

# **KK MIRI MCH NOTES**

## **EDITED MARCH 2017**

**COMPILED BY:**

**DR. JODY YII**

**DR. FATIMAH SHAHIDAH**

**DR. WONG WANG MING**

**COPYRIGHT RESERVED**

**FOR KK MIRI MO USE ONLY**

## **Introduction to MCH**

### **Gravida:**

Total number of pregnancy the patient has (inclusive of her present pregnancy) irrespective of the outcome of her pregnancy. This means all type of pregnancies including a miscarriage, ectopic, or molar pregnancy needs to be included.

E.g.

2010	1 <sup>st</sup> px(complete miscarriage)
2011	2 <sup>nd</sup> px(Full term SVD)
2017	3 <sup>rd</sup> px(current px)

Px = pregnancy

This is the patients 3<sup>rd</sup> pregnancy

### **Parity:**

No of pregnancy that the patient carried beyond viability (viability= the potential of fetus to live in extrauterine environment if being delivered)

Based on age of viability as more than 24 weeks/ with fetal weight > than 500g.

Reminder: pregnancies less than viable age includes a miscarriage/ectopic px/molar px. Stillbirth beyond age of viability is considered pregnancy carried beyond viable age.

E.g.

2008	1 <sup>st</sup> px(Miscarriage at 12 weeks)
2010	2 <sup>nd</sup> px FTSVD
2012	3 <sup>rd</sup> px Stillbirth at 38 weeks
2017	Current px

She is G4 P2 (1 living child) + 1A (abortion)

\*Multiple pregnancy can be represented as whole number in brackets.

Ex: G2P2(1 set of twins)

Related terms:

G1P0 = primigravida

G2P0+1A= pseudoprimigravida

Multipara= Parity>1

Grandmultipara= Parity>5

### **First RME (routine medical examination/booking)**

Booking = first visit to MCH regardless of the gestation week

Upon booking of pregnancy:

- a. First RME – record examinations
- b. Dating scan
- c. Identify risk factors and complications in pregnancy
- d. Arrange for blood investigations
- e. Plan for MOGTT as indicated
- f. Plan for next scan – give date to patients
- g. Refer to ANSC as indicated

LMP – 1<sup>st</sup> day of last menses (ask for sureness of date, regularity of menses, any usage on contraceptive)

EDD – LMP + 7 days + 9 months (follow Nagele's rule)

REDD – is the estimated date of delivery given based on USG date

### **History taking for antenatal on booking**

1. Any medical/surgical illness
2. Family history of DM/HTN
3. Past obstetric history – e.g. PIH, GDM, Big Baby, LBW baby, previous scar, PPH, spacing, vacuum, forceps, shoulder dystocia
4. Current symptoms – PV bleed/discharge, abdominal pain, hyperemesis symptom

### **Examinations**

1. General condition – pink, pallor
2. BP, PR
3. Urine dipstick
4. BMI
5. HB – look for MCV, MCH
6. Systemic examination – CVS, Lungs, Abdomen, Thyroid, Breast
7. Document VTE score- use latest edited VTE score jan 2017
8. Look for pedal edema

Once complete check, do sign at the box of examination at 2<sup>nd</sup> page & check whether VTE score is pasted at the back of pink antenatal book.

## **Obstetric Examination**

### **Exposure/permission/introduction**

#### **Inspection:**

Abdomen/gravid uterus

Any surgical scars & indication- LSCS scar, laparotomy scar, appendicectomy scar

#### **Palpation:**

Soft palpation all 9 quadrants to detect any tenderness/any uterine irritability

Estimation of clinical fundal height. It is the uppermost part of uterine fundus. This is done by measurement of SFH. This corresponds to gestational week.

Note:

You can only start palpating fundal height from 12 weeks onwards. (Just palpable above the pelvic brim)

At 38 weeks presenting part will be engaged and fundal height goes downwards from position at xiphoid sternum at 36 weeks.

#### **Measurement of SFH**

In cm. Can use a measuring tape, measured from pubic symphysis to the fundus.

Uterus correspondence/ larger/ small than date:

#### **Palpating fetal parts:**

Main aim is to determine-

- 1) Number of fetus
- 2) Lie: relation between long axis of fetus to long axis of gravid uterus(Longitudinal/Oblique/Transverse)
- 3) Presentation: pole of the fetus which lies at the inlet. As a rule it only applies for longitudinal lie since oblique/ transverse lie there are no fetal parts over the pelvic inlet. Feel for poles:
  - Head/Cephalic- rounded, hard,ballotable
  - Breech- Lobulated,relatively softer, non ballotable
- 4) Engagement: for cephalic presentation, divide the head in 5 parts. Head is considered engaged when only 2/5 of head is palpable per abdomen.
- 5) Liquor volume: adequate/excessive(polyhydramnios)/inadequate(oligohydramnios)

#### **Scan timing:**

Usually 4 scans only per pregnancy if normal

1. Dating scan - at booking to confirm date, viability. After confirm date, write in front of pink book when was the EDD or REDD confirmed (eg: 12/52, 16/52,...)

2. At 20 weeks for growth, look for gross abnormality
3. At 28 weeks for placenta site + AFI
4. At 36 weeks for primigravida and 37 weeks for multigravida for presentation (to decide mode of delivery)

\*Monthly growth scan for patients with GDM and PIH

\*More frequent scan if LGA (large gestational age)/SGA (small gestational age)

Accept discrepancy of (+-) 1-2 weeks from date

If suspect big baby/PIH/GDM/IUGR/AFI – repeat scan every 2/52 for growth scan

#### TAS/Scan – at booking

If no IUGS seen, no free fluid, no adnexal mass seen, UPT positive, asymptomatic (no PV bleed, no abdominal pain), for TCA 2/52 to rescan, if TCA still empty – refer EPAU/LR, they will proceed with TVS if TAS still not seen. (DDX: Early Px/TRO ectopic Px)

If no IUGS seen, UPT negative – likely not pregnant/failed pregnancy

If no IUGS seen, UPT positive –

1. Ectopic
2. Early pregnancy
3. Failed pregnancy
4. Miscarriage

If asymptomatic – TCA 2/52 for rescan

If symptomatic – refer O&G team immediately

Once dating confirm – write in plan – Follow LMP/REDD

For REDD – usually after 2 or more scans, and usually take the 1<sup>st</sup> REDD date as it is the most accurate. Ask if patients had dating scan done in GP to compare.

