Clinical Practice Guidelines on HIV (MOH)

Pregnancy Induced Hypertension

Refer to training manual on Management of Hypertensive Disorders in Pregnancy (CEMD, MOH)

Heart disease in pregnancy

Refer to Clinical Practice Guidelines and training manual on Management of Heart Diseases in Pregnancy (CEMD, MOH)

2.4 BREASTFEEDING

A. The importance of breastfeeding

- Breastfeeding is important to children, mothers and families. Breastfeeding protects the infant's health. Children who are not breastfed are more likely to be:
 - Ill or to die from infection such as diarrhea and gastrointestinal infections, and chest infections
 - Underweight and not grow well, if they live in poor circumstances
 - Overweight and to have later heart problems, if they live in rich circumstances
- Breastfeeding is important to mother, women who do not breastfeed are more likely:
 - To develop anaemia and to retain fat deposited during pregnancy, which may result in later obesity
 - To become pregnant soon after the baby's birth
 - To develop breast cancer
 - To have hip fractures in older age
- In addition:
 - Breastmilk is readily available and free. It needs no preparation or storage.
 - Breastfeeding is simple, with no equipment or preparation needed.
 - If a baby is not breastfed, the family will need to buy replacement milk for the baby and find time to prepare feeds and keep feeding equipment clean.
 - If a baby is not breastfed, there may be loss of income through a parent's absence from work to care for an ill child.
- Mother's milk is all a baby needs:
 - Exclusive breastfeeding is strongly recommended for the first six months. The baby does not need water, other fluids, or foods during this time.
 - Breastfeeding continues to be important after the first 6 months even when other foods are given to the baby.
 - A mother's milk is especially suited for her own baby and changes from day to day, month to month, and feed to feed to meet the baby's need. The baby learns the tastes of the family foods through the flavours of breastmilk.
 - Mother's milk is unique (special). Human milk is a living fluid that actively protects against infection. Artificial formula provides no protection from infections.

B. Practices that can help breastfeeding to go well

- Hospital practices can help breastfeeding to go well. These practices include to:
 - Have a companion with you during labour, which can help you to be more comfortable and in control.
 - Avoid labour and birth interventions such as sedating pain relief and caesarean sections unless they are medically necessary.
 - Have skin-to-skin contact immediately after birth, which keeps the baby warm and gives an early start to breastfeeding.
 - Keep the baby beside you (rooming-in or bedding-in), so that your baby is easy to feed as well as safe.
 - Learn feeding signs in your baby so that feeding is baby-led rather than to a schedule.
 - Feeding frequently helps to develop good milk supply.
 - Breastfeeding exclusively with no supplements, bottles or artificial teats.
 - It is important to learn how to position and attach the baby for feeding. The hospital staff will teach the mother how to breastfeed. Most women can breastfeed and help is available if needed

C. Information for HIV positive mothers on breastfeeding.

- All pregnant women are offered voluntary and confidential HIV counselling and testing. If a woman is HIV-infected there is a risk of transmission to the baby during the pregnancy and birth, as well as during breastfeeding. If the pregnant woman knows that she is HIV-positive then she can make informed decisions.
- About 5-15% of babies (one in 20 to one in seven) born to women who are HIV infected will become HIV-positive through breastfeeding. This means most infants born to women who are HIV-positive will be infected through breastfeeding.
- In some settings, the risk to the child of illness and death from not exclusively breastfeeding is higher than the risk of HIV transmission from breastfeeding. One of the reasons that individual counselling is so important is that it gives the mother the information they need to make the informed choices about how to feed their babies in their own situations.
- The majority of women are not infected with HIV. Breastfeeding is recommended for:
 - Women who do not know their status, and
 - Women who are HIV-negative

(Reference: Baby-Friendly Hospital Initiative – revised, updated & expanded for integrated care. January 2006. UNICEF/WHO)

2.5 ANTENATAL EXERCISE

Please refer to the guidelines prepared by Family Health Development Division, Ministry of Health, Malaysia.

2.6 STANDARD OPERATING PROCEDURE

This standard operating procedures (SOP) are designed to assist health care providers in managing the client.

- SOP 1 - Routine Booking Visit
- SOP 2 - Antenatal Follow-up visit
- SOP 3 - Teenage pregnancy/single mothers
- SOP 4 - Abnormal Lie
- SOP 5 - Uterus larger than dates
- SOP 6 - Uterus smaller than dates
- SOP 7 - Preterm Labour
- SOP 8 - Preterm Prelabour Rupture of membranes (PPROM)
- SOP 9 - Term Prelabour Rupture of membranes (Term PROM)
- SOP 10 - Breech at term
- SOP 11 - Previous caesarean section
- SOP 12 - Urinary tract infection in pregnancy
- SOP 13 - History of fetal abnormalities
- SOP 14 - Thalassaemia in pregnancy
- SOP 15 - Postdates (EDD +7 days)
- SOP 16 - Reduced fetal movements
- SOP 17 - Unsure of dates
- SOP 18 - Anaemia in pregnancy
- SOP 19 - Diabetes screening
- SOP 20 - HIV in pregnancy
- SOP 21 - High blood pressure in pregnancy

SISTEM KOD WARNA DAN SENARAI SEMAK PENJAGAAN ANTENATAL

Sistem ini mempunyai penggunaan empat kod warna, ia berdasarkan tahap penjagaan menurut keperluan pengendalian klinikal dan masa rujukan semasa penilaian dijalankan.

| KOD WARNA | TAHAP PENJAGAAN |
|---------------|---|
| Merah | Rujukan segera ke Hospital dan pengendalian selanjutnya adalah bersama (shared care) Pakar O&G dan Pakar Perubatan Keluarga |
| Kuning | Rujukan untuk pengendalian oleh Pakar O&G Hospital/Pakar Perubatan Keluarga, dan penjagaan selanjutnya boleh dilakukan bersama (shared care) Pegawai Perubatan dan Jururawat Kesihatan |
| Hijau | Pengendalian di Klinik Kesihatan oleh Pegawai Perubatan dan Kesihatan dan pengendalian selanjutnya boleh dilakukan bersama Jururawat Kesihatan/Jururawat Masyarakat di bawah pengawasan Pegawai Perubatan |
| Putih | Penjagaan oleh Jururawat Kesihatan/Jururawat Masyarakat di Klinik Kesihatan dan Klinik Desa (sekiranya tiada terdapat faktor risiko yang disenaraikan dalam kod merah, kuning dan hijau, ibu diberi kod warna putih). |

Di dalam situasi yang tertentu khususnya di kawasan pendalaman, di mana tidak terdapat Pegawai Perubatan, pengendalian boleh dilakukan oleh Jururawat Kesihatan/Jururawat Masyarakat dengan pengawasan dari Pegawai Perubatan yang terdekat atau mudah dihubungi.

Pakar O&G/Pakar Perubatan Keluarga boleh menukar kod warna mengikut penilaian tahap risiko semasa ibu hamil. Tag warna yang dilekatkan dapat mempamerkan kod warna yang telah diberikan sebelumnya.

SENARAI SEMAK PENJAGAAN ANTENATAL MENGIKUT KOD WARNA

KOD MERAH – Rujukan segera ke Hospital dan pengendalian selanjutnya adalah bersama (shared care) Pakar O&G dan Pakar Perubatan Keluarga.

| FAKTOR RISIKO | | Tandakan (✓) dalam ruangan jika ada faktor risiko | | | | | | |
|--|--|---|-------|-------|-------|-------|-------|----------|
| TRIMESTER | | 1 | 2 | | 3 | | | Postdate |
| KEKERAPAN PENILAIAN RISIKO | | 1-12 | 13-22 | 23-27 | 28-32 | 33-36 | 37-40 | >40 |
| TARIKH | | | | | | | | |
| Jangkamasa tidak datang haid (POA/POG) | | | | | | | | |
| 1. | Eklampsia | | | | | | | |
| 2. | Preeklampsia (tekanan darah tinggi dengan urin albumin) iaitu BP≥140/90mmHg dengan urine albumin >1+ | | | | | | | |
| 3. | Tekanan darah tinggi ≥170/110mmHg | | | | | | | |
| 4. | Tekanan darah tinggi >140/90mmHg dengan kehadiran simptom | | | | | | | |
| 5. | Sakit jantung semasa mengandung dengan tanda-tanda dan gejala (sesak nafas, berdebar-debar) | | | | | | | |
| 6. | Sesak nafas ketika melakukan aktiviti ringan (aktiviti seperti sapu sampah, cuci pinggan) | | | | | | | |
| 7. | Ibu diabetes yang tidak terkawal dengan kehadiran urin keton | | | | | | | |
| 8. | Pendarahan antepartum (termasuk keguguran) | | | | | | | |
| 9. | Denyutan jantung janin yang abnormal - FHR ≤110/min pada dan selepas 26/52 - FHR >160/min selepas 34/52 (denyutan jantung mungkin tinggi jika pramatang) | | | | | | | |
| 10. | Anemia dengan simptom pada mana-mana gestasi atau Hb ≤7g% | | | | | | | |
| 11. | Kontraksi rahim pramatang | | | | | | | |
| 12. | Keluar air likuor tanpa kontraksi | | | | | | | |
| 13. | Serangan asma yang teruk | | | | | | | |
| 14. | Sawan | | | | | | | |
| 15. | Demam yang berpanjangan ≥5 hari | | | | | | | |
| NAMA & JAWATAN PEMERIKSA | | | | | | | | |

| KOD KUNING – Rujukan untuk pengendalian oleh Pakar O&G Hospital/Pakar Perubatan Keluarga, dan penjagaan selanjutnya boleh dilakukan bersama (shared care) Pegawai Perubatan dan Jururawat Kesihatan | | | | | | | |
|---|---|-------|-------|-------|-------|-------|----------|
| FAKTOR RISIKO | Tandakan (✓) dalam ruangan jika ada faktor risiko | | | | | | |
| TRIMESTER | 1 | 2 | | 3 | | | Postdate |
| KEKERAPAN PENILAIAN RISIKO | 1-12 | 13-22 | 23-27 | 28-32 | 33-36 | 37-40 | >40 |
| TARIKH | | | | | | | |
| Jangkamasa tidak datang haid (POA/POG) | | | | | | | |
| 1. Ibu HIV positif | | | | | | | |
| 2. Ibu Hepatitis B positif | | | | | | | |
| 3. Ibu Tuberkulosis/Malaria/sifilis | | | | | | | |
| 4. Tekanan darah tinggi >140/90 - <170/110mmHg dengan urin albumin negative | | | | | | | |
| 5. Ibu diabetes (dengan rawatan insulin) | | | | | | | |
| 6. Pergerakan janin kurang semasa kandungan ≥32 minggu | | | | | | | |
| 7. Kandungan melebihi 7 hari dari EDD | | | | | | | |
| 8. Ibu dengan masalah perubatan yang memerlukan rawatan bersama dengan hospital | | | | | | | |
| 9. Ibu yang terlibat dalam isu medical legal | | | | | | | |
| 10. Ibu tunggal atau ibu remaja (<19 tahun) | | | | | | | |
| 11. Hemoglobin 7<9gm% atau simptomatik | | | | | | | |
| 12. Placenta previa yang stabil – tiada pendarahan | | | | | | | |
| 13. Maternal pyrexia >38°C atau >3 hari | | | | | | | |
| 14. *Sejarah masalah ketidaksuburan sebelum kandungan semasa (infertility) | | | | | | | |
| 15. Penyakit jantung tanpa gejala | | | | | | | |
| 16. *Ketagihan dadah/merokok | | | | | | | |
| NAMA & JAWATAN PEMERIKSA | | | | | | | |

*Penilaian sekali sahaja.

Nota: Ibu mesti diperiksa oleh Pegawai Perubatan dalam tempoh 2 minggu dari tarikh booking

KOD HIJAU – Pengendalian di Klinik Kesihatan oleh Pegawai Perubatan dan Kesihatan dan pengendalian selanjutnya boleh dilakukan bersama (shared care) Jururawat Kesihatan/ Jururawat Masyarakat di bawah pengawasan Pegawai Perubatan

| FAKTOR RISIKO | | Tandakan (✓) dalam ruangan jika ada faktor risiko | | | | | |
|---|---|---|-------|-------|-------|-------|----------|
| TRIMESTER | | 1 | 2 | 3 | | | Postdate |
| KEKERAPAN PENILAIAN RISIKO | | 1-12 | 13-22 | 23-27 | 28-32 | 33-36 | 37-40 |
| TARIKH | | | | | | | |
| Jangkamasa tidak datang haid (POA/POG) | | | | | | | |
| 1. | *Rh negative | | | | | | |
| 2. | *Berat badan ibu sebelum mengandung atau ketika booking <45kg | | | | | | |
| 3. | *Masalah perubatan semasa (termasuk psikiatrik dan kecacatan fizikal) kecuali diabetes dan hipertensi | | | | | | |
| 4. | *Pembedahan ginekologi yang lalu | | | | | | |
| 5. | *LNMP yang tidak pasti | | | | | | |
| 6. | *3 kali riwayat keguguran yang berturutan | | | | | | |
| 7. | *Riwayat obstetrik yang lalu: | | | | | | |
| | - Pembedahan caesarean | | | | | | |
| | - Riwayat lalu PIH/eklampsia/ diabetes | | | | | | |
| | - Kematian perinatal | | | | | | |
| | - Mempunyai sejarah bayi dengan berat lahir kurang daripada 2.5kg atau lebih daripada 4kg | | | | | | |
| | - Koyak perineum 3rd degree | | | | | | |
| | - Lekat uri | | | | | | |
| | - Pendarahan selepas bersalin | | | | | | |
| | - Kelahiran instrumental | | | | | | |
| | - Sakit bersalin lama | | | | | | |
| 8. | Kandungan lebih dari satu | | | | | | |
| 9. | Tekanan darah tinggi (140/90mmHg) tanpa urin albumin | | | | | | |
| 10. | Hemoglobin kurang dari 9-<11gm% | | | | | | |
| 11. | Glukosuria 2 kali | | | | | | |
| 12. | Air kencing mempunyai albumin ≥1+ | | | | | | |
| 13. | Pertambahan berat badan yang mendadak melebihi 2kg dalam seminggu | | | | | | |

| | | | | | | | | |
|-------------------------------------|--|--|--|--|--|--|--|--|
| 14. | Berat badan ibu sebelum mengandung atau booking melebihi 80kg | | | | | | | |
| 15. | Tinggi rahim (SFH) kecil atau besar dari tarikh jangka masa kandungan | | | | | | | |
| 16. | Menyongsang/oblique/melintang dengan tidak ada tanda sakit bersalin pada 36 minggu kehamilan | | | | | | | |
| 17. | Kepala bayi tinggi (Head not engaged) semasa cukup bulan (37 minggu) bagi primigravida) | | | | | | | |
| 18. | Ibu GDM (kawalan diet) | | | | | | | |
| 19. | Berat badan statik atau menurun (dalam tempoh sebulan) | | | | | | | |
| 20. | *Ibu berumur >40 tahun | | | | | | | |
| 21. | *Primigravida | | | | | | | |
| 22. | *Gravida 6 dan ke atas | | | | | | | |
| 23. | *Jarak kelahiran kurang dari 2 tahun atau melebihi 5 tahun | | | | | | | |
| 24. | *Ibu dengan masalah tertentu: Ukuran tinggi kurang dari 145cm | | | | | | | |
| NAMA & JAWATAN PEMERIKSA | | | | | | | | |

*Penilaian sekali sahaja.

Nota: Ibu mesti diperiksa oleh Pegawai Perubatan dalam tempoh 2 minggu dari tarikh booking.

KOD PUTIH - Penjagaan oleh Jururawat Kesihatan/Masyarakat di Klinik Kesihatan dan Klinik Desa. Ibu akan hanya diberi kod berwarna putih setelah ia tidak mempunyai sebarang faktor risiko yang tersenarai dalam kod merah, kuning dan hijau.

IBU DIBENARKAN BERSALIN DI PUSAT BERSALIN ALTERNATIF, sekiranya memenuhi syarat-syarat berikut:-

| FAKTOR RISIKO | | TANDAKAN (✓) DALAM RUANG BERKENAAN |
|---|---|------------------------------------|
| TARIKH | | |
| Jangkamasa tidak datang haid (POA/POG) | | |
| 1. | Gravida 2-5 | |
| 2. | Tiada masalah obstetrik lalu yang mungkin berulang atau memberi kesan pada kandungan semasa | |
| 3. | Tiada masalah perubatan yang lalu | |
| 4. | Tiada masalah perubatan/obstetric pada kandungan semasa | |
| 5. | Ukuran tinggi lebih dari 145sm | |
| 6. | Ibu berumur lebih 18 tahun dan kurang 40 tahun | |
| 7. | Ibu berkahwin dan mempunyai sokongan keluarga | |
| 8. | POA>37 minggu atau <41 minggu | |
| 9. | Anggaran berat bayi >2kg dan <3.5kg | |
| NAMA & JAWATAN PEMERIKSA | | |

Nota: Ibu mesti diperiksa oleh Pegawai Perubatan dalam tempoh 2 minggu dari tarikh booking.

PANDUAN MENGGUNAKAN SENARAI SEMAK PENJAGAAN ANTENATAL

- Senarai semak ini bertujuan membantu anggota kesihatan di peringkat Klinik Kesihatan dan Klinik Desa untuk menilai dan mengenalpasti faktor-faktor risiko yang mungkin dialami oleh ibu hamil
- Senarai semak ini perlu digunakan pada jangkamasa berikut:
 - a. Trimester 1:
 - » Kali pertama semasa booking
 - b. Trimester 2:
 - » Kali kedua semasa mengandung 13-22 minggu
 - » Kali ketiga semasa kandungan 23-27 minggu
 - c. Trimester 3:
 - » Kali ke empat semasa kandungan 28-32 minggu
 - » Kali kelima semasa kandungan 33-36 minggu
 - » Kali keenam semasa kandungan 37-40 minggu
 - d. Post date:
 - » Kali ketujuh semasa kandungan >40 minggu

Pemeriksaan oleh doktor perlu dilakukan sekurang-kurangnya **2 kali** iaitu:-

- i. Semasa booking atau semasa kandungan 24 minggu
- ii. Semasa kandungan 36 minggu

- Kod Warna senarai semak ini perlu dilekatkan pada kad rekod kesihatan ibu iaitu
- KIK/1(a)/96 Pind.2012 dan KIK/1(b)/96 (Pind. 2012)
- Catatkan tarikh dan jangkamasa kandungan diruang yang disediakan
- Kenalpasti risiko dan tandakan (✓) pada faktor yang berkaitan
- Lekatkan pelekat kod warna yang bersesuaian (merah, kuning, atau hijau) berdasarkan faktor yang telah dikenalpasti. Lekatkan pelekat kod warna putih jika tiada faktor risiko dikesan
- Tahap risiko mengikut kod warna boleh diturunkan oleh Pakar O&G/Pakar Perubatan Keluarga mengikut penilaian mereka.
- Senarai semak ini hanya perlu diisi sekali sahaja mengikut jangkamasa yang ditetapkan di atas. Sekiranya pada lawatan ulangan faktor risiko dikesan, sila gunakan ruang di kanannya untuk tujuan rujukan tanpa menghiraukan jangkamasa kandungan di bahagian atas (Kekerapan Penilaian Risiko)

Contoh:

Pada lawatan semasa kandungan 16 minggu, tiada faktor risiko dikenalpasti dan ruangan jangkamasa 13-22 digunakan. Tetapi semasa lawatan ulangan pada 20 minggu kandungan, satu faktor risiko dikesan dan kes perlu dirujuk, ruangan jangkamasa 23-27 boleh digunakan dan catatkan tarikh pemeriksaan (pada ruangan tarikh) dan jangkamasa 20 minggu (pada ruangan Jangkamasa Kandungan). Pada lawatan berikutnya, jika tiada lagi faktor risiko tersebut, senarai semak yang sedia ada digunakan dengan menambah garisan untuk ruangan tersebut.

PANDUAN MENGGUNAKAN SISTEM RUJUKAN DAN MAKLUMBALAS PENJAGAAN ANTENATAL

KOD MERAH

- a. Kes ini adalah untuk rujukan segera ke hospital.
- b. Pesakit perlu distabilkan sebelum dirujuk bagi kes seperti berikut:
 - Pendarahan Antepartum
 - Eklampsia
 - Serangan asma yang akut
 - Krisis hipertensi dengan atau tanpa kehadiran pulmonari oedema
- c. *Dexamethasone* 12mg stat dos diberikan kepada kes:
 - Kontraksi pramatang
 - Keluar air likuor/ketuban pecah pramatang
 - Pendarahan antenatal sebelum 36 minggu
- d. Prosedur rujukan adalah seperti berikut:
 - Urusan penghantaran pesakit hendaklah menggunakan ambulan kenderaan yang bersesuaian samada dari klinik kesihatan/hospital/flying squad dan perlu diiringi oleh anggota kesihatan

Bagi rujukan kes 22 minggu ke atas:

- Maklumkan kepada pegawai perubatan/pakar yang bertugas di Bilik Bersalin (*labour room*) mengenai kes yang dirujuk
- Setibanya di hospital, maklumkan kes tersebut kepada Pegawai Perubatan/Pakar yang bertugas
- Butir-butir rujukan hendaklah didokumentasikan dalam borang Rujukan Antenatal dan keipilkan bersama senarai semak pada kad KIK/1(a) 96. (Pind.2012)

Bagi rujukan kes kurang 22 minggu:

- Kes dirujuk ke Unit Kecemasan hospital
 - Setibanya di hospital maklumkan kes tersebut kepada Pegawai Perubatan/Pakar yang bertugas
 - Butir-butir rujukan hendaklah didokumentasikan dalam Borang Rujukan Antenatal dan dikeipilkan bersama senarai semak pada kad KIK/1(a)/96. (Pind. 2012)
 - Pengendalian akan dilakukan oleh hospital mengikut protokol hospital
- e. Prosedur Maklumbalas:
 - Pihak hospital perlu mendokumentasikan ringkasan pengendalian kes dan tindak susul di dalam Borang Maklumbalas dan dikeipilkan didalam kad KIK/1/(a)/96. (Pind. 2012)
 - Anggota Kesihatan perlu menyemak maklumbalas tersebut untuk pengendalian kes selanjutnya. Sekiranya tiada, sila dapatkan maklumbalas dari hospital dengan kadar segera
 - f. Pengendalian selanjutnya adalah penjagaan bersama (shared care) Pakar O&G dan Pakar Perubatan Keluarga.

KOD KUNING

- a. Kes ini adalah untuk pengendalian oleh Pakar O&G Hospital/Pakar Perubatan Keluarga:
 - Pakar O&G/Pakar Perubatan Keluarga membuat pelan pengendalian
 - Penjagaan seterusnya boleh dilakukan bersama (*shared care*) oleh Pegawai Perubatan dan Jururawat Kesihatan berpandukan pelan pengendalian oleh Pakar O&G/Pakar Perubatan Keluarga
- b. Pakar O&G/Pakar Perubatan Keluarga perlu mengawasi pengendalian kes dan ini perlu dimasukkan dalam pelan pengendalian.
- c. Pegawai Perubatan dan Jururawat Kesihatan boleh merujuk kes kembali kepada Pakar O&G/Pakar Perubatan Keluarga jika perlu.
- d. Prosedur rujukan:
 - Dapatkan temujanji dari Klinik Pakar O&G atau Pakar Perubatan Keluarga di Klinik Kesihatan
 - Sertakan Borang Rujukan Antenatal serta keipilkan bersama kad KIK/1(a)/96. (Pind. 2012)
 - Kes yang dirujuk ke hospital dikendalikan mengikut protokol hospital masing-masing
- e. Kes yang stabil boleh dirujuk semula ke Klinik Kesihatan/Klinik Desa dan sertakan Borang Maklumbalas yang mengandungi pelan pengendalian kes dari hospital tersebut.

KOD HIJAU

- a. Kes ini adalah untuk pengendalian oleh Pegawai Perubatan dan pengendalian selanjutnya boleh dilakukan bersama (*shared care*) Jururawat Kesihatan/Jururawat Masyarakat di bawah pengawasan Pegawai Perubatan.
 - Pegawai Perubatan membuat pelan pengendalian
 - Pengendalian boleh diteruskan oleh Jururawat Kesihatan atau Jururawat
 - Masyarakat berpandukan pelan pengendalian oleh Pegawai Perubatan
- b. Pegawai Perubatan perlu mengawasi pengendalian kes dan ini perlu dimasukkan dalam pelan pengendalian.
- c. Jururawat Kesihatan atau Jururawat Masyarakat boleh merujuk kes kembali kepada Pegawai Perubatan jika perlu.

KOD PUTIH

- a. Kes ini adalah untuk pengendalian oleh Jururawat Kesihatan/Masyarakat di Klinik Kesihatan dan Klinik Desa.
- b. Sekiranya tiada faktor risiko yang disenaraikan dalam kod merah, kuning dan hijau, ibu diberi kod warna putih.
- c. Semua kes yang diberikan Kod Putih perlu mendapat pemeriksaan dari Pegawai Perubatan sekurang-kurangnya 2 kali (kali pertama pada trimester pertama dan kali kedua pada trimester ketiga).
- d. Penentuan tempat bersalin sesuai dilakukan pada 36 minggu kandungan.

Catatan:

- i. Perbincangan tentang tempat bersalin perlu bermula trimester pertama kandungan. Pilihan tempat bersalin perlu dibincangkan dengan ibu, suami dan keluarga.
- ii. Sekiranya ibu memilih untuk bersalin di rumah:-
 - Kenalpasti kesesuaian ibu bersalin di rumah berdasarkan:-
 - a. Faktor risiko (mengikut sistem kod warna)
 - b. Kesesuaian persekitaran rumah (lawatan ke rumah mesti dilakukan)
 - Sekiranya ibu dalam pengendalian kod merah, kuning dan hijau, masih dengan keputusan untuk bersalin di rumah walaupun telah dinasihati, ibu hendaklah dirujuk kepada Ketua Jururawat/Penyelia Jururawat/Pegawai Perubatan/Pakar Perubatan Keluarga untuk mengendalikan ibu ini.
 - Perbincangan hendaklah meliputi aspek-aspek:-
 - a. Risiko bersalin di rumah
Sekiranya ibu masih memilih untuk bersalin di rumah, anggota kesihatan menyediakan pelan tindakan dalam persediaan menghadapi sebarang komplikasi termasuk maklumat hospital yang akan dirujuk

BORANG RUJUKAN ANTENATAL

TARIKH :

MASA :

BORANG RUJUKAN ANTENATAL (AN -1)

Daripada :

Kepada :

Nama pesakit :

Nombor rujukan : No. K/P:

Umur: Gravida: Para:

LNMP: EDD/REEDD: POA/POG:

Rawatan yang diberikan:

.....
.....
.....

Kes telah dibincangkan dengan: (tempat menerima rujukan)

Anggota yang merujuk:

Nama dan Jawatan: Tandatangan:

BORANG MAKLUMBALAS ANTENATAL

TARIKH :

MASA :

BORANG MAKLUMBALAS ANTENATAL (AN-2)

Daripada :

Kepada :

Nama pesakit :

Nombor pendaftaran : No. K/P:

Umur: Gravida: Para:

LNMP:

Tarikh Discaj:

Tarikh rujukan ke hospital:

Ringkasan kes dan rawatan:

.....
.....
.....
.....
.....

Cadangan rawatan lanjut di tempat rujukan:

.....
.....

Tarikh lawatan susulan di tempat rujukan:

BREASTFEEDING AWARENESS

These contents should be included in the home based maternal health card.

Penyusuan Susu Ibu yang Terbaik Buat Bayi dan Anda

1. Menyusu bayi dengan susu ibu merupakan langkah penting ke arah pertumbuhan dan perkembangan bayi yang sihat.
2. Susu ibu adalah bersih, seimbang dan paling sesuai untuk bayi. Ia mengandungi semua khasiat dalam imbangan yang betul. Susu pertama (kolostrum) mengandungi khasiat yang diperlukan oleh bayi anda untuk hari-hari pertama selepas dilahirkan.
3. Pasti anda mengamalkan makan secara sihat semasa hamil dan selepas bersalin untuk kebaikan bayi dan anda.

KEPENTINGAN PENYUSUAN SUSU IBU

Kepada Ibu

Ia membantu mempercepatkan pengecutan rahim selepas bersalin dan mengurangkan risiko pendarahan yang berlebihan.

1. Melewatkan kedatangan haid dan membantu menjarakkan kehamilan.
2. Membakar lemak badan yang terkumpul semasa mengandung dan dapat mengembalikan badan kebentuk asal.
3. Ia dapat mengurangkan risiko kanser payudara dan beberapa jenis kanser ovari.
4. Ia dapat mengurangkan risiko keretakan tulang pinggul apabila meningkat usia.

Kepada Bayi

1. Susu ibu mengandungi zat yang lengkap, mudah dihadam dan sentiasa berubah mengikut pertumbuhan dan perkembangan bayi.
2. Susu ibu dapat melindungi bayi dari jangkitan kuman dan alahan seperti jangkitan usus, cirit-birit, jangkitan sistem pernafasan, jangkitan telinga dan jangkitan salur kencing.
3. Susu ibu mengandungi zat khusus untuk perkembangan otak.
4. Susu ibu dapat mengurangkan risiko alahan dan keadaan seperti diabetes di kalangan bayi dalam keluarga yang mempunyai sejarah masalah ini.
5. Susu ibu melancarkan sistem badan yang membantu mengawal tekanan darah dan mengurangkan risiko obesiti pada masa akan datang.
6. Susu ibu mengurangkan risiko pencemaran yang mungkin boleh berlaku dalam kaedah penyusuan lain.
7. Susu ibu dapat diberikan terus kepada bayi pada bila-bila masa tanpa sebarang persediaan bancuhan.
8. Menyusukan bayi dengan susu ibu memberikan keselesaan dan ketenangan emosi yang diperlukan oleh bayi.

SENARAI SEMAK PENDIDIKAN PENYUSUAN SUSU IBU ANTENATAL

| BIL. | TOPIK | Tarikh | Tandatangan Ibu | Nama & Tandatangan Penceramah |
|------|--|--------|-----------------|-------------------------------|
| 1. | Kepentingan penyusuan susu ibu kepada bayi | | | |
| 2. | Kepentingan penyusuan susu ibu kepada ibu | | | |
| 3. | Kepentingan sentuhan kulit (<i>skin to skin</i>) secepat mungkin selepas kelahiran | | | |
| 4. | Kepentingan Permulaan awal penyusuan susu ibu | | | |
| 5. | Kepentingan ibu bersama bayi (<i>rooming in</i>) 24 jam sehari | | | |
| 6. | Kepentingan penyusuan susu ibu mengikut kehendak bayi (<i>on demand feeding</i>) | | | |
| 7. | Kepentingan penyusuan susu ibu yang kerap untuk memastikan susu ibu mencukupi | | | |
| 8. | Kepentingan posisi dan pelekapan yang baik semasa penyusuan susu Ibu | | | |
| 9. | Kepentingan penyusuan ibu secara eksklusif bagi 6 bulan pertama tanpa sebarang minuman atau makanan lain | | | |
| 10. | Kepentingan meneruskan penyusuan susu ibu selepas 6 bulan disamping pemberian makanan pelengkap | | | |
| 11. | Cara memerah, penyimpanan dan pemberian susu ibu | | | |
| 12. | Kumpulan sokongan penyusuan susu ibu | | | |

(**Nota:** Ibu dan jururawat perlu menandatangani di ruang yang disediakan sebaik sahaja sesi ceramah/ perbincangan tamat dijalankan)

Rujukan: Chapter 3: Promoting Breastfeeding during Pregnancy- Step 3, Ministry Health Malaysia 2009 (adapted from Baby Friendly Hospital Initiative: Revised, Updated and Expanded for Integrated Care (Section 3) WHO/UNICEF 2006).

IBU SIHAT KELUARGA SEJAHTERA

- Pemeriksaan Mengandung
 - Pemeriksaan awal - sebaik sahaja mengandung
 - Patuhi temujanji lawatan seterusnya
 - Jumpa doktor sekiranya bermasalah seperti:
 - Pendarahan dari faraj
 - Keluar cecair yang berlebihan/luar biasa dari faraj
 - Kurang pergerakan janin
 - Sakit perut
- Pemakanan
 - Makanlah pelbagai jenis makanan berdasarkan saranan Piramid Makanan Malaysia
- Pertambahan berat badan
 - Pertambahan berat badan sihat:
 - Bagi jangka masa kandungan 5 bulan pertama kandungan – 0.5-0.75 kg/ sebulan
 - Bagi jangka masa kandungan seterusnya – 0.5-0.75kg/seminggu

4. Penjagaan Gigi
 - Jaga kebersihan gigi
 - Ikutilah pemeriksaan di klinik gigi
5. Maklumkan masalah perubatan anda semasa dan yang terdahulu kepada Pegawai Perubatan atau Jururawat Kesihatan
6. Ubat-ubatan
 - Elakkan memakan ubat-ubatan tanpa preskripsi/nasihat doktor
7. Bersalin di hospital
 - Patuhi nasihat jika diarahkan untuk bersalin di hospital
8. Jarakkan Kelahiran
 - Sebaik-baiknya 2 tahun untuk memulihkan kesihatan ibu.
 - Dapatkan nasihat perancang keluarga daripada anggota kesihatan
9. Aktiviti Harian
 - Teruskan aktiviti harian
 - Tidur dan rehat dengan cukup
 - Jaga kebersihan diri
 - Gunakan pakaian dan kasut yang sesuai

DIET COUNSELLING FOR ANTENATAL MOTHERS

1. Diet counselling

All antenatal mothers should be advised on following:

- Consume balanced diet based on food pyramid and energy requirement (RNI 2005).
- Consume iron rich food to increase iron stores in the body as this will increase the haemoglobin level.
- How to improve iron absorption from dairy food.
- Reduce or avoid food or drinks that will interfere with iron absorption.
- Encourage mothers to take food rich in vitamin B12 and folic acid.
- Encourage mothers on the intake of haematinics as recommended by doctor.

2. Encourage mothers to eat balance diet

All antenatal mothers are advised to eat a balance diet based on the Recommended Nutrient Intake (RNI 2005) as shown below:-

| Period | Energy (kcal) | Protein (g) | Iron (mg) | Vitamin C (mg) | Folic acid (mg) |
|---------------------------|---------------|-------------|-----------|----------------|-----------------|
| Female (19 – 29 years) | 2000 | 55.0 | 29 | 70 | 400 |
| Female (30 – 50 years) | 2180 | 55.0 | 29 | 70 | 400 |
| 1 st trimester | 2000 | 62.5 | 29 | 80 | 400 |
| 2 nd trimester | 2360 | 62.5 | a* | 80 | 400 |
| 3 rd trimester | 2470 | 62.5 | a* | 80 | 300 |

Source: RNI Malaysia, 2005

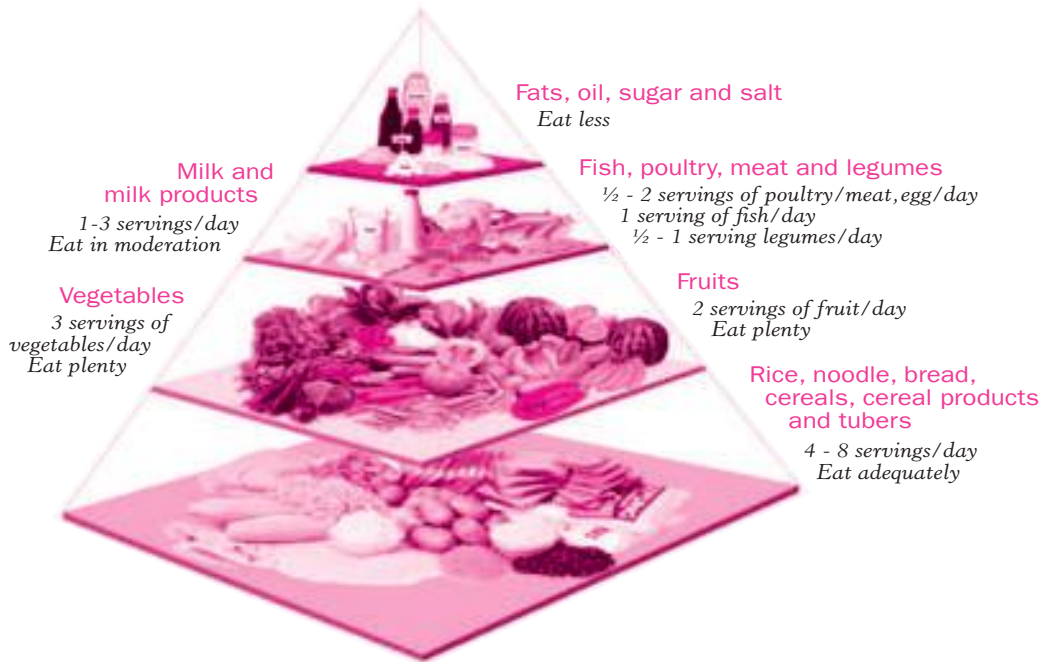
***Note:**

All antenatal mothers are recommended to take iron supplementation. If the mother is not anaemic, iron supplementation of 100 mg per day at 2nd trimester is sufficient. For mothers who are anaemic, the dosage of iron intake must be increased according to doctor's prescription.

3. Eat variety of food based on food pyramid

Mothers are advised to eat variety of food based on food pyramid to get all the nutrients they need during pregnancy.

There are 5 food groups located at levels in the food pyramid



Each food group has different functions so the antenatal mothers should eat a variety of food daily to ensure they get all the nutrients needed.