#### Deciding Estimated Date of Delivery (please memorise)

Early dating U/S must be done for patients who are

- 1) Unsure of date
- 2) Having irregular menses
- 3) On hormonal contraception up to 3 months before pregnant
- 4) No menses since last childbirth

<12 weeks	REDD if U/S date >5 days difference (GS/CRL)
12-14 weeks	REDD if U/S date >7 days difference (FL-BPD/FL-HC)
14-24 weeks	REDD if U/S date >10 days difference
>24 weeks	U/S date used as reference Rpt growth scan in 2 weeks, then 2 weekly scan x2 Rpt scan at 38 for growth and AFI Rpt AFI at 39 weeks IOL at 40 weeks

If REDD is used it is POG (period of gestation), If to follow LMP it is POA (Period of amenorrhea)

### **Placenta Praevia**

**Diagnosing placenta praevia-**

#### **TYPES:**

##### **1<sup>st</sup> classification**

COMPLETE PREVIA- cervical opening is completely covered by placenta

PARTIAL PREVIA- portion of cervix is covered

MARGINAL PREVIA- extends just to the edge of cervix

##### **2<sup>nd</sup> classification**

Types	Location	MOD	<b>Ultrasound enables accurate grading and localization of placenta, as described by Jauniaux &amp; Campbell</b>
I	Low lying with lower margin within 5cm from os	SVD	
II	Marginal PP, placenta reaching up to margin of os	Possible SVD, decision being made by O&G	
III	Partial PP, placenta partially covering os	C-sec	
IV	Complete PP, complete covering os	C-sec	

### **Risk factors for PP**

- Previous PP (4-8%)
- Previous c-section
- Previous TOP (termination of pregnancy)
- Multipara
- Smoker
- Assisted conception (IVF)
- Advanced age

If PP 1, can repeat scan in 2 weeks to see location. Usually placenta goes upwards but if still low to refer. If PP Type II, III, IV is seen, to be referred to pakar 5. If presence any APH symptoms advice patient to go to hospital straight!

### **Second RME – at 36/37 weeks**

To recheck patient from head to toe again as per first RME

At 36/52 to decide mode of delivery/time of delivery.

If by scan it is noted breech/ transverse, in primigravidae refer same day to LR. If multipara scan back at 37 weeks and if still breech/ transverse and has no CI to ECV, to refer that day to LR for rescan & KIV ECV.

ECV = transabdominal manipulation to change the presenting part from breech to cephalic

CI to ECV

- Placenta previa
- IUD
- In Labour
- Oligohydramnios
- PROM
- IUGR
- Non-reactive CTG
- previous uterine scar
- fetal anomaly

If ECV fails will proceed with ELLSCS

If plan to allow postdate – ask to TCA at 40/52 to rescan

If not to allow postdate – ask to admit LR on EDD/REDD

To allow postdate? – not allow if PIH/GDM/late booker (>20/52)/, big baby/IUGR/abnormal AFI means patient must admit for delivery on EDD/REDD date, or maybe need IOL earlier at 38 weeks if indicated

If allow postdate – only allow 40weeks + 7 days (not 10 days as need to give 3 days for hospital to induce patient)

38 weeks to assess on head engagement

### **Weight for fetus according to trimester**

Weeks	Weight at least should be:
20	250g
24	500g
28	1kg
34	2kg
36	2.5kg

If any less of weight during those weeks, suspect SGA/IUGR. To be referred to O&G for rescan & Doppler.

If by 36/52 weight scan 3.5kg to rescan at 38/52 (or 2/52 later), KIV for IOL/LSCS for big baby

### **Indications for Detailed scan (will be scan by fetomaternal specialist from SGH)**

Done at 18-24 weeks, need refer specialist to get date.

- Advanced age  $\geq$ 40 years old
- Pre-existing DM or early onset of GDM  $<$  20/52
- Previous history of family history fetal anomaly or chromosomal anomaly
- Congenital heart disease or has previous offspring with congenital heart disease
- On epileptic drugs or exposure to other potentially teratogenic medication, chemical or radiation
- High risk patient determined during first pregnancy
- Very anxious patient
- History of Intrauterine death last pregnancy

### **Hypertensive disease in pregnancy**

Definition/Diagnosis:  $BP \geq 140/90$  mmHg in 2 occasions/ 15 minutes apart

Chronic HPT	$BP \geq 140/90$ mmHg less than 20/52
Gestational HPT	$BP \geq 140/90$ mmHg in two occasions/ 15 minutes apart after 20/52
PE	PIH + Urine protein +ve
Eclampsia	PE + Fit

#### Management

- i. Do PE profile workout (LFT/RP/Uric Acid/FBC/Ufeme)
- ii. Decide on frequency of BP monitoring – e.g. EOD BP monitoring weekly/biweekly + urine protein
- iii. Start aspirin at 12 weeks/CaCO<sub>3</sub> at 20 weeks when indicated
- iv. Start anti-hypertensives when indicated – T. Methyldopa 250mg TDS (<20 weeks), T. Labetalol 100mg TDS (>20 weeks)  
\* Initiate anti hpt if BP  $>$ 140/90 or 150/100  
1<sup>st</sup> Line: Methyldopa 250 – 1g TDS, Labetalol 100 – 300mg TDS  
2<sup>nd</sup> Line: Adalat 10 – 20mg TDS
- v. Monitor symptoms of IE
- vi. Monthly growth scan – look for complication (IUGR) & oligohydramnios
- vii. Refer to hospital if necessary
- viii. For hospital delivery
- ix. Not for postdate (40/52 for not on treatment, 38/52 for on treatment)

**PE workup (please memorise)**

BUSE/CR, UA, AST, ALT, Urine for protein, FBC

Uric acid value for female non pregnant: 149-333 (\* way to remember= current trimester x 10 fold= if more than value is hypertensive dss with high uric acid refer pakar 5 early appointment, KIV earlier induction)

Uric acid for 1<sup>st</sup> trimester: 119-250

Uric acid for 2<sup>nd</sup> trimester: 243-292

Uric acid for 3<sup>rd</sup> trimester: 184-375

Normal Cr <70

**Aspirin in pregnancy (please memorise)**

High risk

1. History Hypertension during previous pregnancy
2. Chronic kidney disease
3. Autoimmune disease (SLE, APS)
4. Type 1, 2 DM
5. Chronic hypertension complicating current pregnancy

Moderate risk

1. First pregnancy
2. More than 40 years old
3. Pregnancy interval more than 10 years
4. BMI >30 at first visit
5. Multiple pregnancy
6. Family history of preeclampsia

**When at least 2 moderate risks or at least 1 high risk**

-Start T. Aspirin 75mg OD from 12 week till delivery (only give once fetal is viable: Fetal heart must be present)

-T. Calcium carbonate 1g tds if not tolerate BD from 20 weeks onward

\* Miri GH use BD instead of TDS\*

Timing to start:

Aspirin: up to 20 weeks

CaCO<sub>3</sub>: up to 24 weeks

## **GDM**

Diagnosis: abnormal MOGTT regardless of gestation week ( $\geq 5.6/7.8$ )

1. Refer dietician/PSP
2. Monthly 4 point BSP ( $<28/52$ ), 2 weekly 4 point BSP ( $\geq 28/52$  + on insulin) and review (5.6/6.7) - if 2 out of 4 deranged for the 1<sup>st</sup> time, repeat in 1/52 later, if still deranged refer LR for admission BSP monitoring KIV insulin. If patient has own glucometer atleast once to do 7 point BSP throughout px.
3. Weekly 4 point BSP (if deranged BSP)
4. Refer if BSP is deranged
5. Do baseline investigations (HbA1C, RP, UFEME)
6. Eye check – not done routinely
7. Advice diet control- refer psp (pegawai sains pemakanan)
8. Monthly growth scan – look for big baby, polyhydramnion
9. Decide date of delivery – not for postdate (40/52 on D/C, 38/52 on insulin)
10. For hospital delivery

### **Criteria for screening for GDM (please memorise)**

1. Glycosuria at the first prenatal visit or any prenatal visits
2. BMI  $\geq 27\text{kg}/\text{m}^2$
3. First degree relative with diabetes
4. Previous macrosomia baby weighing 4kg or above
5. Women  $\geq 25$  years
6. Previous unexplained stillbirth, recurrent abortion, birth defects
7. Previous history of gestational diabetes
8. Current obstetric problems (essential hypertension, PIH, polyhydramnios and current use of steroids)
9. History of congenital anomalies
10. History of large for gestational age babies
11. Weight persistent increasing trend

### **WEIGHT GAIN FOR PREGNANT MOTHERS (input from pink antenatal card)**

The first 20 weeks is not more than 500g-750g per month, after 20 weeks is 500g-750g weekly.

MOGTT is done after 12-14weeks or as soon as the risk factor is identified, a repeat test may be performed at 28-30 weeks gestation for women whose MOGTT was normal but who have significant risk factor. Woman with only 1 risk factor should be screened at 28-30 weeks and to be repeated if noted excessive weight gain.

Latest 5<sup>th</sup> edition CPG, should be done at booking for those with risk factors and repeat in 4-6weeks later

### Target glycemic control

Fasting and premeal  $\leq 5.4$

2 hours  $\leq 6.7$

HbA1c  $< 6.0\%$

Metformin can be used/ Gliclazide is contraindicated due to teratogenic effect

NIDDM who has been on metformin before pregnancy, once pregnancy is diagnosed metformin should be continued (same dose) while waiting for insulin initiation and adjustment. (Our side:Max dose 1g OD)

Who require insulin but somehow are not able to fully understand or administer insulin due to the complexity of the procedure

Who require insulin but lacks the facility to store insulin at home

On high insulin dose and metformin is used as an adjunct to achieve good glycemic control

### NIDDM and GDM with disturbance blood sugar

- 1 or 2 points borderline deranged BSP
- Who have good control in the initial part of pregnancy but worsens near term
- Who have deranged BS control while on dexamethasone
- Who have documented good BS control but have evidence of diabetic fetopathy such as LGA or polyhydramnios toward end of pregnancy

Metformin dose can be increased to 2g daily if needed (decision d/w FMS or O&G sp)

- Start metformin at 250mg BD and if good blood sugar not achieved with this dose switch to insulin. No further increase metformin is allowed. Some need single dose only (e.g. problem with fasting start 250mg ON)
- If need medication from early part pregnancy start insulin rather metformin

### GDM 6/52 postpartum

- Do FBS rather than MOGTT
- If FBS  $< 6.0$ , MOGTT not required, but need yearly FBS to screen diabetic
- If  $\geq 6.0$  MOGTT performed if MOGTT normal need yearly FBS to screen DM

### Others

- Do 7 points than 4 points BSP if possible
- Encourage self HBM

### Updates

Screen GDM, 16-18 weeks, 24-28 weeks

Monthly Growth scan from 28-34 weeks

BSP if unsatisfactory repeat in 1/52 and if still unsatisfactory to refer

Reading Premeal (5.3), 1 hour (7.8) 2 hour (6.4)

Insulin therapy considered – Blood glucose not met 1-2 weeks after introduce changes to diet and initiate exercise

### **Anemia in pregnancy**

Diagnosis: low Hb (<11.0 g/dL)

MCH – Normal 28

MCV – normal 80

1. Mild anemia: 9-11 g/dL, do FBC monthly – give hematinics – single hematinics FF 200mg BD, double 400 mg BD, if still low change hematinics to Iberet 1/1 OD then to BD if still low (fill list A form)
2. Moderate anemia: 7-9 – refer FMS co-management, refer dietitian, can be referred for HB<10 do FBC 2/52 weekly, do w/up TIBC/UIBC/Serum iron/ferritin/PBF – KIV Hb electrophoresis, if symptomatic for admission (KIV Im Iron injection)
3. Severe anemia: <7 – Need admission
4. Must assess compliance – any hematinic stool (black stool)
5. For hospital delivery

### **Basic Investigations**

- Full blood count
- BFMP
- Stool Ova & Cysts

### **Specific test**

- Peripheral blood film
- Total iron study – total iron binding capacity, total ferritin, total transferrin
- Vitamins assay – folic acid, vitamin B1, B12, ascorbic acid
- Hb Electrophoresis / analysis
- Bone marrow aspiration
- Lupus anticoagulant antibody
- Rheumatoid factor antibody
- LE cells
- Others – LFT, renal profile, sputum AFB

Categorisation of women using Hemoglobin and serum ferritin

Serum ferritin (ug/l)	Hemoglobin (g/dl)	Diagnosis
>12	>11	Normal, IDA excluded
<12	>11	Storage iron depletion
<12	<11	Iron deficiency anemia
>12	<11	Other causes of anemia

Mentzer Index: MCV/RBC if >13 IDA, <13 Thalasemia

**VTE score**

The score must be done on booking, admission, postnatally – will be attached in the card

VTE score  $\geq 3$ , refer O&G clinic to start clexane at 28/52 and above (antenatally)

VTE score  $\geq 4$ , refer earlier for appointment, as need to start clexane earlier (antenatally)

**Previous scar in pregnancy**

If 1 previous scar, refer for VBAC assessment at 28/52 follow up. P5 will give about 1/12 TCA. Usually will be seen at 32-34 weeks.

If 2 or more previous scar refer for EL-LSCS/BTL date

If 1 previous scar, successful VBAC – no need refer

Manage patient with previous scar antenatally

Antenatal schedule

Gestation	Management
First trimester	Dating scan
18-20 weeks	<ol style="list-style-type: none"> <li>1) Placental location. Those with low lying placenta, repeat scan at 28 weeks</li> <li>2) Review previous antenatal record/card</li> <li>3) If inadequate information-contact previous hospital for review of notes and attach together in the antenatal card</li> </ol>
32-34 weeks	Review & confirm placental localization. If praevia or unsure, refer for specialist input
36 weeks	Document the counselling and decide on the mode of delivery
38-39 weeks	Arrange for elective repeat caesarean section if not keen for vaginal delivery
40 weeks	1) Offer membrane sweeping

	<ol style="list-style-type: none"> <li>2) Counsel on the need for induction at 41 weeks and associated risk of uterine rupture</li> <li>3) Refer to a specialist centre for further management</li> </ol>
--	---

### 1) Placental localisation

All patients with a previous C-section should have an ultrasound scan for placental localization

4% of pregnant mothers will have a low lying placenta at 20 weeks. 10% of them will have a previa. Thus, if the placenta was noted to be low at 20 weeks a repeat scan should be arranged at 28 weeks for placental localization

Those with placenta previa with a previous c-section (particularly anterior pravia) should have a colour Doppler to look for features of a morbidly adherent placenta. (refer to fetal medicine specialist if facilities are available)

### 2) Review of previous c-section

This essential measure is never done in most clinics. It is important to look for

- a) Indication for c-section
- b) Type of Uterine incision
- c) Peri-operative complications
- 3) Look for contraindication for a vaginal delivery following a c-section
  - a) Previous uterine rupture
  - b) Previous myomectomy where the intrauterine cavity has been breached
  - c) Previous inverted T or J uterine incisions
  - d) Previous extended uterine tears
  - e) Breech
  - f) Multiple pregnancy