To fulfil energy requirements and nutrients needed, the daily serving size recommended as shown below:-

| Food Group | Functions | Total daily serving size recommended | | Amount of one (1) serving size |
|---|---|--------------------------------------|-----------|---|
| | | Pre-pregnancy | Pregnancy | |
| Rice, noodles, bread, cereals, cereal products and tubers | <ul style="list-style-type: none"> • Good sources of complex carbohydrates • Provide energy to fulfil: <ul style="list-style-type: none"> - Fetal growth and development - Physiological changes to mothers - Increase metabolism | 6 - 7 | 8 | <ul style="list-style-type: none"> • 1 cup of rice or • 2 cups of rice porridge or • 6 pieces of cream crackers or • 2 slices of bread or • 1 $\frac{1}{2}$ cup of bihun or • 1 cup of mee/kueteow |
| Fruits | <ul style="list-style-type: none"> • Good source of vitamin and mineral. • Source of fibre. • Eat at least one source of vitamin A and C. | 2 | 2 | <ul style="list-style-type: none"> • 1 whole of apple/ pisang berangan/ orange or • 1 $\frac{1}{2}$ whole of guava or • 1 slice of papaya or • 8 small of grapes |

| Food Group | Functions | Total daily serving size recommended | | Amount of one (1) serving size |
|-------------------------|--|--------------------------------------|-----------|---|
| | | Pre-pregnancy | Pregnancy | |
| Vegetables | <ul style="list-style-type: none"> Most vitamins and minerals are present in remarkably constant levels, regardless of mother's diet. | 3 | 3 | <ul style="list-style-type: none"> $\frac{1}{2}$ cup of dark green leafy-vegetables or 1 cup of <i>ulam</i> |
| Fish | <ul style="list-style-type: none"> Good sources of protein. Rich in B vitamins, iron and zinc. | 1 | 1 | <ul style="list-style-type: none"> 1 medium of <i>ikan kembung/ikan selar</i> or 1 piece of <i>ikan tenggiri</i> |
| Poultry and meat | <ul style="list-style-type: none"> Legumes are good alternatives to meat and low in fat. | 1 | 2 | <ul style="list-style-type: none"> 1 piece of chicken drumstick or 2 whole of eggs or 2 pieces of matchbox size meat |
| Legumes | <ul style="list-style-type: none"> Legumes rich sources of vitamin B, fibre and magnesium | 1 | 1 | <ul style="list-style-type: none"> 1 cup of dhal or 2 pieces of <i>taufua/tauhu/tempe</i> or 1 $\frac{1}{2}$ glasses of unsweetened soya bean drink |
| Milk and dairy products | <ul style="list-style-type: none"> Source of calcium. Important source of protein and vitamin. | 2 | 3 | <ul style="list-style-type: none"> 1 slice of cheese or 1 glass of milk or dessert spoon of milk powder or 1 cup of yoghurt |

CONTOH MENU (2000 kcal)

SARAPAN PAGI

- 1 cawan bihun goreng
- 1 ketul daging - perencah
- 1/2 cawan sayur (sawi + taugeh + kucai + tauhu) - perencah
- 1 gelas susu

MINUM PAGI

- 1 keping popia basah
- 1 gelas air kosong

MAKAN TENGAHARI

- 1 ½ cawan nasi
- 1 ketul dada ayam masak tomyam
- ½ cawan bayam masak sup atau ½ ulam-ulaman (daun selom, ulam raja)
- ½ biji jambu batu
- 1 gelas air kosong

PETANG

- 3 keping biskut lemak
- 1 gelas air kosong

MAKAN MALAM

- 1½ cawan nasi
- ½ ekor ikan cencaru bakar + kuah asam limau
- ½ cawan kangkung tumis air
- 1 biji pisang berangan sederhana
- 1 gelas air kosong

MINUM MALAM

- 1 gelas susu

PROTOCOL ON HOME VISIT

- Enter the house only after obtaining permission
- Respect the mother and her family
- Communicate well with the mother in order to develop rapport
- Describe the objectives of the visit clearly to the mother
- Avoid making any unfavourable comment or judgement about the patient and family
- Educate the mother and family about personal hygiene and sanitation
- Refer to relevant units, if basic facilities are not available (e.g. environmental sanitation unit, if there is no toilet)
- If the mother prefers home delivery and meets all the criteria, the health worker should check the intended birth site and advise the mother regarding necessary preparation.
- If the mother requires delivery at a hospital or Alternative Birthing Centre, she should be advised with regards to the facility and its locality
- A history and physical examination can be done after you have developed a rapport with the mother. First ascertain the progress of the pregnancy and the well being of the mother. The mother's antenatal book should be updated.



STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURE

| Procedure number | Condition | History | Examination | Investigations | Risk Assessment | Care Plan | | |
|------------------|-----------------------|---|---|---|--|---|---|--|
| | | | | | | Management | Level of personnel | Level of care |
| 1 | Routine Booking Visit | <ul style="list-style-type: none"> • Menstrual history • Contraceptive use • Past obstetric and gynaecological history • Medical and drug history • Family history • Socio-economic history • Sexual history | <ul style="list-style-type: none"> • General condition – height, weight, pallor, cyanosis, oedema, varicose veins • Blood pressure • Thyroid • Cardio-vascular system • Respiratory System • Clinical Breast examination • Abdomen – previous scars, uterine size, other masses • Vaginal examination – when indicated • Spine | <ul style="list-style-type: none"> • Blood <ul style="list-style-type: none"> - Hb level - Blood group & rhesus - Syphilis (VDRL) - HIV (rapid test) - Hepatitis B (if indicated) - Thalassemia screening (if indicated) • Urine <ul style="list-style-type: none"> - Albumin - sugar | <ul style="list-style-type: none"> • Risk assessment according to check list • Colour coding according to risk factors identified: • White (no risk identified) • Green • Yellow • Red | Antenatal care as schedule (to be seen by twice by M&HO) Refer to M&HO in health clinic Refer to FMS/O&G nearest hospital Immediate admission into hospitalisation | Community nurse/ staff nurse MO/FMS in health clinic FMS in health clinic/MO in nearest hospital O&G in hospital | CHC/HC CHC/HC Hospital Hospital |

| Procedure number | Condition | History | Examination | Investigations | Risk Assessment | Care Plan | | |
|------------------|----------------------------|--|---|---|--|-----------------------------------|-----------------------------|---------------|
| | | | | | | Management | Level of personnel | Level of care |
| 2 | Antenatal Follow-up Visits | <ul style="list-style-type: none"> • Events since last antenatal visit • Fetal movement • Vaginal bleeding/ discharge • Abdominal pain • Other symptoms | <ul style="list-style-type: none"> • Weight • Blood pressure • Signs of anemia (pallor) • lower limb oedema • Abdomen – uterine size, SFH • Fetal lie and presentation after 32 weeks • Fetal heart rate | <ul style="list-style-type: none"> • Urine <ul style="list-style-type: none"> - albumin - sugar • Ultrasound (if indicated) • Review results of investigations done previously • Other relevant investigations according to risk conditions identified | <p>Risk assessment to be done at the following gestation:</p> <ul style="list-style-type: none"> • ≤ 12 weeks • 13 – 22 weeks • 23 – 27 weeks • 28 – 32 weeks • 33 – 36 weeks • 37 – 40 weeks • > 40 weeks <p>Change colour coding according to risk conditions identified:</p> <ul style="list-style-type: none"> • White (no risk identified) • Green • Yellow • Red | | | |
| | | | | | | | | |
| | | | | | | Antenatal care | Community nurse/staff nurse | CHC/HC |
| | | | | | | Refer to MO in health clinic | MO/FMS in health clinic | CHC/HC |
| | | | | | | Refer to FMS/O&G nearest hospital | MO in nearest hospital | Hospital |
| | | | | | | Immediate admission into hospital | MO in hospital | Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|-------------------------------------|---|--|---|---|---|--------------------|-----------------|
| | | | | | | Management | Level of personnel | Level of care |
| 3 | Teenage Pregnancy/ Single Mother | <ul style="list-style-type: none"> • Asymptomatic • Symptom of anxiety and depression | <ul style="list-style-type: none"> • Signs of depression and anxiety • Pallor • Increased BP • Poor weight gain • Signs of STIs (vaginal discharge/ulcer) • Signs of abuse | <ul style="list-style-type: none"> • Routine investigations • Ultrasound • HVS (if indicated) • Mental wellbeing assessment | | <ul style="list-style-type: none"> • Haematinics • Nutritional advice • Advice on pregnancy • Counselling • (refer to 'Garis Panduan Pengendalian Masalah Kesihatan Seksual dan Reproduksi Remaja di Klinik Kesihatan) | FMS/O&G | HC/ Hospital |
| 4 | Abnormal Lie | <ul style="list-style-type: none"> • Usually asymptomatic | At >36/52 - Non cephalic presentation - Uterus > dates - Uterus < dates | USG <ul style="list-style-type: none"> • Lie • Presentation • Amniotic Fluid Index (AFI) • Placenta location • Pelvic mass | <ul style="list-style-type: none"> • Abnormal lie at >36 weeks with upper segment placenta • Placenta praevia • Multiple pregnancy • Prematurity • Full bladder • Pelvic tumour • Polyhydramnios • Lax abdomen | Refer hospital for further management | FMS/O&G | HC/ Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|---------------------------|---|--|--|--|---------------------------------------|--------------------|-----------------|
| | | | | | | Management | Level of personnel | Level of care |
| 5 | Uterus Larger Than Dates | <ul style="list-style-type: none"> Distended abdomen Asymptomatic or compressive symptoms | <ul style="list-style-type: none"> Uterus > dates (≥ 3cm discrepancy between the SFH and POA) Shifting dullness Abnormal lie | <p>Growth Chart</p> <p>Ultrasound (USG)</p> <ul style="list-style-type: none"> Amniotic Fluid Index (AFI) Estimated Foetal Weight (EFW) multiple pregnancy pelvic tumour foetal anomaly <p>Blood</p> <ul style="list-style-type: none"> Modified Glucose Tolerance Test (MGTT) if indicated | <ul style="list-style-type: none"> Multiple pregnancy Pelvic tumour Polyhydramnios Wrong dates Foetal anomaly Placenta previa | Refer hospital for further management | FMS/MO | HC/ Hospital |
| 6 | Uterus Smaller Than Dates | <ul style="list-style-type: none"> Small abdomen Unsure of dates Leaking liquor | <ul style="list-style-type: none"> Uterus < dates (≤ 3cm discrepancy between the SFH and POA) Clinically reduced liquor Easily felt parts Decreasing maternal weight gain | <p>Growth Chart</p> <p>Ultrasound (USG)</p> <ul style="list-style-type: none"> AFI Fetal Parameter Fetal anomaly Serial USG if corresponding to dates and AFI is normal | <ul style="list-style-type: none"> Oligohydramnios Intrauterine growth restriction Intrauterine death Wrong dates Fetal abnormality Normal fetus | Refer hospital for further management | FMS/MO | Hospital |
| | | | | | | Routine follow up | FMS/MO | HC |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|--|--|--|---|---|---|--------------------------|------------------------------|
| | | | | | | Management | Level of personnel | Level of care |
| 7 | Preterm Labour | <ul style="list-style-type: none"> contraction pain before 37 completed weeks leaking PV bleeding | <ul style="list-style-type: none"> Tenderness over lower abdomen Contractions felt Cervical/os changes on digital vaginal examination | <ul style="list-style-type: none"> FBC UFEME | <ul style="list-style-type: none"> UTI Abruptio placenta Braxton hicks contraction Chorioamnionitis | <ul style="list-style-type: none"> Refer to the nearest hospital If delivery is not imminent, <ul style="list-style-type: none"> I/M Dexamethasone 12mg bd x 1 day if POA between 24 to 36 weeks (1st dose in the clinic) Tocolysis if indicated If delivery is imminent - prepare for delivery | O&G doctor MO/FMS | Hospital HC/ hospital |
| 8 | Preterm Prelabour Rupture of Membranes (PPROM) | <ul style="list-style-type: none"> Leaking without contraction before 37 completed weeks Blood stained vaginal discharge | <ul style="list-style-type: none"> Fever Ut < dates Leakage of fluid seen in speculum examination | <ul style="list-style-type: none"> FBC UFEME HVS C&S Amnicator or litmus paper showing alkali | <ul style="list-style-type: none"> Vaginal discharge secondary to vaginal infections Urinary incontinence | <ul style="list-style-type: none"> Refer to the nearest hospital I/M Dexamethasone 12 mg bd x 1 day if POA between 24 to 36 weeks (1st dose in the clinic) EES 400mg bd x10/7 | O&G doctor MO/FMS | Hospital HC/ Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|---|---|--|---|--|---|---|--------------------|
| | | | | | | Management | Level of personnel | Level of care |
| 9 | Term Prelabour Rupture of Membranes (Term PROM) | <ul style="list-style-type: none"> Leaking without contraction after 37 completed weeks Blood stained vaginal discharge | <ul style="list-style-type: none"> Ut < dates Leakage of fluid seen in speculum examination | <ul style="list-style-type: none"> FBC UFEME HVS C&S Amnicotator test or litmus paper indicate alkali reaction | <ul style="list-style-type: none"> Vaginal discharge secondary to vaginal infections Urinary incontinence | <ul style="list-style-type: none"> Refer to the nearest hospital | MO/O&G doctor | Hospital/ HC |
| 10 | Breech at Term | Asymptomatic | Breech presentation | <ul style="list-style-type: none"> Ultrasound Parameters AFI Placental localization Fetal anomalies Pelvic mass | <ul style="list-style-type: none"> Fetal anomalies Wrong dates Poly hydramnios Presence of pelvic mass | <ul style="list-style-type: none"> Refer to the nearest hospital for KIV <ul style="list-style-type: none"> - ECV - LSCS | MO/FMS O&G/MO | HC Hospital |
| 11 | Previous Caesarean Section (One Previous Scar) | <ul style="list-style-type: none"> Asymptomatic Pain at scar site | Scar at the lower abdomen (suprapubic/sub-umbilical) | <ul style="list-style-type: none"> Ultrasound for placental localization if upper segment if placenta praevia | <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> | Review indications & complications of the previous CS Refer hospital immediately if pain Refer hospital at 36 weeks if asymptomatic Refer hospital immediately if placenta praevia | MO/FMS MO/FMS/hospital O&G MO/specialist O&G MO/specialist | HC/ Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|--|---|--|--|---|--|------------------------|------------------------------|
| | | | | | | Management | Level of personnel | Level of care |
| 12 | Urinary Tract Infection (UTI) in Pregnancy | <ul style="list-style-type: none"> Asymptomatic Dysuria Frequency Suprapubic pain Fever Loin pain | <ul style="list-style-type: none"> Fever Tenderness at suprapubic area Positive renal punch | <ul style="list-style-type: none"> UFEME Urine C&S Ultrasound of KUB if indicated (eg. recurrent UTI) | <ul style="list-style-type: none"> Preterm labour Renal stone Musculoskeletal pain | Treatment with antibiotics for 10 days (choice of antibiotic – refer National Antibiotic Guidelines) | FMS/ MO | HC |
| | | | | | | If signs and symptoms persist or if recurrent UTI – Refer to hospital | O&G Specialist | Hospital |
| 13 | History of Fetal Abnormality | <ul style="list-style-type: none"> Asymptomatic | Uterus may be smaller or larger than dates | Ultrasound <ul style="list-style-type: none"> for dating anomaly | | Refer for detailed scan at 18-22 weeks | FMS/ MO O&G Specialist | HC/ Hospital |
| 14 | Thalassaemia in Pregnancy | <ul style="list-style-type: none"> Asymptomatic Tiredness Fatigue Palpitation Jaundice Poor weight gain | <ul style="list-style-type: none"> Pale Jaundice Hepato-splenomegaly Uterus may be < date To look for signs of iron overload (eg. Hepato-splenomegaly and skin colour changes) | <ul style="list-style-type: none"> FBC Serum Ferritin LFT USG Chorionic Villous Sampling if partner is also thalassaemic trait | <ul style="list-style-type: none"> Iron deficiency anaemia | <ul style="list-style-type: none"> Folic acid Fe tablet if iron storage is low Blood transfusion if indicated | FMS/O&G Specialist | HC/ Hospital with specialist |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|----------------|--------------|------------------------------------|---|--|---|--------------------|---------------|
| | | | | | | Management | Level of personnel | Level of care |
| 17 | Unsure of Date | Asymptomatic | Uterus larger or smaller than date | <p>If SFH ≤ 20 weeks: <ul style="list-style-type: none"> ultrasound for dating </p> <p>If SFH ≥ 20 weeks: <ul style="list-style-type: none"> Ultrasound for fetal assessment AFI Placenta grading Fetal weight </p> | <p>If fetal parameters from USG < 24 weeks, REDD ca be given</p> <p>If parameters measure > 24 weeks, DO NOT GIVE REDD - to repeat scan every 3-4 weeks until term</p> | History: <ul style="list-style-type: none"> Detail menstrual history Early scan Date of UPT Date of quickening | FMS/MO | HC |
| | | | | | | SFH measurement | | |
| | | | | | | Fetal growth by scan | FMS/MO | HC |
| | | | | | | If fetal parameters from USG <24 weeks, REDD can be given. If parameters measure >24 weeks, DO NOT GIVE REDD. To repeat scan every 3-4 weeks until term. | FMS/MO | HC |
| | | | | | | If fetal parameters and SFH are term, to consider delivery | O&G | Hospital |
| | | | | | | If fetal parameters and SFH are not corresponding, to refer O&G | O&G | Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|----------------------|--|---|---|---|---|---|---------------------|
| | | | | | | Management | Level of personnel | Level of care |
| 18 | Anaemia in Pregnancy | <ul style="list-style-type: none"> • Lethargy • Palpitation • Breathlessness • Light-headedness • Decreased effort tolerance • Malaise • Asymptomatic | <ul style="list-style-type: none"> • Pallor <p>In severe form</p> <ul style="list-style-type: none"> • Angular stomatitis • Underweight • Tachypnoea (respiratory rate > 30 bpm) • Heart failure features | <ul style="list-style-type: none"> • Full blood count should be done in all patients who are anaemic. • Additional investigations should be consider for patients whose haemoglobin is less than 9gm% <ul style="list-style-type: none"> - Peripheral blood film (PBF) - Serum Ferritin - TIBC - Serum folate and Vitamin B12 if blood film suggests macrocytic anaemia (option) - Hb electrophoresis if haemoglobinopathy is suspected - BFMP (if indicated) - Stool ova and cyst (optional) | <ul style="list-style-type: none"> • Thalassaemia • Chronic blood loss • Aplastic anemia • Haemolytic anemia • Nutritional | <p>a. Mild anaemia (9- <11 gm%):</p> <p>Asymptomatic</p> <p>Lab Investigation:</p> <ul style="list-style-type: none"> • Full blood count. • Stool ova and cyst (Optional) <p>Haematinics:</p> <ul style="list-style-type: none"> • Ferrous fumarate 400 mg daily / 200 mg bd • Folic 5 mg daily • Vitamin Bco 1 tab daily • Vitamin C 100 mg daily <p>Refer M&HO. Reassess at next antenatal visit</p> <p>b. Moderate anaemia (7 - < 9 gm%)</p> <p>Lab investigation:</p> <ul style="list-style-type: none"> • Peripheral blood film | <p>Staff Midwife/ PHN/ M&HO/ Nutritionist/ Dietitian</p> <p>KJK/PHN/ M&HO/ FMS/ Nutritionist/ Dietitian</p> | <p>HC</p> <p>HC</p> |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|-----------|----------|-------|----------------|------------------------|---|--------------------|---------------|
| | | | | | | Management | Level of personnel | Level of care |
| | | | | | | <ul style="list-style-type: none"> • Serum Ferritin • TIBC • Serum folate and Vitamin B12 if blood film suggest macrocytic anaemia • Hb electrophoresis if haemoglobinopathy is suspected • Stool ova and cyst (optional) • BFMP (if indicated) * Repeat FBC monthly | | |
| | | | | | | <p>≤ 28 weeks</p> <p>Heamatinic:</p> <ul style="list-style-type: none"> • Ferrous fumarate 400 mg daily/200 mg bd • Folic 5 mg daily • Vitamin Bco 2 tab daily • Vitamin C 100 mg Daily | M&HO/ FMS | HC |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|-----------|----------|-------|----------------|------------------------|---|-----------------------------------|---------------|
| | | | | | | Management | Level of personnel | Level of care |
| | | | | | | Option: <ul style="list-style-type: none"> • Single dose Preparation: • Obimin/Obimin Plus • Iberet/Iberet F • Antenatacare Softgel | | |
| | | | | | | 29 – 35 weeks <ul style="list-style-type: none"> • Cont. oral heamatenics • If poor compliance, not tolerating orally or fail to increase Hb level. Patient should be counsel for parenteral treatment (option I/M or I/V) • If patient symptomatic refer hospital | M&HO/FMS | HC |
| | | | | | | ≥36 weeks Refer to Hospital. | M&HO/FMS | HC Hospital |
| | | | | | | c. Severe anaemia ($\leq 7\text{g/dL}$) Refer to hospital | MO/ Obstetrician/ Dietitian | Hospital |
| | | | | | | | MO/ Obstetrician/ Dietitian | Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|--------------------|--|---|---|---|---|------------------------------------|---------------|
| | | | | | | Management | Level of personnel | Level of care |
| 19 | Diabetes Screening | <ul style="list-style-type: none"> majority are asymptomatic UTI Recurrent vaginal infection Polydipsia/polyuria/polyphagia Numbness of extremities | <ul style="list-style-type: none"> Weight > 80kg Polyhydramnios Uterus larger or smaller than date Funduscopy showed diabetic retinopathy changes Unhealed scar | <ul style="list-style-type: none"> MOGTT as soon as risk identified Urine albumin High Vaginal Swab (HVS) if indicated USG HbA1c | <ul style="list-style-type: none"> UTI Diabetes insipidus | <ul style="list-style-type: none"> Counseling on diabetic diet Blood Sugar Profile Insulin therapy Assess of compliance and complication Antepartum fetal surveillance Refer to hospital if poorly controlled | FMS / MO/ Dietician / Nutritionist | HC |
| 20 | HIV in Pregnancy | Asymptomatic AIDS-related symptoms (refer text) | <ul style="list-style-type: none"> Nil Refer text | <ul style="list-style-type: none"> CD4 count FBC LFT Renal profile HVS Viral load if available Refer guideline | | <ul style="list-style-type: none"> Counseling ARV therapy Health education Treat infection if indicated Counseling ARV therapy Health education Treat infection and other complication | FMS/O&G Specialist | HC & Hospital |
| | | | | | | | FMS/O&G Specialist/ ID Physician | Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|----------------------------------|--------------|--|----------------|---|--|--------------------------|---|
| | | | | | | Management | Level of personnel | Level of care |
| 21 | High Blood Pressure in Pregnancy | Asymptomatic | <ul style="list-style-type: none"> BP \geq 140/90 mmHg and/or diastolic BP \geq 90 mmHg | Urine protein | Mild pregnancy induced hypertension (PIH) | <ul style="list-style-type: none"> DBP < 100 mmHg without any complication may not require any antihypertensive treatment | FMS/MO | Health clinic & hospital without specialist |
| | | | | | | <ul style="list-style-type: none"> DBP \geq 100 mmHg require antihypertensive treatment | MO/FMS/O&G Specialist | HC/Hospital with or without specialist |
| | | | | | | <ul style="list-style-type: none"> Referral to hospital. If DBP poorly control > 100mmHg with medications/symptomatic impending eclampsia/ severe proteinuria>2+ | FMS/O&G Specialist | Hospital |
| | | | | | | <ul style="list-style-type: none"> Fetal surveillance: <ul style="list-style-type: none"> - Fundal height - Fetal heart - Fetal kick chart - Serial USG fetal growth & AFI | KJK/PHN/MO FMS/MO | HC/ Hospital HC/ Hospital |

| Procedure number | Condition | Symptoms | Signs | Investigations | Differential Diagnosis | Care Plan | | |
|------------------|-----------|--|---|---|---|--|--|--------------------|
| | | | | | | Management | Level of personnel | Level of care |
| | | <p>Symptoms of impending eclampsia</p> <ul style="list-style-type: none"> • Headache • Visual disturbance • Nausea • Vomiting • Epigastric pain <p>Symptom of heart failure</p> <ul style="list-style-type: none"> • dyspnoea • orthopnoea, • PND • palpitation | <ul style="list-style-type: none"> • Regardless of BP level • Peripheral oedema +++ • Excessive weight gain > 1 kg/week • Uterus smaller or larger than date due to multiple pregnancy • Sign of heart failure: tachycardia, raised JVP, cardiomegaly, basal lung crepitation | <ul style="list-style-type: none"> • Urine protein • PE profile <ul style="list-style-type: none"> - FBC - Platelet count - Haematocrit - Serum uric acid - Serum creatinine - BUSE - 24 Hr urine protein (if necessary) • ECG • Chest x-ray if indicated | <ul style="list-style-type: none"> • Severe PIH (SBP \geq170 mmHg or DBP \geq 110 mmHg or DBP > 100 mmHg on 2 occasion with significant proteinuria • Migraine • Space occupying lesion (SOL) • Meningitis | <ul style="list-style-type: none"> • Maternal Surveillance <ul style="list-style-type: none"> - BP - Urine protein - Weight gain - Sign symptom of impending eclampsia <p>At KK Level management:</p> <ul style="list-style-type: none"> • to stabilize the patient and refer to hospital • anti HPT agent to be given • if fitting to give IM or IV MgSO4 <p>At district hospital level:</p> <ul style="list-style-type: none"> • Antihypertensive agent for BP stabilization • Anticonvulsant therapy - MgSO4 IM 5gm for each buttock or IV slow bolus 4gm over 10-15 minutes • Fluid management • Refer hospital with specialist after stabilization | <p>KJK/PHN/JM/MO/FMS</p> <p>O&G Specialist</p> | <p>HC/Hospital</p> |



Section 3

Intrapartum Care

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This chapter is a guide for health personnel attending to mother in labour. The content flow is developed in such a manner so as to provide an appropriate assessment of safety and birth outcomes at different levels of health care.

3.1 NORMAL LABOUR AND SAFE DELIVERY

a. Definition of labour

Labour is a process whereby, there is a presence of regular uterine contractions of increasing intensity and frequency that is associated with progressive dilatation and effacement of the cervix and descent of the presenting part.

It may or may not be associated with rupture of membranes and leaking liquor.

b. Care in Labour

Care of a mother in labour starts with an accurate and legible documentation of the date and time of consultation and signature of the attending doctor or nurse with the name printed.

One must ensure that the mother is managed in an appropriate centre. (Refer to the Intrapartum Flow Chart- Appendix 1).

A checklist for risk assessment for ABC (Appendix 2) and hospital (Appendix 3) should be completed by the nurse upon admission of the mother in labour (Appendix 1-3).

*** Psychological support**

As most labour is spontaneous and ends with a normal delivery, the main role of the birth attendant (usually a midwife) is to provide support for the mother and her companion and to monitor the progress of labour.

Companionship to the labouring mother should be encouraged.

However, all companions are encouraged to undergo an orientation program.

*** Physical examination**

A detailed and systematic examination should be carried out on the labouring mother upon admission.

All findings must be accurately documented.

Vaginal examinations should be done every four hours, unless contraindicated.

c. Vaginal Assessment

This should be done systematically and with adequate explanation to the mother.

The findings should include the nature of:

- Vulva and vagina
- Cervical length (effacement)
- Dilatation of the cervical os
- Presenting part/position
- Station of presenting part
- Membranes (Intact/Ruptured)
- Cord (felt/not felt)
- Placenta (felt/not felt)
- Liquor colour and volume drained

d. Amniotomy

Amniotomy is a process where the amniotic membranes are ruptured either spontaneously or artificially.

Artificial rupture of membranes can be performed by the doctor when all these criteria is fulfilled.

- i. fetal head is two-fifths palpable per abdomen with regular uterine contractions
- ii. 2 contractions in 10 minutes and the cervical dilatation is more than 4 cm.

** Nurses may do artificial rupture of the membranes if it is still intact in advanced labour (cervical dilatation \geq 8 cm)

e. Analgesia

Choice of appropriate and available analgesia should be offered to all mothers in labour:

- Intramuscular narcotics with anti-emetic.
 - Pethidine 1mg/kg, with Metoclopramide 10 mg or Promethazine 25mg. This can be repeated 4 to 6 hourly.
 - Pethidine should not be given when cervical dilatation is more than 6 cm.
 - Nalbuphine 10 -20mg, repeated 4 to 6 hourly.
- Entonox – Inhalation agent with 50:50 oxygen and nitrous oxide.
- Epidural analgesia – available in hospital with Anesthetist Service
- Non-pharmacological method of pain relief include - companionship, warm bath, music, massage etc

* The above methods may not be applicable in birth centres at rural clinics. Companionship, ambulation and family support is important to alleviate pain in the absence of medication.

3.2 INTRAPARTUM MONITORING

Intrapartum risk assessment and monitoring of the mother and fetus are essential because complications can arise without warning.

a. Methods to Monitor Intrapartum Process

Table 1: Methods and appropriate technology for intrapartum monitoring by level of care

| Level | Community health clinic | Health clinic and ABC | Hospital without specialist | Hospital with specialist |
|------------------------------------|-------------------------|-----------------------|---------------------------------|------------------------------|
| Person | Community health nurse | Doctor/nurse | Medical team without specialist | Medical team with specialist |
| Equipment | | | | |
| Early labour monitoring record/LPC | Yes | Yes | Yes | Yes |
| Partograph | Yes | Yes | Yes | Yes |
| Fetal stethoscope/daptone | Yes | Yes | Yes | Yes |
| Cardiotocograph | No | (Optional) | Yes | Yes |
| Ultrasound | None | (Optional) | Yes | Yes |

Intrapartum indications for ultrasonography

The role of ultrasonography in the intrapartum period is limited to the following:

- Antepartum haemorrhage – for placental localization and retroplacental clots.
- To ascertain lie/presentation for multiple pregnancies, maternal obesity, malpresentation, and polyhydramnios.
- To confirm intrauterine death.
- Presence of pelvic masses obstructing labour, when indicated

b. When to document labour observation?

Nurses should commence documentation of contractions and fetal heart rate upon admission by using Labour Progress Chart (LPC)/early labour monitoring record.

False labour

In false labour, the cervix remains undilated, and uterine contractions remain impalpable or infrequent. No further action needs to be taken in the absence of other complications.

Misdiagnosis of false labour or prolonged latent phase leads to unnecessary induction of labour or augmentation, which may fail. This may lead to unnecessary caesarean section or chorioamnionitis.

Abnormal LPC/Early labour monitoring record

- Abnormal latent phase
 - Cervical dilatation remains less than 4 cm despite 8 hours of regular contractions.
 - The duration may be longer for primigravidae.

Management of Abnormal LPC/Early labour monitoring record at the hospital without specialist or at lower levels

- The mother must be transferred to a hospital with specialist for further action.

c. Partograph

i. What is a Partograph?

A partograph is a diagrammatic representation of the progress of labour. It is where all observations of the mother and her fetus are charted in a manner which facilitates monitoring of the progress of labour by the health care worker. (Fig. 2)

The main components that need to be monitored and plotted on the partograph are:

- Fetal condition
- The progress of labour
- Maternal condition

All mothers in labour should be monitored using Adapted JKPOG (KKM No). **(The modified WHO partograph commences at 4 cm cervical dilatation and dispenses with the recording of the latent phase of labour).**

ii. Using a partograph

The information charted on a partograph are as follows:

- **Mother information**

Name, Gravida, Para, Registration Number, Diagnosis/Problem list, Date And Time of Admission, Time of Ruptured Membrane

- **Fetal heart rate**

This is recorded every half an hour

- **Membranes and amniotic fluid (Liquor)**

The state of the membranes and amniotic fluid (liquor) should be documented as follows:

I : Membranes intact

C : Membranes ruptured, clear liquor

M : Meconium-stained liquor

B : Blood-stained liquor

- **Moulding**

Moulding of the fetal skull is recorded as follow:

- 1** : Sutures opposed
- 2** : Sutures overlapped but reducible
- 3** : Sutures overlapped and not reducible

- **Cervical dilatation**

This is marked with a cross (X), and begin to plot the partograph when cervical dilatation is 4 cm or more.

- **Descent of fetal head**

This is assessed as fifths of the head palpable per abdomen, and marked with an (O)

- **Alert line**

The Alert Line starts at 4 cm cervical dilatation, and increases to the point of expected full dilatation at a rate of 1 cm per hour. If the progress of labour is normal, this progress line (cervicogram) on the partograph will correspond to the Alert Line or lie to the left of it.

- **Action line**

The Action Line is parallel and 4 hours to the right of the Alert Line.

- **Hours**

This charts the time (in hours) elapsed since the onset of the active phase of labour.




- **Time**

The actual time of the clock is recorded.

- **Contractions**

Uterine contractions are assessed every half an hour and charted as the number of contractions in 10 minutes and duration of contraction in seconds. The duration of contraction reflects the strength of contraction. (Fig. 1)

Fig. 1

| Duration of contraction | |
|---------------------------------|---|
| • Less than 20 seconds (weak) |  |
| • 20 to 40 seconds (moderate) |  |
| • More than 40 seconds (strong) |  |

- **Oxytocin**

The amount of oxytocin added per volume of intravenous fluids and the rate of infusion must be recorded every half an hour.

- **Additional drugs**

Any additional drugs given such as Pethidine and Metoclopramide must be recorded at the time of administration.

- **Maternal pulse rate**

This is documented every half an hour with a dot (•).

Maternal blood pressure

This is recorded every 4 hours (unless more frequently indicated) and marked with arrows (\updownarrow).

- **Maternal temperature**

This is recorded every 4 hours.

- **Urine protein, ketone and volume**

Each time the mother passes urine or is catheterized, measure her urine volume and record. Test the urine for protein and ketone and record the result.

iii. When to start a partograph?

When the contractions are 2 or more in 10 minutes or when cervical dilatation is ≥ 4 cm.

iv. Abnormal partograph (Fig. 3)

The following features in a partograph indicate poor progress of labour:

- Cervical dilatation to the right of Alert Line
- Cervical dilatation at or beyond the Action Line

Diagnosis of poor progress of labour

a. Primary dysfunctional labour

The rate of cervical dilatation is less than 1 cm/hour in the active phase of labour due to ineffective uterine contractions of less than 3 in 10 minutes, each lasting less than 40 seconds.

b. Cephalopelvic Disproportion (CPD)

Secondary arrest of cervical dilatation and descent of the presenting part occurs despite good uterine contractions. This can be either:

- Absolute – due to big fetus or small pelvis
- Relative – due to fetal malposition

Fig. 2: Partograph

PARTOGRAPH

NAME: _____ PID: _____ ADMISSION DATE: _____
 POA: _____ ARM: _____ BORN: _____

| | |
|---|--|
| FETAL HEART RATE | |
| LIQUOR MOULDING | |
| (cm) CERVIX Plot X Descent of Head Plot O | |
| CONTRACTIONS PER 10 MINS | |
| OXYTOCIN (U/500mL) TITRATION (mL/h) | |
| DRUGS | |
| I.V.FLUIDS | |
| PULSE AND BP | |
| TEMP | |
| URINE { PROT KET VOL | |

v. Management of abnormal partograph

Management of abnormal partograph at the hospital without specialist or at lower level

a) Moving to the right of the alert line

In the active phase of labour, plotting of cervical dilatation will normally remain on, or to the left of the alert line. However, some will cross to the right of the alert line and this warns that labour may be prolonged.

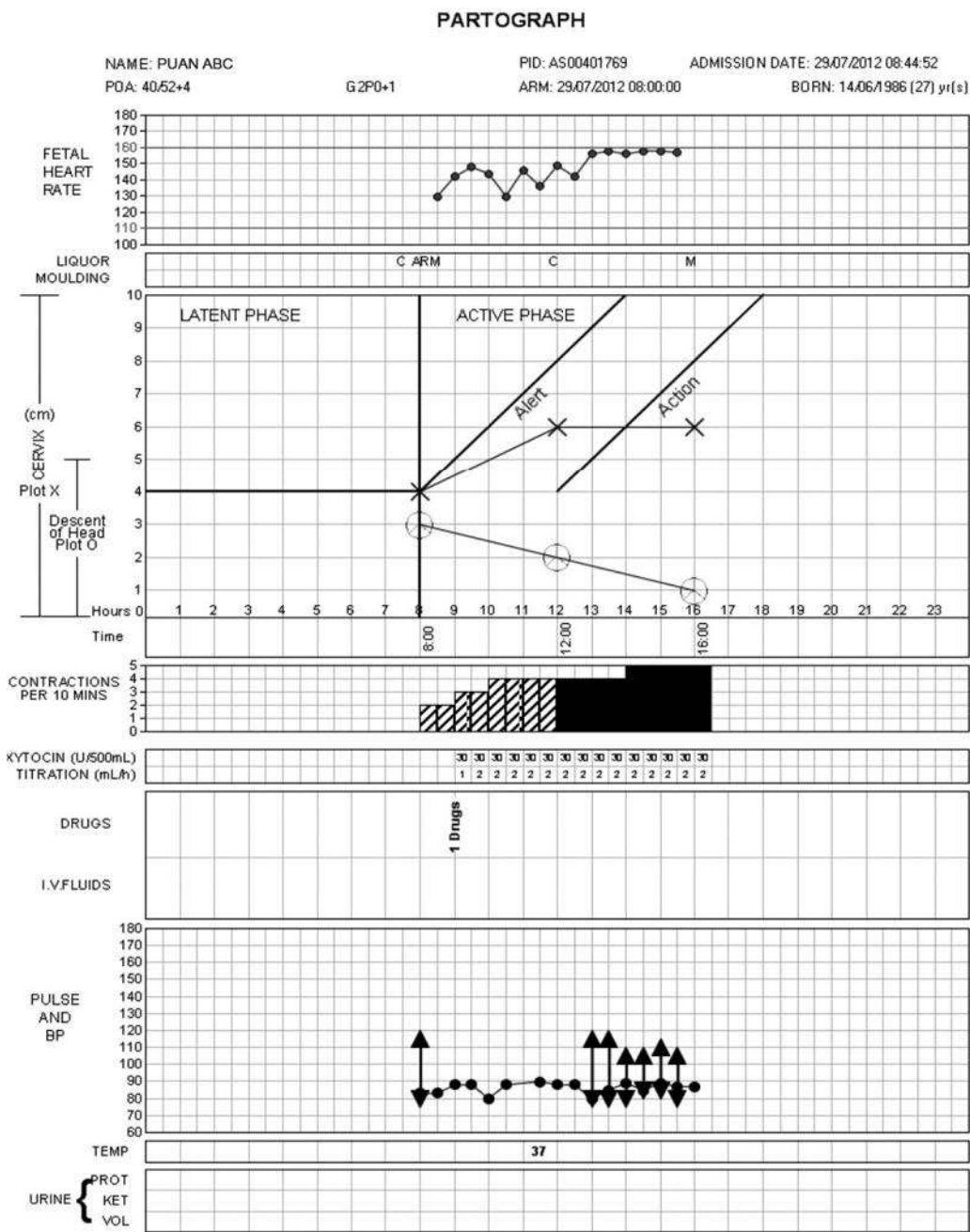
When this occurs in the absence of adequate facilities for obstetric emergencies and operative delivery, the woman must be transferred to a hospital where such facilities are available after consultation with the Specialist.

b) At or beyond the action line

(Such mother should ideally be managed in a hospital with specialist). If a woman's labour reaches or crosses this line, a decision must be made about the cause of poor progress, and appropriate action taken. This decision and action must be taken in a hospital with facilities to deal with obstetric emergencies and operative delivery.

Inefficient contractions are less common in multigravida than in primigravida. Hence, every effort should be made to rule out CPD in multigravidae before augmenting with oxytocin.

Fig. 3: Partograph



d. Fetal Monitoring Methods in Labour

1. Intermittent auscultation with a pinard fetoscope/Doppler Fetal Monitor detector (Daptone)

Auscultation done after a contraction.

This should be practiced every 15 – 30 minutes in mother who are in labour. In the majority of ABC, this is the only method to detect and monitor fetal heart.

2. Electronic Fetal Monitoring with CTG (Where available)

CTG should be done on every woman in labour for 20 minutes on admission. If the CTG is suspicious or abnormal, it should be continued and immediate consultation should be done with the Medical Officer/FMS or Specialist of the referral hospital.

CTG can be faxed or e-mailed to the covering hospital for interpretation and advice if the facilities available.

• Admission CTG

With a suspicious or abnormal admission CTG, there are higher rates of meconium staining of liquor, intrapartum CTG decelerations and other subsequent ominous patterns. A reactive admission CTG is reassuring.

• Indications for continuous intrapartum CTG monitoring

(Such mothers should ideally be managed in the hospital with specialist). Some of the indications for continuous intrapartum CTG monitoring are as follows:

Maternal medical illness:

- Gestational diabetes mellitus Gestational diabetes mellitus Gestational diabetes mellitus
- Hypertensive disorders in pregnancy

Obstetric complications:

- Multiple pregnancies
- Previous caesarean section
- Intrauterine growth restriction
- Prelabour rupture of membranes
- Preterm labour
- Third trimester bleeding
- Oxytocin induction/augmentation of labour
- Post date

Once the mother is put on continuous CTG the tracing should be reviewed by a medical officer hourly. A specialist should be consulted if there is any doubt.

Interpretation of Cardiotocography (CTG)

Normal

- Baseline rate 110 bpm – 160 bpm
- Baseline variability 5 bpm – 25 bpm
- Two accelerations in 20 minutes
- No deceleration

Suspicious

Absence of accelerations and one of the following:

- Abnormal baseline rate (<110 bpm or >160 bpm)
- Reduced baseline variability < 10 bpm for more than 40 minutes
- Variable decelerations without ominous features

Abnormal

Absence of accelerations and any of the following:

- Abnormal baseline rate and variability (< 5 bpm for more than 40 minutes)
- Repetitive late decelerations
- Variable decelerations with ominous features:
 - Duration over 60 seconds
 - Beat loss over 60 bpm
- Late recovery
- Late deceleration component
- Poor baseline variability between and/or during decelerations

Sinusoidal pattern

- Prolonged bradycardia (<100 bpm) for longer than 3 minutes
- Shallow decelerations with reduced baseline variability (< 5 bpm) in a non-reactive trace

Management of abnormal FHR patterns

- Prop up and turn patient to the left lateral position to alleviate vena caval compression
- Discontinue intravenous oxytocin if any
- Give 100% oxygen to mother by face mask/nasal prong
- Perform vaginal examination to rule out cord presentation/prolapse
- Rehydrate the mother with 500 mls of Hartman's over 2 hours and reassess the overall condition of the mother after half an hour.
- Transfer mother immediately to a hospital with facilities for operative delivery

3.3 NORMAL STAGES OF DELIVERY

Stage 1

Starts from the onset of labour to full dilatation (commonly lasts 8-24 hours in first labour including the latent phase and 3-12 hours in subsequent labour). The first stage is further divided into two phases:

- Latent phase (0 – 4 cm cervical dilatation)
- Active phase (> 4 cm of cervical dilatation)

Mother presenting at latent phase should be managed by using LPC:

- i. Monitor temperature, pulse, blood pressure 4 hourly and urinalysis on admission and when mother passes urine.
- ii. Monitor nature of contractions (Length, strength and frequency) 4 hourly.
- iii. Abdominal examination finding – fundal height, lie, presentation and engagement on admission.
- iv. Vaginal examination finding – vulva, vagina, cervical effacement and dilation, station, position, membrane (if absent nature of the liquor) and to rule out cord presentation.
- v. Pain assessment and offer pain relief if possible.
- vi. Auscultate FHR for a minimum of 1 minute immediately after a contraction.
- vii. Encourage frequent drinks and eating light meals to maintain hydration and energy.
- viii. Encourage mobilization and mother should adopt whatever position they find most comfortable.
- ix. Encourage two hourly passing of urine.
- x. If the labour progress, transfer patient to labour room.

Mother presenting at active phase of labour:

- i. Partograph should be started. (Refer Section 3.2(C) Partograph)
- ii. Drinking water and eating light meal may be given if the labour is progressing normally. This might be contraindicated if they have received opioids or they develop risk factors that make a general anaesthetic more likely.
- iii. Mother may become more comfortable by changing position in bed or by ambulation.

Stage 2

Starts from full dilatation of the cervix to delivery of the baby (commonly ends within 1 hour). The start of second stage is not clear but a vaginal examination is indicated when mother has a sensation of bearing down.

- During the second stage mother should be informed that they should be guided by their own urge to push.
- Strategies to assist birth with effective pushing
 - change of mother's position
 - empty her bladder
 - support, and encouragement

Intrapartum intervention to reduce perineal trauma include:

- i. Either the 'hands on' (guarding the perineum and flexing the baby's head) or the 'hands poised' (with hands off the perineum and baby's head but in readiness) technique can be used to facilitate spontaneous birth.
- ii. Episiotomy may be considered at this time.

Episiotomy

An episiotomy is an incision performed medio-laterally in the perineum during crowning of the presenting part in order to prevent extensive perineal tearing. It should be performed **SELECTIVELY AND NOT ROUTINELY**.

- An episiotomy should be considered only in the case of complicated vaginal deliveries (breech, shoulder dystocia, forceps and vacuum) and for previous third or fourth degree tears.
- An episiotomy should not be performed too early as excessive bleeding will result.
- Local anaesthesia should be provided to the mother before episiotomy repair.
- A rectal examination should be done on completion.
- If a third or fourth degree tear is suspected, the mother should be referred to a hospital with specialist. Haemostasis should be secured before referral. This may be either by:
 - i. Suturing the bleeder
 - ii. Pack the wound to ensure pressure
 - iii. Antibiotic therapy should be initiated at the earliest opportunity
- The episiotomy rate should ideally not exceed 30 % in any centre (refer Director General of Health's circular 1/2008).

Stage 3

Starts from delivery of the baby to delivery of the placenta (usually lasts 15 - 30 minutes). Active management of the third stage (active delivery of the placenta) helps prevent postpartum haemorrhage. Active management of the third stage of labour includes:

- immediate oxytocin
- controlled cord traction, and
- uterine massage

a) Oxytocin

- Within 1 minute of delivery of the baby, give IM oxytocin 10 units or IM Syntometrine (5 units oxytocin plus 0.5mg ergometrine) or IM/IV Carbetocin 100 mcg (oxytocin analogue) after palpating the abdomen to rule out the presence of an additional fetus.
- Oxytocin/oxytocin analogue are drugs of choice because they are effective 2 to 3 minutes after injection, has minimal side effects and can be used in all mothers.
- Do not give syntometrine or ergometrine to mother with pre-eclampsia, eclampsia or high blood pressure as well as mother with heart disease because it increases the risk of convulsions and cerebrovascular accidents.

b) Controlled cord traction

- Clamp the cord close to the perineum using Spencer Well artery forceps. Hold the clamped cord and the end of forceps with one hand.
- Place the other hand just above the woman's pubic bone and stabilize the uterus by applying counter traction during controlled cord traction. This helps prevent inversion of the uterus.
- Wait for signs of placental separation i.e.
 - Lengthening of the cord or
 - Gushing of blood
 - Uterus raised and hard
- Gently pull downward the cord to deliver the placenta.
- Continue to apply counter traction to the uterus with the other hand.
- If the placenta does not descend during 30–40 seconds of controlled cord traction (i.e. there are no signs of placental separation), do not continue to pull on the cord.
- After delivery of the placenta, hold the placenta in two hands and gently turn it until the membranes are twisted.
- Slowly pull to complete the delivery of placenta.
- Examine the placenta to be sure it is complete. If suspected to be incomplete refer to hospital.
- If the cord is pulled off (cord snaps), manual removal of the placenta may be necessary.
- If uterine inversion occurs, replace immediately. (Refer to 3.9)

c) Uterine Massage

- Immediately massage the fundus of the uterus through the woman's abdomen until the uterus is contracted.
- If uterus is not contracted and ongoing bleeding presence:

| Actions | HC/ABC/DH | Hospital With Specialist |
|---|--|---|
| 1. Initiate oxytocic drugs | Yes | Yes |
| 2. Uterine massage every 15 minutes for the first 1 hour. | Yes | Yes |
| Other uterotonic drugs | Refer to hospital with specialist *If Bakri Ballon available, to insert before transfer patient | Yes |
| 3. If uterus still not contracted | | <div>- Bakri Ballon</div> <div>- B-Lynch Suture</div> <div>- Hysterectomy</div> <div>} Uterine conservation</div> |

3.4 OBSTRUCTED LABOUR

Obstructed labour means that, in spite of strong contractions of the uterus, the fetus cannot descend through the pelvis because there is an insurmountable barrier preventing its decent. Obstruction usually occurs at pelvic brim, but occasionally it may occur in the cavity or at the outlet of the pelvis.

EVIDENCE OF OBSTRUCTED LABOUR

- Secondary arrest of cervical dilatation and descent of presenting part
- Large caput
- Third degree moulding
- Oedematous cervix
- Maternal/fetal distress

Management of Obstructed Labour :

- Rehydrate the mother
- Give supportive care
- Give antibiotics when applicable
- Refer mother to the nearest higher level of care or for caesarian section in hospital with specialist.

3.5 CORD PROLAPSE

- Cord prolapse has been defined as the descent of the umbilical cord through the cervix alongside (occult) or past the presenting part (overt) in the presence of ruptured membranes.
- Cord presentation is the presence of the umbilical cord between the fetal presenting part and the cervix, with or without membrane rupture.

| Risk Factors For Cord Prolapse | |
|---|---|
| - Multiparity | - Prematurity less than 37 weeks |
| - Artificial rupture of membranes | - External cephalic version (during procedure) |
| - Low birth weight, less than 2.5 kg | - Fetal congenital anomalies |
| - Vaginal manipulation of the fetus with ruptured membranes | - Internal podalic version |
| - Breech presentation | - Stabilising induction of labour |
| - Second twin | - Insertion of uterine pressure transducer |
| - Unengaged presenting part | - Polyhydramnios |
| - Transverse, oblique and unstable lie (when the longitudinal axis of the fetus is changing repeatedly) | - Low-lying placenta or other abnormal placentation |

**Refer to Appendix 5 for measures to be taken before transfer to the tertiary centre.*

3.6 UTERINE RUPTURE

Uterine rupture is defined as a disruption of the uterine muscle extending to and involving the uterine serosa or disruption of the uterine muscle with extension to the bladder or broad ligament.

Signs and symptoms rupture of the uterus

- Shock
- Rapid maternal pulses
- Abdominal distension/free fluid
- Abnormal uterine contour
- Tender abdomen
- Easily palpable fetal parts
- Absent fetal movements and fetal heart sounds
- Abnormal CTG finding

***** Please refer SOP for every condition

3.7 SHOULDER DYSTOCIA

Shoulder dystocia is defined as a delivery that requires additional obstetric manoeuvres to release the shoulders after gentle downward traction has failed. Shoulder dystocia occurs when either the anterior or less commonly, the posterior fetal shoulder impacts on the maternal symphysis or sacral promontory

| Factors Associated With Shoulder Dystocia | |
|---|----------------------------------|
| Pre-labour | Intrapartum |
| Short stature | Prolonged first stage of labour |
| Previous shoulder dystocia | Secondary arrest |
| Macrosomia | Prolonged second stage of labour |
| Diabetes mellitus/GDM | Oxytocin augmentation |
| Maternal body mass index > 30 kg/m2 | Assisted vaginal delivery |
| Induction of labour | |

One should refer immediately to a tertiary centre if shoulder dystocia is anticipated. However, if delivery occurs at your centre refer to SOP 17 and Appendix 7 for measures to overcome this complication.

3.8 MATERNAL COLLAPSE

Maternal collapse is defined as an acute event involving the cardiorespiratory systems and/or brain, resulting in a reduced or absent conscious level (and potentially death), at any stage in pregnancy and up to six weeks after delivery. The common reversible causes of collapse in any woman can be remembered using the well known of the 4T's and the 4H's employed by the Resuscitation Council (UK)

| Reversible cause | Cause in Pregnancy |
|---|--|
| Hypovolaemia | Bleeding (may be concealed) (obstetric/ other) or relative hypovolaemia of dense spinal block; septic or neurogenic shock. |
| Hypoxia | Pregnant mother can become hypoxic more quickly Cardiac events: peripartum cardiomyopathy, myocardial infarction, aortic dissection, large-vessel aneurysms |
| Hypo/hyperkalaemia and other electrolyte disturbances | No more likely |
| Hypothermia | No more likely |
| Thromboembolism | Amniotic fluid embolus, pulmonary embolus, air embolus, myocardial infarction. |
| Tension pneumothorax | Following trauma/suicide attempt |
| Toxicity | Local anaesthetic, magnesium, other |
| Tamponade (cardiac) | Following trauma/suicide attempt |
| Eclampsia and pre-eclampsia | Includes intracranial haemorrhage |

3.9 UTERINE INVERSION

- This is an obstetric emergency (Red Alert)
- Sign and symptoms of uterine inversion includes:
 - Profuse bleeding
 - Absence of uterine fundus or
 - An obvious defect of the fundus on abdominal examination or
 - Evidence of shock with severe hypotension will further provide the clinician with diagnostic clues.
- Replace the inverted uterus immediately (with placenta if still attached) by slowly and steadily pushing upwards.
- **Note:** The last part to come out should be the first part to go in.
- Do not attempt to remove the placenta as this can lead to severe post partum haemorrhage.
- With the passage of time the constriction ring around the inverted uterus becomes more rigid and the uterus more engorged with blood.
- If the attempt fails, refer to the nearest hospital after stabilising the mother.
- In hospital if manual reduction failed, can proceed to O'Sullivan Method.
- If all the above fails, consider surgical reduction.

Risk factors for uterine inversion include

- Short umbilical cord
- Excessive traction on the umbilical cord
- Excessive fundal pressure
- Fundal implantation of the placenta
- Retained placenta and abnormal adherence of the placenta
- Chronic endometritis
- Vaginal births after previous caesarean section

- Precipitated or prolonged labours
- Previous uterine inversion

3.10 RETAINED PLACENTA

- There may be no bleeding with retained placenta.
- If you can see the placenta, do not ask the mother to push it out.
- If you can feel the placenta in the vagina, remove it.
- Catheterize the bladder.
- If the placenta is not expelled, give IM oxytocin 10 units if not already done for active management of the third stage.
- If controlled cord traction fails to deliver the placenta refer to hospital.
- In hospital, if all the above fails, to consider Manual Removal of Placenta (MRP) under LA/GA

3.11 RED ALERT SYSTEM

The Red Alert System is described in the Report on Confidential Enquiries into Maternal Mortality in Malaysia for the year 1992. It should be operational in all hospitals dealing with obstetric cases where it helps improve emergency response time and reduces maternal morbidity and mortality.

a. How the Red Alert System functions

- Red Alert is triggered in the presence of an emergency obstetric case in the Casualty Department or the O&G Department
- The nurse or doctor in charge of the area activates the system by calling the telephone operator of the hospital and saying “Red Alert”
- The operator will immediately initiate a ‘call system’ to get doctors involved to attend to this emergency.
- Each hospital is to establish its own system
- The doctors concerned (see below) will go to the area concerned

b. Staff involved in Red Alert

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> • Medical officers on call • Specialist on call • Consultant on call | } | From O&G, Medical and Anaesthesiology Departments |
| <ul style="list-style-type: none"> • Blood Bank • Sister on-call | | |

c. Indications to activate Red Alert

- Severe antepartum haemorrhage
- Postpartum haemorrhage
- Intrapartum/postpartum collapse
- Eclampsia
- Uterine inversion

3.12 REFERRAL AND RETRIEVAL/RESUSCITATION SYSTEMS

a. When should nurse or medical officer refer or consult to a higher level of care? Refer Appendix 3

- Abnormalities of the fetal heart rate
- Delay in the first or second stage of labour.
- Any meconium stained liquor
- Obstetric emergency – antepartum haemorrhage, cord presentation or prolapse, postpartum haemorrhage, uterine inversion, shoulder dystocia, eclampsia, maternal collapse or need for advanced neonatal resuscitation.
- Retained placenta
- Maternal pyrexia in labour (38°C once or 37.5°C on two occasions 2 hours apart)
- Malpresentation or breech presentation diagnosed for the first time at the onset of labour
- Either raised diastolic blood pressure (over 90 mmHg) and or systolic blood pressure (over 130mmHg) on two consecutive readings taken 30 minutes apart
- Uncertainty about the presence of a fetal heart rate
- Third or fourth - degree tears or other complicated perineal trauma requiring suturing.

b. Referral System

Inter-hospital/inter-centre transfer should be considered if the necessary resources or personnel for optimal mother outcome are not available at the facility currently providing the care. The resources available at the referring and the receiving centers/hospitals should be considered. The risks and benefits of transport, as well as the risks and benefits associated for not transporting the mother, should be assessed.

c. In-Utero Transfer

All conditions potentially requiring specialised care for the neonate (medical/surgical) e.g. preterm labour, IUGR and congenital anomaly requiring surgical intervention, may benefit from in-utero transfer (IUT). This has proven to result in a better neonatal outcome compared to neonatal transfer after delivery.

d. Retrieval Team

A system should be available to transport trained medical personnel from higher centre to provide assistance in the referring centre/home. In some hospitals, the team is called the “Flying Squad”.

e. Team members

- Medical Officer/Specialist
- Assistant Medical Officer (optional)
- Staff nurse from labour ward

- Ambulance driver
- Male attendant from Casualty Department

f. Indications for mobilization of the Retrieval Team

- Antepartum haemorrhage
- Postpartum haemorrhage
- Eclampsia
- Severe pre-eclampsia
- Intrapartum/postpartum collapse
- Mother in labour
- Cord prolapse
- Shoulder dystocia

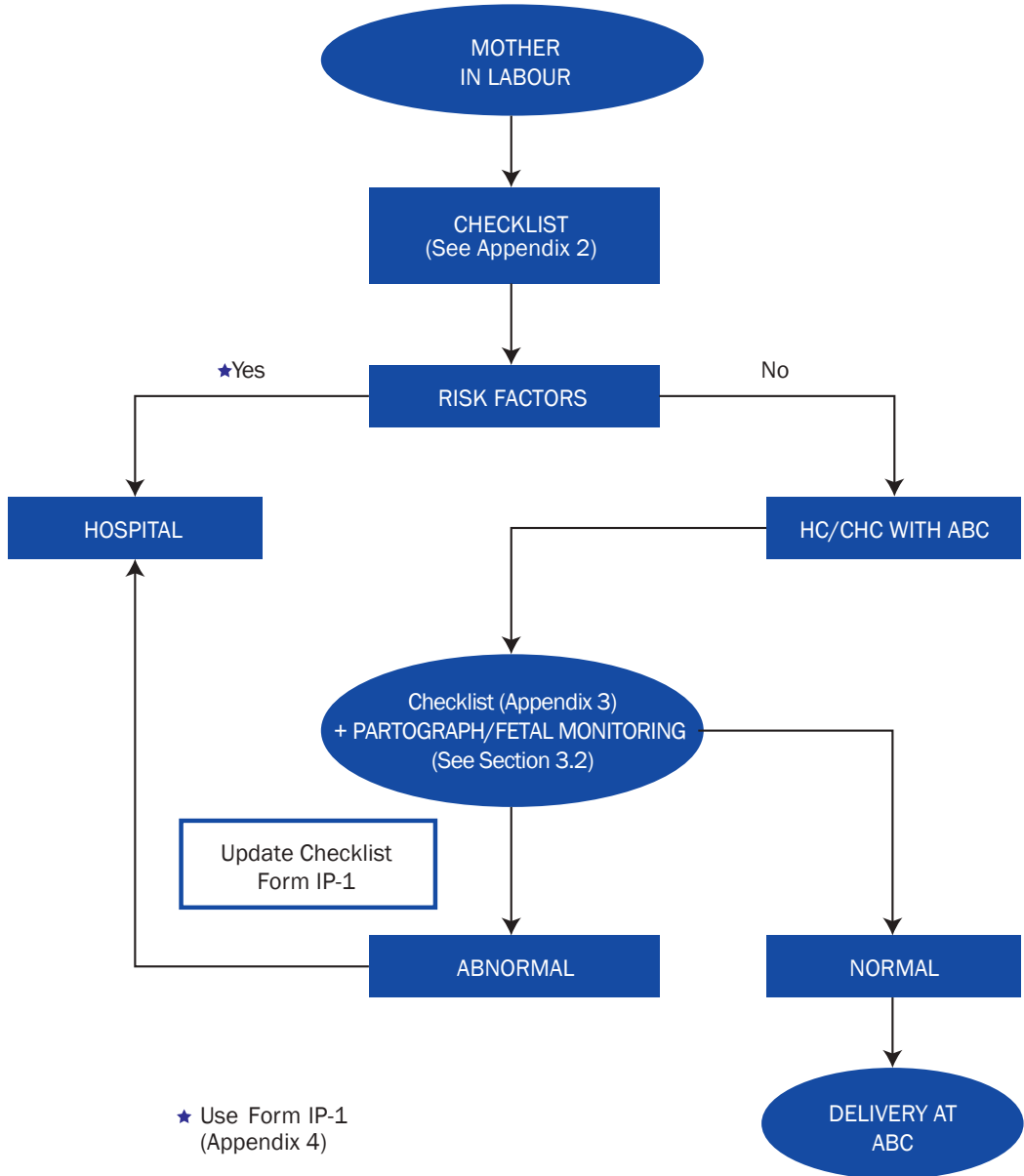
g. How the team functions

- A telephone call is received from a peripheral or private maternity centre
- Staff in Labour Ward triggers the operation of the team by calling the ambulance driver and the attendant from the Casualty Department
- The team assembles at the Casualty Department and sets out to the referring centre within 10 minutes of the initial call
- The team retrieves the mother at the referring centre and brings her to the hospital
- The referring centre to perform initial resuscitation

h. Referral letter

A standard referral form (IP-1) (Appendix 4) should be used to refer a mother in labour. The intrapartum checklist of the mother (Appendix 3) should be updated and attached to the referral form. The receiving hospital should likewise reply using a standard reply form (IP-2) (Appendix 6) when the mother is discharged from their care. Effective communication between the centres involved will help maintain good working relationship and understanding and ensure continuity of care for the mother. As suggested under “Level of Care” – (SOP – Intrapartum Management), apart from mother in normal labour, mother with all other conditions as stated in the checklist in Appendix 3 should be managed in a hospital and not in a health centre/community health clinic or home.

INTRAPARTUM CARE FLOW CHART



Date : _____

Mother's Name : _____

Mother's I.C No : _____

RN : _____

CHECKLIST FOR MOTHER IN LABOUR

| No. | Criteria for home delivery or at ABC | Tick (✓) |
|-----|--|----------|
| 1. | Gravida 2-5 | |
| 2. | No previous bad obstetric history | |
| 3. | No history of medical problem | |
| 4. | No medical and obstetric complication at present pregnancy | |
| 5. | Height more than 145 cm | |
| 6. | Mother's age more than 18 years but less than 40 years | |
| 7. | Married and have family support | |
| 8. | POA more than 37 weeks or less than 41 weeks | |
| 9. | Appropriate home environment (required for home delivery) | |
| 10. | Estimated birth weight 2.5 – 3.5 kg | |

Mother is only allowed to have delivery at home/ABC only if ALL the criteria are fulfilled (indicated by ✓)

Name of Staff :

Designation :

Name of Health Clinic :

Date : _____

Mother's Name : _____

Mother's I.C No : _____

RN : _____

CHECKLIST OF INTRAPARTUM RISK FACTORS

| No. | Risk Factors | Tick (✓) if risk factor is present |
|---------------------|--|------------------------------------|
| FIRST STAGE | | |
| | Fever ($>38^{\circ}\text{C}$) | |
| | Proteinuria (1+ or more) | |
| | High Blood Pressure ($>140/90$ mmHg) | |
| | Abnormal Lie | |
| | Chronic Medical Illness: (Cardiovascular disease, asthma, diabetes, hypertension, epilepsy, anaemia, TB, HIV, Hepatitis B) | |
| | Post date >41 weeks | |
| | Gestation <37 weeks | |
| | Leaking liquor or rupture of membrane > 6 hours | |
| | Meconium-stained liquor | |
| | Fetal Heart Rate <110 or >160 beats/minute | |
| | Labour pain >12 hrs for primigravida or >8 hours for multigravida | |
| | No progress of cervical dilatation after >4 hours | |
| | Cord prolapsed | |
| | Intrapartum haemorrhage | |
| | Irregular or uncoordinated contraction >4 hours | |
| SECOND STAGE | | |
| | Duration of second stage >1 hour in primigravida or >30 minutes in multigravida | |
| | Maternal bleeding, shortness of breath, pulse rate >100 beats/minute, or cyanosis | |
| | Fetal heart rate <110 or >160 beats/min | |
| | "Shoulder dystocia" | |
| THIRD STAGE | | |
| 1. | Retained placenta | |
| 2. | Retained product of conception | |
| 3. | Second degree perineal tear or more | |
| 4. | Postpartum haemorrhage (>500 ml) caused by uterine atony, uterine rupture, uterine inversion, or coagulation disorders | |
| 5. | Mother having shortness of breath, pulse rate >100 beats/minute, or cyanosis | |

** Note: If there is a risk factor, mother has to be referred to the Medical Officer in Health Clinic/nearest hospital.

Name of Staff : _____

Designation : _____

Name of Health Clinic : _____

*(**Reminder:** Please attach Appendix 3 when referring to hospital)

RISK CODE

DATE:
TIME:

INTRAPARTUM REFERRAL FORM (IP-1)

From: _____

To: _____

Name of mother: _____

Registration No: _____ NRIC: _____

Age: _____ Gravida: _____ Para: _____

LMP: _____ EDD/REDD: _____ POA/POG: _____

Progress and Treatment given:

Enclosed items: (please tick)

1. Partogram ☐ 2. CTG ☐ 3. Intrapartum Checklist (Appendix 3) ☐

Case discussed with _____ in receiving center.

Referring medical personnel (Name & Designation):

STEPS TO BE TAKEN PRIOR TO TRANSFER TO HOSPITAL IN CERTAIN CASES

| RISK FACTORS | PLAN OF ACTION |
|---|--|
| Leaking liquor or rupture of membrane > 6 hours | i. Check fetal heart rate and give mother oxygen if there is sign of fetal distress ii. Rule out cord prolapse |
| Cord Prolapse | i. Elevate the perineum by putting two pillows under the mother's buttock ii. Give oxygen to the mother iii. If the cord is protruding through the vagina, cover it with a pad or gauze which had been soaked with warm water and push it back into the vagina if possible.** iv. Distend bladder with 200 mls of saline/ water |
| Gestation less than 36 weeks | IM Dexamethasone 12 mg stat. Can be given by SN/JM (Credentialed) |

1. Practical Points to be noted during transfer of mothers:

Pre-transfer:

Meticulous planning and coordination Identify personnel and modes of transport
 Resuscitate and stabilise mother
 Coordinate safe embarkation on to vehicle

Intra-transfer:

Maintain stability of mother
 Constant monitoring and documentation of vital signs, treatment and incidents during transfer
 If acute problems arise, stop vehicle to carry out resuscitative measures or divert to nearest health facility

On arrival:

Hand over to appropriate person
 Ensure safe disembarkation

RISK CODE

DATE:
TIME:

INTRAPARTUM REPLY FORM (IP-2)

From: _____

To: _____

Name of mother: _____

Registration No: _____ NRIC: _____

Age: _____ Para: _____

Date of delivery: _____ Date of discharge: _____

Date and indication for intrapartum referral: _____

Mode of Delivery: _____

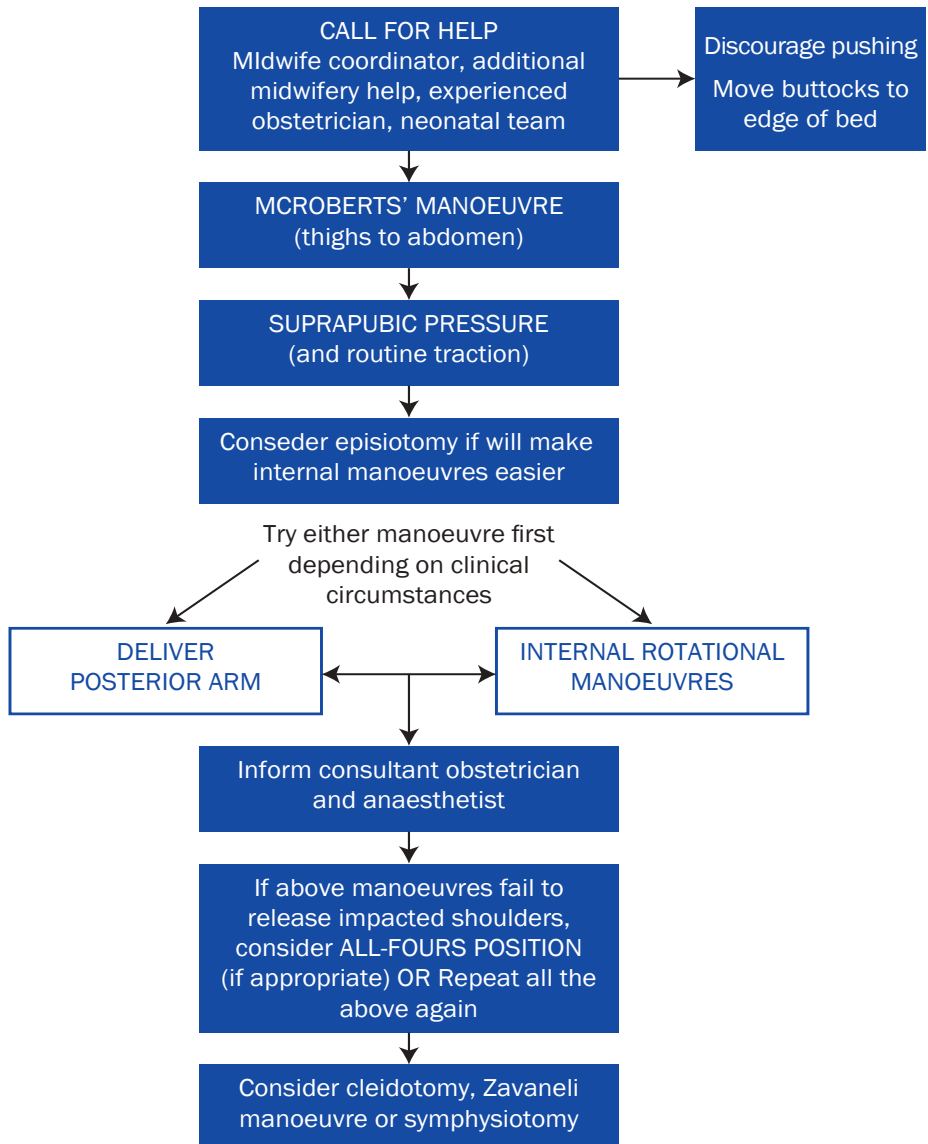
Baby's birth weight and sex: _____

Summary of problem and treatment given: _____

Recommended further treatment and follow-up: _____

Date and purpose of any follow-up as referral centre: _____

(Name & Designation)

ALGORITHM FOR THE MANAGEMENT OF SHOULDER DYSTOCIA

Adapted from Royal College of Obstetricians and Gynaecologist. Green Top Guideline No 42. Shoulder Dystocia, Dec; 2005

MINISTRY OF HEALTH MALAYSIA
LABOUR PROGRESS CHART

NAME :

RN :

WARD:

BED NO:

HEIGHT:

WEIGHT:

| DATE | TIME | BP | PULSE | FHR | UTERINE CONTRACTION: STRENGTH/ FREQUENCY/ DURATION | PAD CHART | OTHERS | REMARKS | NAME OF STAFF |
|------|------|----|-------|-----|--|--------------|--------|---------|---------------------|
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STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES

Name of Procedure: Intrapartum Management

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|-----------------------------|---|--|---|---|--|---|
| | | | | | Management | Level of personnel | Level of care |
| 1 | Normal Labour | <ul style="list-style-type: none"> Regular uterine contractions Show Leaking liquor Cervical dilatation Cervical Effacement Descent of fetal head | | <ul style="list-style-type: none"> False labour APH PROM | <ul style="list-style-type: none"> Partograph Fetal monitoring | All levels | All levels |
| 2 | Emergency Caesarean Section | Obstetric Indication | <ul style="list-style-type: none"> Hb GXM/ GSH | | <ul style="list-style-type: none"> Consent Inform Family members OT, Anaesthetist, Paediatrician Confirm blood Mother prep. Prophylactic antibiotic Thromboprophylaxis (Refer CPG on thrombo-prophylaxis) | SN/HO/MO Specialist - O&G - Anaesthetist - Pediatrician | Hospital with facilities for operative delivery |
| 3 | Anaemia | <ul style="list-style-type: none"> Pallor Hb<11 gm% SOB, Lethargy, Giddiness | <ul style="list-style-type: none"> FBC FBP if not done before GXM | Nutritional anaemia Haemoglobinopathy Parasitic infection | IV line Consider transfusion if Hb <8 gm% | HO/MO/ Specialist | Hospital |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|------------------------------------|---|--|---|--|--|--------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 4 | Hypertensive Disorder in Pregnancy | <ul style="list-style-type: none"> BP 130/90 mmHg and above Symptoms of impending eclampsia | <ul style="list-style-type: none"> FBC Renal profile & uric acid LFT Urine protein GXM CTG Ultrasound (if needed) | <ul style="list-style-type: none"> Chronic hypertension Secondary hypertension | <ul style="list-style-type: none"> Depends on the severity of hypertension & gestational age (refer to training manual on HDP in Pregnancy) | All levels | All levels |
| 5 | Diabetes Mellitus | <ul style="list-style-type: none"> Known diabetes Gestational diabetes | <ul style="list-style-type: none"> Dextrostix (dxt) RBS FBC BUSE GXM Urine ketone & protein | | <ul style="list-style-type: none"> Hourly dxt Maintain glucose at 4-7mmol/l Start insulin infusion (DIK regime) on sliding scale if necessary CTG | MO/ Specialist | Hospital with Specialist |
| 6 | Heart Disease | <ul style="list-style-type: none"> Known case of heart disease Dyspnoea Cyanosis Cardiac murmur Signs of heart failure | <ul style="list-style-type: none"> FBC ECG ABG if indicated Bedside Echo if indicated | <ul style="list-style-type: none"> Undiagnosed thyrotoxicosis Postpartum cardiomyopathy Heart failure secondary to hypertension/ anaemia | <ul style="list-style-type: none"> Prop up mother ECG monitoring Oxygen as necessary Resuscitation trolley standby SBE prophylaxis if indicated Shorten second stage Avoid syntometrin/ ergometrin in third stage Refer to training manual of Heart Disease in Pregnancy | MO/ Specialist -O&G -Medical -Cardiologist (if the service available) | Hospital with Specialist |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|--|--|---|---|---|--|--------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 7 | Maternal Pyrexia | Temperature ³ 38oC | <ul style="list-style-type: none"> • TWBC • Septic work up, such as: <ul style="list-style-type: none"> - Blood C&S - if maternal temperature ³ 38oC - UFEME - Urine C&S - HVS C&S - CXR (if indicated) | <ul style="list-style-type: none"> • Chorio-amnionitis • Intercurrent infection eg UTI, URTI • DVT | <ul style="list-style-type: none"> • Institute broad spectrum antibiotic cover • Expedite delivery if chorio-amnionitis • Assessment of baby at delivery | MO/Specialist <ul style="list-style-type: none"> - Medical - Surgical - Paediatrician | Hospital with Specialist |
| 8 | Abnormal Lie | Lie other than longitudinal | <ul style="list-style-type: none"> • Hb • GXM • Ultrasound (if needed) | | LSCS may be indicated | MO/Specialist <ul style="list-style-type: none"> - O&G - Anaesthetist - Paediatrician | Hospital with Specialist |
| 9 | Malpresentation Including Breech | Presentation other than vertex | <ul style="list-style-type: none"> • Hb • GXM • Ultrasound (if needed) | | LSCS may be indicated | MO/Specialist <ul style="list-style-type: none"> - O&G - Anaesthetist - Paediatrician | Hospital with Specialist |
| 10 | Preterm Labour (<37/52) | <ul style="list-style-type: none"> • Contractions • Cervical changes | <ul style="list-style-type: none"> • UFEME • HVS C&S • Ultrasound(if needed) | UTI Wrong dates IUGR/SGA | IM Dexamethasone (refer CPG on antenatal steroid) Tocolysis NICU | MO/Specialist <ul style="list-style-type: none"> - O&G - Paediatrician | Hospital with Specialist |
| 11 | Intrauterine Growth Restriction (IUGR) | Uterus smaller than date | <ul style="list-style-type: none"> • Hb • GXM • CTG • Ultrasound (if needed) | Wrong dates SGA Fetal anomaly | <ul style="list-style-type: none"> • Close intrapartum fetal monitoring • May need operative delivery | MO/Specialist <ul style="list-style-type: none"> - O&G - Anaesthetist - Paediatrician | Hospital with Specialist |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|---------------------------|--|--|--|--|--|--------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 12 | Meconium-stained Liquor | <ul style="list-style-type: none"> • Greenish/ Yellowish discolouration of liquor | <ul style="list-style-type: none"> • Hb • GXM • CTG | Breech | <ul style="list-style-type: none"> • May be necessary to expedite delivery • May need operative delivery • MO/Paediatrician on standby | MO/Specialist - O&G - Anaesthetist - Pediatrician | Hospital with Specialist |
| 13 | Abnormal Fetal Heart Rate | Refer to Fetal Monitoring section | <ul style="list-style-type: none"> • Hb • GXM • CTG | Refer to Fetal Monitoring section | <ul style="list-style-type: none"> • Initial management: <ul style="list-style-type: none"> - Left lateral position - Oxygen - Stop oxytocin - VE to rule out cord presentation/cord prolapse - IV infusion • Expedite delivery as appropriate • MO/Paediatrician on standby • May need operative delivery | MO/Specialist - O&G - Anaesthetist - Pediatrician | Hospital with Specialist |
| 14 | Prolonged Labour | <ul style="list-style-type: none"> • Latent phase > 8 hours • Passed alert line on partograph • Prolonged second stage | <ul style="list-style-type: none"> • Hb • GXM • CTG | | <ul style="list-style-type: none"> • Augmentation if appropriate • Instrumental • May need operative delivery | MO/Specialist - O&G - Anaesthetist - Pediatrician | Hospital with specialist |
| 15 | Cord Prolapse | <ul style="list-style-type: none"> • Presence of cord outside the cervix • Membranes absent | <ul style="list-style-type: none"> • Hb • GXM | | <ul style="list-style-type: none"> Initial management: <ul style="list-style-type: none"> • Elevate mother's buttocks • Oxygen to mother • Replace cord into the vagina with warm gauze/ pad • Inflate bladder with N/S • Expedite delivery as appropriate | MO/Specialist - O&G - Anaesthetist - Pediatrician | Hospital with Specialist |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|------------------------|-----------------------------------|---|---|---|---|--------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 16 | Antepartum Haemorrhage | PV bleed during antepartum period | <ul style="list-style-type: none"> Hb GXM Coagulation profile CTG Ultrasound | <ul style="list-style-type: none"> Bleeding Placenta Praevia Abruptio placenta Uterine rupture | <ul style="list-style-type: none"> IV line Resuscitation Refer hospital with specialist Expedite delivery | MO/Specialist - O&G - Anesthetist - Pediatrician | Hospital with Specialist |
| 17 | Shoulder Dystocia | Delay in delivery of shoulder | <ul style="list-style-type: none"> GXM Hb | | <ul style="list-style-type: none"> Call for the most senior staff available at the centre. IV line Shoulder dystocia Drill The mother must be in lithotomy position, legs up in stirrups with buttock at the edge of the bed. Empty the bladder Extend episiotomy. McRobert maneuver: Hyperflex hips and knees and abducts hips. Suprapubic pressure to dislodge anterior shoulder. Downward axial traction on fetus. Failing the above, deliver the posterior shoulder followed by the anterior shoulder. Failing the above, activate referral/ retrieval system | All levels | All levels |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|------------------------|---|---|--|--|--------------------|---------------|
| | | | | | Management | Level of personnel | Level of care |
| 18 | Postpartum Haemorrhage | <ul style="list-style-type: none"> Bleeding from the genital tract >500mls in vaginal delivery and > 1000mls in Caesarian section or enough blood loss to cause hypotension or shock | <ul style="list-style-type: none"> FBC GXM Coagulation profile | <ul style="list-style-type: none"> Uterine atony Retained placenta Trauma: Cervical tear, vaginal wall tear/ haematoma Uterine inversion coagulation disorder | <ul style="list-style-type: none"> TRIGGER RED ALERT IV line with 16-18G cannula Resuscitation Oxytocics/ Prostaglandins (Refer Training Manual on Management of PPH) | All levels | All levels |