### Antenatal counselling

	VBAC	Repeat C-section
Maternal benefits	<ol style="list-style-type: none"> <li>1) Success rate 72-76%</li> <li>2) Short hospital stay &amp; recovery</li> <li>3) Higher chance of vaginal delivery in future</li> </ol>	<ol style="list-style-type: none"> <li>1) Planned delivery &amp; date</li> <li>2) Low risk of rupture</li> </ol>
Maternal risk	<ol style="list-style-type: none"> <li>1) Uterine rupture 0.5%</li> <li>2) Low risk of transfusion &amp; endometritis</li> <li>3) 25% risk of</li> </ol>	<ol style="list-style-type: none"> <li>1) Surgical complications</li> <li>2) Longer hospital stay &amp; recovery</li> <li>3) Limited family size</li> </ol>

	emergency c-section	4) Risk of placental pravia & accrete in future pregnancy
Infant benefits	1) Less respiratory morbidity	1) Reduced risk of HIE
Infant risk	1) Rare risk of stillbirths & HIE beyond 39 weeks	1) Higher risk of TTN (prevented with steroid)

This counselling should be documented in the notes

1. If patient opts for an elective repeat c-section and presents in spontaneous labour prior to her operation date her willingness for a trial of scar should be discussed.  
(EMLSCS-higher risk)
2. Short inter-delivery interval (12months) has a higher risk of uterine rupture. These patients should be referred to a specialist centre for counselling and management of delivery

**TOS should be undertaken in a hospital with an O&G specialist**

### **UTI in pregnancy**

Treatment – T. Cephalexin 500mg TDS x 1/52 / T. Bacampicillin 400mg BD x 10/7, Ural sachet 1/1 tds x 3/7

Take urine C+S prior to antibiotic

Repeat UFEME x 2/52

### **Vaginal discharge in pregnancy**

Do per speculum, take HVS and GC smear (if indicated)

Give Pessary Clotrimazole 200mg ON x 3/7 if vaginal candidiasis

Cervicitis – chlamydia, gonorrhoea – treat as gonorrhoea

Vaginitis – candidiasis, trichomoniasis – treat with flagyl and pessary clotrimazole

### **Teenage pregnancy**

Definition: Age  $\leq$ 19 years old

Must refer FMS and JKM (Fill in Borang 9)

$\leq$  16yo considered statutory rape – refer OSCC

More social history – school dropped out, family tree, partner's info, social history, family tree

All teenage pregnancy – some cases KIV will be selected as OSTPC case (if selected need to present during OSTPC meeting which will be held monthly)

### **Others**

Start FKC at 28/52 regardless risk

FMS referral – teenage, single mother, current smoker, yellow coding patient

Short stature <145cm – refer Pakar 5 for CPD assessment at 28/52

Less FM – refer L/R for CTG, KIV admission for observation and FKC monitoring in ward

Head not engaged (primi 37/52, multi 38/52) – refer L/R stat for lie charting in ward, there is risk of cord prolapsed if SROM

Leaking liquor – refer L/R if history, per speculum suggestive, AFI reduced

Combine clinic appointment- co-management physician/O&G- thyroid disease in pregnancy/heart disease/hepatitis in pregnancy/PTB in pregnancy

Refer physician then get appointment from O&G specialist (Dr. Dahlia in charge) via whatsapp

For ECV if no contraindications– primigravida 36/52, multipara 37/52 (If scan done at 36 weeks noted breech) if footling breech is suspected refer for ELLSCS date.

Polyhydramnios: >20 at 28/52, do MOGTT and repeat scan in 2/52, if still >20, refer ANSC (P5), if at 37/52 and above to refer L/R for rescan AFI

Oligohydramnios: <5, but MGH use <8 (put as low AFI)

Scan noted IUGR/SGA – plot growth chart, if <5<sup>th</sup> centile, repeat growth scan in 2/52, if not growing to refer ANSC/LR for scan and Doppler, if 34-40/52 to refer L/R for scan and Doppler

If suspect cord round neck – refer EPAU for Doppler umbilical cord

## **Post-natal patients**

1. Timing: when baby is one month old (a.k.a baby's 1st RME)
2. Screen baby and mother
3. Mother:
  - a. Well being
  - b. Plan for FBS if she has GDM
  - c. Resume medications for patient with chronic hypertension and/or DM
  - d. Contraception method
  - e. Pre-pregnancy care registration for high-risk mother
  - f. Pap smear after 3/12
4. Baby:
  - a. Well being
  - b. Whether serum bilirubin was checked before or not/ if still jaundice for SB stat
  - c. Full examinations including red reflex examinations
  - d. Immunisation

## **Contraception**

1. Plan for contraceptive method for new patient or post-natal patient (if not decided after discharged from hospital)
2. Manage complications of contraception
3. Offer option of BTL if necessary (need to give time to discuss with patient's husband)  
– refer to O&G if patient is keen for BTL and patient agreed (appointment BTL to call gynae ward)

## **IUCD**

Before insertion of IUCD – do UPT, no SI 1/52 before the insertion, no PID (contraindication for IUCD insertion)

After IUCD – no SI for 1/52, if not must use barrier (condom), inform risk of ectopic pregnancy

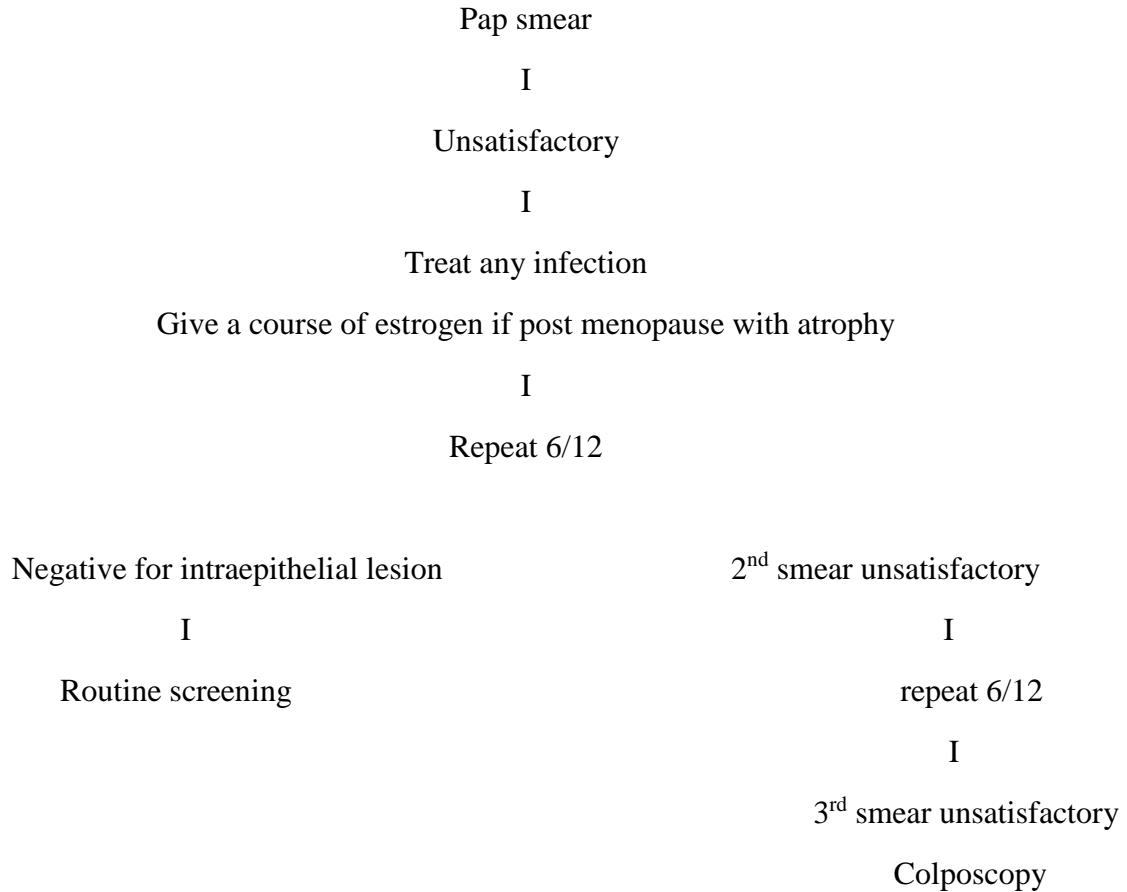
After IUCD – TCA patient for scan 1/12, then 3/12 then 6/12 then yearly to make sure IUCD in situ