REFERENCES

| | |
|----|--|
| 1 | Whittle MJ. <i>The management and monitoring of labour. Tumbull's Obstetrics</i> (Chamberlain G, ed.) 2 nd edition. 1995. Churchill Livingstone. |
| 2 | Beazley JM. <i>Natural labour and its active management. In Dewhurst's textbook of Obstetrics and Gynaecology for Postgraduates</i> (Whitfield CR, ed). 5 th edition 1995. Blackwell Science. |
| 3 | Studd J. <i>The management of labour</i> . 1 st edition 1985. Blackwell Scientific Publications. |
| 4 | Steer P. <i>ABC of labour care: assessment of mother and fetus in labour</i> . BMJ 1999; 318: 858-861. |
| 5 | Steer P & Flint C. <i>ABC of labour care: physiology and management of normal labour</i> . BMJ 1999; 318: 793-796. |
| 6 | <i>The use of Electronic Fetal Monitoring, Evidence-based Clinical Guideline Number 8</i> , RCOG, 2001. |
| 7 | Gibb & Arulkumaran 1992. <i>Fetal Monitoring in Practice</i> , Butterworth Heinemann. |
| 8 | WHO Partograph – User's Manual (1988). |
| 9 | <i>Managing Complications in Pregnancy and Childbirth – A guide for midwives and doctors. Integrated Management of Pregnancy and Childbirth (IMPAC)</i> . WHO 2000. |
| 10 | Perinatal Society Malaysia, Ministry of Health and Academy of Medicine, 1996. <i>Clinical Practice Guidelines on Antenatal Steroid Administration</i> . |
| 11 | <i>Training Manual on Hypertensive Disorders in Pregnancy</i> by National Technical Committee on Confidential Enquiries into Maternal Deaths 2000. |
| 12 | <i>Training Manual of Management of Post Partum Haemorrhage</i> by National Technical Committee on Confidential Enquiries into Maternal Deaths 1998. |
| 13 | <i>Clinical Practice Guidelines on Heart Disease in Pregnancy</i> . Ministry of Health Malaysia 2001. |
| 14 | <i>Intrapartum Care, care of healthy mother and their babies during childbirth</i> NICE Guideline Sept;2007. |
| 15 | <i>National Consensus on Thromboprophylaxis</i> . Academy of Medicine & Ministry of Health, 1999. |
| 16 | <i>Managing prolonged and obstructed labour</i> , WHO 2008 |
| 17 | <i>Uterine inversion: Life-threatening obstetric emergency</i> , Hostetler, Bosworth MF. <i>Jam Board Fam Prac</i> . 2000 March – April; 3 (2):120-3 |
| 18 | Royal College of Obstetricians and Gynaecologist. Green Top Guideline No 56. <i>Maternal Collapse in pregnancy and the puerperium</i> , Jan, 2011 |
| 19 | Resuscitation Council (UK). <i>Resuscitation Guidelines</i> 2005. (http://www.resus.org.uk/pages/guides .htm) |
| 20 | Royal College of Obstetricians and Gynaecologist. Green Top Guideline No 42. <i>Shoulder Dystocia</i> , Dec; 2005 |
| 21 | Royal College of Obstetricians and Gynaecologist. Green Top Guideline No 50. <i>Cord Prolapse</i> , April ;2008 |



Section 4

Postpartum Care

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4.1 INTRODUCTION

The postpartum period (puerperium) is from the end of labour until the genital tract has returned to normal. It lasts for 42 days. The postpartum period covers a critical transitional time for a woman, her newborn and her family, on a physiological, emotional and social level. Inadequate postnatal care can reduce opportunities for early detection and management of problems and disease.

The aims of care in the postpartum period are:

1. Support of the mother and her family in the transition period to the new family member and respond to their needs
2. Prevention, early diagnosis and treatment of complications of mother and neonate, including the prevention of vertical transmission of diseases from mother to neonate
3. Referral of mother and neonate for specialist care when necessary
4. Counselling on baby care and immunization of the infant
5. Support of breastfeeding
6. Counselling on maternal nutrition, and exercise
7. Counselling and service provision for contraception and the resumption of sexual activity
8. Provision of psychological support in special circumstances

4.2 RATIONALE

A significant number of maternal deaths as well as morbidity occur during the postpartum period. About two-thirds of maternal deaths occur during the postnatal period. Postpartum complications can be grouped into acute life-threatening, mid- and long-term chronic conditions. Increased awareness of warning signals and appropriate intervention is needed at all levels. Skilled care and early identification of problems could reduce the incidence of death and disability.

4.3 THE NEEDS OF WOMEN AND THEIR NEWBORN

General

1. In the postpartum period, women need :
 - i. information/counselling on
 - care of the baby including immunization and breastfeeding
 - changes within their bodies - including signs of possible problems
 - self care - hygiene
 - sexual life and contraception
 - nutrition
 - exercise
 - ii. physical and psychological support from
 - health care providers
 - partner and family
 - employers
 - iii. medical care for suspected or existing complications

- iv. time to care for the baby
- v. help with domestic tasks
- vi. social reintegration into her family , work place and community
- vii. protection from abuse/violence

Women may fear:

- physical and emotional inadequacy
- loss of marital intimacy
- social and family isolation
- constant responsibility for care of the baby and others.

2. Newborn infant's need – refer manual on neonatal care.

Needs of special groups

1. Population in the Interior

a. Problems

- i. Maternal Mortality Ratio (MMR) is higher compared to the general population
- ii. Higher incidence of pregnancy problems
- iii. Mobile group and inaccessible
- iv. Strong cultural beliefs

b. Steps to be taken

- i. Delay discharge from the hospital
- ii. Transfer to 'Pusat Transit'/any other health facilities
- iii. Education of patients and support group
- iv. Involvement of community leaders
- v. Collaborations with Jabatan Kemajuan Orang Asli (JAKOA)

2. Urban poor

a. Problems

- i. Poor antenatal care leading to postpartum problems
- ii. Non-compliance to post natal care plan/defaulters
- iii. Cost and implications

b. Steps to be taken

- i. Education regarding the importance of post natal care especially those with problems
- ii. Reassurance, care is totally health directed
- iii. Availability of services at all centres

3. Single mothers

a. Problems

- i. Poor social and family support
- ii. Financially unstable
- iii. The pregnancy may be unwanted and unplanned

b. Steps to be taken

- i. Refer mother to social workers
- ii. Supportive counselling should be given
- iii. Provide social support and option on adoptions/shelter home
- iv. Avoid stigmatisation

4. Immigrants

a. Problems

- i. Poor antenatal care leading to antenatal, intrapartum and postpartum problems
- ii. Non-compliance to postnatal care plan/ defaulter
- iii. Inaccessibility
- iv. Cost implication
- v. Legal implication

b. Steps to be taken

- i. Education regarding the importance of post natal care especially those with problem
- ii. Reassurance, care is totally health directed
- iii. Availability of services at all centres
- iv. Involvement of the employer

4.4 POSTNATAL CARE

Optimal postnatal care in a normal pregnancy and delivery should be carried out 9 times, to check by hospital/health staff as scheduled: Day 1,2,3,4,6,8,10,15 and 20 of puerperium (9 times). Any abnormality observed during these visits may require appropriate referrals and more visits.

At each visit, the health staff should enquire about the mother's and baby's health and well-being. The mother must be assessed for presence of abnormal lochia and symptoms and signs of DVT/Pulmonary Thromboembolism (chest pain, difficulty in breathing, redness and inflammation of lower limbs and calf swelling and tenderness). Examination of vital signs, breast, abdomen and perineum should be carried out. These should be recorded in the Rekod Kesihatan Ibu KIK/1(a)/96 (Pindaan 2012) and KIK/1(b)/96 (Pindaan 2012).

The mother should be asked about the baby and how the baby is feeding, whether the baby has bowel opening and passed urine and about any other concerns. If necessary, observe the feeding and help the mother to improve the technique of breast feeding. Assessment of the baby should include anthropometry measurement, vital signs, eyes, skin, umbilical cord and other systemic examination. These should be recorded in the Rekod Kesihatan Bayi dan Kanak Kanak (0 – 6 tahun) Pindaan 02/2011.

a. In the event of a baby being admitted in the hospital

The mother who has been discharged, but continues to accompany the baby in the hospital should be provided postnatal care in accordance to KKM policy. This care should be provided by the nursing staff of O&G/Paediatrics at the hospital concerned. The provision of this care must be documented in the Rekod Kesihatan Ibu KIK/1(a)/96(Pindaan 2012).

b. In the event of a mother being admitted in the hospital

The baby who has been discharged, but continues to remain with the mother in the hospital should be provided neonatal care in accordance to KKM policy. This care should be provided by the nursing staff of O&G/Paediatrics at the hospital concerned. The provision of this care must be documented in the Rekod Kesihatan Bayi dan Kanak Kanak (0 – 6 tahun) Pindaan 02/2011.

4.5 POST PARTUM PRE PREGNANCY CARE

Identification of patients who require to be referred to the pre pregnancy service should be done at postnatal visit at 1 month. (Refer to pre pregnancy risk factors – Section 1, Appendix 3).

i. Women who should avoid future pregnancy:

This relates to maternal conditions which may be detrimental to patient's life in the event of embarking on a future pregnancy. This is to ensure that the couple are fully counselled and appropriate family planning method is provided.

ii. Women who are likely to be at high risk in future pregnancies:

Women who are likely to be at high risk in future pregnancies should be advised before their discharge about their risk with future pregnancies. They must be given adequate counselling about the need for contraception and need for assessment by the doctor before being allowed to process with the next pregnancy. They must be given an appointment to attend the pre pregnancy clinic preferably at 3 to 6 months post-delivery. This relates to maternal conditions and also foetal outcomes conditions which may have risk of recurrence.

4.6 POST MISCARRIAGE CARE

i. Next menses

Most women will have a menses within 4- 6 weeks. However it may not be of the normal volume or duration of her previous cycles. It is advisable for the patient to record her menses to ensure the regularity of her menstrual cycle before attempting to conceive.

ii. Physical activities

There is no restriction to resume normal physical activities following a miscarriage. However it is advisable to avoid strenuous activities such as jogging and lifting heavy weight during the immediate post miscarriage period.

iii. Diet

A well balanced diet with appropriate amount of fluid intake will assist the body to return to its normal form. There is no particular restriction with regards to the types of food that may be consumed during the post miscarriage period.

iv. Sexual relationship

It may be appropriate for the couple to consider sexual intercourse only after vaginal bleeding has stopped.

v. Contraception

It is advisable for a woman to avoid a pregnancy soon after the miscarriage. This is likely to happen in the event of unprotected intercourse. Contraception advice should be offered in order to space her pregnancy. This advice should be based on Medical Eligibility Criteria for contraceptive use (MOH 2006).

vi. Emotional support

Following miscarriage, a proportion of women may experience various levels of emotional changes. At times these changes may be similar to that of a woman who has lost a baby at term. These reactions may be attributed to abrupt changes in hormonal levels or due to the loss of a wanted pregnancy. Counselling in the form of emotional support should be offered to women who experience these changes.

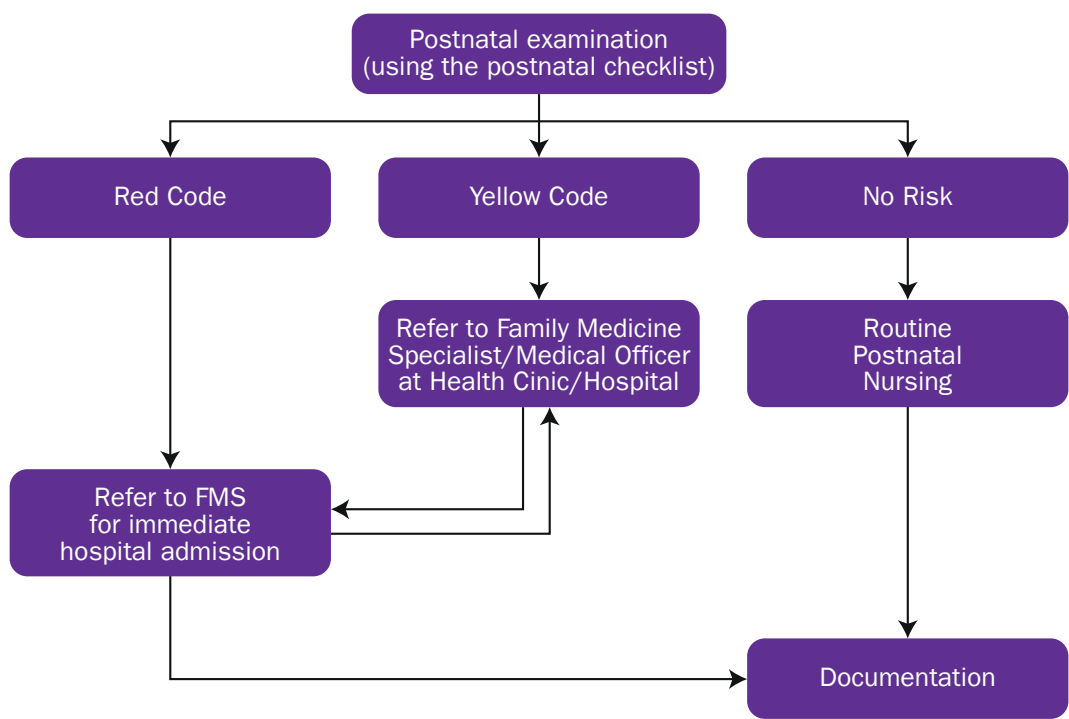
vii. Advise on next pregnancy

Advise on next pregnancy to take place as long as mother has no medical illness or constrain. Mothers are encouraged to embark on next pregnancy once they are ready.

4.7 POSTNATAL CHECKLISTS

- 1. Flow chart for the management of postnatal women (Figure 4.1)
- 2. Colour coding to identify high risk cases (Appendix 1)
- 3. Breastfeeding practice (Appendix 2)

Figure 4.1: Flow chart for the management of postnatal mother



SISTEM KOD WARNA DAN SENARAI SEMAK PENJAGAAN POSTNATAL

Senarai semak ini digunakan oleh anggota kesihatan ketika menjalankan penjagaan postnatal. Senarai semak ini perlu bagi pengesanan faktor risiko dan pengendalian semasa jagaan postnatal.

Ia mempunyai 2 kod warna, berdasarkan kepada tahap penjagaan dan keperluan pengendalian klinikal.

| KOD WARNA | TAHAP PENJAGAAN |
|---------------|--|
| Merah | Perlu dimasukkan segera ke hospital |
| Kuning | Rujuk kes kepada doktor, samada di Klinik Kesihatan atau hospital untuk rawatan lanjut |

SENARAI SEMAK PENJAGAAN POSTNATAL

KOD MERAH - Rujukan segera ke hospital

| Tarikh Lawatan | | | | | | | | | |
|--|---|---|--|--|--|--|--|--|--|
| Hari Postnatal | | | | | | | | | |
| FAKTOR-FAKTOR RISIKO YANG DIKENALPASTI | | Tandakan (√) dalam ruangan jika terdapat faktor | | | | | | | |
| 1. | Eklampsia | | | | | | | | |
| 2. | Pre-eklampsia yang teruk (BP >140/90, albuminuria, simptomatik - sakit kepala, pening, kabur penglihatan, sakit epigastrik, rasa mual) | | | | | | | | |
| 3. | Tumpah darah (secondary PPH) | | | | | | | | |
| 4. | Lekat uri/cebisan uri tertinggal (retained Product of Conception) | | | | | | | | |
| 5. | Masalah kencing - Tidak boleh kencing (acute urinary retention) - Incontinence | | | | | | | | |
| 6. | Pesakit jantung bersalin di rumah | | | | | | | | |
| 7. | Ibu Rhesus negative bersalin di rumah | | | | | | | | |
| 8. | Gejala-gejala dantanda-tanda deep vein thrombosis/pulmonary embolism: - Sakit/bengkak betis (calf tenderness swollen) - Sakit dada - Susah bernafas - Kemerahan/keradangan anggota bawah kaki (redness/inflammation of lower limbs) | | | | | | | | |
| 9. | Jangkitan/(wound breakdown)/hematoma di bahagian luka episiotomy/pembedahan caesarean | | | | | | | | |
| 10. | Anemia Hb < 9gm% dengan tanda-tanda seperti sesak nafas, berdebar-debar, pucat, mudah letih dan pitam | | | | | | | | |

| Tarikh Lawatan | | | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|
| Hari Postnatal | | | | | | | | | |
| FAKTOR-FAKTOR RISIKO YANG DIKENALPASTI | | Tandakan (✓) dalam ruangan jika terdapat faktor | | | | | | | |
| 11. | Simtom respiratori: - Sesak nafas - Batuk berpanjangan berdarah - Serangan asthma | | | | | | | | |
| 12. | Puerperal Sepsis: Demam, lokia berbau busuk/luar biasa | | | | | | | | |

KOD KUNING – Rujuk kepada Pegawai Perubatan/Pakar Perubatan Keluarga di klinik kesihatan/hospital

| Tarikh Lawatan | | | | | | | | | |
|--|---|---|--|--|--|--|--|--|--|
| Hari Postnatal | | | | | | | | | |
| FAKTOR-FAKTOR RISIKO YANG DIKENALPASTI | | Tandakan (✓) dalam ruangan jika terdapat faktor | | | | | | | |
| Rujukan pada hari yang sama | | | | | | | | | |
| 1. | BP >140/90, asimtomatik, tiada proteinuria | | | | | | | | |
| 2. | Sebarang simtom yang membimbangkan contoh: Rasa loya dan muntah, sakit kepala | | | | | | | | |
| 3. | Puerperal pyrexia | | | | | | | | |
| 4. | Rawatan obstetrik semasa: - Kematian perinatal dan ibu sedang berkabung - Berat badan bayi <2kg atau >4 kg bagi kes bersalin di rumah | | | | | | | | |
| 5. | Rahim yang tidak mengecut seperti yang sepatutnya (subinvolution of uterus) | | | | | | | | |
| 6. | Ibu dengan masalah: - Psikiatrik - Kecacatan mental atau fizikal - Keganasan rumahtangga/sosial | | | | | | | | |
| 7. | Masalah penyusuan susu ibu: Bengkak payudara, puting luka atau merekah | | | | | | | | |
| 8. | Masalah kencing: kerap kencing (frequency) Sakit kencing (dysuria) | | | | | | | | |

| Tarikh Lawatan | | | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|
| Hari Postnatal | | | | | | | | | |
| FAKTOR-FAKTOR RISIKO YANG DIKENALPASTI | | Tandakan (√) dalam ruangan jika terdapat faktor | | | | | | | |
| Rujukan dengan temujanji (dalam masa 1 minggu) | | | | | | | | | |
| 1. | Haemoglobin kurang dari 9gm% asintomatik | | | | | | | | |
| 2. | TPHA positif, belum dirawat | | | | | | | | |
| 3. | Masalah perubatan yang lain contoh: SLE, penyakit buah pinggang semasa mengandung, sel darah abnormal (blood dyscrasias) | | | | | | | | |
| 4. | HIV positif | | | | | | | | |
| 5. | Hepatitis B positif | | | | | | | | |
| 6. | Diabetes mellitus dan asymptomatic heart disease | | | | | | | | |
| 7. | Ibu yang tiada suami (single mother) | | | | | | | | |

PANDUAN MENGGUNAKAN SENARAI SEMAK POSTNATAL

- a. Catatlah tarikh mengikut hari lawatan postnatal pada ruang bersesuaian
- b. Tandakan (✓) pada faktor-faktor yang dikesan semasa pemeriksaan postnatal
- c. Lekatlah kod warna bersesuaian pada format senarai semak dan kedua-dua kad antenatal KIK/1(a)/96 Pind 2012 dan KIK/1(b)/96 Pind 2012
- d. Tindakan yang perlu diambil oleh anggota kesihatan yang mengendalikan kes tersebut adalah berdasarkan kod warna
- e. Kod warna boleh ditukar pada lawatan berikutnya, jika tidak terdapat lagi faktor risiko

SENARAI SEMAK PEMERHATIAN PENYUSUAN

1. Nama Ibu: _____ 2. R/N: _____

3. Nama Bayi: _____ 4. Tarikh Lahir Bayi: _____

Arahan: Tandakan ✓ jika ibu atau bayi menunjukkan tanda-tanda penyusuan berjalan dengan baik dan tandakan X jika ibu atau bayi menunjukkan tanda-tanda bermasalah dalam penyusuan.

| Bil | Pemerhatian | Tarikh Lawatan | | | | | |
|-----|--|----------------|-------|----|-------|----|-------|
| | | Ya | Tidak | Ya | Tidak | Ya | Tidak |
| 1. | TANDA- TANDA AM PENYUSUAN SUSU IBU BERJALAN DENGAN BAIK | | | | | | |
| | Ibu kelihatan sihat | | | | | | |
| | Ibu tenang dan selesa | | | | | | |
| | Tanda kasih sayang antara ibu dan bayinya | | | | | | |
| | Bayi kelihatan sihat | | | | | | |
| | Bayi tenang dan selesa | | | | | | |
| 2. | Bayi mencapai payudara apabila lapar | | | | | | |
| | PAYUDARA | | | | | | |
| | Payudara kelihatan sihat | | | | | | |
| | Tidak sakit atau tidak selesa | | | | | | |
| | Diampu dengan baik, jari jauh dari areola | | | | | | |
| 3. | Putting menonjol dan protractile | | | | | | |
| | POSISI BAYI | | | | | | |
| | Kepala dan badan bayi lurus | | | | | | |
| | Badan bayi rapat dan menghadap ibu | | | | | | |
| | Seluruh badan bayi diampu | | | | | | |
| 4. | Bayi mencapai payudara ibu, hidung bayi bertentangan dengan putting payudara ibu | | | | | | |
| | PELEKAPAN BAYI | | | | | | |
| | Kelihatan lebih areola di atas mulut bayi | | | | | | |
| | Mulut bayi terbuka luas | | | | | | |
| | Bibir bawah melengkup keluar | | | | | | |
| 5. | Dagu bayi menyentuh payudara ibu | | | | | | |
| | PENGHISAPAN | | | | | | |
| | Penghisapan perlahan dan mendalam | | | | | | |
| | Pipi penuh dan bulat | | | | | | |
| | Bayi melepaskan payudara dengan sendiri bila habis menyusu | | | | | | |
| | Ibu merasai tanda refleks oksitosin | | | | | | |

4.8 NUTRITION

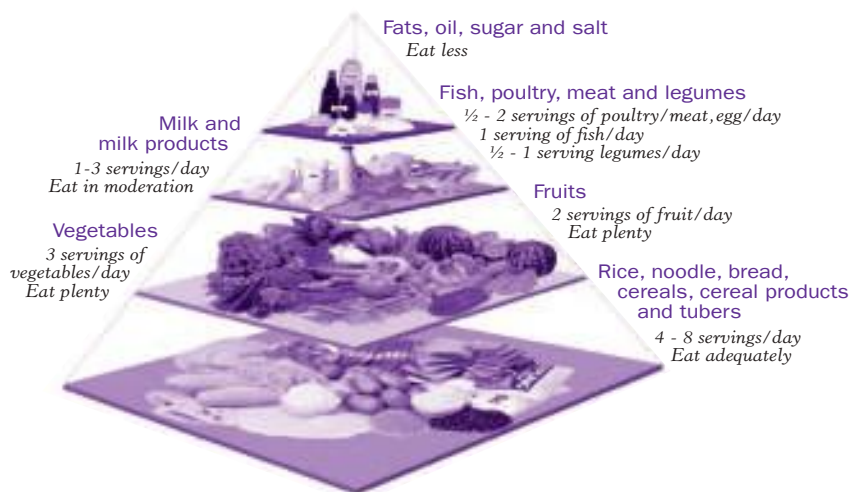
All mothers need to eat a healthy and balanced diet with vitamins and minerals, whether they breastfeed or formula feed. It is essential to plan simple and healthy meals that include choices from all of the recommended groups of the food pyramid.

Although most mothers want to lose their pregnancy weight, extreme dieting and rapid weight loss can be hazardous to their health and to their baby especially if they are breastfeeding. It can take several months for a mother to lose the weight she gained during pregnancy. This can be accomplished by cutting out high-fat snacks and concentrating on a diet with plenty of fresh vegetables and fruits, balanced with proteins and carbohydrates. Exercise also helps burn calories and tone muscles and limbs. Along with balanced meals, breastfeeding mothers should increase fluid intake as many mothers find, they become very thirsty while nursing the baby.

To maximize the benefit of breast milk, a nursing mother must practice good nutrition. Nutritional needs of the mother during breastfeeding include increased need for energy, vitamins and minerals and water. Age, weight, activity level, and metabolism all influence how much they will need to eat for optimum weight gain, health and breast milk production.

When breastfeeding a single baby, 300-500 calories per day should be added to the diet but for feeding twins baby, 600-1000 calories per day should be added to your diet. The total calorie intake for a lactating mother is 2300-2500 calories for singleton and 2600-3000 calories for twins.

Calcium for milk production comes from the mother and when calcium levels in the mom's blood are not adequate for her needs and those of her child, the calcium deposited in her bones is withdrawn for milk production. The composition of nutrients in human milk is consistent. A nutrition shortage for the mother is more like to reduce the quantity of milk than the quality of the milk for baby.



4.9 POSTNATAL EXERCISE

Please refer to the guidelines prepared by Family Health Development Division, Ministry of Health, Malaysia.

4.10 REPRODUCTIVE HEALTH

a. Contraception

Postpartum mothers can become pregnant again even before they have their first menses. Breastfeeding is not a reliable form of birth control. Therefore, the mother should be advised for contraception within 1 month in Health facilities. The advice is based on (Medical Eligibility Criteria for contraceptive use (MOH 2006)).

b. Sexual life

Among the needs of women in the postpartum period are information and counselling on sexual life. To answer these needs, health provider should be well informed regarding post-partum sexual behaviour. It is known that in the course of pregnancy many women are less inclined to have sexual intercourse and this might differ from their partner's desire. Fatigue and disturbed sleep pattern are reported to be the most common causes for the lack of interest in sex. It has been noted that 71% of women resume intercourse by eight weeks postpartum and 90% by ten weeks (Glazener 1997). Pain related to perineal damage and sutures, caused by vaginal tears and episiotomies is another factor that influences sexual behaviour during the postpartum period. (Glazener 1997).

Sexual intercourse may be resumed after the mother's vaginal bleeding has stopped and perineal wound stitches has healed. Usually, this would have recovered within four to six weeks following delivery. The couple should decide together, with the advice of their health care provider, when to resume sexual intimacy. Initially, sex following birth may be painful. Advice to use a lubricant or trying positions that allow the woman to be in control of penetration may help.

4.11 COPING WITH DEATHS

a. Bereavement

The emotional and somatic responses to death differs from person to person. The grief response will be more intense if the death occurs in a person who is closely related. The process of grief involves a few stages.

Normal grief reaction

| | |
|------------------------------|--|
| Stage 1 Hours to days | Denial and disbelief Numbness |
| Stage 2 Weeks to 6 months | Sadness, weeping, waves of grief Somatic symptoms of anxiety Restlessness Poor sleep Diminished appetite Guilt, blame of others |
| Stage 3 Weeks to months | Symptoms resolve Social activities resumed Memories of good times (Symptoms may recur at anniversaries) |

Abnormal or pathological grief:

- Symptoms are more intense than usual
- Symptoms prolonged beyond 6 months
- Symptoms delayed in onset

Abnormally intense grief:

- Up to 35% of bereaved people meet the criteria for a depressive disorder at some time during grieving.
- Most of these depressive disorders resolve within six months but about 20 % persists for longer periods.
- These persons are more likely:
 - to have poor social adjustment
 - visit doctors frequently
 - to use alcohol
 - Suicidal thoughts may occur when grief is intense. The rate of suicides is increased most in the year after bereavement, but continues to be high for five years after the death of a spouse or parent.
 - Elderly widowers are at higher risk than other bereaved people.
 - The presence of suicidal ideas should prompt appropriate assessment of suicide risk.

Prolonged grief:

- Defined as grief lasting for more than 6 months. However, it is difficult to set such a define limit to normal grief and complete resolution may take much longer.
- Instead of the normal progression, symptoms of the first and second stage persist.

- Such prolongation may be associated with a depressive disorder but can occur without such a disorder.
- Delayed grief:
- It is said to occur when the first stage of grief does not appear until more than two weeks after the death.
- It is said to be more frequent after sudden traumatic or unexpected deaths.

Inhibited and distorted grief:

- Absence of grief is a pathological variant of grieving.
- Inhibited grief refers to a reaction that lacks some normal features.
- Distorted grief refers to features (other than depressive symptoms) that are either unusual in degree, for example marked hostility, over – activity, and extreme social withdrawal, or else unusual in kind, for example expression of physical symptoms that were part of the last illness of the deceased.

The mortality of bereavement

- Several studies have shown an increased rate of mortality among bereaved spouses and other close relatives, with the greatest increase being in the first 6 months after bereavement.

Causes of pathological grief:

- Abnormal grief reactions are more likely in the following circumstances:
 - When the death was sudden and unexpected,
 - When the bereaved person had a very close, or dependent, or ambivalent relationship with the deceased
 - When the survivor is insecure, or has difficulty in expressing, feelings, or has suffered a previous psychiatric disorder,
 - When the survivor has to care for dependent children and so cannot show grief easily.

Social support certainly assists people who are bereaved.

Management

In planning management it is important to take into account the individual circumstances of the patient as well as the general guidelines outlined below.

i. Counselling

The bereaved person needs:

- To talk about the loss
- To express feelings of sadness, guilt or anger
- To understand the normal course of grieving.

It is helpful to forewarn a bereaved person about unusual experience such as feeling as if the dead person were present, illusions, and hallucinations, otherwise these experiences may be alarming.

Help may be needed :

- to accept that loss is real
- to work through stages of grief
- to adjust to life without the deceased

Viewing the dead body and putting away the dead person's belongings help this transition, and a bereaved person should be encouraged to perform the actions.

Practical problems may need to be discussed, including funeral arrangements and financial difficulties.

As time passed, the bereaved person should be encouraged to resume social contacts, to talk to other people about the loss, to remember happy and fulfilling experiences that were shared with the deceased, and to consider positive activities that the latter would have wanted survivors to undertake.

ii. Drug treatment

Cannot remove the distress of normal grief, but it can relieve severe anxiety.

In the second stage, antidepressant drugs may be beneficial if the criteria for depressive disorder are met, though such usage has not been evaluated in this special group.

iii. Support groups

Can be useful, however, it may be difficult to sustain effective functioning.

iv. Psychotherapy

It is not practical, nor is there evidence that it is helpful, to provide psychotherapy for all bereaved persons

Best Practice Guide:

- Provide an environment and circumstances for feeling hurt, guilty, angry or other strongly negative feelings.
- Allow the spouse and relatives to ventilate
- Validate the extent of grief
- Facilitate procedures for removal of the body to the home for last rites.
- Be sensitive for the need for post-mortem in cases of sudden death
- Do home visit to explore feelings of guilt or blame and explain /reinforce circumstances of death.
- Encourage the spouse to build a support network of family, friends and professional-bereavement clinics are useful.
- Consider the need of the children and refer to the appropriate welfare authorities where appropriate.
- Be alert for suicidal intention or behaviour
- Remember that grief takes time
- Stages of grief are not always predictable

Useful Do's for health workers handling death among their patients:

- Direct expression of sympathy
- Talk about deceased by name
- Elicit question about circumstances of the death
- Elicit question about feeling and about how the death has affected the person

Don't

- Have a casual or passive attitude
- Give statements that death is for the best
- Assume that the bereaved is strong and will get through this
- Avoid discussing the death

To help remember grief work: Remember TEAR

- **T** To accept the reality of the loss
- **E** Experience the pain of the loss
- **A** Adjust to the new environment without the lost object
- **R** Reinvest in the new reality

b. Maternal death

The death of a pregnant woman in the antepartum, intrapartum or postpartum period up to 42 days after the delivery.

Special characteristics of a maternal death:

- Sudden, may be totally unexpected
- May occur in a healthy woman in the prime of her life
- Sudden end to hope of going home with a healthy wife and infant after a pregnancy that was full of great expectations

Remember the multiple roles of the mother:

- Mother-newborn child, previous children
- Wife
- Wage earner
- Role model
- Member of the family
- Member of the community

Therefore a maternal death is a great loss.

After a maternal death:

1. Provide an accurate diagnosis. (Medical Officers/Specialists)

- i. The International Classification of diseases 10th Edition is used.
- ii. The cause of death should be discussed with the obstetrician covering the district before release of the body.
- iii. All maternal deaths where the cause of death is not known including home deaths should be reported to the police. Once a post-mortem order has been issued, a detailed post-mortem should be carried out. In the event where a post-mortem order cannot be obtained, consent for a clinical post-mortem examination should be requested. This request could be for a limited post-mortem examination or permission to carry out needle biopsies.

2. Documentation and report: (Nurses/Midwives/Medical Officers/Specialists)

- i. Events leading to the death must be completely documented.
- ii. All investigations done must be documented and the results traced.
- iii. The burial permit and death certificate should be completed by the medical officer.
- iv. The maternal death coordinator (Health Matron/Sister in the case of a home/private sector death or labour ward sister for a hospital death) should be notified within 24 hours using KIK/KI – 1 form.
- v. The antenatal record should be summarized in the Maternal Mortality Report. All maternal death cases need to be reported and notified using the standard Maternal Mortality Report form. The report should be filled within 4 weeks and send to the District Health Officer for further action.
- vi. All health facilities providing antenatal care should be stated in the report. The Maternal Mortality Report (**KIK/KI -2 and KIK/KI - 3**) should be promptly filled within two weeks and sent to the district health officer for further action. This format should bear no indication of the place or the persons involved in the death.

3. Provision of spousal support and bereavement counselling (Nurse/Medical Officers/Specialist)

c. Stillbirth and neonatal death

Following steps must be taken:

1. An accurate diagnosis is made available

- i. Broad classification of stillbirths and neonatal deaths are as outlined in the Reporting Format SU5MR- I /2012. Details on direct or specific cause of deaths should also be studied. For e.g. a premature baby may have the primary cause of death as immaturity but the direct cause of death may be an intraventricular hemorrhage.
- ii. Certain procedures should be undertaken when confronted with a stillbirth especially when it is not related directly to an adverse intrapartum event (see 'Management of a stillbirth' below).
- iii. A post-mortem examination should be requested in all cases of

unexplained death or when additional information is to be obtained which will be beneficial for the purpose of counselling and assessment of risk of recurrence.

2. Provision of parental support and bereavement counselling

- i. This has to be offered immediately
- ii. Follow-up meeting 1-2 months after the event is essential to evaluate parent's coping mechanisms and to discuss further investigations results including autopsy findings.
- iii. Important information on risk of recurrence in the subsequent pregnancies must be given.
- iv. A channel for further communication with the respective unit is important.

3. Documentation and report

- i. Events leading to death and clinical findings of the foetus or newborn must be properly documented.
- ii. Filling-up of forms for burial permit and certification of deaths in appropriate forms must be done accordingly.
- iii. Prompt reporting of all stillbirths and neonatal deaths via Reporting Format SU5MR – I/2012 is mandatory. Practically all deaths can be readily classified on clinical grounds alone based on the format's broad categories of causes of deaths.

4. Mortality Review and Audit

- i. Each health district and hospital must keep records of all stillbirths and neonatal deaths and conduct periodic reviews among all the relevant health care providers i.e. Health, obstetric and neonatal staff.
- ii. An audit of performance is essential and ongoing efforts towards improvement must be made.

5. Management of stillbirth:

a. Parents

- Offer bereavement counselling
- Allow them to be with the baby/take photo

b. Baby/Foetus

- i. A detailed description of the external morphology of the foetus must be documented clearly in the notes example which should include;
 - Abnormal skull shape or size
 - Low set ears
 - Cleft lip or palate
 - Abnormality of the limbs and number of digits
 - Hepatosplenomegaly
 - Ambiguous genitalia
 - Imperforate anus, etc
- ii. Document identifiable syndromes.
- iii. Liaison with Paediatrician.
- iv. Take photo whenever possible (with consent).
- v. Relevant investigations – will depend on clinical findings

- culture and sensitivity
 - Haemoglobin level
 - Blood grouping
 - Serum bilirubin
 - TORCHES
 - Chromosomal analysis
 - X Ray/Babygram
 - Biopsy (selected organs)
 - Postmortem with parental consent.
- } after obtaining parental consent

c. Cord

- i. Document the number of arteries and veins present.
- ii. Identify the presence of true or false knots.
- iii. Cord round neck
- iv. Length of cord
- v. Any other abnormality e.g. cysts, hematoma

b. Placenta

- i. The weight of placenta.
- ii. Any abnormality e.g. infarction, retro placental clots, the presence of succenturiate lobe or evidence of vasa praevia.
- iii. Multiple pregnancy: document chronicity and cord insertion sites
- iv. Relevant investigations:
 - Placental swab for culture and sensitivity
 - Full thickness placental biopsy with cord insertion site to be sent for HPE . The entire placenta and cord are not required especially when the patient wishes to claim the placenta.

c. Maternal Investigations

In the event of a perinatal death (even when the cause seems obvious) following tests should be considered depending on differential diagnosis and clinical findings.

- TORCHES and Parvo virus screen
- Kleihauer test (consider in suspected feto maternal hemorrhage)
- Rh (or other) antibodies if not done antenatally
- Thyroid function
- HbA1c and MGTT
- Other investigations as suggested by clinical features, e.g. liver function tests, creatinine and anti-cardiolipin antibodies, α -fetoprotein in some cases.

Management of recurrent abortions is as highlighted in Section 1 SOP No.5.

For each abortion of later gestation where structures are quite recognizable the management is similar to that of a stillbirth.

Definitions of terms

| TERM | DEFINITIONS |
|--------------------------|--|
| Live birth | Birth of a product of conception, irrespective of the duration of pregnancy, with any sign of life i.e. breathing effort, a beating heart, pulsations of the umbilical cord, or definite movement of the voluntary muscles. However, for the purpose of statistical calculation only live births of birth weight (BW) at least 500 g or when BW unavailable, the corresponding age 22 weeks or crown – heel body length 25 cm are considered. A birth of lower weight and gestation must be reported as a birth and then a death even though it will not be considered for calculating mortality rates |
| Foetal birth | Death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the foetus does not breathe or show any other evidence of life, such as a beating heart, pulsations of the umbilical cord, or definite movement of the voluntary muscles |
| Abortion | Refers to an early foetal death of BW, 500gm or when weight is not known the corresponding gestation <22 weeks or crown heel body length < 25cm |
| Stillbirth | Refers to a late foetal death of BW at least 500gm or when BW is unavailable, the corresponding age 22 weeks or crown-heel body length 25cm Fresh stillbirth - Cranial bones not collapsed, no peeling of skin, Macerated stillbirth - Cranial bones collapsed, peeling of skin, meconium stained the cord |
| Neonatal death | Refers to death of a livebirth within 27 completed days of life |
| Early neonatal death | Refers to death of a livebirth less than 7 completed days of life |
| Late neonatal death | Refers to death of livebirth from 7 to 27 completed days of life |
| Perinatal death | Refers to death in the stillbirth and early neonatal period |
| Stillbirth death | $\frac{\text{No. of stillbirths}}{\text{No. of livebirths} + \text{stillbirths}} \times 1000 \text{ total births}$ |
| Neonatal mortality rate | $\frac{\text{No. of neonatal deaths}}{\text{No. of livebirths}} \times 1000 \text{ livebirth}$ |
| Perinatal mortality rate | $\frac{\text{No. Of stillbirths} + \text{early neonatal deaths}}{\text{No. of livebirths} + \text{stillbirth}} \times 1000 \text{ livebirths}$ |

Reference: Commentary on Current World Health Organisation Definitions Used in Perinatal Statistics. ML Chiswick. Arch Dis Child 1986; 61:708-10



STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|----------------------|---|---|--|--|--------------------|---------------------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 1 | Post Caesarean Care: | | | | | | |
| | - Wound Breakdown | Gaping wound, serous discharge with/without foul smelling | Wound Swab C&S | Result of examination and investigation | Dressing/ Toilet & suturing | MO/O&G specialist | Hospital |
| | - Wound Sepsis | Pus, redness, pain, fever with/without foul smelling | Wound Swab C&S | Result of examination and investigation | Wound toilet Antibiotic Suturing after wound clean | MO/O&G | Hospital/ Hospital with specialist |
| | - Haematoma | Swelling, Redness and pain | Wound Swab C&S Blood C&S Physical examination | Result of examination and investigation | Conservative/ evacuation | MO/O&G Specialist | Hospital/ Hospital with Specialist |
| 2 | Anemia | Pallor Hb <11 gm% | FBC GXM | Nutritional anaemia Haemoglobi-nopathy Parasitic infection | Continue haematinics 3-6 months post delivery | All levels | All levels |
| | | | | | Consider transfusion if symptomatic / Hb < 8 gm % | | |

| SOP Number | Condition | Symptoms / signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|--------------------------------------|---|---|--|--|--------------------|---------------|
| | | | | | Management | Level of personnel | Level of care |
| 3 | Hypertensive Disorders in Postpartum | BP 140/90 mm Hg and above | PE profiles - FBC - Renal Profile - Urine Protein - LFT | Chronic Hypertension Secondary Hypertension | Daily/EOD/biweekly BP monitoring/ urine albumin depends on severity of hypertension (refer to the training manual on hypertension disorders in pregnancy & followed on CPG on hypertension) | All levels | All levels |
| | | <p>Rise of systolic BP>30 mm Hg and/diastolic BP>15 mm Hg from pre pregnancy level</p> <p>Signs and symptoms of impending eclampsia are</p> <ul style="list-style-type: none"> - nausea & vomiting - blurring of vision - frontal headache - epigastric pain, | | | <p>Refer back to hospital if</p> <ol style="list-style-type: none"> Symptomatic for IE or BP \geq140/90 with proteinuria or BP>150/100 <p>Reinforce the compliance to medication</p> <p>Adjust dosage according to BP</p> <p>If BP persists > 6 weeks, to manage patient according to CPG for hypertension</p> <p>Inform patient to get medical advice when plan for next pregnancy (in view of the need to change medication)</p> | | |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|-------------------------------|---|--|--|--|--------------------|---------------|
| | | | | | Management | Level of personnel | Level of care |
| 4 | Established Diabetes Mellitus | Asymptomatic Symptomatic - Polydipsia - Polyuria | Blood sugar level monitoring (frequency as required) | - | Continue pre pregnancy treatment (follow CPG) Check for compliance to medications and adjust dosage based on blood sugar level Observe for complication – hypo-glycaemic attack, poor wound healing Advise family planning (follow medical eligibility criteria- MEC) MOH/K/ASA/4206(HB) Long term monitoring for diabetes mellitus. Advise on healthy lifestyle - Diet modification and exercise | All levels | Health Clinic |
| | Gestational diabetes | | Repeat MGTT 6 weeks post partum | | Inform patient to get medical advice when plan for next pregnancy (in view of the need to achieve optimal control prior to conception) If abnormal, to refer MO | Nurse/MO | Health Clinic |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|---------------|---|---|--|--|----------------------|-------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 5 | Heart Disease | Known case of heart disease Dyspnoea Cyanosis Cardiac Murmur Signs of cardiac failure | Any or all of the following investigations as required - FBC - ECG - CXR - ECHO | Pulmonary oedema CCF Embolism | More frequent postnatal visit Assessment of cardiac status during postnatal visit Any worsening symptoms or intercurrent symptoms to refer hospital stat Ensure cardiology appointment and follow up Continue medications Avoidance of aggravating factors Advise contraceptives according to MEC Pre Pregnancy Clinic (PPC) Referral :- i. Patients who have to avoid pregnancy to be referred to PPC during the post partum period | Nurse/MO/ Specialist | Health Clinic/ Hospital |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|----------------------|---|-------------------------------------|--|--|--------------------------------|-------------------------|
| | | | | | Management | Level of personnel | Level of care |
| | | | | | ii. Patient to be informed to attend Pre Pregnancy Care Clinic when plan for next pregnancy (in view of the need to assess cardiac status prior to conception) | | |
| 6 | Urinary Retention | Unable to pass urine Lower Abdominal discomfort Fever | U/FEME U/C&S | Ultrasound may be consider | Bladder catheterisation (Intermittent or continuous) Antibiotics for infection | Nurse/MO/ Specialist | Health Clinic/ Hospital |
| 7 | Urinary Incontinence | Intermittent or continuous incontinence | U/FEME U/C&S | To rule out urinary fistula | Management according to cause i. Treatment of UTI ii. Pelvic floor exercise iii. Referral to gynaecologist/ urogynecologist | MO/Specialist/ physiotherapist | Health Clinic/ Hospital |
| 8 | Bereavement | Loss of baby | | Depression puerperal psychosis | Bereavement counselling by trained personnel Referral to psychiatrist if required | Counsellor/ FMS/ Psychiatrist | Health Clinic/ Hospital |

| SOP Number | Condition | Symptoms / signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|----------------------------------|---|--|--|---|------------------------|-------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 9 | Sub Involution of Uterus | Uterus does not involute as expected | Ultrasound to rule out retained POC, uterine or ovarian mass | To rule out retained POC | Reassurance if ultrasound normal If abnormal, to refer hospital. | MO/FMS/ Gynaecologists | Health Clinic/ Hospital |
| 10 | Secondary Postpartum Haemorrhage | Bleeding from the genital tract > 500 ml after 24 hours post delivery | FBC GXM Coagulation Profile Ultrasound | Uterine atony Retained POC Coagulating disorders Endometritis | Refer to Training manual on management of PPH | MO/FMS/ Gynaecologists | Hospital |
| 11 | Puerperal Pyrexia | Temp > 38°C Abnormal vaginal discharges | FBC Blood C&S Urine FEME/C&S HVS C&S Doppler Wound Swab C&S | Genital tract Infections DVT Wound infections – Episiotomy -LSCS UTI Other Intercurrent infections such as URTI, malaria, pneumonia Dengue | According to the cause, to consider: 1. Antibiotics 2. Wound care 3. Supportive management 4. Admission to hospital | Doctors | Hospital |

| SOP Number | Condition | Symptoms/ signs | Laboratory Investigation & findings | Diagnostic criteria and differential diagnosis | Care of plan | | |
|------------|-------------------------|--|---|---|--|----------------------|-------------------------|
| | | | | | Management | Level of personnel | Level of care |
| 12 | Postpartum Depression | Depression, Insomnia Loss of weight Loss of Appetite Palpitation Hallucination Delirium Speech, thought and movement very slow compared previously | RBS BUSE Thyroid Function Test FBC | Past history of depression/Psychosis History and psychiatric evaluation Need to rule out Organic Brain Syndrome | Refer to trained counsellor/FMS/ Psychiatrist | FMS/ Psychiatrist | Health Clinic/ Hospital |
| 13 | Deep Vein Thrombosis | Calf swelling/ tenderness | Doppler study | - | Refer Hospital to confirm diagnosis and to initiate appropriate management | Doctors | Hospital |
| 14 | Perineal Wound Problems | Pain at wound site Swelling around wound site Bleeding from wound site Abnormal vaginal discharge Wound breakdown | Swab C&S FBC | - | Wound care Antibiotics When required to consider: - I&D - Secondary Suturing | Nurse/MO/ Specialist | Health clinic/ Hospital |
| 15 | Breast Engorgement | Pain Swelling | | Mastitis Abscess | Cold and warm compression Carbegoline if indicated | Doctors | All levels |



Section 5
Neonatal Care

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5.1 INTRODUCTION

This neonatal section outlines the care plans and work processes for a baby at birth, the immediate period after birth and thereafter at home. Routine care for most babies who are healthy is as laid out in the flow charts and complications necessitating other interventions and management will be discussed in the appendices. Certain standard operating procedures and guidelines on specific issues eg. Thermal protection and the newborn checklist are also attached as appendices. Existing Ministry of Health documents e.g. Garis Panduan Sistem Kawalan Keselamatan Bayi (2007), Integrated Plan for the Detection and Management of Neonatal Jaundice (2009), National Screening Programme for Congenital Hypothyroidism (2011), Paediatric Protocols for Malaysian Hospital (2011), are intended to be used in conjunction with this manual and will be referenced in the relevant sections. Common neonatal health problems such as skin rashes and feeding problems will be addressed but specific management of serious neonatal medical conditions are not included in the manual except for highlighting the recognition of signs of the seriously ill child and how he/she should be referred and or transported. We encourage reference to other resources where information is lacking in the manual.

5.2 CARE PLANS FOR THE NEWBORN

a. At birth

- i. Identify high risk factors and request for (paediatric) doctor's standby if necessary (*Appendix 1*)
- ii. Resuscitate if necessary (*Appendix 1*)
- iii. Stabilise vital signs (normal range refer *Appendix 2*) and ensure thermal protection (*Appendix 3*)
 - Observe cry at birth, initiate breathing, aspirate mouth, nose
 - Facilitate skin-to-skin contact immediately and initiate breast feeding within first hour of birth
 - Exclude congenital anomalies such as abnormal facies, cleft palate and lips, abdominal wall defects, neural tube defects, imperforate anus, multiple abnormalities etc (*Appendix 4*)
- vii. Transfer the baby to relevant level of care as necessary (*Appendix 5*)
- viii. Administer Vitamin K and Hepatitis B vaccination (*Appendix 7*)
- ix. Ensure cord blood is sent for G6PD and thyroid function screening (*Appendix 9*)
- x. Breast feeding and bonding (*Appendix 10*)

b. After birth

- i. Administer Newborn Checklist (*Appendix 4*)
- ii. Ensure thermal protection (*Appendix 3*)
 - Measure body temperature if abnormal refer to paediatric unit
- iii. Breast feeding and bonding (*Appendix 10*)
 - Encourage exclusive breast feeding
 - No prelacteal feeds/other fluids or pacifiers.
 - Correct attachment and positioning during breastfeeding
 - Good suckling

- iv. Check for hypoglycaemia in high risk cases (*Appendix 11*)
- v. Administer vaccination (in hospital) or refer to a health clinic as soon as possible (*Appendix 7*)
- vi. Document results of G6PD screening and thyroid function tests in the home-based child health record. If abnormal, appropriate action is to be taken (*Appendix 9*)
- vii. Promote education on bathing, cleanliness, skin and cord care (*Appendix 12*)
 - Examine for rashes and septic spots
 - Check on cord hygiene
 - Clean eyes daily with clean water during bathing
 - Do not apply anything to the eyes
- viii. Refer if:
 - Presence of significant skin rashes, septic spots, pustules etc
 - Umbilicus is red, swollen and or discharging,
 - Eyes become swollen, red or eye discharge is significant. Clean eyes and refer to hospital
 - Other conditions as specified in the newborn checklist
- ix. Check for jaundice and monitor severity (*Appendix 8*)

c. Discharge of Term Baby (Hospital/ABC) (*Appendix 13*)

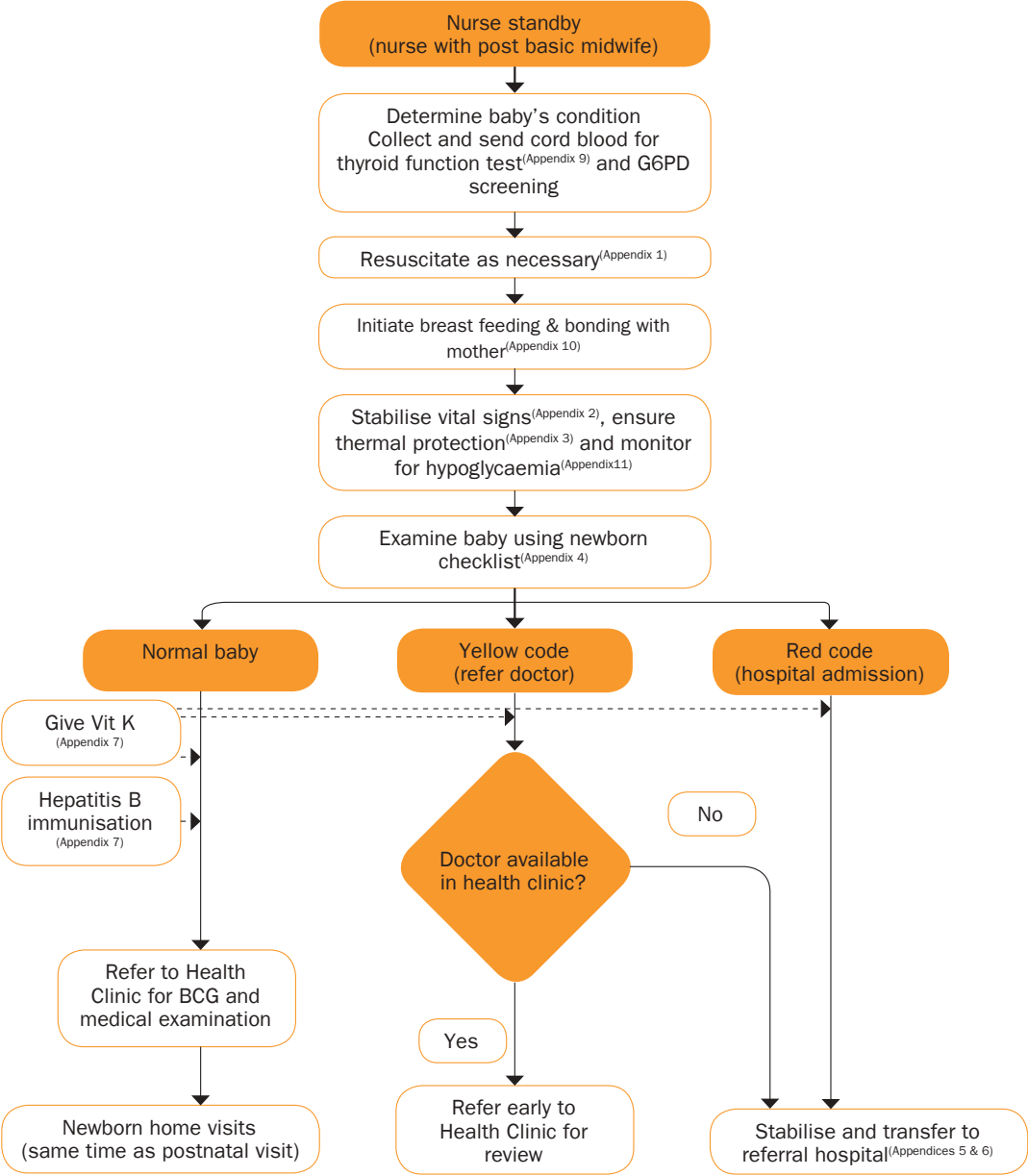
d. Home visits

(routine as in post natal visits for mothers plus whenever necessary for babies)

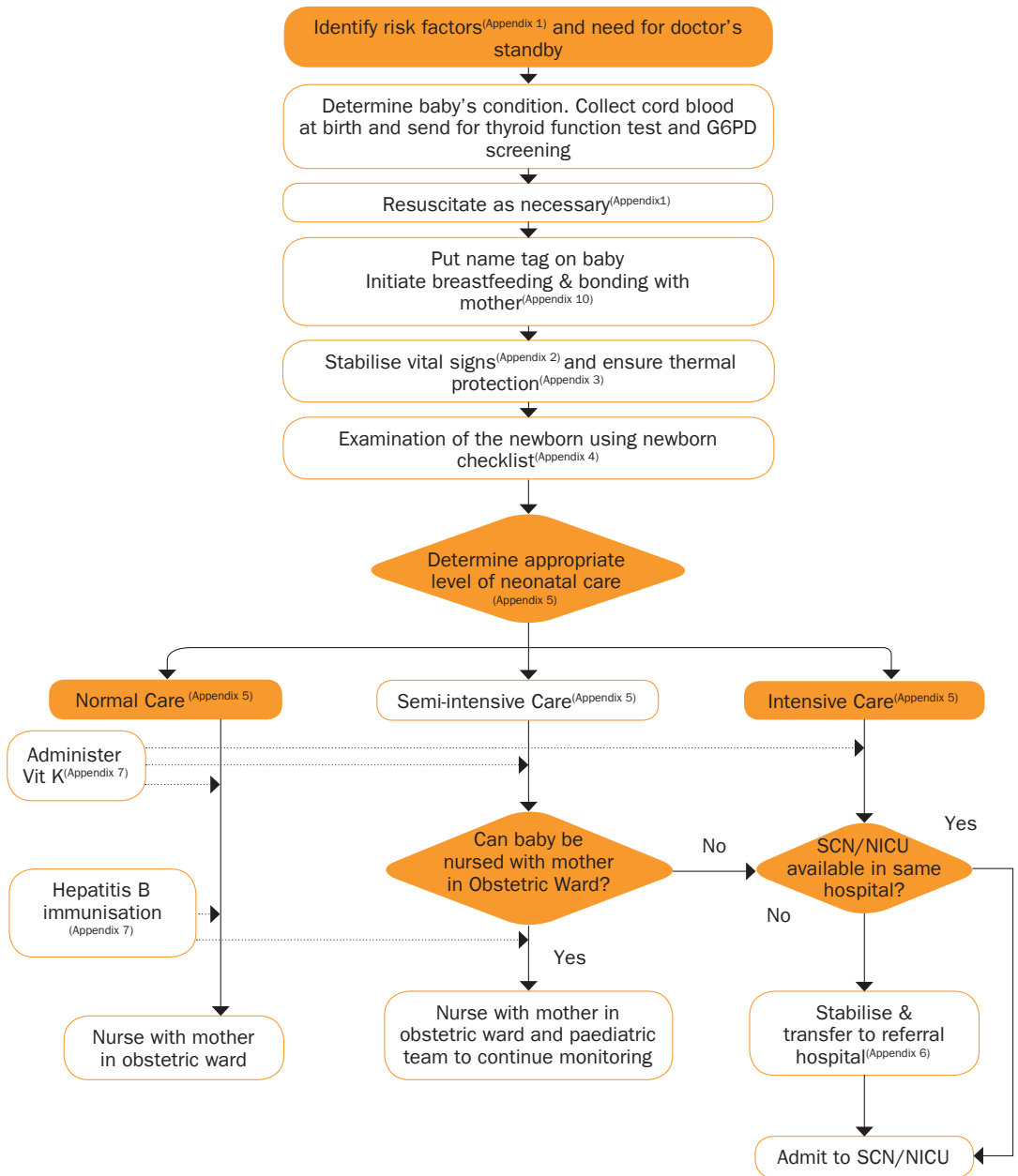
- i. Re-examine baby and chart findings on Newborn Checklist (*Appendix 4*)
- ii. Ensure thermal protection.
- iii. Check for normal weight gain pattern - a term baby should regain birth weight by Day 7 of life and should not lose more than 10 per cent of birth weight by Day 5-6 of life.
- iv. Reinforce steps vii, viii and ix in 5.2 (b).
- v. Traditional practice after delivery (mother and newborn) (*See Appendix 15*)

5.3 FLOW CHART OF WORK PROCESSES

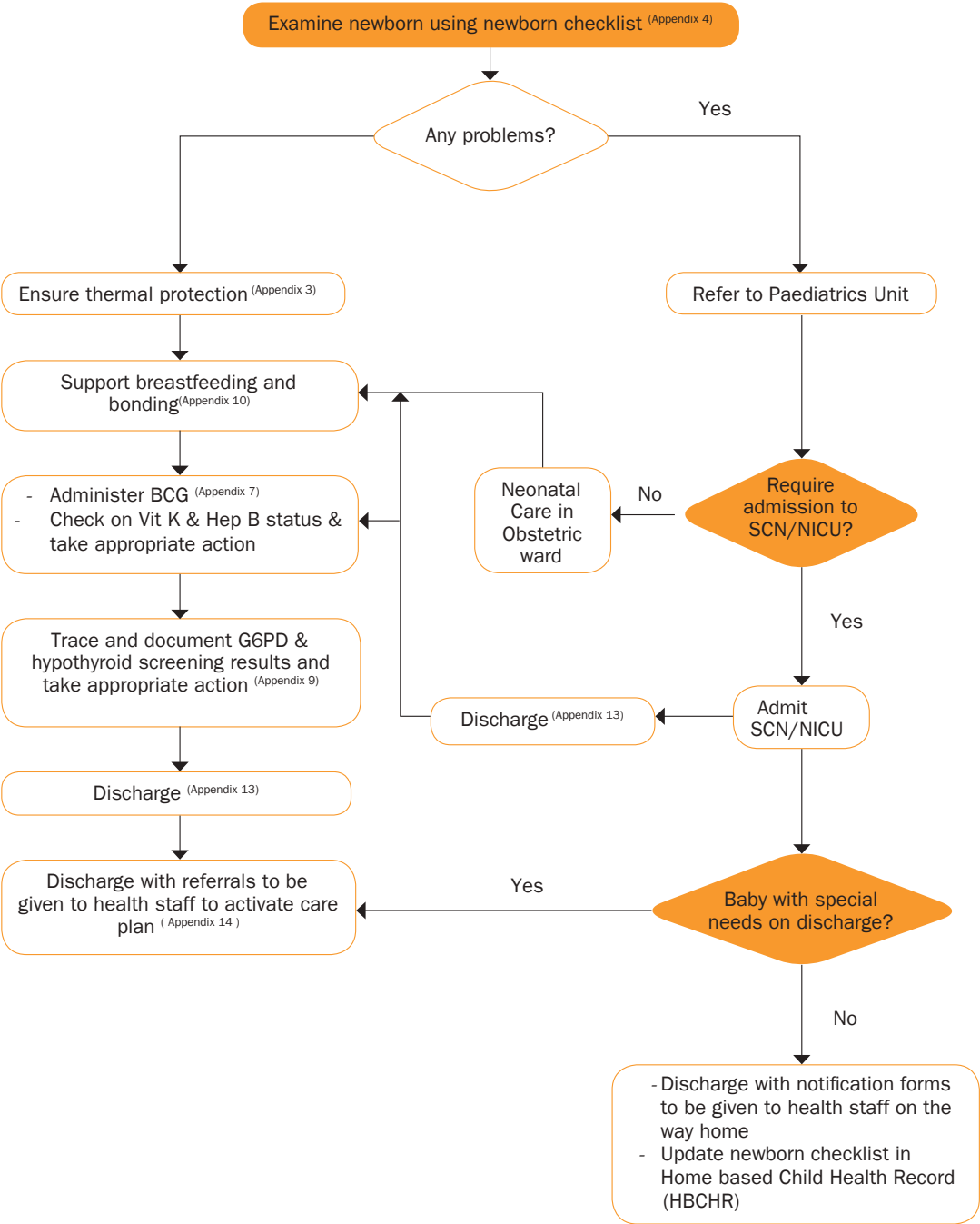
a. Work process for Home/ABC deliveries



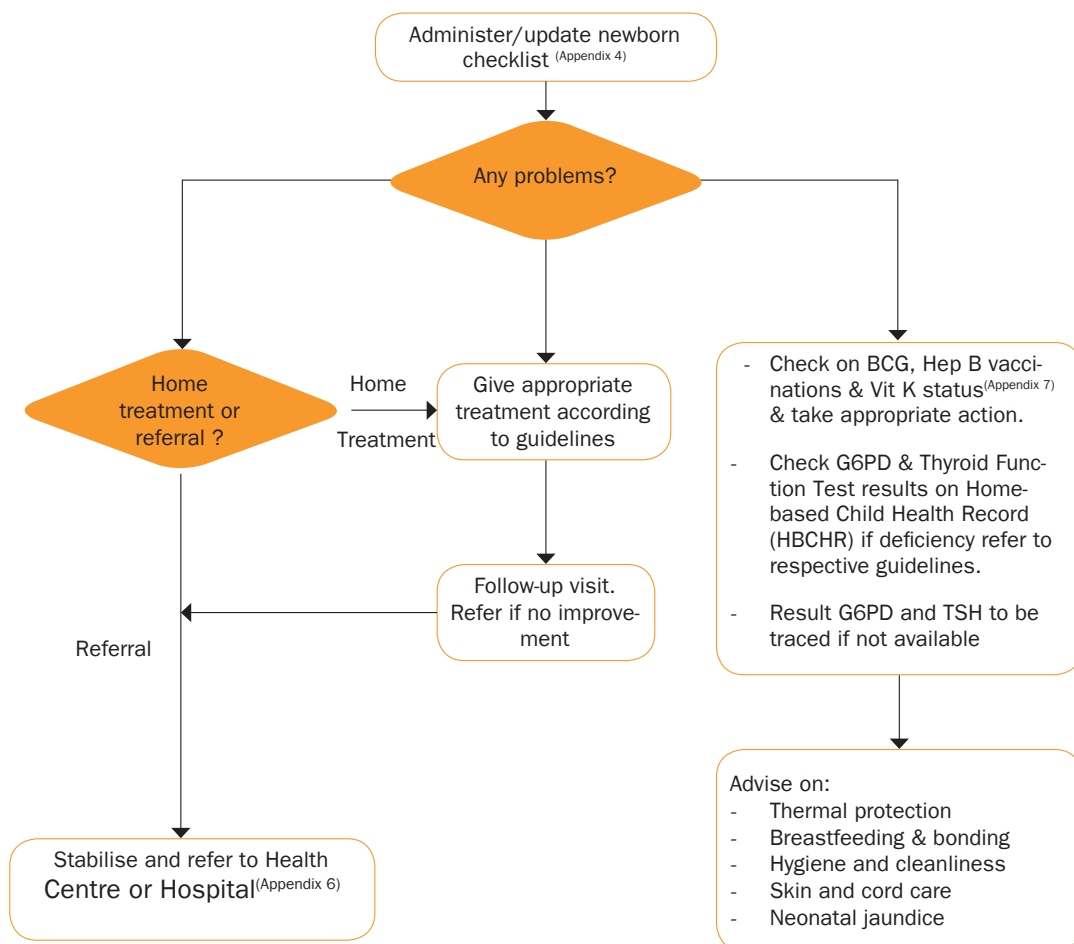
b. Work process in labour room



c. Work process on day 2 or just before discharge



d. Work process during home visit



RESUSCITATION OF THE NEWBORN

Resuscitation of Newborn:

- Should be done by competent staff skilled in anticipating and recognizing need for resuscitation
- Labour room and obstetric operation room staff should be trained in neonatal resuscitation.
- Resuscitation equipment should be in working order for every delivery

Risk factor for neonatal resuscitation

Antepartum factors:

- Maternal age >35 years
- Maternal diabetes
- Hypertensive disorders in pregnancy
- Chronic hypertension
- Maternal cardiac, renal, pulmonary, thyroid or neurologic disease
- Maternal infection including dengue
- Maternal substance abuse
- Drug therapy (e.g. magnesium, adrenergic agonists)
- No prenatal care
- Foetal anaemia or Rhesus-isoimmunisation
- Previous foetal or neonatal death
- Bleeding in second or third trimester
- Oligo/polyhydramnios
- Premature rupture of membranes
- Foetal hydrops
- Post-term gestation
- Multiple gestation
- Size-dates discrepancy
- Foetal malformation or anomalies
- Diminished foetal activity

Intrapartum factors:

- Emergency Caesarean section
- Breech or other abnormal presentation
- Forceps or vacuum assisted delivery
- Premature labour
- Precipitous labour
- Chorioamnionitis

- Prolonged rupture of membrane (>18 hours before delivery)
- Prolonged labour (>24 hours)
- Macrosomia
- Non-reassuring fetal heart rate pattern or persistent foetal bradycardia
- Use of general anaesthesia
- Uterine hyperstimulation/uterine tachysystole with foetal heart rate (FHR) changes
- Narcotics to mother within 4 hours of delivery
- Meconium stained liquor
- Prolapsed cord
- Abruptio placenta
- Placenta praevia
- Significant intrapartum bleeding

Stand-by for High-Risk Deliveries

A doctor should ideally be present at all high risk deliveries. However all personnel involved in newborn deliveries must be trained in neonatal resuscitation as many newborns who need resuscitation do not have any previously recognized risk factors. It is recommended that the following situations warrant a doctor to standby:

- Preterm infants < 35 weeks
- Meconium stained liquor
- Abnormal CTG or scalp pH <7.20 or other indications of foetal distress
- Cord prolapse
- Antepartum haemorrhage
- Multiple births with anticipated problems
- Breech or other abnormal presentations
- Instrumental delivery (not for uncomplicated low forceps or vacuum delivery or outlet vacuum)
- Caesarian section under general anaesthesia
- Emergency caesarian section
- Infants with significant congenital malformations diagnosed antenatally
- Severe IUGR

Basic resuscitation equipments

Suction equipment

- Mechanical suction and tubing
- Suction catheters 5F or 6F, 8F, 10F, 12F or 14F
- 8F feeding tube and 20 ml syringe
- Meconium aspirator

Bag and mask equipment/T-Piece resuscitator and mask

- Device for delivering positive pressure ventilation, capable of delivering 90 to 100% oxygen and preferably with CPAP adapter for preterm babies
- Face masks newborn & premature sizes, cushioned rim mask preferred
- Wall oxygen and air with flowmeters & tubing. Oxygen blender preferred

Intubation equipment

- Laryngoscope with straight blades: No. 00, 0 and 1
- Endotracheal tubes 2.5, 3.0, 3.5 and 4.0mm internal diameter and stylets
- Scissors
- Tape or securing device for endotracheal tube

Medications

- Adrenaline 1:10 000 (0.1mg/ml)
- Isotonic crystalloid (normal saline) for volume expansion
- Naloxone hydrochloride 0.1mg/ml
- Dextrose 10%

Catheters

- Umbilical catheters 3.5F and 5F
- Sterile umbilical catheterisation tray
- Three-way stop-cocks
- Tapes

Miscellaneous

- Radiant warmer or other heat source
- Pre warmed linens
- Stethoscope
- Gloves and appropriate personal protection

Home delivery for resuscitation for babies

- Manual suction apparatus (Res-Q-Vac or equivalent)

ABC's of Resuscitation

- Establish an open **Airway**
 - Position the head, suction mouth first then nose and sometimes trachea
 - If necessary, insert an endotracheal tube
- Initiate **Breathing**
 - Tactile stimulation
 - Positive pressure ventilation with bag and mask or ETT
- Maintain **Circulation**
 - with chest compressions

- Drugs
 - Administer adrenaline as you continue PPV and chest compression

Overview of Resuscitation in the Delivery Room (*Refer Figure 1.1*)

Suction for meconium-stained liquor (*Refer Figure 1.2*)

- Do direct suction if baby is not vigorous ie. baby is not breathing, tone is poor or heart rate less than 100/min
- Wall suction pressure set at 80-100 mmHg
- The baby is intubated using an appropriate sized endotracheal tube (ETT). A meconium aspirator is then connected to the endotracheal tube and the suction applied at the other end. Suctioning with a suction catheter through an endotracheal tube should not be done.
- Reintubation followed by suctioning should be repeated until little additional meconium is recovered or until the baby's heart rate indicates that resuscitation must proceed without delay
- Continuous suction should not be applied for longer than 3-5 seconds
- Positive pressure ventilation may be needed after suctioning if the infant is bradycardic

Indications for Assisted Ventilation:

- When an infant is apnoeic or gasping
- Heart rate < 100 bpm even if breathing
- Persistent central cyanosis despite 100% free flow oxygen

Bag & mask ventilation:

1. Ensure adequate chest expansion
2. Ventilate at 40-60 breaths per minute
3. Initial pressures may need to be higher (30-40 cm water) for the first few breath
4. Otherwise pressures usually between 20-25 cm water (enough for adequate chest expansion to improve heart rate, color and muscle tone)

Indications for Endotracheal Intubation:

- Tracheal suctioning is required
- Bag-and-mask ventilation is ineffective
- Continued PPV is required beyond a few minutes to improve the ease and efficacy of assisted ventilation
- If chest compressions are required
- Diaphragmatic hernia in respiratory distress (do not bag these babies using mask)
- Extreme prematurity and/or delivery of surfactant

Table 1.1: Guidelines for ETT size

| Infant weight | Tube size (mm) |
|---------------|----------------|
| < 1000g | 2.5 |
| 1000 - 2000g | 3.0 |
| 2000 - 3000g | 3.5 |
| > 3000g | 3.5 - 4.0 |

Table 1.2: Guidelines for ETT position

| Infant weight | Oral intubation – weight in kg + 6cm (Tip to lip distance) |
|---------------|--|
| 1 kg | 7 cm |
| 2 kg | 8 cm |
| 3 kg | 9 cm |

Indications for chest compression:

After 30 seconds of effective PPV (Positive Pressure Ventilation), the heart rate is below 60 beats per minute

Chest compression:

Compress the chest $\frac{1}{3}$ rd of its depth by:

- Encircling the chest with both hands and using two thumbs or using the index and middle finger or middle and ring finger over the lower sternum
- Combined with ventilation, there should be 90 compressions and 30 breaths per minute, alternating 3 compressions with 1 breath

Indications for medications:

Infant's heart rate remains below 60 beats per minute despite 30 seconds of effective ventilation (with 100% oxygen) followed by another 45-60 seconds of coordinated chest compressions and effective ventilation.

Medications:

- IV Adrenaline 1:10,000 (0.1-0.3ml/kg), repeat dose if no response every 4 minutes.
- Volume expander (Normal saline, Ringer's Lactate, in severe foetal anaemia - Group O Rh negative blood) if there is evidence of blood loss or clinical signs of hypovolaemia in infant - 10mls/kg over 5-10 minutes and titrate against response
- Naloxone 0.1mg/kg (1mg/ml) if opiates have been given to the mother within 4 hours of delivery. To give **ONLY** after stabilising the baby. The duration of action of narcotic exceeds the duration of action of naloxone, therefore continue to monitor for respiratory depression in the next few hours. (Caution – not to be given to mother who is suspected of using narcotics or is on methadone maintenance as this may induce withdrawal seizures in the newborn).
- Dextrose: Neonates requiring CPR should have an early blood glucose estimate after resuscitation and steps taken to correct hypoglycaemia.