IUCD insertion/ removal will be done on Friday at MCH by appointment basis. (2 procedures each Friday)

Each IUCD expires within 3 years of the date inserted, if patient wants earlier pregnancy then IUCD is removed earlier.

IUCD insertion must be done under aseptic technique. Pap smear can be done prior to procedure if patient agrees.

**Pap Smear**



Pap smear	
I	
Negative for malignant cell	
I	
Inflammatory	
I	
Treat any infection or atrophy	
I	
Repeat 6/12	
I	
Normal	2 <sup>nd</sup> smear inflammatory
I	I
Routine screening	repeat 6/12
I	
3 <sup>rd</sup> smear inflammatory	
Colposcopy	

Trichomonas vaginalis – T. Metronidazole 400mg tds

## Fungal infection (candida) – Cannestan Pessary 200mg ON

Bacteria vaginosis – T. Metronidazole 400mg tds

Atrophy - LOCAL ESTROGEN CREAM 1G ON FOR 2 WEEKS THEN TWICE WEEKLY FOR 6 WEEKS

Pap smear

Negative for malignant cell

Specific microorganism

Treat any infection

Repeat pap smear 6/12

Normal

Routine screening

Dysplastic changes

Squamous cell abnormality

- ASCUS
- ASCH
- LGSIL
- HGSIL
- Invasive squamous cell carcinoma

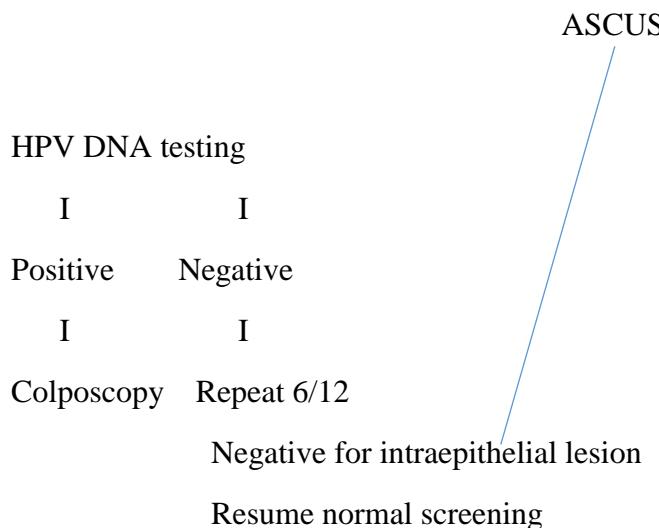
Glandular abnormality

- AGS
- AIS

Invasive adenocarcinoma

Pap smear

Atypical squamous cell (ASC)



Pap smear

LGSIL

Assessment of client

Yes

Presence of at least 1 criteria:

- age > 30 years
- poor compliance
- immunocompromised
- sx
- Hx of pre-invasive lesion
- positive for high risk HPV (16,18,31,33,45,52,58)

No

Repeat smear in 6/12

NILM

LSIL

Resume routine schedule

Colposcopy

Immediate colposcopy

### Management approach

- A lesion that persist after 1-2 years or any progression during follow up suggest need of treatment
- If HPV testing is available, +ve HPV: indication for treatment
- Treatment- local ablative/ excision

-Follow up after treatment for CIN1

-repeat smear in 6/12

-repeat smear and colposcopy in 12/12

-If normal, yearly pap smear x 2 years then back to normal routine

### **Abnormal pap smear during pregnancy**

Regardless of gestation, suspicious lesion should be biopsied

If evidence of invasive cancer, require excision

**Drugs to be avoided in pregnancy**

<b>Absolute contraindication</b>	<b>Relative contraindication</b>
<b>A) Antifungal drugs</b> <ol style="list-style-type: none"> <li>1) Griseofulvin</li> <li>2) Ketonazole</li> <li>3) Itraconazole</li> <li>4) Fluconazole</li> <li>5) Terbinafine</li> </ol>	<b>B) Antibiotics</b> <ol style="list-style-type: none"> <li>1) Tetracycline</li> <li>2) Ciprofloxacin</li> <li>3) Aminoglycosides</li> <li>4) Chloramphenicol</li> <li>5) Trimethoprim (1<sup>st</sup> trimester)</li> <li>6) Nitrofurantoin (near term)</li> </ol>
<b>C) Anti-inflammatory drugs</b> <ol style="list-style-type: none"> <li>1) NSAIDS (3<sup>rd</sup> trimester)</li> <li>2) COX-2 inhibitors</li> <li>3) Colchicines</li> </ol>	<b>D) Endocrine drugs</b> <ol style="list-style-type: none"> <li>1) Carbimazole</li> <li>2) Chlorpropamide</li> </ol>
<b>E) Antihelmintic drugs</b> <ol style="list-style-type: none"> <li>1) Mebendazole</li> </ol>	<b>F) Psychotropic drugs</b> <p>Lithium</p>
<b>G) Cardiovascular drugs</b> <ol style="list-style-type: none"> <li>1) ACE inhibitors</li> <li>2) Angiotensin II receptor inhibitors</li> <li>3) Spironolactone</li> </ol>	<b>H) Cardiovascular drugs</b> <ol style="list-style-type: none"> <li>1) Beta blockers</li> <li>2) Minoxidil</li> </ol>
<b>I) Cytotoxic drugs</b> <ol style="list-style-type: none"> <li>1) Methotrexate</li> <li>2) Cyclophosphamide</li> <li>3) Busulphan</li> </ol>	<b>J) Diuretics</b>
<b>K) Vitamin A analogues</b> <ol style="list-style-type: none"> <li>1) Acitrecin</li> <li>2) Isoretinooin</li> </ol>	<b>L) Anticoagulant</b> <p>Warfarin</p>
<b>M) Endocrine drugs</b> <ol style="list-style-type: none"> <li>1) Radioactive iodine</li> <li>2) Sex hormones</li> <li>3) Octreotide</li> </ol>	<b>N) Anti-convulsants</b> <ol style="list-style-type: none"> <li>1) Phenobarbitone</li> <li>2) Phenytoin</li> <li>3) Sodium valproate</li> <li>4) Carbimazole</li> <li>5) Lamotrigine</li> </ol>
<b>O) Other drugs</b> <ol style="list-style-type: none"> <li>1) Thalidomide</li> <li>2) Mefloquine</li> <li>3) Biphosphates</li> <li>4) Misoprostol</li> <li>5) Statins and fibrates</li> <li>6) Tamoxifen</li> <li>7) Nicotine</li> <li>8) Mycophenolate mofetil</li> </ol>	<b>P) Antiebrotic</b> <ol style="list-style-type: none"> <li>1) Dapsone (3<sup>rd</sup> trimester)</li> </ol>
<b>Q) Live vaccines</b> <ol style="list-style-type: none"> <li>1) MMR, sabin, Varicella</li> </ol>	

## **Neonatal jaundice (NNJ)**

### Risk factors of severe NNJ

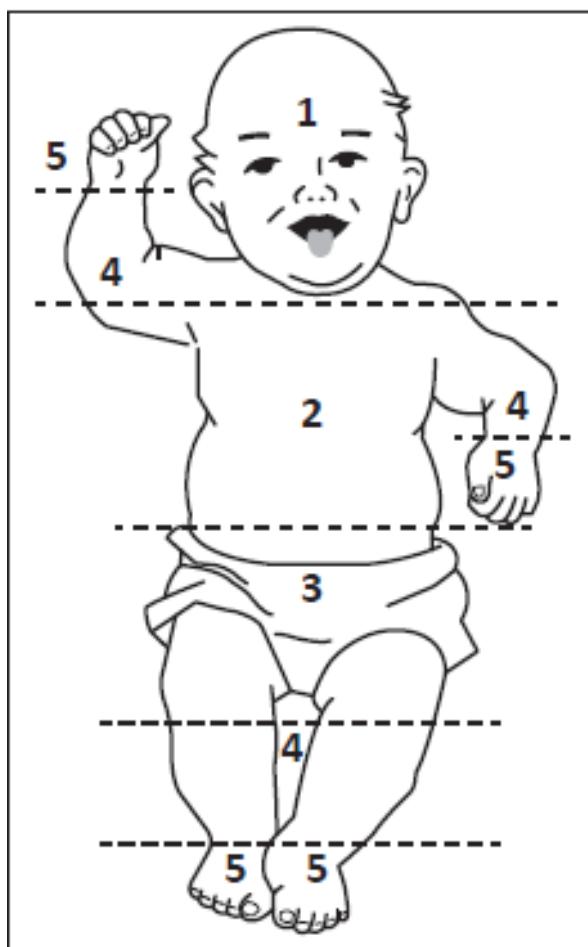
1. Prematurity
2. Low birth weight
3. Jaundice in the first 24 hours of life
4. Mother with Blood Group O or Rhesus negative
5. G6PD deficiency
6. Rapid rise of total serum bilirubin
7. Sepsis
8. Excessive weight loss
9. Exclusive breastfeeding
10. High predischarge bilirubin level
11. Cephalhaematoma or bruises
12. Babies of diabetic mothers
13. Family history of severe NNJ in siblings

### Pathological jaundice include:

1. Clinical jaundice appearing in the first 24 hours of age
2. Increase in the level of total bilirubin by more than  $8.5 \mu\text{mol/L/hour}$  ( $0.5 \text{ mg/dL/hour}$ ) or more than  $6 \text{ mg/dL/day}$  ( $103 \mu\text{mol/L/day}$ )
3. TSB more than  $340 \mu\text{mol/L}$  ( $20 \text{ mg/dL}$ ) in a full term infant
4. Conjugated (direct) hyperbilirubinaemia more than  $34 \mu\text{mol/L}$  ( $2.0 \text{ mg/dL}$ ) or more than 15% of total bilirubin

### Causes of pathological jaundice

1. Hemolytic disease of newborn: Rh, ABO & minor group incompatibility (anti-Kell, Duffy)
2. Infections: intrauterine – viral, bacterial
3. Membrane defects (spherocytosis, elliptocytosis, stomatocytosis)
4. Red blood cell enzyme defects (G6PD deficiency, pyruvate kinase deficiency)
5. Polycythaemia



**Table 1. Visual Assessment of Neonatal Jaundice (Kramer's rule)**

Area of the Body	Level	Range of Serum Bilirubin	
		$\mu\text{mol/L}$	mg/dL
Head and neck	1	68 - 133	4 - 8
Upper trunk (above umbilicus)	2	85 - 204	5 - 12
Lower trunk and thighs (below umbilicus)	3	136 - 272	8 - 16
Arms and lower legs	4	187 - 306	11 - 18
Palms and soles	5	$\geq 306$	$\geq 18$

### ***Acute Bilirubin Encephalopathy (ABE)***

ABE results in changes of mental (behavioural) status and muscle tone during the neonatal period when the baby is having hyperbilirubinaemia. These include drowsiness, poor feeding and hypotonia followed by hypertonia affecting extensor muscles in particular, resulting in retrocollis and opisthotonus.<sup>14</sup>

### ***Classic kernicterus***

Classic kernicterus may be seen in babies who survive from ABE. The manifestations of ABE include dystonia, athetoid cerebral palsy, paralysis of upward gaze, and sensorineural hearing loss. Post-mortem icteric (yellow) staining of the basal ganglia, specifically the globus pallidus is the hallmark of this condition.<sup>14</sup>

### ***Bilirubin-Induced Neurologic Dysfunction (BIND)***

BIND is a wider spectrum of disorders that not only includes classic kernicterus and ABE, but also less severe forms of neuropathy, including auditory neuropathy, fine and gross motor incoordination, gait abnormalities, fine tremors, exaggerated extrapyramidal reflexes and behavioural problems.<sup>14</sup>

BIND Score: to detect & quantifies the severity and progression of ABE, used for TERM baby with severe jaundice

3 categories of severity can be concluded:

**Mild ABE** (score 1 - 3): subtle signs of ABE

**Moderate ABE** (score 4 - 6): urgent bilirubin reduction intervention is likely to reverse this acute damage

**Advanced ABE** (score 7 - 9): urgent bilirubin reduction intervention are needed to prevent further brain damage & reduce the severity of sequelae

Immediate ET in any infant who manifests the signs of the intermediate to advanced stages of ABE even if the TSB is falling

Clinical Signs	BIND Score	Date: Time:	Date: Time:
<b>Mental Status</b>			
Normal	0		
Sleepy but arousable; decreased feeding	1		
Lethargy, poor suck and/or irritable/jittery with strong suck	2		
Semi-coma, apnoea, unable to feed, seizures, coma	3		
<b>Muscle Tone</b>			
Normal	0		
Persistent mild to moderate hypotonia	1		
Mild to moderate hypertonia alternating with hypotonia, beginning arching of neck and trunk on stimulation	2		
Persistent retrocollis and opisthotonus - bicycling or twitching of hands and feet	3		
<b>Cry Pattern</b>			
Normal	0		
High pitched when aroused	1		
Shrill, difficult to console	2		
Inconsolable crying or cry weak or absent	3		
<b>TOTAL BIND SCORE</b>			
<b>Advanced ABE</b> (score 7 - 9): urgent bilirubin reduction intervention is needed to prevent further brain damage and reduce the severity of sequelae <b>Moderate ABE</b> (score 4 - 6): urgent bilirubin reduction intervention is likely to reverse this acute damage <b>Mild ABE</b> (score 1 - 3): subtle signs of ABE			
Note: An abnormal or 'referred' Auditory Brainstem Response (ABR) is indicative of moderate ABE. Serial ABR may be used to monitor progression and reversal of acute auditory damage and could be indicative of the effectiveness of bilirubin reduction strategy.			