Bicarbonate: The use of sodium bicarbonate is controversial. There is insufficient data to support the routine use of sodium bicarbonate in the resuscitation of the newborn. There must be adequate ventilation of the lungs before administering sodium bicarbonate to prevent the build of CO2 and intracellular acidosis and therefore, to be considered rarely only in the post-resuscitation period. Providing adequate tissue oxygenation with appropriate ventilation with oxygen and support of tissue perfusion and cardiac output with good chest compression is the key to improving metabolic acidosis2

Thermal Protection

It is important to keep the baby warm during resuscitation and in the hospital setting this is usually achieved by a radiant warmer which is to be preheated if resuscitation is anticipated. Refer to Appendix 3 on thermal protection.

Table 1.3: Apgar Score

| Sign | 0 | 1 | 2 |
|---------------------|-------------|------------------------------------|---------------|
| Heart rate | Absent | < 100/min | >100/min |
| Respiration | Absent | Slow, irregular | Good, crying |
| Muscle tone | Limp | Some flexion | Active |
| Reflex irritability | No response | Grimace | Crying |
| Colour | Blue | Pink centrally Extremities blue | Pink all over |

Apgar scoring:

- Mechanism for documenting newborn’s condition at specific intervals after birth
- Should not be used to determine need for resuscitation.
- Resuscitative efforts should be initiated promptly after birth, if required

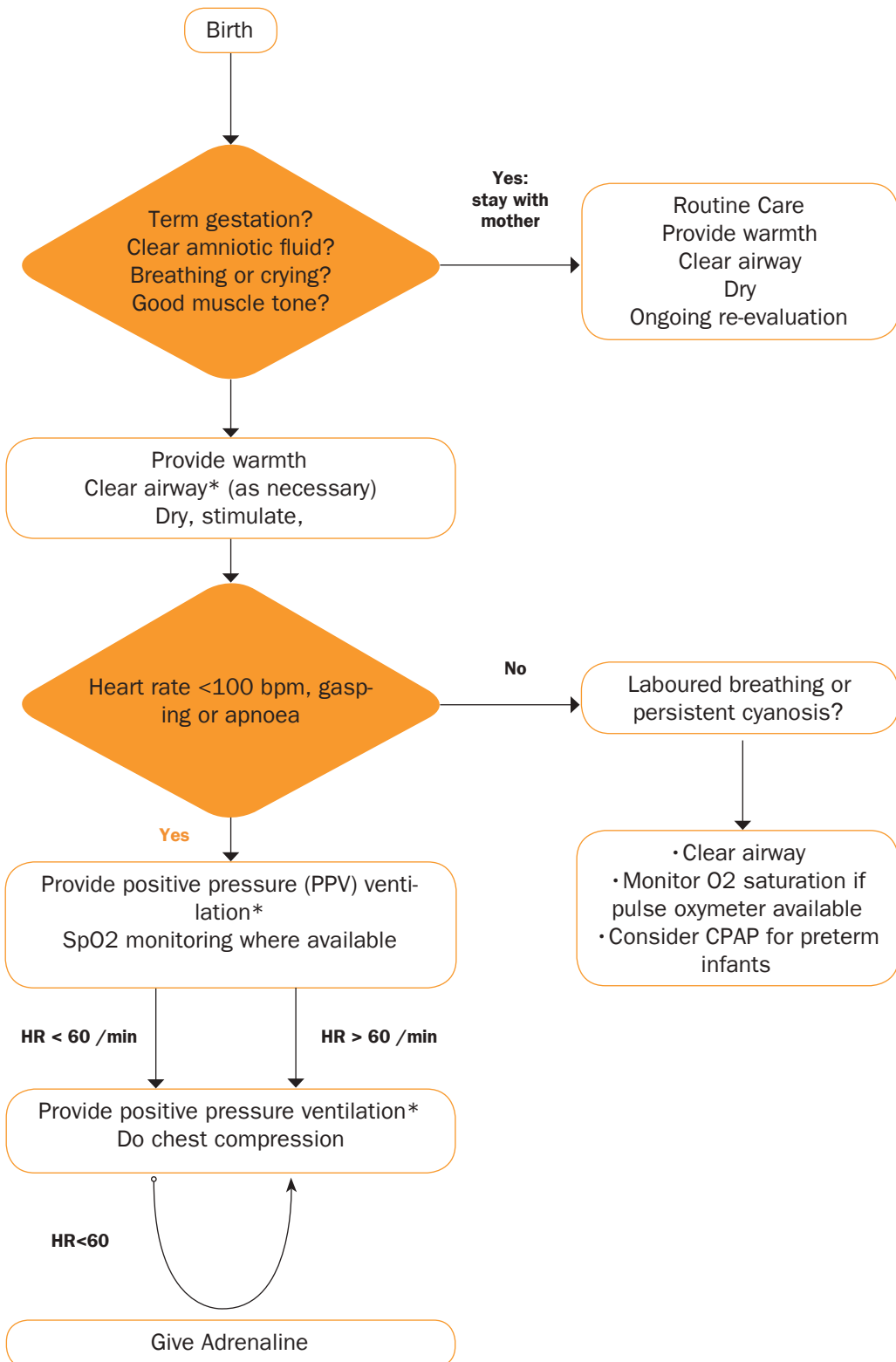
Cessation of Cardiopulmonary Resuscitation:

- Decision should be based on cause of arrest, response to resuscitation and remedial factors
- Death or severe neurological abnormality is predicted by a failure to obtain a heart rate by 10 minutes despite adequate resuscitation and failure to respond to adrenaline

Reference

1. “Neonatal Resuscitation” by American Heart Association & American Academy of Paediatrics, 2011, 6th Edition
2. Aschner J.L., Poland R.L. Sodium Bicarbonate: Basically useless therapy. *Pediatrics*: 2008;122;831-835

Figure 1.1: Resuscitation flow diagram 1



*Endotracheal intubation may be considered at several steps

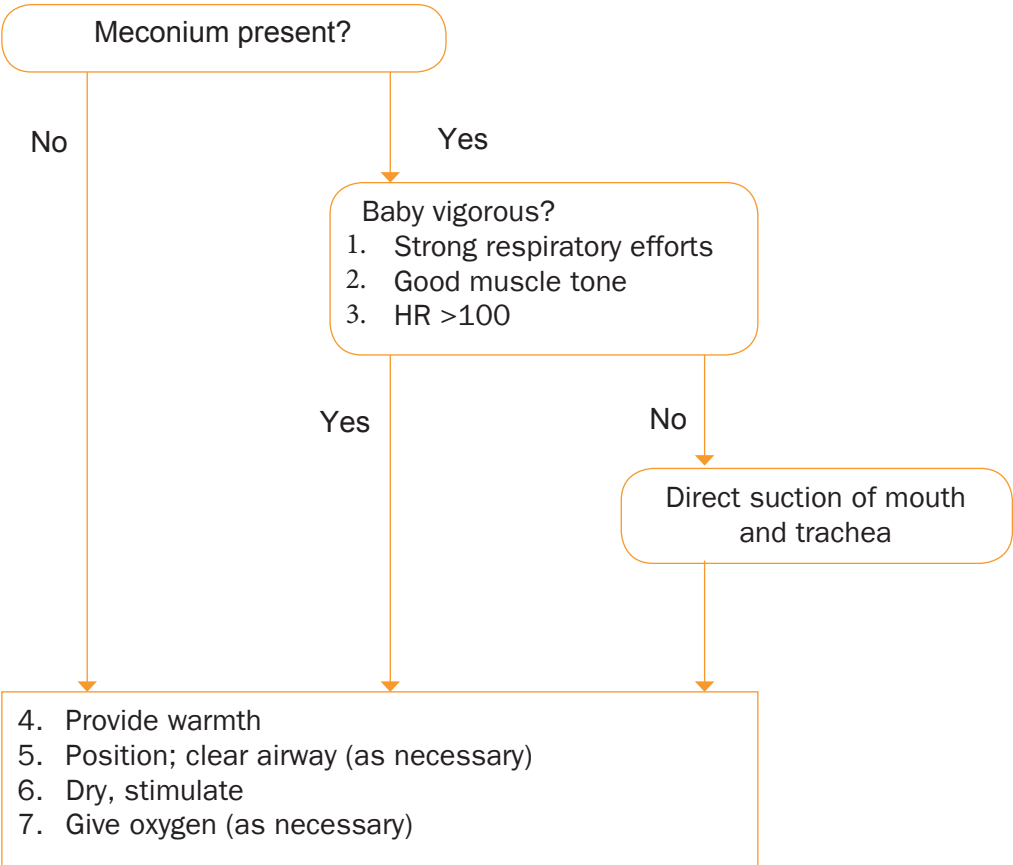
** Targeted Pre-ductal Oxygen Saturation

If pulse oxymeter and oxygen blender are available in delivery room, place the oxymeter probe on the baby’s right wrist and then to the oxymeter instrument, then adjust the oxygen supplementation according to the pre-ductal saturation (Table 1.4).

Table 1.4: Targeted Pre-ductal SpO2 according to minutes after birth

| Minutes after birth | Targeted SpO2 (%) |
|---------------------|-------------------|
| 1 min | 60-65 |
| 2 min | 65-70 |
| 3 min | 70-75 |
| 4 min | 75-80 |
| 5 min | 80-85 |
| 10 min | 85-95 |

Figure 1.2: Suction of newborn with meconium-stained liquor



RANGE OF NORMAL VITAL SIGNS

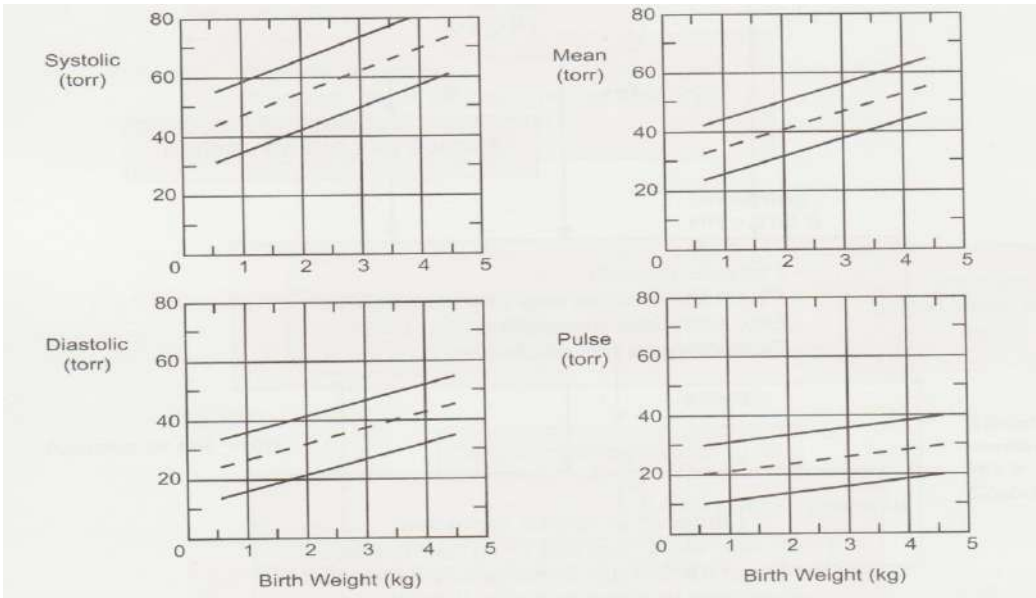
Respiration

Normal respiratory rate for newborn 40 – 60/min

Heart Rate

Normal heart rate for newborn 120-160/min

Blood Pressure



Source: Blood pressure by birth weight (From Versmold HT, Kitterman JA, Phibbs RH et al:Paediatrics 67(5):607, 1981

WARNING SIGNS

The following are warning signs of an ill baby who needs immediate attention by the doctor.

1. Central cyanosis

Table 2.1: Differentiate central cyanosis from peripheral cyanosis.

| | Central cyanosis | Peripheral cyanosis |
|-----------------|-------------------------------------|--|
| Site | Tongue, lips, extremities | Extremities only. Tongue is pink. |
| Causes | Cardiac, pulmonary, profound sepsis | Mainly hypothermia causing peripheral vasoconstriction |
| Action required | Immediate referral | Warming up the baby as necessary |

2. Signs of respiratory distress

- Tachypnoea > 60/min.
- Grunting or stridor
- Intercostal and or subcostal recession
- Flaring of the nostrils
- Cyanosis
- Reduced air entry

3. Signs of sepsis

Table 2.2: Signs of sepsis

| Systems | Signs |
|-----------------|--|
| Respiratory | Apnoea Tachypnoea Grunting, nasal flaring Recession |
| Cardiovascular | Tachycardia* Hypotension Bradycardia Poor perfusion |
| Central nervous | Temperature instability – hypothermia or fever* Lethargy* Hypotonia Irritability* Seizures |
| GIT | Feeding intolerance/ poor feeding* Abdominal distension Vomiting* Diarrhoea |
| Others | Jaundice Pallor Petechiae |

**Early signs of sepsis*

THERMAL PROTECTION

Hypothermia and hyperthermia may increase a baby’s morbidity and mortality. Both adversely affect oxygen consumption and glucose homeostasis. Extreme hypothermia may result in initiation of haemorrhagic process, extreme hyperthermia may cause cerebral damage, dehydration, hypernatremia and death.

Table 3.1: Thermal Protection

| Normal body temperature | At risk babies |
|--|--|
| Axillary: Term : 36.5 °C – 37.5 °C Preterm (lower axillary) : 36.3 °C - 36.9 °C Skin: Term : 36.0 °C – 36.5 °C Preterm (higher skin) : 36.2 °C -37.2 °C | <ul style="list-style-type: none">• Premature, IUGR• Multiple pregnancies• Infant of diabetic mother• Asphyxiated baby• Instrumental deliveries, Caesarean section |

There are 4 mechanisms through which a baby can lose heat and become hypothermic quickly:

- Evaporation (e.g. wet baby)
- Convection (e.g. fan, air-condition draught)
- Conduction (e.g. cold surface)
- Radiation (e.g. exposed baby)

PROVISION OF THERMAL PROTECTION

Bathing and hypothermia

The tradition of bathing the baby soon after birth is a common cause of hypothermia and should be discouraged. Blood, vernix and meconium are easily removed by initial drying with warm towels. Vernix can be removed after 2 hours of postnatal age. The surplus can be wiped clear once the baby is in the postnatal ward.

Table 3.2: Provision of Thermal Protection

| Home/ABC delivery | Hospital delivery | Transportation |
|---|---|---|
| <p>Immediately after delivery (for normal term baby):</p> <ul style="list-style-type: none"> • Wipe and dry baby immediately • Remove wet linen • Allow skin to skin contact with mother for warmth for one hour. (Ensure mother's skin is dry and put a cap/cover on baby's head) • Put baby to breast immediately to initiate early breast feeding • Blanket to cover mother and baby <p>After an hour:</p> <ul style="list-style-type: none"> • Wrap baby with dry cloth, keeping head covered • Rest baby in warm area away from draught • Change napkin/towel when Wet <p>After 6 hours:</p> <ul style="list-style-type: none"> • Clean baby • Dry thoroughly • Dress in baby clothes and soft wrap to keep warm <p>DON'TS IN THERMAL PROTECTION</p> <ul style="list-style-type: none"> • Do not bathe baby within <u>the first</u> 6 hours* • Do not expose baby unnecessarily | <p>Before Delivery</p> <p>Operating room temperature should be between 22oC - 26oC according to newborn's gestational age</p> <p>Immediately after delivery:</p> <ul style="list-style-type: none"> • Radiant warmer must be switched on before delivery • Received baby with pre-warmed linen • Ensure sufficient linen on the radiant warmer (3 pieces minimum) • For the preterm baby below 28 weeks, the baby should be wrapped in plastic such as a cling-wrap or plastic bag (reclosable food grade polyethylene type) • Follow guidelines as for home deliveries for term normal babies <p>Ward to Ward Transfer:</p> <p>Transfer of babies <u>between</u> OT/labour room/postnatal/SCN.</p> <ul style="list-style-type: none"> • Dry baby • Wrap with dry and warm Linen • Transfer to ward immediately if baby is stable (especially from OT where the temperature is low) • Use incubator if possible or warming mattress | <p>Before transporting the baby to another hospital:</p> <ul style="list-style-type: none"> • Check temperature before transportation • Wrap baby with dry and warm cloth/towels • If incubator not available, wrap baby in pre-warmed towel & aluminium foil to prevent heat loss • Can use heated mattress • If incubator is available, pre-heat to the appropriate temperature as per table 3.3. • Place baby in warmed incubator for transportation. • Minimise use of air-conditioning in transportation and keep away from draught • Transport directly to hospital immediately • Arrange direct transfer to neonatal ward, do not transit in A&E <p>Arrival at hospital</p> <ul style="list-style-type: none"> • Place baby under radiant warmer or incubator • Check baby's temperature on arrival and take necessary measures |

Table 3.3: Suggested Incubator Temperature Setting

| Birth Weight (kg) | Environmental Temperature | | | | | |
|-------------------|---------------------------|-------------|---------------|---------------|---------------|---------------|
| | 37°C | 36°C | 35°C | 34°C | 33°C | 32°C |
| < 1.0 | For 1 day | After 1 day | After 2 weeks | After 3 weeks | After 4 weeks | After 6 weeks |
| 1.0 – 1.5 | | | For 10 days | After 10 days | After 3 weeks | After 5 weeks |
| 1.5 – 2.0 | | | | For 10 days | After 10 days | After 4 weeks |
| 2.0 – 2.5 | | | | For 2 days | After 2 days | After 3 weeks |
| > 2.5 | | | | | For 2 days | After 2 Days |

Note:

- In a single-walled incubator, the environmental temperature needs to be increased by 1°C for every 7°C difference between room and incubator temperature.
- Babies <1 kg and <30 weeks gestation need a humidified incubator in the first week of life.
- Babies wrapped need lower incubator temperatures.
- Values given are recommended temperature but there is considerable variation in individual requirements.

A. HYPOTHERMIA AND COLD STRESS (AXILLARY TEMPERATURE <36.5°C)

Consequences of hypothermia and cold stress

- Short – term response:
 - Hypoglycemia, hypoxia, metabolic acidosis
 - Pulmonary vasoconstriction
 - Increased respiratory distress caused by hypoxia and acidosis
 - Feeding intolerance caused by decreased energy to feed and/or digest food
- Chronic response
 - Impaired weight gain as a result of consumption of calories for heat production.
 - If the degree and duration of cold exposure exceeds the baby's ability to compensate, a gradual fall in core temperature will occur, accompanied by respiratory failure, heart failure, reduction of energy resources, and eventually death.

Symptoms of cold injury

- Apnoea
- Bradycardia
- Tachypnoea
- Poor perfusion
- Oxygen requirement
- Acrocyanosis
- Seizures
- Acidosis
- Feeding intolerance
- Lethargy
- Irritability
- Hypoglycemia
- Cyanosis
- Abdominal temperature lower than axillary temperature

Babies at risk of having thermal instability

- | | | |
|----------------------------------|---|---|
| Premature babies | - | body fat and insulation, ability to maintain a flexed posture, and stores of brown fat are decreased. Surface area/weight ratio and body water content are increased. They have very thin skin. |
| Small for gestational age babies | - | body fat and insulation and store of brown fat are decreased. Surface area/weight ratio and metabolic rate are increased. |
| Babies stressed because of | - | birth asphyxia, hypoglycemia, respiratory distress, or sepsis. |

Treatment of hypothermia

1. Warm baby slowly with radiant heater warmer or incubator. Aim to raise the baby's temperature by 0.5°C per hour. Rapid warming has been associated with heat-induced apnoea and with hypotension and shock.
 - Set the incubator air temperature to 36°C (simultaneously increase the humidity to reduce evaporative loss)
 - Use a heat shield to decrease radiant losses.
 - Monitor temperature every 15 minutes until temperature is normal then hourly for three hours to ensure the baby's temperature remains stable
 - Reduce incubator air temperature if necessary once body's temperature is normal.

Considerations while rewarming the babies

- If the temperature ceases to decrease or begins to rise slowly, maintain the baby's current environment and continue to monitor.
 - If the baby's temperature continues to fall, raise the incubator's temperature to 37°C, evaluate for missed sources of heat loss. In babies < 1500g birth weight, ensure high humidity i.e. more than 70%, using humidified incubator.
 - If under radiant warmer, use cling wrap over the baby bassinet area to reduce heat loss by evaporation.
 - If the baby becomes apnoeic or exhibits signs of shock, slow the rate of rewarming.
 - In the correction of hypothermia, over-heating to the point of hyperthermia can be very injurious to the baby especially one that is at risk of progressing to Hypoxic Ischaemic Encephalopathy (HIE). For babies meeting criteria for moderate to severe HIE, moderate hypothermia at temperature 33°C – 34°C has been found to be neuro-protective. Therefore babies with HIE should not be over warmed prior to transport to hospital and therapeutic hypothermia is recommended at the hospital level.
2. Supply heat with the use of chemically activated mattresses or circulating-water heating pads. Avoid hot water bottles, gloves filled with hot water or heat lamps because they may cause burns.
 3. Reduce heat loss by other mechanisms such as using heat shield, double walled incubators, radiant warmers
 4. Administer oxygen as indicated
 5. Monitor for hypoglycaemia

B. HYPERTHERMIA (TEMPERATURE >37.5 °C)

Hyperthermia may be iatrogenic or a symptom of a disease process or cold stress.

Causes of hyperthermia

- Maternal fever, resulting in fever in the neonate during the first few minutes of life (fetal temperature is greater than maternal temperature)
- Overheating from incubators, radiant warmers or ambient environmental temperature
- Phototherapy lights, sunlight
- Excessive wrapping or swaddling
- Infection
- Central nervous system (CNS) disorders such as asphyxia
- Dehydration

Effects of hyperthermia

- Tachycardia and tachypnoea as the baby attempts to release excess heat
- Sweating in older premature and term babies to increase evaporative loss
- Dehydration resulting from increased fluid losses
- Increased insensible water loss
- Hypoxia and hypoglycaemia caused by increased demands for oxygen and glucose
- Hypotension and “flushed” skin as a result of peripheral vasodilatation to increase heat loss
- Seizure activity and apnoea resulting from effects on the CNS
- Poor feeding, decreased activity and tone, weak cry because of CNS depression
- Poor weight gain
- Shock

Treatment of hyperthermia

- Treat cause such as infection, dehydration or CNS disorder
- Remove external heat sources
- Remove anything that blocks heat loss
- Move bassinet or incubator from extra heat sources (e.g. sunlight, phototherapy light)
- Check incubator and radiant warmers for appropriate functioning
- Assess thermistor position for appropriate location on the baby
- During the cooling process, monitor and record temperatures (skin, axillary and environmental) every thirty minutes

Reference:

1. Blake WW, Murray JA. Heat balance In: Merenstein GB, Garner SL, editors. Handbook of Neonatal Intensive Care 6th ed. St Louis: Mosby; 2006.p.122-36

BORANG PEMERIKSAAN KESIHATAN NEONATAL

BPKK/SS.N

Nama Bayi: No. Kad Pengenalan:
 Tarikh/masa dilahirkan: Apgar score: __ /1 min __ /5 min
 Tempat Lahir: Rumah/Hospital/lain-lain Nyatakan:
 Umur kandungan (gestation age):(minggu) Berat lahir: gm

Panduan mengisi borang:

- Sila tandakan (/) jika tiada masalah dan tandakan (x) jika ada masalah pada tempat yang berkenaan
- ☐ Ruangan ini bukan untuk pemeriksaan rutin dan pemeriksaan dilakukan jika perlu
- * Rujuk Pegawai Perubatan Berhampiran
- ** Rujuk segera ke hospital
- *** Pemeriksaan dilakukan oleh Pegawai Perubatan sahaja

| Tarikh Perawatan | | | | | | | | | | | | | | | TINDAKAN |
|---|----|---|---|---|---|---|---|---|---|---|----|----|----|----|--|
| Umur Bayi (hari) | <1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 30 | |
| 1. UKURAN BADAN (isikan nilai sebenar) | | | | | | | | | | | | | | | |
| • Berat badan (kg) | | | | | | | | | | | | | | | **2kg< Berat <4.5kg (semasa lahir) Rujuk carta pertumbuhan |
| • Lilitan kepala | | | | | | | | | | | | | | | |
| • Panjang (cm) | | | | | | | | | | | | | | | |
| 2. PEMERHATIAN AM | | | | | | | | | | | | | | | |
| • Lemah | | | | | | | | | | | | | | | ** Jika ada |
| • Irritable | | | | | | | | | | | | | | | ** Jika ada |
| • Pucat | | | | | | | | | | | | | | | ** Jika ada |
| • Cyanosis | | | | | | | | | | | | | | | ** Jika ada |
| • Ciri dismorfik contoh: Down Syndrome | | | | | | | | | | | | | | | * Jika ada |
| • Jaundis (paras bilirubin-jika ada) | | | | | | | | | | | | | | | Pengendalian Jaundis |
| • Kulit contoh: extensive septic spot, petechiae, etc | | | | | | | | | | | | | | | * Jika ada masalah |
| • Penyusuan | | | | | | | | | | | | | | | * Jika ada masalah |
| • Kencing | | | | | | | | | | | | | | | * Jika ada masalah |
| • Buang air besar | | | | | | | | | | | | | | | * Jika ada masalah |
| 3. PEMERIKSAAN VITAL (isikan nilai sebenar) | | | | | | | | | | | | | | | |
| • Kadar pernafasan (normal 40 - 60/min) | | | | | | | | | | | | | | | Isikan kadar pernafasan jika tidak normal dan rujuk |
| • Kadar denyutan jantung (normal 120 - 160/min) | | | | | | | | | | | | | | | * Jika tidak normal |

| Tarikh Perawatan | | | | | | | | | | | | | | | | TINDAKAN |
|---|----|---|---|---|---|---|---|---|---|---|----|----|----|----|---|----------|
| Umur Bayi (hari) | <1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 30 | | |
| • Suhu badan °C (normal aksila 36.5 - 37.0) | | | | | | | | | | | | | | | * Jika tidak normal | |
| 4. PEMERIKSAAN KEPALA | | | | | | | | | | | | | | | | |
| • Rupa bentuk kepala | | | | | | | | | | | | | | | | |
| • Fontanelle/ubun | | | | | | | | | | | | | | | * Jika terbonjol/ tenggelan (<i>bulging/sunken</i>) | |
| • Bengkak/ benjolan | | | | | | | | | | | | | | | * Jika ada | |
| • Caput | | | | | | | | | | | | | | | **Tanda <i>subaponeurotic haemorrhage</i> | |
| 5. PEMERIKSAAN LEHER | | | | | | | | | | | | | | | | |
| • Bengkak/Ketulan | | | | | | | | | | | | | | | * Jika ada | |
| 6. PEMERIKSAAN MATA | | | | | | | | | | | | | | | | |
| • Abnormal contoh: <i>Congenital ptosis</i> , juling | | | | | | | | | | | | | | | * Jika ada | |
| • Katarak | | | | | | | | | | | | | | | * Jika ada abnormal | |
| • Kornea/ konjunktiva | | | | | | | | | | | | | | | * Jika tidak normal | |
| • Lelehan/discak mata yang <i>purulent</i> | | | | | | | | | | | | | | | * Jika ada pada hari pertama dan berterusan | |
| 7. PEMERIKSAAN MULUT | | | | | | | | | | | | | | | | |
| • <i>Cleft palate/lip</i> | | | | | | | | | | | | | | | ** <i>Cleft palate</i> | |
| • <i>Cleft lip</i> | | | | | | | | | | | | | | | * <i>Cleft lip</i> | |
| • <i>Oral thrush</i> | | | | | | | | | | | | | | | * Jika ada | |
| 8. PEMERIKSAAN TELINGA | | | | | | | | | | | | | | | | |
| • Rupa bentuk Abnormal | | | | | | | | | | | | | | | * Jika tidak normal | |
| • Lelehan/discak | | | | | | | | | | | | | | | * Jika ada | |
| 9. SISTEM RESPIRATORI | | | | | | | | | | | | | | | | |
| • Cacat hidung | | | | | | | | | | | | | | | * Jika ada | |
| • Sub/ <i>inter-costal recession</i> | | | | | | | | | | | | | | | **Rujuk paediatric | |
| • Bentuk dada tidak normal contoh: <i>pigeon chest</i> | | | | | | | | | | | | | | | * Jika ada | |
| • Pernafasan berbunyi/ <i>stridor/ grunting</i> | | | | | | | | | | | | | | | ** Jika ada | |
| • ***Paru-paru abnormal | | | | | | | | | | | | | | | *Rujuk paediatric | |
| 10. SISTEM KARDIOVASKULAR | | | | | | | | | | | | | | | | |
| • *** <i>Cardiac murmur</i> | | | | | | | | | | | | | | | | |
| • ***Nadi <i>femoral</i> abnormal | | | | | | | | | | | | | | | ** Jika tiada nadi <i>femoral</i> | |

| Tarikh Perawatan | | | | | | | | | | | | | | | | | TINDAKAN |
|--|----|---|---|---|---|---|---|---|---|---|----|----|----|----|--|--|----------|
| Umur Bayi (hari) | <1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 15 | 20 | 30 | | | |
| 11. PEMERIKSAAN ABDOMEN | | | | | | | | | | | | | | | | | |
| • Distensi (distension) | | | | | | | | | | | | | | | ** Jika ada muntah/tidak buang air besar * Jika stabil | | |
| • Umbilicus kemerahan/ berdarah/berbau busuk/discaj | | | | | | | | | | | | | | | * Jika berterusan | | |
| • Benjolan/ketulan | | | | | | | | | | | | | | | * Jika ada | | |
| • Lubung dubur (anus) abnormal | | | | | | | | | | | | | | | * Jika <i>imperforate</i> | | |
| 12. PEMERIKSAAN ALAT KELAMIN (GENITALIA) | | | | | | | | | | | | | | | | | |
| • Rupa luaran abnormal | | | | | | | | | | | | | | | ** Jika <i>ambiguous</i> | | |
| • Lelaki <i>Testes abnormal</i> <i>Penis abnormal</i> <i>Scrotum abnormal</i> | | | | | | | | | | | | | | | * Jika <i>undescended</i> * Jika abnormal * Jika abnormal | | |
| • Perempuan <i>Discaj</i> | | | | | | | | | | | | | | | Normal jika sedikit darah pada hari 5 -7 | | |
| <i>Imperforated hymen</i> | | | | | | | | | | | | | | | * Jika ada | | |
| 13. SISTEM MUSKULOSKELETAL | | | | | | | | | | | | | | | | | |
| • Tulang belakang abnormal | | | | | | | | | | | | | | | * Jika abnormal | | |
| • Lengan/tangan/ jari normal | | | | | | | | | | | | | | | * Jika abnormal | | |
| • <i>Club foot</i> /CTEV | | | | | | | | | | | | | | | * Jika ada | | |
| • <i>Hip dislocation</i> | | | | | | | | | | | | | | | * Jika ada | | |
| 14. SISTEM NEUROLOGI | | | | | | | | | | | | | | | | | |
| • Ada sawan | | | | | | | | | | | | | | | ** Jika ada | | |
| • Refleks abnormal - <i>Moro</i> - <i>Grasp</i> - <i>Rooting</i> | | | | | | | | | | | | | | | * Jika ada masalah | | |
| • <i>Tone</i> /otot abnormal | | | | | | | | | | | | | | | * Jika abnormal | | |
| TANDATANGAN | | | | | | | | | | | | | | | | | |
| NAMA | | | | | | | | | | | | | | | | | |
| JAWATAN | | | | | | | | | | | | | | | | | |
| PEMERIKSA | | | | | | | | | | | | | | | | | |

Nota: Jika terdapat tanda (x) pada ruangan borang penilaian, sila rujuk untuk tindakan/rawatan.

GARIS PANDUAN

PENGUNAAN BORANG PEMERIKSAAN KESIHATAN NEONATAL (BPKN)

PENGENALAN

Borang pemeriksaan kesihatan neonatal ini digunakan untuk pemeriksaan bayi baru lahir sehingga umur bayi 30 hari. Ianya untuk digunakan ketika pemeriksaan saringan awal bayi di hospital, di klinik kesihatan dan semasa perawatan postnatal, di rumah oleh semua kategori kakitangan yang terlibat. Borang ini akan dikepikan bersama dengan Rekod Kesihatan Bayi Dan Kanak-kanak (0 – 6 Tahun) yang diberikan kepada semua bayi yang baru lahir.

PENYELENGGARAAN BORANG PEMERIKSAAN KESIHATAN NEONATAL

A. KATEGORI KAKITANGAN YANG MENYELENGGARAKAN BORANG PEMERIKSAAN KESIHATAN NEONATAL

- a. Hospital – Pegawai Perubatan/Pegawai Perubatan Siswazah
- b. Klinik kesihatan – Pegawai Perubatan dan Kesihatan/Jururawat
- c. Perawatan Postnatal di rumah – Jururawat Kesihatan dan Jururawat Masyarakat

B. PERATURAN MENGISI BORANG PEMERIKSAAN KESIHATAN NEONATAL

1. Borang Pemeriksaan Kesihatan Neonatal mestilah diisi oleh kategori kakitangan yang di sebut di atas setelah membuat pemeriksaan ke atas bayi yang baru lahir dan ketika perawatan postnatal di rumah sehingga bayi berumur 30 hari.

2. Jika dilahirkan di hospital, Pegawai Perubatan yang memeriksa bayi selepas bersalin haruslah melengkapkan Borang Pemeriksaan Kesihatan Neonatal pada ruangan pertama iaitu semasa umur bayi <1 hari.

Apabila bayi tersebut balik ke rumah pemeriksaan dijalankan oleh kakitangan kesihatan yang membuat lawatan ke rumah mengikut jadual hari lawatan postnatal yang sedia ada dan seterusnya melengkapkan ruangan yang berkenaan.

3. Jika bayi dilahirkan di rumah, pemeriksaan dibuat oleh kakitangan kesihatan yang menyambut kelahiran dan mengisikan pada ruangan berkenaan (<1 hari).

Bayi tersebut hendaklah dirujuk ke Pegawai Perubatan dan Kesihatan (PP&K) yang berdekatan untuk menjalani pemeriksaan yang menyeluruh iaitu semua elemen di dalam BPKN dan mengisi pada ruangan di hari yang berkenaan. (Semua bayi yang dilahirkan di rumah perlu dirujuk kepada Pegawai Perubatan dan Kesihatan yang berdekatan secepat mungkin)

4. Bagi ruangan yang perlu diisi oleh Pegawai Perubatan/PP&K sahaja, Jururawat yang memeriksa tidak perlu memeriksanya dan ruangan tersebut hendaklah di biarkan kosong.

C. ARAHAN-ARAHAN DAN CARA-CARA MENGISI RUANGAN DI DALAM BORANG PEMERIKSAAN KESIHATAN NEONATAL BAGI YANG MEMERLUKAN RUJUKAN GARIS PANDUAN A SAHAJA

1. Ukuran badan

Untuk ruangan ini hendaklah dicatatkan dengan ukuran yang diambil.

Berat badan, lilitan kepala dan panjang yang diukur perlu dicatatkan pada carta centile bagi melihat status bayi berpandukan umur di dalam Rekod Kesihatan Bayi Dan Kanak-kanak (0 – 6 Tahun). Kes di bawah 10th centile (-2SD) ataupun melebihi 90th centile (+2SD) perlu dirujuk kepada Pegawai Perubatan berdekatan.

Jika garisan plot berat badan dan lilitan kepala yang diukur melintasi garis centile, maka kes ini juga perlu dirujuk kepada Pegawai Perubatan.

Jika berat badan < 2kg atau > 4.5 kg mestilah dirujuk ke hospital. Sekiranya berat badan di antara 2.0kg - 2.5kg hendaklah memberi perhatian kepada aspek pemakanan, hipoglisemia dan hipotermia. Jika berat badan 4.0kg - 4.5 kg perlu diberi perhatian dalam aspek pemakanan bagi mencegah hipoglisemia. Sila rujuk carta pertumbuhan di Rekod Kesihatan Bayi Dan Kanak-kanak (0 – 6 Tahun)

2. Pemerhatian am

Keadaan am bayi merujuk kepada perkara-perkara berikut:

- | | |
|---------------|--|
| Kegiatan bayi | : Bayi yang tidak aktif/kurang cergas, tangisan lemah atau 'irritable' perlu dirujuk kepada Pegawai Perubatan dengan segera. |
| Wajah bayi | : Bayi yang rupa wajah luar biasa atau mempunyai ciri-ciri 'dysmorphic', seperti Down Syndrome, perlu dirujuk kepada Pegawai Perubatan |
| Warna Bayi | : Pucat, cyanosis, jaundis |
| Kulit | : Periksa kulit bayi untuk melihat terdapat tanda-tanda 'septic spot' yang meluas (extensive), 'petechiae' dan lain-lain yang memerlukan rujukan kepada Pegawai Perubatan. |

3. Pemeriksaan Vital

Ruangan ini hendaklah dicatatkan pengiraan yang diambil atau diukur pada hari pertama dan perlu dicatatkan juga pada hari berikutnya jika terdapat yang tidak normal.