Steps to decide need for phototherapy (indication of phototherapy)

1. Age of the baby (e.g. hours of life/day of life)
2. Gestational age at birth (e.g. term, preterm, 38/52)
3. Determine risk: high risk baby - isoimmune hemolysis (ABO/Rh incompatibility), G6PD deficiency, neonatal sepsis/encephalopathy

Age	LOW RISK ≥38 weeks and well		MEDIUM RISK ≥38 weeks with risk factors or 35 - 37 weeks + 6 days and well		HIGH RISK 35 - 37 weeks + 6 days with risk factors	
Hours of life	Conventional Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Conventional Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Conventional Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)
<24*						
24	9 (154)	19 (325)	7 (120)	17 (291)	5 (86)	15 (257)
48	12 (205)	22 (376)	10 (171)	19 (325)	8 (137)	17 (291)
72	15 (257)	24 (410)	12 (205)	21 (359)	10 (171)	18.5 (316)
96	17 (291)	25 (428)	14 (239)	22.5 (385)	11 (188)	19 (325)
>96	18 (308)	25 (428)	15 (257)	22.5 (385)	12 (205)	19 (325)

**Start Intensive Phototherapy at TSB of 3 mg/dL (51umol/L) above conventional or if rate of increment is >0.5 mg/dL (8.5umol/L) per hour.**

For preterm baby

**TOTAL SERUM BILIRUBIN LEVELS FOR PHOTOTHERAPY AND EXCHANGE TRANSFUSION IN BABIES 23 - 34 WEEKS GESTATION**

Age Hours of life	23 weeks		24 weeks		25 weeks	
	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)
<24*						
24	4.1 (70)	7.6 (130)	4.1 (70)	7.9 (135)	4.7 (80)	8.2 (140)
48	5.9 (100)	10.5 (180)	6.5 (110)	10.9 (185)	6.5 (110)	11.1 (190)
72	7.6 (130)	13.5 (230)	8.2 (140)	14.0 (240)	8.8 (150)	14.6 (250)
96	7.6 (130)	13.5 (230)	8.2 (140)	14.0 (240)	8.8 (150)	14.6 (250)

Age Hours of life	26 weeks		27 weeks		28 weeks	
	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)
<24*						
24	4.7 (80)	8.2 (140)	4.7 (80)	8.2 (140)	5.3 (90)	8.8 (150)
48	7.0 (120)	11.7 (200)	7.6 (130)	12.0 (205)	7.6 (130)	12.3 (210)
72	9.4 (160)	15.2 (260)	10.0 (170)	15.8 (270)	10.5 (180)	16.4 (280)
96	9.4 (160)	15.2 (260)	10.0 (170)	15.8 (270)	10.5 (180)	16.4 (280)

Age Hours of life	29 weeks		30 weeks		31 weeks	
	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)
<24*						
24	5.3 (90)	8.8 (150)	5.6 (95)	8.8 (150)	5.9 (100)	9.1 (155)
48	8.2 (140)	12.9 (220)	8.5 (145)	12.9 (220)	9.1 (155)	13.5 (230)
72	11.1 (190)	17.0 (290)	11.7 (200)	17.5 (300)	12.3 (210)	18.1 (310)
96	11.1 (190)	17.0 (290)	11.7 (200)	17.5 (300)	12.3 (210)	18.1 (310)

Age Hours of life	32 weeks		33 weeks		34 weeks	
	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)	Phototherapy - TSB in mg/dL (μmol/L)	ET - TSB in mg/dL (μmol/L)
<24*						
24	5.9 (100)	9.4 (160)	5.9 (100)	9.4 (160)	6.5 (110)	10.0 (170)
48	9.4 (160)	14.0 (240)	10.0 (170)	14.3 (245)	10.0 (170)	14.6 (250)
72	12.9 (220)	18.7 (320)	13.5 (230)	19.3 (330)	14.6 (240)	20.0 (340)
96	12.9 (220)	18.7 (320)	13.5 (230)	19.3 (330)	14.6 (240)	20.0 (340)

Source: National Collaborating Centre for Women's and Children's Health. [Neonatal jaundice](#). London: NCC-WCH; 2010) for recommended levels of phototherapy and ET

If the above image not clear – refer NNJ CPG

Follow-up NNJ. The first time after discharged SB must be done at day3,5,7!

<b>TSB</b>	<b>Day 3-5</b>	<b>Day 6 -10</b>	<b>Day 11-15</b>
<b>&lt; 8</b>	4/7	1/52	1/52
<b>8 – 10</b>	2/7	5/7	1/52
<b>11 – 13</b>	CM	2/7	4/7
<b>14-14.9</b>	CM	CM	2/7
<b>&gt; 15</b>	<b>REFER</b>		

**Prolonged Jaundice (SB>5mg/dL = 85micromol/L)**

>14 days for term baby/ >21 days for prem baby

**IX:** Prolonged jaundice work up: TFT, Urine C&S, UFEME, urine reducing sugar, FBC/PBF/Reticulocyte count/LFT

- All G6PD deficient babies should be admitted and monitored for NNJ during the first five days of life. A TSB should be done if there is clinical jaundice.
- Term G6PD deficient babies with birth weights  $>2500$  g may be discharged earlier on day four of life if the TSB is  $<160$   $\mu\text{mol/L}$  (9 mg/dL), and followed-up closely.