GARIS PANDUAN PEMERIKSAAN BAYI BARU LAHIR MENGIKUT BUKU REKOD KESIHATAN BAYI DAN KANAK-KANAK

1. Pemerhatian Am

Keadaan Am (keadaan luar biasa yang dikesan seperti berikut perlu dirujuk kepada Pegawai Perubatan dan Kesihatan)

a. Kecergasan Bayi

Bayi yang tidak aktif/kurang cergas, tangisan lemah atau '*irritable*'.

b. Wajah Bayi

Rupa bayi yang luar biasa samada '*asymetry*' atau mempunyai ciri-ciri '*dysmorphic*' seperti *Down Syndrome*.

c. Warna Kulit

Pucat, '*cyanosis*', jaundis atau terdapat tanda-tanda '*septic spots*' yang meluas atau '*petechiae*'.

d. Kepala

Periksa untuk:

- Bonjol atau lekuk pada ubun-ubun (bulging or depressed fontanelle).
- '*Caput*' – ialah benjolan yang bukan hematoma. Akan susut selepas beberapa hari.
- '*Cephalhaematoma*' – keadaan di mana hematoma tidak merentasi garis '*sutures*' di kepala.
- '*Subaponeurotic haemorrhage*' – hematoma yang merentasi garis '*sutures*' yang boleh menyebabkan renjatan *hipovolumic*. Ini perlu dirujuk segera.

e. Mata

Jika terdapat keadaan seperti discaj, '*congenital cataract*', perdarahan bahagian sclera ('*subconjunctival haemorrhage*'), '*congenital ptosis*', atau juling.

f. Hidung

Perhatikan untuk '*nasal flaring*' jika ada.

g. Mulut

Periksa untuk sumbing bibir (*cleft lip*), sumbing lelangit (*cleft palate*), '*tongue tie*', *macroglossia* atau terdapat '*natal teeth*' (berisiko mengalami aspirasi jika gigi longgar).

h. Dagu

Dagu kecil menunjukkan tanda sindrom seperti Pierre Robin syndrome. Keadaan ini boleh menyebabkan masalah pernafasan atau penyusuan.

i. Telinga

Perhatikan posisi dan bentuk seperti '*low set ear*' menunjukkan ciri *Down Syndrome*.

j. Leher

Periksa leher untuk:

- Sternomastoid tumor yang boleh menyebabkan teleng (*torticollis*)
- Pembengkakan seperti '*cystic hygroma*'

k. Dada

Periksa untuk bentuk dada yang tidak normal, kadar dan cara pernafasan. Kadar pernafasan yang normal adalah 40 – 60 / minit dan tiada '*grunting*' atau '*stridor*'.

l. Jantung

Periksa denyutan jantung. Kadar denyutan normal adalah 120 – 160/ minit.

m. Abdomen

Jika terdapat keadaan abdomen yang kembung berserta dengan muntah, cirit atau tidak membuang air besar, perlu dirujuk segera.

n. Spine

Perhatikan untuk skoliosis, '*Spina Bifida*' atau tanda kulit seperti lipoma, haemangioma atau '*tuft of hair*'

o. Anus

Periksa untuk patensi dan kehadiran fistula.

p. Genitalia

Lelaki:

- Periksa kedudukan pembukaan urethra. Keadaan seperti *hypospadias*, *epispadias* adalah luar biasa.
- Keadaan '*undescended testes*' perlu dirujuk.
- Pembesaran pada kerandut zakar mungkin disebabkan *hydrocele*, *inguinal hernia*, *tumour*

Perempuan:

- Perhati untuk labia minora dan labia majora, clitoris, urethral dan '*vaginal orifice*'.
- Jika terdapat discag dari vagina berwarna putih atau sedikit perdarahan dalam minggu pertama adalah normal.

q. Nadi

untuk '*webbed fingers*', '*polydactyly*', '*syndactyly*' dan warna kuku jari.

r. Femoral (Femoral Pulse)

Periksa nadi femoral, jika tiada atau lemah, ini menunjukkan tanda *coartation of aorta*.

s. Hips (Pinggul)

Perhati pergerakan di kedua belah sendi pinggul adalah seimbang (*symmetrical*).

t. Tangan

Boleh menggerakkan tangan dengan bebas.

u. Kaki

Periksa untuk talipes, panjang kedua belah kaki dan tapak kaki adalah sama.

v. Moro Reflex

Grasp dan '*moro reflex*'. '*Unilateral moro reflex*' menunjukkan kecederaan '*brachial plexus*', '*Erb's palsy*' atau '*fracture clavicle/humerus*'. '*Sucking reflex*' tidak perlu dilakukan jika bayi telah menyusu dengan baik.

w. Penyusuan

Bayi dapat menyusu dengan baik.

x. Eliminasi

Kencing dan buang air besar sebanyak 5 – 6 kali sehari adalah normal bagi bayi yang menyusu dengan baik.

y. Tanda Vital

Pemeriksaan suhu, pernafasan dan kadar denyutan jantung perlu dilakukan. Suhu *axillary* normal ialah 36.5 oC – 37.5 oC

z. Ukuran Badan

Ukuran berat badan, lilitan kepala dan panjang yang diukur perlu dicatatkan pada carta pertumbuhan bagi melihat status bayi berpandukan umur di dalam Rekod Kesihatan Bayi Dan Kanak-Kanak (0 – 6 tahun). Kes di bawah -2SD atau melebihi +2SD perlu dirujuk ke Pegawai Perubatan berdekatan.

Jika berat badan < 2.0kg atau >4.5 kg mestilah dirujuk ke hospital. Sekiranya berat badan di antara 2.0kg - 2.5 kg hendaklah diberi perhatian kepada aspek penyusuan, hipoglycaemia dan hypothermia.

Jika berat badan 4.0kg - 4.5kg perlu di beri perhatian dalam aspek penyusuan bagi mencegah hipoglycaemia. Sila rujuk carta pertumbuhan di Rekod Kesihatan Bayi Dan Kanak-Kanak (0 - 6 tahun)

NEWBORN EXAMINATION GUIDELINES

Mother's history:

- Maternal age and parity
- Period of gestation
- Obstetric and ultrasound assessment
- Past obstetric history
- General health and nutrition
- Social history - teenage mothers, single young mothers, history of substance abuse low socioeconomic status (education and poverty-related)
- Maternal medical conditions and drug history
- Maternal ABO and Rh blood grouping
- VDRL/TPHA status
- Hepatitis B status
- HIV status
- Tetanus immunisation
- Antenatal problems
- Intrapartum complications
- Family history of severe neonatal jaundice and metabolic diseases

History of newborn:

- Condition at birth (more attention needed if Apgar score is < 3 at 1 minute and < 7 at 5 minutes)
- Feeding history
- Bowel movements and urine output

General Inspection

General Appearance

Abnormalities like anencephaly, myelomeningocele, severe dwarfism, and musculoskeletal abnormalities are usually obvious on first inspection.

Size and Body Proportion:

Measure and record length, weight, and head circumference. If the baby is of low birth weight or if gestation is uncertain, perform a Ballard score to assess gestational age (Fig. 4.1).

The examination is divided into two parts:

- an external characteristics score, which is best done at birth
- a neuromuscular score, which should be done within 24 hours after birth.

A preterm baby is defined as any baby of less than 37 weeks' gestation and a post term baby is defined as being of greater than 42 weeks' gestation.

Weight, length, occipito-frontal circumference (OFC) or head circumference should be measured and charted. This will permit identification of babies who are small-for-gestational-age or large-for-gestational-age. A low-birth weight

baby is defined as any baby with a birthweight below 2500 gram. If the OFC is disproportionately smaller than the weight and length centiles or if the OFC is above the +2SD whilst the weight and length are within normal limits, the baby needs to be referred or followed up.

Figure 4.1: Expanded New Ballard Score for determining gestational age by assessment of neuromuscular and physical maturity

| NEUROMUSCULAR MATURITY | | | | | | | |
|-----------------------------|-------|---|---|---|---|---|---|
| NEUROMUSCULAR MATURITY SIGN | SCORE | | | | | | |
| | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
| POSTURE | | | | | | | |
| SQUARE WINDOW (Wrist) | | | | | | | |
| ARM RECOIL | | | | | | | |
| POPLITEAL ANGLE | | | | | | | |
| SCARF SIGN | | | | | | | |
| HEEL TO EAR | | | | | | | |

| PHYSICAL MATURITY | | | | | | | |
|------------------------|---------------------------------------|---|---------------------------------------|--|--------------------------------|------------------------------------|---------------------------|
| PHYSICAL MATURITY SIGN | SCORE | | | | | | |
| | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
| SKIN | sticky friable transparent | gelatinous red translucent | smooth pink visible veins | superficial peeling & / or rash, few veins | cracking pale areas rare veins | parchment deep cracking no vessels | leathery cracked wrinkled |
| LANUGO | none | sparse | abundant | thinning | bald areas | mostly bald | |
| PLANTAR SURFACE | heel-toe 40-50 mm: -1 < 40 mm: -2 | >50 mm no crease | faint red marks | anterior transverse crease only | creases ant. 2/3 | creases over entire sole | |
| BREAST | imperceptible | barely perceptible | flat areola no bud | stippled areola 1-2 mm bud | raised areola 3-4 mm bud | full areola 5-10 mm bud | |
| EYE / EAR | lids fused loosely: -1 tightly: -2 | lids open pinna flat stays folded | sl. curved pinna; soft; slow recoil | well-curved pinna; soft but ready recoil | formed & firm instant recoil | thick cartilage ear stiff | |
| GENITALS (Male) | scrotum flat, smooth | scrotum empty faint rugae | testes in upper canal rare rugae | testes descending few rugae | testes down good rugae | testes pendulous deep rugae | |
| GENITALS (Female) | clitoris prominent & labia flat | prominent clitoris & small labia minora | prominent clitoris & enlarging minora | majora & minora equally prominent | majora large minora small | majora cover clitoris & minora | |

| MATURITY RATING | |
|-----------------|-------|
| SCORE | WEEKS |
| -10 | 20 |
| -5 | 22 |
| 0 | 24 |
| 5 | 26 |
| 10 | 28 |
| 15 | 30 |
| 20 | 32 |
| 25 | 34 |
| 30 | 36 |
| 35 | 38 |
| 40 | 40 |
| 45 | 42 |
| 50 | 44 |

Source : J. Pediatric 119:417, 1991 Ballard JL, Khoury JC, Wedig K et al

General Behaviour, Posture, Tone And Movement:

General behaviour, posture, tone and movement of baby should be noted. The examiner should assess whether the baby appears to be sick or well.

An unusual cry may indicate sepsis, hypothyroidism, a congenital anomaly of the larynx or a chromosomal abnormality. Note any jitteriness (tremulous movement of limbs) on handling.

Dysmorphic features

A general examination will usually pick up obvious abnormal external structures whereas other investigations are needed to detect internal dysmorphism. Abnormal facies are often associated with many of the dysmorphology syndromes.

Examine all newborn to look at the eyes, ears, chin, skin and colour.

- Pallor* - associated with shock or low hemoglobin
- Cyanosis* - It is important to distinguish central cyanosis (resulting from hypoxaemia, where lips and buccal mucosa as well as peripheries are bluish tinged) and peripheral cyanosis (which may occur if the baby is cold and where only the feet and fingers are blue). Circumoral cyanosis is common among newborn babies and is of no diagnostic significance. Facial congestion may be due to a tight umbilical cord around the neck and parents should be reassured if the baby is pink centrally.
- Mottling* - may be a response to hypothermia or associated with sepsis. If baby is well, it may be a feature of cutis marmorata.
- Plethora* - associated with polycythemia
- Jaundice* - due to elevated bilirubin. Baby needs urgent attention and phototherapy light. If jaundice is visible before 24 hours of life, as this is most likely indicative of haemolytic jaundice causing bilirubin levels to rise rapidly.

Look for presence of any lesions:

- Erythema toxicum* - most common newborn rash. Variable, irregular macular papular patches and sometimes vesicular lesions. Appears soon after birth and persists for a few days. Wright's Stain of vesicular fluid shows sheets of eosinophils.
- Milia* - pinpoint white papules of keratogenous material usually on nose, cheeks and forehead, last several weeks.
- Miliaria* - obstructed eccrine sweat ducts. Pinpoint vesicles on forehead scalp and skinfolds.
Clears within 1 week.
- Transient neonatal pustular melanosis* - small vesicopustules, generally present at birth, containing WBCs and no organisms. The intact vesicle ruptures to reveal a pigmented macule surrounded by a thin skin ring.
- Oedema* - generally unusual in the newborn. If generalised, may be associated with causes of hydrops fetalis. If oedema is localised to the neck, consider Turner syndrome or Down syndrome. Non-pitting oedema over the dorsum of both feet is suggestive of Turner or Noonan syndrome.

Look for any discolouration present:

- Mongolian blue spots* - Bluish discolouration commonly seen on lower back, buttocks or lower limbs. Can be mistaken for a bruise but unlike a bruise, it does not change in colour over a period of time. Present from birth, may persist for years.

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| <i>Capillary naevi</i> | - Pink macular discolouration over upper eyelids or forehead (salmon patch) or on back of neck (stork mark). Usually disappears within a few months. |
| <i>Cafe au lait spots</i> | - suspect neurofibromatosis if there are many large spots. |
| <i>Venous haemangioma or port wine stains</i> | - Persistent flat purplish red lesions on the face and nape of neck. Laser therapy available for cosmetic reasons at a later age. Large ones may cause circulatory problems or thrombocytopaenia or located near the eye can impair vision. These need urgent medical attention and referral. |
| <i>Superficial intracapillary haemangioma</i> | - strawberry coloured raised lesions that are originally pinpoint and grow larger with age. May be present for years and then involute. No treatment required unless bleeding or secondary infection post-trauma to the lesion occurs. Referrals required if lesion is over eyelid. |

Examine Head and Neck

Check for:

- overriding sutures
- the number of fontanelles and their sizes
- abnormal shape of head
- encephalocoeles
- defects of the skin (e.g. cutis aplasia)
- scalp injury (e.g. due to instrumental delivery, scalp electrodes)

Shape of the head

The baby's head may appear to be elongated because of moulding if delivered in vertex presentation. Oedema may be seen in the presenting area of the head (caput succedaneum). This should resolve in 2-3 days. A similar but exaggerated lesion, called a chignon, commonly follows vacuum extraction. There should be no progressive extension over the next hour or so of life.

A cephalhaematoma is a collection of blood between the periosteum and the bone. Its distinctive feature is that the haematoma does not cross suturelines. This usually resolves in 2-3 months. Massaging, which may delay resolution of the cephalhaematoma, should be avoided. Following instrumental deliveries, if there is a boggy swelling of the head, and it crosses suture lines, i.e. the scalp appears diffusely swollen and especially if the ears are lifted forward, consider subaponeurotic haemorrhage. The baby may progressively look pale. This results from acute bleeding into the subaponeurotic space. Urgent admission to NICU and blood transfusion is required as the baby can lose a lot of blood and go into hypovolaemic shock.

Size of the head

Measure the head circumference and plot on centile chart.

If head circumference is below the 10th centile and or associated with frontal narrowing it has to be investigated for microcephaly. If it is more than 90th centile and or associated with frontal bossing and sunset eyes it has to be investigated for hydrocephalus. Other abnormalities of the head that require specific attention include megaencephaly, hydranencephaly and craniosynostosis

Eyes

Look for hypertelorism (e.g. Apert syndrome) or hypo-telorism (as in holoprosencephaly), epicanthic folds (Down syndrome) as this may indicate dysmorphism. The distance between the inner canthus of both eyes usually corresponds to the length of the palpebral fissure.

Opening the eyes of the newborn baby against his will can be distressing. Try to make him open his eyes by holding him upwards to face a diffuse light, whilst you are facing him as he might only open his eyes for a few seconds.

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| <i>Cornea</i> | - Check for cloudiness which may indicate congenital glaucoma. This needs urgent referral. |
| <i>Conjunctiva</i> | - Inspect for erythema, exudate, edema, and hemorrhage. The parents should be assured of the benign nature of a subconjunctival haemorrhage if present. |

If eye discharge is present, note the amount and nature. Copious purulent discharge with or without haemorrhage with accompanying oedema of the eyelids is typical of gonococcal conjunctivitis and should be urgently treated.

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| <i>Red Reflex</i> | - Hold the ophthalmoscope 6-8" from the eye. Use the +10 diopter lens. The normal newborn transmits a clear red colour back to the observer. Black dots may represent cataracts. The absence of a clear red reflex is indicative of cataract, glaucoma or retinoblastoma. Check for pupillary size and reactivity to light. |
|-------------------|---|

Ears

Inspect the position and shape of the ear, ear lobe and tragus. A low-set ear is one whose helix meets the face at a point below the horizontal line from the outer angle of the eye. This may be seen in a number of syndromes. Check that the external auditory meatus is present. Check for asymmetry and irregular shapes. Look for auricular or pre-auricular pits, fleshy appendages, lipomas, or skin tags. Ear abnormalities may be associated with renal abnormalities.

Nose

Look for flaring of the alae nasi as a sign of increased respiratory effort. Check for choanal atresia as manifested by respiratory distress (neonates are obligate nose breathers). A soft NG tube should be passed through each nostril to confirm patency if choanal atresia is suspected.

Palate

Check for cleft lip and palate.

Epstein pearls - small white papules which contain keratin, frequently found on either side of the median raphe of the palate. This will resolve with time and are benign.

Mouth

Observe the size and shape of the mouth.

- Microstomia - seen in Trisomy 18 (Edward Syndrome) and Trisomy 21(Down Syndrome).
- Macrostomia - seen in mucopolysaccharidoses.
- Fish mouth - seen in fetal alcohol syndrome.

Take the opportunity to examine the oral cavity when the baby is crying lustily, or press the chin downwards to open the mouth. Inspect the gum, tongue, palate and pharynx.

- Ranula - small bluish white swelling of variable size on the floor of the mouth representing benign mucous gland retention cyst. Reassure parents that this will resolve with time and is benign.

Note: Suspect tracheo-esophageal fistula if copious oral secretions noted especially if there was maternal polyhydramnios and baby shows some respiratory distress.

Tongue

- Macroglossia - Hypothyroidism, mucopolysaccharidoses
- Tongue-tie - reassure parents that this should not lead to speech difficulties

Teeth

Natal teeth occurs in 1/2,000 births and are mostly lower incisors. There is risk of aspiration and should be extracted if loosely attached.

Chin

Micrognathia (small chin) is found in a number of syndromes (e.g. Pierre-Robin syndrome, Treacher-Collins syndrome, Hallerman Streiff syndrome).

Neck

The short neck of the newborn can be examined by lifting the upper chest off the mattress with one hand. Webbing of the neck may be found in Turner and Noonan syndromes, cervical spine abnormality or pterygium-associated syndromes. Redundant skinfold may be found in Down syndrome.

Masses in the neck may be due to a cystic hygroma and less commonly branchial cyst or goitre. Sternomastoid 'tumour' may result in torticollis which can be treated with early physiotherapy. Cystic hygroma is the most common neck mass and should be referred for surgery. Lymph nodes are unusual at birth and their presence usually indicates congenital infection.

Palpate the clavicles for possible fractures especially in difficult deliveries.

Respiratory system and chest

When the baby is quiet, preferably sleeping, observe the respiratory rate, respiratory pattern (periodic breathing in preterm baby, periods of apnea (no respiration for more than 20 seconds). Observe chest movements for symmetry and for sternal, intercostal and subcostal recession as well as nasal flaring. Listen for stridor (inspiratory sound suggestive of upper airway obstruction) or grunting (expiratory sound much like a short cry associated with respiratory distress). Auscultation of the chest in sick babies may reveal reduced breath sounds, crepitations (with pneumonia) or bowel sounds in babies with diaphragmatic hernia.

Note that there may be some transient enlargement of the breasts secondary to maternal hormones.

Cardiovascular system

- | | |
|------------|---|
| Inspection | - Check baby for pallor, cyanosis, plethora. Observe the precordium including the episternum for hyperactivity. |
| Palpation | - Check capillary refill |
| | - Check pulses - note if femoral pulses are weak or absent compared to the right radial or brachial pulse, as this is a sign of coarctation of the aorta. This should be urgently referred. Pulses may be bounding as in persistent ductus arteriosus or thready as in shock. |
| | - Locate the apex beat with single finger on chest. It is usually located in the fourth intercostal space within the mid-clavicular line; abnormal location of the apex can be an indication of diaphragmatic hernia, pneumothorax, situs inversus or other thoracic problem. |

Auscultation - Note rhythm and presence of murmurs which may be pathological

Abdomen

The abdomen of a newborn is mildly distended but soft to palpation. A flat abdomen signifies decreased tone, abdominal contents in chest, or abnormalities in abdominal musculature. Marked abdominal distension is suggestive of intestinal obstruction, organomegaly, ascites or presence of other masses.

Observe for diastasis recti.

Observe for any obvious malformations e.g. omphalocele. An omphalocele has a membrane covering (unless it has been ruptured during the delivery) whereas a gastroschisis does not. For gastroschisis, refer to hospital with surgical facilities as soon as possible. Place cling wrap over exposed intestines to prevent drying, and place exposed intestines centrally using doughnut to contain the exposed gut to avoid traction on the intestines which leads to ischaemia.

Examine umbilical cord and count the vessels. Note colour of cord and periumbilical area to exclude infection.

Palpate liver and spleen. It may be normal for the liver to be about 2 cm below the right costal margin. The spleen is sometimes just palpable; if the spleen is enlarged, be alert for congenital infection or extramedullary hematopoiesis. After locating these organs (checking for situs inversus), palpate for any abnormal masses.

Examine for hernias - umbilical or inguinal

Inspect anal area for patency and/or presence of fistulas.

Genitourinary examination

Kidneys - Examined by palpation.

The kidneys should be about 4.5-5.0 cm vertical length in the full term newborn.

The technique for palpation is: Palpate the left kidney by placing the right hand under the left lumbar region and palpating the abdomen with the left hand (do the reverse for the right kidney).

Male genitalia - Term normal penis is 3.6 ± 0.7 cm stretched length.

Inspect glands, urethral opening, prepuce and shaft. It is normally difficult to completely retract foreskin and this should not be attempted. Observe for hypospadias or epispadias. The urethral opening is usually at the tip of the penis, check for abnormally placed urethral.

Full term baby should have brownish pigmentation and fully rugated scrotum. Palpate the testes. If the testes are undescended, search for the testes along the line of descent. If the testes can be brought down into the scrotum, they are retractile and this is normal. Undescended testes in term babies should be referred within the first few months of life for assessment.

An enlarged scrotum is usually due to hydrocoele, inguinal hernia, trauma in the breech presentation or rarely a testicular tumour

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| Female genitalia | - Inspect the labia, clitoris, urethral opening and external vaginal vault. Often a whitish discharge is present; this is normal, as is a small amount of bleeding, which usually occurs a few days after birth and is secondary to maternal hormone withdrawal. The vulva may be swollen and bruised in breech presentation. This is transient. Transient hymenal tags may be present normally. |
| Indeterminate | - If the sex of the baby cannot be determined. Urgent referral is required to determine the sex early and to exclude medical emergencies such as congenital adrenal hyperplasia. |

Extremities and Skeletal System

Observe the shape, posture, presence of malformation or deformation, and movement.

- | | |
|-----------------|---|
| Spine | - Look for scoliosis, spinal bifida, sacral dimple or sinus. The posterior midline area should be examined for skin stigmata of neural tube defects, such as lipoma, haemangioma, pilonidal skin dimples with tufts of hair or no visible floor. This should be evaluated with ultrasonography or MRI at a later date. Urgent referral to Paediatric Spinal Surgeon is required for dermal sinuses in the posterior midline area as it usually communicates with the spinal canal and can lead to meningitis. Sacral dimples are common and are of no consequence. Referral for ultrasound is required only for sacral dimple more than 5 mm in diameter or more than 2.5 cm from the anus. |
| Upper extremity | - Look for clavicular fracture, absence of radius or ulna, polydactyly, syndactyly. Inspect creases and fingers. Look for paucity of movement which suggests neurological involvement such as Erb's palsy, or a fracture. |
| Lower extremity | - Do Ortolani maneuver to check for congenital hip dislocation. Suggestive features of congenital dislocation of the hip include asymmetrical creases on the thigh, inequality of length of the lower limbs and unequal height of the flexed knees when placed together. |

- Check toes and feet for talipes and rocker-bottom feet. In talipes equinovarus deformity, if the dorsum of the foot and shin can be approximated with version and dorsiflexion of the foot, the deformity is postural and no treatment is required.

Neurological examination

A complete neurological examination is not part of the routine examination of the newborn. The degree of alertness, activity and muscle tone as well as the posture of the baby should be noted. These neurological signs have to be interpreted according to the baby's gestational age, postnatal age, his posture in utero and his state of wakefulness. When a baby is awake, he may be quiet without gross movement, actively moving all four limbs or crying vigorously.

| | |
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| State of alertness | <ul style="list-style-type: none"> - It is best to examine the baby for alertness when he is awake and calm. Note the baby's alertness and the ability to fixate. Check for persistent lethargy or irritability or high-pitched cry. |
| Posture | <ul style="list-style-type: none"> - In term baby, normal position is one with hips abducted and partially flexed and with knees flexed. Arms are adducted and flexed at the elbow. The fists are often clenched, with fingers covering the thumb. <p>The knees are often extended if the baby was of breech presentation.</p> <p>A hypotonic baby usually has a 'frog-like' appearance. Hypertonia is rare in the newborn period but if present, the baby will appear stiff with extended limbs.</p> |
| Tone | <ul style="list-style-type: none"> - For ventral suspension, support the baby with one hand under his chest. The neck extensors should be able to hold the head in line for 3 seconds and the limbs are partially flexed. A hypotonic baby will not be able to extend his neck, the limbs will be extended and the trunk curved. - Term babies should not have more than 10 degrees head lag when pulled forward from supine to sitting position. |

Note: When the baby is held under the axillae, a hypotonic baby will appear to 'slip through' the hands. Hypermobility on passive joint movement is associated with hypotonia or lax ligaments.

Reflexes

It is not necessary to elicit all reflexes in the routine examination of a newborn unless a full neurological examination is required.

Commonly tested reflexes are the grasp and Moro reflexes. Check for asymmetry when eliciting these reflexes. Unilateral Moro reflex (and paucity of movement) may imply brachial plexus injury, Erb's palsy or fracture of the humerus. Elicitation of sucking reflex is not required if baby is feeding well.

References:

1. Klaus, MH and Fanoroff, AA: Care of the High Risk Neonate, 3rd edition, Philadelphia, WB Saunders, 1986.
2. Fishman, MA: Pediatric Neurology, Orlando, Grune and Stratton, 1986.
3. Barness, LA: Manual of Pediatric Physical Diagnosis, Fifth Edition, Chicago, Year Book Medical Publishers, 1981.
4. Scanlon, JW, et al.: A System of Newborn Physical Examination, Baltimore, University Park Press, 1981.
5. Avery, G: Neonatology, Second Edition, Philadelphia, JB Lippencott, 1981.
6. Behrman and Vaughan: Nelson's Textbook of Pediatrics, 12th Edition, Philadelphia, WB Saunders, 1983.
7. Robertson Copyright © July 2000 Telehealth Maternal and Perinatal group. All rights reserved.
8. Lee ACW, Kwong NS, Wing YC. Management of Sacral Dimples Detected In Routine Newborn Examination. HK J Paedtr (new series) 2007;12:93-95

GUIDELINES ON CRITERIA FOR VARIOUS LEVELS OF NEONATAL CARE

DEFINITIONS:

Intensive Care: For babies with complex problems requiring intensive monitoring and ventilatory support and/or with the possibility of acute deterioration

Semi-intensive or High dependency Care: For babies with problems requiring close observation and intervention but not requiring intensive care.

Special Care: For babies who could not reasonably be expected to be looked at home by their mother

Normal Care: For uncomplicated maternal and neonatal cases where there is no medical indication to be in hospital

Indications for admission to various levels of care

Intensive Care:

1. Respiratory distress:
 - Respiratory rate >60/min, grunting and chest recession
 - Apnoea and cyanosis
 - Cyanosis despite oxygen therapy
 - Neonates requiring ventilatory support or CPAP
2. Very low birth weight (VLBW) babies of birthweight (BW) < 1500 gm.
3. Moderate to severe birth asphyxia
4. Severe birth trauma - intracranial haemorrhage
5. Duct dependent congenital heart disease which may be cyanotic or acyanotic; congestive heart failure; supraventricular tachycardia, arrhythmia.
6. Hypotension, shock
7. Need for resuscitation and inotropic support
8. Disseminated intravascular coagulation
9. Immediate post-op surgical patients
10. Necrotising Enterocolitis (> Grade 1)
11. Hydrops foetalis
12. Intractable hypoglycaemia
13. Persistent metabolic acidosis
14. Neonatal seizures
15. Any other baby whose clinical condition is considered to be unstable or require very close observation

Semi-intensive Care

1. Receiving NCPAP for some part of the day and > 1500 gm in weight
2. Receiving parenteral nutrition and not fulfilling criteria for intensive care
3. Requiring monitoring for seizures
4. On more than 40% oxygen
5. Babies requiring continuous cardiorespiratory monitoring
6. Requiring frequent stimulation for apnoea
7. Requiring treatment for neonatal abstinence syndrome in acute period
8. Acute surgical cases

Special care:

1. Babies >1500gm to 2000gm birth weight
2. Babies < 35 weeks gestation
3. Large babies ie birth weight > 4.5 kg
4. Large for gestational age (LGA) babies ie BW>90th centile
5. Small for gestational age (SGA) babies ie BW<10th centile
6. Babies with respiratory distress requiring < 40% oxygen
7. Babies with meconium below vocal cords during resuscitation with no respiratory distress or hyperinflation of the chest
8. Babies with Rhesus or ABO incompatibility
9. Babies with significant jaundice. Of note, babies with jaundice on day one of life should be admitted stat for intensive phototherapy. Blood exchange transfusion can be done under semi-intensive care if there is appropriate monitoring available
10. Babies with mild asphyxia or Apgar Score < 7 at 5 mins
11. Babies born to mothers with chorioamnionitis or pyrexia > 38oC or leaking liquor of more than 18 hours
12. Sepsis (fever, umbilical discharge, severe eye discharge) and congenital infection (e.g. maternal chicken pox)
13. Babies of diabetic mothers
14. Babies with more than one episode of hypoglycaemia (blood sugar < 2.6 mmol/L)
15. Babies with birth trauma – mild subaponeurotic haemorrhage, Erb's palsy and fractures
16. Babies of drug addict mothers with no further withdrawal symptoms
17. Babies with multiple or serious congenital anomalies
18. Babies requiring IV drip
19. Babies requiring surgery and do not require intensive care
20. Unwell babies (e.g. poor feeding, lethargy, vomiting)
21. Babies born to HIV mothers and symptomatic babies of VDRL positive mothers
22. Stable babies with cardiac conditions

In conditions other than those listed above and if unsure, please consult Registrar or Specialist

Special care in obstetrics ward: (these are babies that may be considered for nursing in the obstetric ward depending on local factors. The baby has to be monitored and transferred to appropriate level of care depending on the progress)

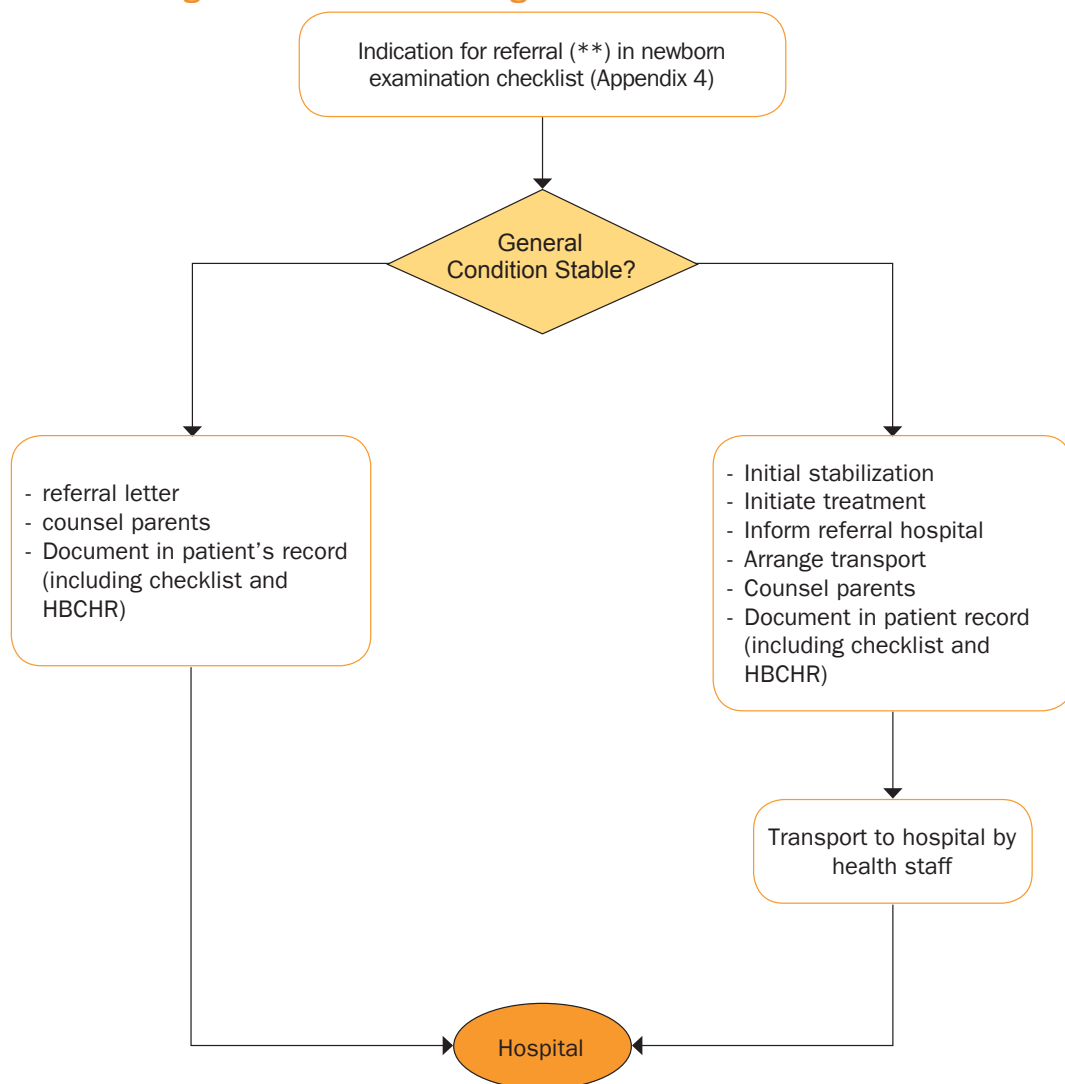
1. Borderline low birthweight (ie between 1.8 and 2.5 kg) babies who are otherwise well
2. Well babies of 35 to 37 weeks gestation who are 1.8 kg. and above
3. Large babies between 4 and 4.5 kg
4. LGA and SGA babies
5. Babies with G6PD deficiency, Rhesus or ABO incompatibility and moderate jaundice ($SB < 300 \mu\text{mol/L}$ except for babies with jaundice on day one of life) - phototherapy with monitoring
6. Asymptomatic babies with presumed sepsis needing antibiotic therapy
7. Asymptomatic babies born to VDRL positive mother
8. Babies with glucose 6-phosphate dehydrogenase (G6PD) deficiency
9. Babies of thyrotoxic mothers

Normal care:

Normal care is the routine care of the healthy term baby who requires only the maintenance of body temperature, the establishment of feeding and hygiene care. This is usually provided in the obstetric ward or at home with the mother.

Infant's progress at every level should be monitored and transferred to the appropriate level as indicated by the patient's condition (Fig. 5.1)

Figure 5.1: Standard management for referral of newborns



STABILISATION AND TRANSPORTATION OF THE NEWBORN**CASES REQUIRING TRANSPORT**

- For neonatal or surgical care not available at the referring center
- For transfer from labour room to NICU/SCN
- For transfer from one neonatal ward to another
- Health clinic to hospital

APPROACH TO NEONATAL TRANSFER**COMMUNICATION**

- Contact referral hospital and discuss with receiving staff about the case and request for advice
- Record time and details of discussion

STABILISATION**Airway**

Airway suctioning and maintenance of clear airway

- administer oxygen via cannula, headbox, bag and mask, or endotracheal tube
- monitor oxygen saturation with oximeter

Breathing

- observe breathing effort and rate
- support breathing by bagging
- note effectiveness of manual respiratory support
- take blood gas samples periodically to assess respiratory support

Colour

- observe colour especially central area
- suction airway and administer oxygen effectively
- keep baby warm under radiant warmer

Drugs

- administer drugs as required and ordered by doctor
- adrenaline or sodium bicarbonate
- correct hypoglycaemia after capillary blood sugar sampling
- administer Vitamin K (if not given)

Environment

- prewarm transport incubator setting at 35°C using mains power supply
- place necessary articles inside
- monitor temperature of baby closely
- warm baby up to normal body temperature under the radiant warmer then place baby in the transport incubator

Fluids

- set up intravenous infusion of dextrose 10%
- set flow rate and check regularly if there is no infusion pump to control flow
- set up blood transfusion or plasma expander when required

Preparation

Transport team

- Inform team members: doctor, staff nurse, attendant, driver
- Inform team members of neonate's condition and stabilisation activities

Equipment

- The transport incubator temperature will be set at 35°C (or appropriate temperature according to the baby's gestation)
- When there is no incubator, wrap the warm neonate in warm towels/linen before wrapping the neonate snugly with aluminium foil or bubble wrap. One disadvantage is that it is impossible to observe abnormal respiratory functions without disturbing the neonate. This method prevents heat loss but will not warm up a low birth weight baby. (This can only be done with an artificial source of heat)
- Portable ventilator and adequate oxygen bag and mask, suctioning equipment, intubation equipment and drugs (refer to "resuscitation equipment" and "medications" in Appendix 1- "Resuscitation of the Newborn")
- Intravenous fluids eg. dextrose 10%
- Monitoring equipment: select appropriate equipments such as cardiorespiratory monitor, Pulse oximeter, and skin temperature monitor
- Neonate's clothes, stethoscope, thermometer
- Fully replenished transport kit
- Oral feeds if required

Vehicle

- The ambulance should be in functioning order and have adequate equipments
- Secure the incubator and other equipments in place during the transfer

Parents

- Inform parents the need for transfer of the neonate
- Encourage one parent to accompany neonate
- Obtain written consent from parents for exchange transfusion or emergency surgery
- Obtain mother's blood sample if she is not accompanying her child
- Allow neonate's mother to see and touch her baby
- Referral letter:
 - should include a complete and detailed history of maternal factors and neonatal problems
 - treatment already carried out should be listed such as antibiotics, resuscitation given, immunization, Vitamin K
 - events that have occurred should be written in sequence
 - date, time and name of the doctor should be written clearly

Records

- State the date and time of events in the progress notes
- Record a brief but concise account of the events before the transfer of the neonate
- Record in admission book, census book and 24-hour report book

Checklist before departure

- The following should be ready to be sent with the baby:
 - cord blood specimen or baby's blood specimen
 - mother's blood specimen (10 ml clotted blood) labeled correctly with mother's full name and identity card number
 - referral letter
 - all X-rays and other investigation results
 - written consent of parent for the appropriate procedures
- Ensure endotracheal tube, if required, is properly secured and at the appropriate level
- The baby's condition should be reviewed immediately before transport and referral hospital should be reformed if the general condition has deteriorated and the facilities required has changed eg. need for a ventilator bed
- Check that all equipments in the ambulance are functioning and has adequate power supply to last the journey.

During transport

- Connect ventilator or oxygen delivery system to ambulance supply, if available
- Any electrical equipment should be plugged into the AC-DC converter in the ambulance
- Closely observe vital signs
- Monitor the intravenous infusion to maintain the proper rate of infusion (especially not to overload)

- Where possible, observations should be done without disturbing the baby. Use monitoring equipment if available
- Record observations in Neonatal Transport Chart
- Plan to stop at nearest health clinic or in a safe area if condition of neonate deteriorates or needs further resuscitation
- Ensure airway is maintained by suctioning as required and endotracheal tube is at the correct position stabilization
- Check on adequacy of chest expansion, especially in the baby who is receiving assisted ventilation.

At the receiving hospital

- Assist in the transfer of the neonate from the transport incubator to the receiving radiant warmer, incubator, or cot
- Assist in stabilisation if necessary
- Hand over to the receiving nurse the following information & records:
 - a. name and identity card number and full name of the mother
 - b. name of the baby, if available
 - c. sex of the baby
 - d. referral letter
 - e. records and observations during transport
 - f. blood and other specimens
 - g. Introduce parents/relatives to the receiving staff
 - h. Account for all equipments before leaving

After returning from the referring hospital

- If parent(s) have not accompanied the baby, inform them about the condition of the child, the ward/ hospital he or she is placed in, the contact number and the name of the doctor-in-charge.

Reference:

1. Protocol of Neonatal Nursing Procedure Pub.Ipoh Postgraduate Medical Society Ed. J.Ho, 1995

ADMINISTRATION OF HEPATITIS B PROPHYLAXIS, BCG VACCINATION AND VITAMIN K IN THE NEWBORN

1. Recommendations for Hepatitis B Vaccination and Hepatitis B Immunoglobulin in newborns

If a mother is a chronic carrier, there is a 3-50% vertical transmission rate to the baby. Factors associated with higher rates of hepatitis B virus (HBV) transmission to newborn infants includes:

- The presence of HepB e-Ag and absence of anti-HepB e- in maternal serum:
- Attack rates of 70-90 % with up to 90 % of these babies being chronic carriers, compared to 15% of babies of anti-HepB e-positive mothers.
- Maternal acute hepatitis in the third trimester or immediately postpartum (70% attack rate).
- Higher-titer HepBsAg in maternal serum (attack rates parallel the titer).

Table 7.1: Hepatitis B vaccination schedule

| Mother's Hepatitis B surface antigen status | Newborn | |
|---|---|---|
| | Term | Preterm |
| HepBsAg positive | <p>a. Give 100iU (0.5 ml) HBIG (IM) within 12 hours of delivery.</p> <p>b. Give 5mcg (0.5 ml) (IM) of Hep B vaccine at birth, 1 month and 5-6 months</p> <p>HBIG and Hep B vaccine to be given at anterolateral aspects of opposite thighs.</p> | <p>Give Hepatitis Antibody (HBIG) soon after delivery</p> <p>The first of the subsequent three doses of the vaccine should be started at least 1 month later- when the baby is awaiting weight gain close to discharge. Continue other 2 doses one month and at 5-6 months later.</p> |
| HepBsAg negative/ unknown** | Follow routine immunization schedule. | Hepatitis B vaccine is given when baby is clinically stable and awaiting weight gain. At time of discharge, check that Hepatitis B immunization has been given. The other 2 doses follow one month and 5-6 months later. |

All babies delivered at home should receive the above recommended regime from the nearest health facility.

***Presently it is not the MOH's policy to routinely screen all mothers for their Hepatitis B status.*

2. Recommendations for BCG vaccination in newborns

All newborns are to be given BCG soon after birth. This is usually carried out in well babies on the second day or just before discharge.

For babies who are admitted directly to the neonatal ward after birth, BCG is often not given until the baby is due for discharge from the special care nursery. Being a live vaccine it is not recommended to be given within a neonatal intensive care unit where babies are ill or immature.

There is no specific weight criteria for BCG vaccination. It has been shown that babies of 34-35 weeks post-conceptual age can be effectively vaccinated and comparable to vaccination at term.

3. Recommendations for Vitamin K administration in the newborn

All newborns should receive a single intramuscular dose of Vitamin K within 1 hour of birth. Administer 0.5 mg if the baby weighs less than 1.5 kg or 1mg if the baby weighs more than 1.5 kg. If the injection has not been given in the labour room or other location of birth it must be given as soon as possible in the neonatal ward. For home deliveries, Vitamin K can also be given at the health clinics if the attending nurse has not given it immediately at birth.

Table 7.2: National Immunization Schedule

| Age of Child | Vaccinations |
|--------------|--|
| At Birth | First BCG injection First dose of Hepatitis B vaccine |
| 1 month | Second dose of Hepatitis B vaccine |
| 2 months | First dose of DTaP/DT First dose of IPV First dose of Hib vaccine |
| 3 months | Second dose of DTaP/DT Second dose of IPV Second dose of Hib vaccine |
| 5 months | Third dose of DTaP/DT Third dose of IPV Third dose of Hib vaccine |
| 6 months | Third dose of Hepatitis B Measles (Sabah) |
| 9 months | First dose of JE (Sarawak) |
| 10 months | Second dose of JE (Sarawak) |
| 12 months | MMR injection |
| 18 months | Booster injection of DTaP/DT Booster dose of IPV Booster dose of Hib vaccine Third dose of JE (Sarawak) |

NEONATAL JAUNDICE

A newborn baby should be seen within 24 hours after discharge from hospital by health staff to look for jaundice. Health staff should be aware that jaundice occurring within 24 hours of life could indicate a problem and if detected they should take the baby to a clinic as soon as possible.

About 25-30% of babies with neonatal jaundice (NNJ) experience jaundice of sufficient severity to warrant referral to hospital for phototherapy or exchange transfusion. Severely jaundiced babies without early effective treatment can potentially suffer brain damage or hearing impairment. If the baby is well, breastfeeding should be continued.

Prolonged neonatal jaundice needs to be investigated (refer to Paeds Protocol). Infants with suspected biliary atresia have to be referred to the paediatric surgeon before 2 months of age for surgery.

For further information, please refer to Integrated Plan for Detection and Management of Neonatal Jaundice (MOH 2009) (Revised).

SCREENING FOR CONGENITAL HYPOTHYROIDISM

Congenital Hypothyroidism is an uncommon but clearly identified and preventable cause of mental retardation. Infants born with Congenital Hypothyroidism usually lack clinical features in the first weeks or months of life and are usually discovered to have Congenital Hypothyroidism around the age of 2 – 6 months. Studies have shown that if detected and treated within the first week of life, it will result in average, normal or near normal intellectual performance and growth.

Screening for Congenital Hypothyroidism was introduced by the Ministry of Health in Malaysia in October 1998. As of December 2010, all 132 government hospitals provide screening for Congenital Hypothyroidism.

Local data on the birth prevalence of congenital hypothyroidism though still limited are available since the early 1990s. Data from four Malaysian studies showed a local birth prevalence of 1 in 2410, 1:2983, 1:3666 and 1:3065. The “pooled” rate from these four studies is 1:3029. Other data from published studies in the Asian region suggest a birth prevalence of 1 in 3093 for the South East Asian region as a whole. The “true” birth prevalence of congenital hypothyroidism for Malaysia has yet to be determined accurately but will be in the region of 1 in 2500 to 1 in 3500.

The strategy adopted for screening in Malaysia is primary TSH measurement supplemented by T4 determination in borderline samples. Infants with elevated TSH values and those with borderline TSH values and low T4 are recalled for testing. Babies born at home or when the cord blood is not taken soon after birth need to have their thyroid screening test taken at day 5 of life.

For further information, please refer to the National Screening Programme for Congenital Hypothyroidism, Family Health Development Division, MOH, 2011.

BREASTFEEDING

1. EARLY AND EXCLUSIVE BREASTFEEDING

All hospitals under the Ministry of Health have achieved the Baby Friendly Hospital Initiative (BFHI) Status. It is recognised that there is a need to ensure continuity of practices as listed in the 10 steps to successful Breastfeeding. To ensure the sustainability of this programme, internal audits are conducted by the individual hospitals under the supervision of the State Breastfeeding Coordinator. Reassessment of all hospitals by an external body is conducted every 2-3 years.

Table 10.1: Problems encountered and recommended remedial measures.

| Problems | Remedial Measures |
|--|---|
| 1. Inadequate antenatal education in Health Centres | <ul style="list-style-type: none"> • Enforcement of a formal education session at all health clinics/centres during antenatal visits and to ensure uniformity of education between hospitals and health sector |
| 2. Ineffective antenatal education | <ul style="list-style-type: none"> • Documentation of all education given • Use of information leaflets • Encouragement of dialogue with parents |
| 3. Breastfeeding problems especially insufficient milk and unjustified supplementation | <ul style="list-style-type: none"> • Relook at breastfeeding support groups from hospitals and NGO's • Proposed post for lactational management nurse • Supplementary feeds to be provided based on medical needs of mother and baby. |
| 4. Failure of continuity of breastfeeding soon after hospital discharge | <ul style="list-style-type: none"> • Notification to health staff of all hospital discharges especially high risk cases • On-going breastfeeding support by health staff and NGO support group • Monitoring tools to be used to measure breastfeeding continuity |
| 5. Failure of continuation of breastfeeding for working mothers | <ul style="list-style-type: none"> • Development of creches in workplaces to be implemented • Counseling mothers in preparation for returning to work. |

Checklist: Initiation of breastfeeding at birth (Normal, full term delivery)

- Put to breast as soon as possible after birth for skin to skin contact
- Initiate breastfeeding in the first hour of life
- Check baby's positioning and attachment
- Keep baby warm

Checklist: Assessing progress of breastfeeding (prior to discharge)

- Correct body position
- Correct attachment and sucking
- Breastfeeding on cues or baby-led feeding
 - No limits on frequency or duration
 - Night feeding
 - Crying is a late sign of hunger
- Emotional bonding
 - Secure, confident hold
 - Face to face attention from mother
 - Close contact with mother
- Breast feeding problems attended to
e.g. inverted nipples; breast engorgement

Checklist: Indicators of sufficient breast milk intake

- Good weight gain according to growth chart
 - At day 5-6, if weight loss is more than 10% - refer to hospital for possible hypernatraemic dehydration
 - if weight loss is between 5 – 10 % - refer baby to medical officer at nearest health clinic for review. Baby to be monitored until weight gain is obtained
- 5 to 10 yellow milk stools per day
- 6 to 8 wet diapers per day
- Urine looks clear, not dark or concentrated
- Baby is alert, acts hungry at times and appears satisfied
- Mucous membrane wet with good skin turgor

References:

1. BABY-FRIENDLY HOSPITAL INITIATIVE Revised, Updated and Expanded for Integrated Care 2009 (Original BFHI Guidelines developed 1992)
2. Riordan, J., Auerbach, KG,. (1998). Breastfeeding and Human Lactation (2nd ed.) Jones and Bartlett, Massachusetts, pp313

ACCEPTABLE MEDICAL REASONS FOR SUPPLEMENTATION TO BABIES BELOW SIX MONTHS OF AGE

A. Infant's conditions

- i. Infants who should not receive breast milk or any other milk except specialized formula. This applies to babies with inborn errors of metabolism eg:
 - Classic galactosemia: a special galactose-free formula is needed
 - Maple syrup urine disease: a special formula free of leucine, isoleucine and valine is needed
 - Phenylketonuria: a special phenylalanine-free formula is needed (some breastfeeding is possible, under careful monitoring)
- ii. Infants for whom breast milk remains the breastfeeding options but who may need other food in addition to breast milk for a limited period
 - Very low birth weight infants (those born weighing less than 1500g)
 - Very preterm infants, i.e. those born less than 32 week gestational age
 - Newborn infants who are at risk of hypoglycaemia by virtue of impaired metabolic adaptation or increased glucose demand (such as those who are preterm, small for gestational age or who have experienced significant intrapartum hypoxic/ ischaemic stress, those who are ill and those whose mothers are diabetic) if their blood sugar fails to respond to optimal breastfeeding or breast milk feeding;
 - Infants younger than 6 months who, in spite of frequent and effective suckling and in the absence of illness, show persistent growth faltering (as demonstrated by a flat or downward growth curve).

The mothers of the above babies must be encouraged to establish early bonding with their babies and given more support with breastfeeding.

B. Maternal Conditions

The mother who is affected by any of the conditions mentioned below should receive treatment according to standard guidelines.

i. Mother who should avoid breastfeeding **PERMANENTLY**

- HIV infection
- HTLV-I (Human T-cell Leukaemia virus)

ii. Mother who should avoid breastfeeding **TEMPORARILY**

- Severe illness that prevents a mother from caring for her infant, for example septicaemia
- Herpes simplex virus type 1 (HSV-1): direct contact between lesions on the mother's breasts and the infant's mouth should be avoided until all active lesions have resolved

iii. Mother who CAN CONTINUE BREAST FEEDING, although the health problems may be of concern

- Breast abscess: breastfeeding should continue on the unaffected breast; feeding from the affected breast can resume once the abscess has been drained and antibiotic treatment has started
- Mother with Hepatitis B: infants should be given hepatitis B vaccine, within the first 48 hours or as soon as possible thereafter
- Hepatitis C infection in the mother is not a contraindication to breastfeeding. There are no current data to suggest that HCV is transmitted by human breast milk. If the mothers choose to breastfeed, ensure that she does not have cracked nipples (which transmit infected blood to the baby).
- Mastitis: If breastfeeding is very painful, milk must be removed by expression to prevent progression of the condition;
- Tuberculosis: If active pulmonary disease or military TB has been recently diagnosed, it has been recommended that mother and baby be separated until mother is sputum negative or mother has been given anti TB therapy (usually at least two completed weeks) then mother can breast feed. The newborn should receive isoniazid prophylaxis for 6 months followed by BCG

When breastfeeding has to be temporarily delayed or interrupted, mother should be helped to establish or maintain lactation e.g through hand expression of milk, in preparation for breastfeeding to be resumed.

iv. Medications and other substances that can adversely affect the breastfed infant.

Maternal medication

Risks are greater during the first 2 months on high dosages of medications (as therapy or with abuse). Monitor infants for adverse effects. The use of low doses usually require no special precautions in older infants.

- Sedating psychotherapeutic drugs, anti-epileptic drugs and opioids and the combinations may cause side effects such as drowsiness and respiratory depression in neonates; use less sedating alternative and low dosages whenever possible;
- Sulphonamides, chloramphenicol, tetracyclines – small risk of side effects: use alternative drugs if possible
- Oestrogen (including oestrogen containing contraceptives), thiazide diuretics: - may reduce milk supply, use alternative drugs.
- Mothers on antithyroid drugs e.g. propylthiouracil can be allowed to breastfeed but monitor babies closely with thyroid function tests.
- Radioactive iodine ¹³¹I in therapeutic doses should be avoided given that safer alternatives are available; a mother may resume breastfeeding about two months after receiving this substance with measured low milk radioactivity;
- Excessive use of topical iodine or iodophors (e.g., povidone-iodine), especially on open wounds or mucous membranes, can result in thyroid suppression or electrolyte abnormalities in the breastfed newborn and should be avoided;
- Cytotoxic chemotherapy requires that a mother stop breastfeeding during therapy.

Substances use

Mother should be advised not to use these substances and given opportunities and support to abstain. Mothers who choose not to cease their use of these substances or who are unable to do so, should seek individual advice on the risks and benefits of breastfeeding, depending on their individual circumstances. For the mother who use these substances in short episodes, consideration may be given to avoiding breastfeeding temporarily during this time.

- Maternal use of nicotine often decrease the duration of breastfeeding, and can adversely affect the infant, but breastfeeding is preferable to formula feeding in mothers who smoke. Infants should not be exposed to tobacco smoke.
- Alcohol taken before breastfeeding can cause infant sedation and reduced milk intake.
- Abuse of amphetamines, cocaine and related stimulants may produce harmful effects on babies who are breastfed especially if the infant is additionally exposed to inhalation of smoked drugs.

The following are usually safe in usual dosage:

- Analgesics – short courses of paracetamol, acetylsalicylic acid, ibuprofen, occasional doses of morphine and pethidine
- Antibiotics – penicillin, cloxacillin and related drugs, erythromycin, metronidazole
- Antihistamines, antacids, digoxin, insulin, bronchodilators, corticosteroids, antihelminthics, chloroquine, antituberculous drugs.
- Nutritional supplements e.g. iron, iodine and vitamins.

Adapted from UNICEF/ WHO (January 2008) Section 4: Hospital Self-Appraisal and Monitoring, Baby Friendly-Friendly Hospital Initiative. Revised, update and expanded for integrated care.

MANAGEMENT OF NEONATAL HYPOGLYCAEMIA

INTRODUCTION

Hypoglycaemia in the neonate is defined as <2.6 mmol/L

Infants who are at high risk of hypoglycaemia include:

- Infants of diabetic mothers
- SGA (small for gestational age) babies
- Preterm babies
- Macrosomic babies/Big babies > 4 kg
- Sick babies including those with:
 - Perinatal asphyxia
 - Hypothermia
 - Rhesus disease
 - Polycythaemia
 - Sepsis

Clinical Features

Hypoglycaemia may be asymptomatic therefore monitoring is important for high risk cases. The symptoms of hypoglycaemia include:

1. Jitteriness and irritability
2. Apnoea and cyanosis
3. Hypotonia and poor feeding
4. Convulsion

Prevention and early detection of hypoglycaemia

1. Identify at risk babies
2. Well babies who are at risk
 - Immediate feeding – first feed can be given in labour room
 - Supplement feeding until breastfeeding established
3. Unwell babies
 - Set up dextrose 10% drip at the rate of 3ml/kg/hour (newborn)
4. Regular glucometer monitoring
 - On admission and at 1, 2 and 4 hours later
 - 3 - 6 hourly pre-feeding once stable for 24 - 48 hours

Management of hypoglycaemia

1. Do not delay in sending the baby to a hospital with specialist care
2. Quickly set up a peripheral intravenous line or umbilical venous line
3. Run a bolus 2ml/kg of 10% dextrose over 2 minutes
4. Continue at a drip rate of 3ml/kg/hour
5. Send baby to Special Care Nursery

Refer to the Paediatrics Protocols for Malaysian Hospitals 3rd edition for further Management of Hypoglycaemia.

COMMON NEONATAL CONDITIONS

A. COMMON SKIN LESIONS

1. Diaper rash (ammoniacal dermatitis)

May be caused by prolonged contact with urine or faeces. It can also be an allergic reaction to the diaper material, creams, powders, wipes or detergents used in laundering cloth diapers.

The best treatment is prevention, by frequent diaper changes and by protection of the skin with a barrier product containing zinc oxide. The skin should be cleansed with warm water after voiding or passing motion. Avoid diaper wipes that contain alcohol. Cornstarch and baby powder should not be used as they provide a media for growth of bacteria and yeast. Don't use creams that contain steroids (cortisone or hydrocortisone).

2. Candida diaper rash

A fungal infection of skin in the diaper area may include buttocks, groins, thighs and abdomen. It is caused by the organism *Candida Albicans*. It appears as a moist erythematous eruption often with white or yellow satellite pustules.

Treatment consists of antifungal cream or ointment such as nystatin applied to the rashes several times per day.

3. Erythema Toxicum Neonatorum

Erythema Toxicum Neonatorum is the most common pustular eruption in newborns. Estimates of incidence vary between 40 and 70 percent. It is most common in infants born at term and weighing more than 2,500 gm. Erythema Toxicum Neonatorum may be present at birth but more often appears during the second or third day of life. Typical lesions consist of erythematous, 2 to 3 mm macules and papules that evolve into pustules. Each pustule is surrounded by a blotchy area of erythema, leading to what is classically described as a "flea-bitten" appearance. Lesions usually occur on the face, trunk, and proximal extremities. Palms and soles are not involved.

They appear as small, white or yellow pustules surrounded by an erythematous base. They are benign and found in up to 70% of newborn infants up to 3 months of age. The lesions come and go on various sites of face, trunk and limbs. The cause is unknown but may be exacerbated by handling.

No treatment is necessary.

4. Seborrhoeic Dermatitis

Seborrhoeic Dermatitis affects the scalp, central face, and anterior chest. Seborrhoeic dermatitis also may cause mild to marked erythema of the nasolabial fold, often with scaling. The scales are greasy, not dry, as commonly thought. This rash has an erythematous background and a greasy yellow scale. It is common in hair-bearing areas of the body especially the scalp and eyebrows. It is usually absent in the flexures. Scaling is prominent on the scalp producing the so-called 'cradle-cap'. It has a tendency to recur throughout infancy.

Treatment is with topical application of 1% sulphur + 1% salicylic acid in cream applied overnight and washed off the next day with a mild shampoo, use 3 times a week. Milder cases of cradle cap can be treated with topical olive oil. If severe, the whole body may be affected and should be referred to hospital.

5. Septic spots

Superficial staphylococcal infection characterized by crops of pustules with golden center surrounded by erythema. These spots may be seen on any part of the body, usually in the flexures e.g. neck, axilla and lower back. Baby is usually well and afebrile.

Septic spots can be treated by cleaning with local antiseptic solutions, such as Chlorhexidine. If there are more than a few pustules or if baby is febrile, it is advisable to start an oral antibiotic, such as cloxacillin.

6. Oral thrush

Oral thrush is a fungal infection of the mouth or throat caused by a yeast called *Candida Albicans*. This is very common in infants, especially those on prolonged sucking on a bottle or pacifier, or who have recently been on antibiotics. It is seen as white patches scattered over the tongue and inner lining of the mouth. These white patches cannot be wiped away, unlike milk.

This can be treated with oral anti-fungal preparations such as oral Nystatin drops. Rub the liquid medicine directly on the areas of thrush with a cotton swab. The medicine can also be placed with a dropper, to be dropped in the front of the mouth. Ask the mother not to feed the baby for at least 30 minutes or more after the application of the Nystatin. These steps are to ensure that the medicine will not be immediately swallowed by the baby.

Ensure that pacifiers are disinfected, if possible discontinue its use. Check the mother's breast for any fungal infection and refer for treatment, if any. Refer the baby to hospital if the baby does not feed well or the thrush is not improving within one week of treatment.

7. Miliaria (heat rash or prickly heat)

There are two forms of miliaria, *Miliaria Crystallina*, which consists of small clear fluid filled vesicles that rupture and leave behind some scale, and *Miliaria Rubra*, which has similar clear fluid filled vesicles, but they are surrounded by red areas. Miliaria is most common on the head, neck, upper chest and in skin

folds and is due to blockage of the sweat ducts in the skin. It will resolve on its own, but can be prevented by reducing heat and humidity and not dressing the newborn in tight clothing.

8. Milia

Milia is a small white or yellow pinpoint sized spots on your newborn's nose and chin. They are caused by small sebaceous retention cysts and will clear up in a few weeks without treatment.

9. Transient Neonatal Pustular Melanosis

Transient Neonatal Pustular Melanosis is a vesiculopustular rash that occurs in 5 % of newborns. In contrast with Erythema Toxicum Neonatorum, the lesions of transient neonatal Pustular Melanosis lack surrounding erythema. In addition, these lesions rupture easily, leaving a collarette of scale and a pigmented macule that fades over three to four weeks. All areas of the body may be affected, including palms and soles.

10. Caring for the umbilical cord

The cord stump remains the major means of entry of infections after birth. The umbilical cord stump usually drops off in 1-2 weeks. Until then, keep it clean and dry.

- The stump will dry and mummify if exposed to air without any dressing, binding or bandage
- Gently clean the area where the cord and the tummy meet at least once a day or when the area is damp.
- It will remain clean if it is protected with clean clothes and is kept from urine and soiling.
- If soiled, the cord can be washed with clean water and dried with clean cotton or gauze. If there is redness or the umbilical area is moist or smells, dip a cotton swab with the alcohol preparation provided by the staff at the time of discharge.
- There may be a spot of blood on the diaper when the stump falls off. If bleeding persists for more than a few days or is more than just spots, bring baby to see a doctor
- If you see pus or redness or the baby cries when you touch the area, refer to the doctor

B. FEEDING PROBLEMS

1. Vomiting

Regurgitation or reflux

One of the most common symptoms in the neonatal period is regurgitation of milk during or shortly after feeding. It is usually seen soon after feeding. Unlike vomiting, the amounts are small and the baby does not seem to be in any distress, of normal hydration and thriving. Regurgitation begins in the first weeks of life and clears by one year of age. The cause is incomplete closure of the valve at the upper end of the stomach in the first few months

of life. Causes include overfeeding, frequent change of formula, early use of supplementary food, improper feeding technique and posture.

The following tips can be given to the mother, if the regurgitation causes distress to the parents:

- Do not overfeed baby, especially if you are bottle-feeding
- Avoid pressure on the abdomen because it 'squeezes' the stomach. Check that the diapers are not tight when the baby is in a sitting position
- After feeding, try to hold or keep your baby in an upright position for 30-60 minutes
- If you think the regurgitation does not improve over time or the baby has other symptoms as given below, refer to hospital

Signs and symptoms of vomiting where baby must be referred to hospital:

- baby is lethargic, tachypnea
- not feeding well
- having a fever
- vomiting out greenish-coloured fluid (bile) or has a distended abdomen
- looks dehydrated or reduced urine output
- not putting on weight

2. Colic

Colic is a common problem, affecting 10-25% of all newborns. "Colic" describes episodes of crying that continuous for hours at times. It is quite common in babies below 3 months of age and the cause is not known. It may be associated with hunger, swallowing large amounts of air, overfeeding or inadequate carbohydrate intake. Colic usually begins at about 2 weeks of age and should resolve by 4 months of age. Breast fed babies are not as likely to get colic compared with formula fed babies.

Parents are usually stressed and upset when the baby does not stop crying, no matter what they do. Provide reassurance after checking that the baby is healthy.

Some things that parents can do:

- Hold the baby in an upright position during feeding
- If being bottle fed, holding the bottle so that the milk covers the entire opening of the teat
- Burp the baby after feeding to reduce air in the stomach
- Try swaddling (wrapping) the baby in a blanket. Walking with the baby on the shoulder, or rocking the baby sometimes helps to quieten the baby
- A ride in the car, with the baby in a safety car seat, usually works well.

IF YOU FEEL THE PARENTS ARE UNABLE TO COPE WITH THE STRESS OR IF THE BABY CANNOT BE COMFORTED IN A REASONABLE AMOUNT OF TIME, REFER TO HOSPITAL

C. EYE CARE

1. Nasolacrimal duct obstruction

Term and preterm newborn infants have the capacity to secrete tears (reflex tearing to irritants) but usually do not secrete emotional tears until 2-3 months of age.

Congenital obstruction is usually caused by an imperforate membrane at the distal end of the nasolacrimal duct.

Congenital nasolacrimal obstruction is the most common abnormality of the neonate's lacrimal apparatus. Incidence of this condition ranges between 2% and 6% of all newborn infants. The majority of nasolacrimal obstruction resolves spontaneously or with massage by 1 year of age.

Clinical presentation - Usually with the first few weeks of life

- Persistent tearing. Need to rule out congenital glaucoma.
- Crusting or matting of the eyelashes (sticky eyes).
- Spilling of tears over the lower lid and cheek (a wet look in the involved eyes).
- Absence of conjunctival infection.
- Mucopurulent discharge.

Complications

- Acute dacrocystitis
- Fistula formation
- Orbital or facial cellulitis

Care

- Conservative management – daily massage of nasolacrimal sac to rupture the membrane at the lower end of the duct. Technique – place index finger over common canaliculus and stroke downwards firmly.
- If mucopurulent discharge, antibiotic eye drops or ointment may be required.
- Eye should be cleaned with moist compresses.

Conjunctivitis

Inflammatory reactions resulting from infection of the conjunctiva by pathogenic organism – e.g. Neisseria Gonorrhoea, Chlamydia Trachomatis, Staphylococcus Aureus, Enteric pathogen.

Neisseria Gonorrhoeal Conjunctivitis

Bilateral purulent conjunctival discharge within few days of life. Onset of symptoms usually between second and fifth day of life. Eye discharge on the first day of life is usually due to gonococcal infection.

Clinical presentatio - oedema of the eyelids, purulent discharge, redness of the conjunctiva.

Diagnostic findings:

- Maternal history of sexually transmitted infections
- Physical examination – clinical signs of inflammation, purulent discharge.

- Laboratory – Gram negative diplococci on Gram stain of direct smear. Culture positive for *Neisseria Gonorrhoea* from conjunctival surface or exudates.

Care

- Isolate baby
- Irrigate eyes with sterile normal saline solution hourly. Refer patient promptly to the hospital for further treatment
- Notify to health authorities concerned

Chlamydia Trachomatis Conjunctivitis

Unilateral or bilateral conjunctivitis onset between 5 and 14 days of age.

Clinical presentation - vary from mild conjunctivitis to intense oedema of the lids with purulent discharge.

Diagnostic findings - identification of *Chlamydia* antigen.

Care

Refer patient to the hospital for treatment.

References:

1. Liu C, Feng J, Qu R, et al. Epidemiologic study of the predisposing factors in erythema toxicum neonatorum. *Dermatology*. 2005;210(4): 269-272.
2. Carr JA, Hodgman JE, Freedman RI, Levan NE. Relationship between toxic erythema and infant maturity. *Am J Dis Child*. 1966 Aug

CRITERIA FOR DISCHARGE OF TERM BABY

Purpose

To ensure newborn babies are safely discharged, they should meet basic criterias and have appropriate arrangements for continuous care. The baby should be healthy in the clinical judgement of the health care provider and the mother should have demonstrated a reasonable ability to care for the child.

Term baby (37- 42 weeks)

Assessment of baby

- Feeding well - at least two successful feedings
- Size appropriate for gestational age
- If small for gestational age
 - no (further) hypoglycaemia
 - and has been discharged by the paediatric doctor
 - showing weight gain
- If large for gestational age
 - no (further) hypoglycaemia
 - and has been discharged by the paediatric doctor
- Passed checklist for breastfeeding (Appendix 9)
- Normal body temperature (axillary temperature of 36.5°C to 37.5°C)
- Pink and has no breathing difficulties
- No evidence of sepsis. If there is risk of sepsis -observe for at least 24-48 hours
- Minimal neonatal jaundice (except for Day 1 jaundice)
- Passed urine
- Passed meconium
- Cord is dry and clean
- No significant eye discharge
- Physical examination done by health care provider (preferably paediatric trained) and baby discharged from additional observation and treatment

Immunisation and others

- Received BCG, Hepatitis B & Vitamin K
- G6PD and TSH results documented in Home Based Child Health Record
 - If results not available yet, arrangements MUST be made to trace results and document in the Home Based Child Health Record
- Mother is able to provide routine baby care and recognise signs of illness and other problems related to newborn.

Follow-up appointments

- Arrangement for follow-up by community health nurse within 48 hours of discharge
- Home Based Child Health Record filled and given to mother
- Outpatient appointment to see doctor if necessary
- Follow-up appointment for baby in Paediatric clinic (if required)

CARE AFTER DISCHARGE OF NEWBORN WITH SPECIAL NEEDS

A. Five critical components must be looked into when providing post-discharge care:

1. Parent education
 - Specific care plans (see below)
 - Written checklist
2. Primary care implementation
 - Timely immunisation
 - Regular hearing and vision tests
 - Nutritional support and monitoring
 - Growth and development assessment
3. Evaluate current medical problems
 - Physical handicap
 - Psychomotor development
4. Develop home care plan
 - Identify parent/care giver
 - Identify equipments needed
 - Identify community support
 - Have emergency plan
5. Follow up care – coordination between the specialists

B. Specific Care Plans:

1. Preterm

- care with thermal protection
- more patience with feeding – ensure appropriate weight gain
- avoid overcrowded places – to reduce risk of respiratory tract infection
- check immunization schedule according to chronological age
- to nurse in supine position to reduce risk of SIDS (Sudden Infant Death Syndrome)
- educate on hand hygiene
- follow up for myopia, hearing and neurodevelopment

2. At risk families due to family issues

Such as single or young parents, marital problems, lack of social support, poverty, domestic violence or substance abuse

- review family's coping skills – advice on handling crying baby
- if any financial assistance required – refer Jabatan Kebajikan Masyarakat (JKM)
- mobilise extended family support and supervision especially in drug addiction
- more frequent home visits
- alternative care placement of baby may be required – refer JKM

3. Baby with special health care needs

- Cleft palate – feeding technique, growth, care with aspiration, hearing tests
- Nasogastric feeding – regular change of nasogastric tube, mother to know how to check nasogastric tube position in the stomach
- Oxygen dependence – avoid cigarette smoke, avoid URTI contact
- Tracheostomy – parents to learn suctioning and tracheal care
- Colostomy care

4. Babies with multiple problems

5. Multiple congenital abnormalities – multi-disciplinary assessment, early intervention programme

6. Motor/sensory disability

For further management of children with special needs, health care providers are required to refer to the following documents developed by the Division of Family Health Development, MOH :

- A series of six manuals on Management of Children with Disabilities
- Garispanduan Pelaksanaan Program Penjagaan Kanak-Kanak Berkeperluan Khas Di Klinik Kesihatan

ROLE OF TRADITIONAL PRACTICE AMONG MOTHERS AND THE NEWBORN

Table 5.12: Role of Traditional practice

| Good Practice | Harmful Practice | Unsure Benefit |
|---|---|--|
| <ul style="list-style-type: none"> • Breastfeeding exclusively • Frequent breastfeeding to encourage production of milk • Baby sleeping with mother in same room • Using coconut oil to remove cradle cap | <ul style="list-style-type: none"> • Too early weaning e.g. mashed bananas, rice porridge, glucose water etc • Goat's milk for jaundiced baby • Bathing jaundiced babies with herbs. This may mask jaundice and sometimes trigger an acute haemolysis in G6PD deficient babies • Applying 'ash', 'celak mata' to the umbilical stump • Using knitted cap when there is cradle cap (aggravates the cradle cap) • Restriction of fluids in postnatal mothers (especially among Malays), certain food, vegetables, fruits, chickens, egg and seafood • Discarding colostrum • Application of irritant on child's skin • Application of "heated object" to abdomen and scrotum after bath • Using breastmilk to wash eyes | <ul style="list-style-type: none"> • Feeding of 'gripe water' for relief of abdominal distension • Use of herbs and jamu by mother during postnatal period |



Abbreviations & Members of the Working Groups

ABBREVIATIONS

| | |
|-------|---------------------------------------|
| ABC | Alternative birthing centre |
| APH | Antepartum haemorrhage |
| ART | Anti-Retroviral Therapy |
| BA | Bronchial Asthma |
| BBA | Birth Before Arrival |
| BCG | Bacillus Calmette –Guerin |
| BP | Blood pressure |
| BPKN | Borang Pemeriksaan Kesehatan Neonatal |
| BTL | Bilateral Tubal Ligation |
| BUSE | Blood urea & serum electrolytes |
| C&S | Culture and sensitivity |
| CHC | Community health clinic |
| CNS | Central nervous system |
| CPAP | Continuous Positive Airway Pressure |
| CPG | Clinical Practice Guidelines |
| CTEV | Congenital Talipes Equinovarus |
| CTG | Cardiotocography |
| DM | Diabetes Mellitus |
| DOB | Date of Birth |
| DVT | Deep Vein Thrombosis |
| ECG | Electrocardiogram |
| ECHO | Echocardiogram |
| EDD | Expected Date of Delivery |
| EOD | Every other day |
| FBC | Full Blood Count |
| FBP | Full Blood Picture |
| FHR | Foetal heart rate |
| FMS | Family Medicine Specialist |
| FSH | Follicular stimulating hormone |
| FT4 | Free Thyroxine 4 |
| GA | General Anesthesia |
| GDM | Gestational Diabetes Mellitus |
| GP | General practitioner |
| GXM | Group & Cross Matching |
| Hb | Haemoglobin |
| HBCHR | Home Based Child Health Record |
| HBIG | Hepatitis B Immunoglobulin |
| HBV | Hepatitis B Virus |
| HC | Health clinic |
| HIV | Human Immunodeficiency Virus |
| HO | House Officer |

| | |
|--------|--|
| HTLV-1 | Human T-Cell Leukaemia Virus |
| HVS | High vaginal swab |
| ID | Infectious Disease |
| IM | Intramuscular |
| IUGR | Intrauterine Growth Retardation |
| IUT | In Utero Transfer |
| IV | Intravenous |
| JM | Jururawat Masyarakat (Community Nurse) |
| KUB | Kidney Ureter & Bladder |
| LA | Local Anesthesia |
| LFT | Liver Function Test |
| LGA | Large for Gestational Weight |
| LH | Luteinising hormone |
| LMP | Last menstrual period |
| LMWH | Low Molecular Weight Heparin |
| LPC | Labour Progress Chart |
| LSCS | Lower segment caesarean section |
| M&HO | Medical & health officer |
| MCH | Maternal Child Health |
| MCHC | Maternal and child health clinic |
| MEC | Medical Eligibility Criteria |
| MGTT | Modified (oral) glucose tolerance test |
| MKA | Makmal Kesihatan Awam |
| MO | Medical officer |
| MOH | Ministry of Health |
| MRP | Manual Removal of Placenta |
| N/S | Normal Saline |
| NGO | Non-government organisation |
| NICU | Neonatal intensive care unit |
| NNJ | Neonatal Jaundice |
| NTD | Neural Tube defect |
| NYHA | New York Heart Association |
| O&G | Obstetrics & Gynaecology |
| OGTT | Oral glucose tolerance test |
| OPD | Outpatient department |
| PEFR | Peak expiratory flow rate |
| POA | Period of amenorrhoea |
| POC | Product of conception |
| POG | Period of Gestation |
| PPC | Pre-Pregnancy Care |
| RBS | Random blood sugar |
| REDD | Revised Expected Date of Delivery |

| | |
|---------|---|
| RN | Registration Number |
| SCN | Special care nursery |
| SD | Standard Deviation |
| SFH | Symphysio-fundal height |
| SGA | Small for Gestational Weight |
| SLE | Systemic Lupus Erythematosus |
| SN | Staff nurse |
| SOB | Shortness of Breath |
| SOP | Standard Operating Procedure |
| STI | Sexually transmitted infection |
| T1DM | Type 1 Diabetes Mellitus |
| TOD | Target Organ Damage |
| TOF | Target Organ Failure |
| TORCHES | Toxoplasmosis, Rubella, Cytomegalovirus, Herpes simplex, Syphilis |
| TPHA | Treponema pallidum haemagglutination |
| TSH | Thyroid Stimulating Hormone |
| TWBC | Total White Cell Count |
| UFEME | Urine Full Examination and Microscopic Examination |
| URTI | Upper Respiratory Tract Infection |
| UTI | Urinary Tract Infection |
| VDRL | Veneral Disease Research Laboratory test |
| VE | Vaginal examination |
| VLBW | Very Low Birth Weight |
| VSD | Ventricular Septal Defect |

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