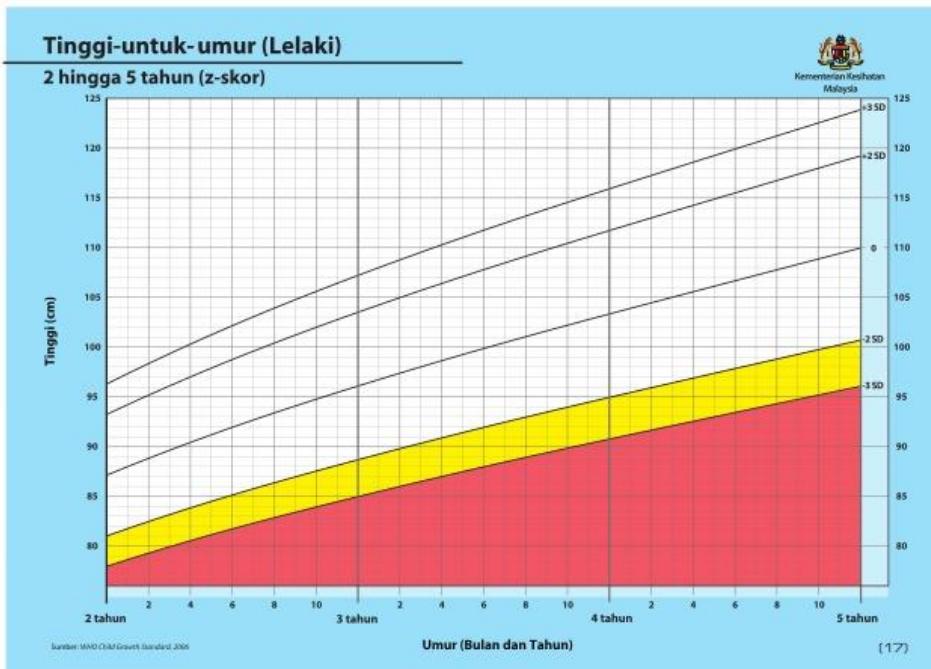
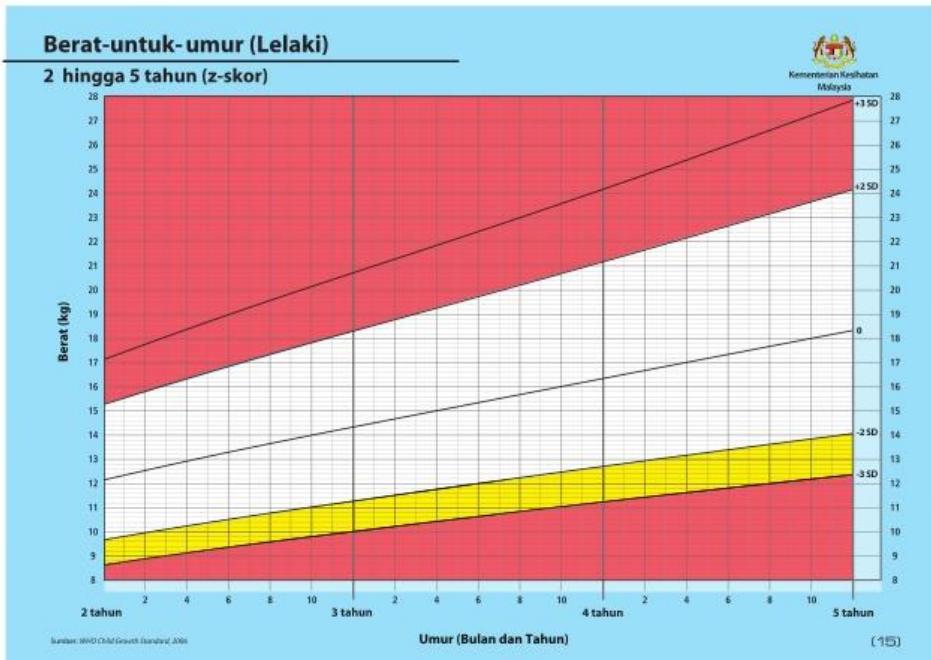
### **Recommendation 12**

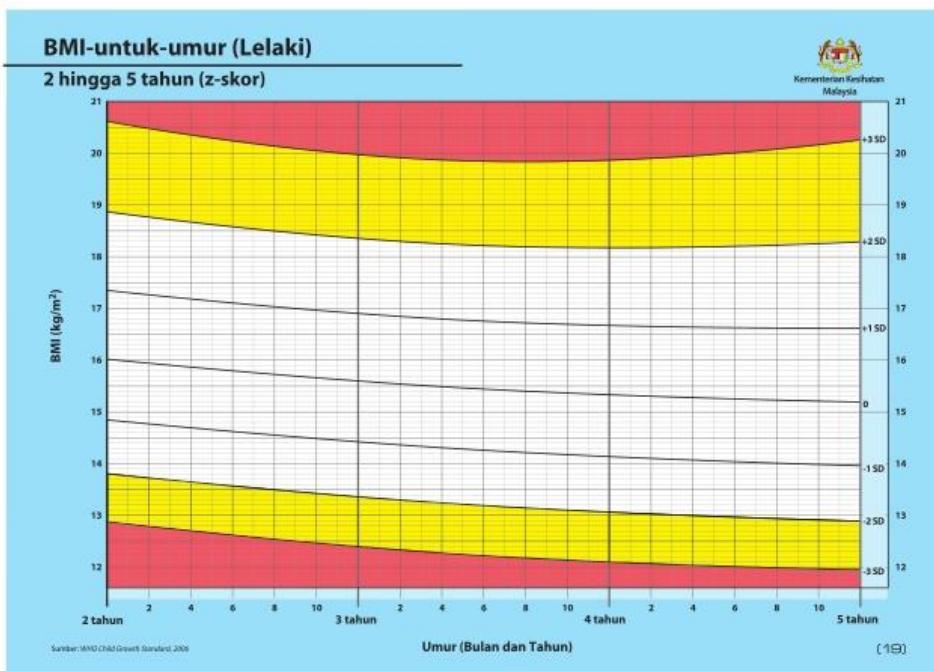
- Babies should be referred to secondary/tertiary care when they present with any of the following:-
  - Onset of jaundice within 24 hours of life
  - Rapidly rising total serum bilirubin of greater than 6 mg/dL/day (103  $\mu\text{mol/L/day}$ )
  - Clinical jaundice below umbilicus, corresponding to total serum bilirubin of 12 - 15 mg/dL (205 - 257  $\mu\text{mol/L}$ )
  - Clinical jaundice till the soles of the feet (urgent referral for possibility of exchange transfusion)
  - G6PD deficiency (if not previously hospitalised)
  - Clinical symptoms/signs suggestive of sepsis

### **Kurang zat makanan (KZM)**

To see growth, height & BMI of child.

The chart is at the back of the child's book. Different charts for different gender(Boys=Blue/Girls=Pink)





### Keypoints

1. A child with poor weight gain, firstly need determine if the child was born premature/term.
2. Is the child on any vitamins or supplements if born premature?
3. Is the child on neonate /paeds clinic follow up for her weight monitoring.
4. What was the birth weight like? SGA/ IUGR
5. How long was the child on exclusive breast feeding?
6. How the current feeding is & diet history?
7. Their family history. Small parents. Siblings with poor weight gain.
8. Socio-economic factors.
9. The child's development to be assessed whether it is appropriate according to her/his age.(Must rule out any developmental delay)

If the weight is in yellow zone (-2sd), but Ht & Bmi is normal range-

- Refer PSP for diet advice
- Start syrup MVT (dose in ml according to age. Ex: 1ml for 1 year, 3ml for 3 yrs. As for infant <1 yr Syrup Infant Multivitamin appeton is 1ml od)
- Weight monthly by nurses to monitor, if weight is persistent decreasing with BMI also decreasing, to refer back MO
- Advice high calorie diet

If the weight is in yellow zone (-2sd) Ht/BMI also is (-2sd) / Wt/BMI is in Red zone (-3sd) to write in plan:

- To register KZM (Nurses will register, there is specific form to be filled) Patient registered under KZM will receive bantuan susu. Only Malaysians can be registered under KZM
- Fill in KZM checklist, must check if child has any kwashiorkor/marasmus features. If yes to refer paediatric team
- Plan for blood taking to identify source (TFT/FBC/PBF/LFT/RP/UFEME/Urine C&S/Stool feme & parasite) To review results in 2 weeks time.
- Refer PSP for diet advice
- Start syrup MVT(dose in ml according to age. Ex:1ml for 1 year,3ml for 3 yrs. As for infant <1 yr syrup appeton infant mvt is 1ml od)
- Weight monthly by nurses to monitor, if weight is persistent decreasing with BMI also decreasing, to refer back MO and to refer paed/ FMS for co management
- Advice high calorie diet
- Any child with failure to thrive & developmental delay needs to be referred to paeds team.

Childhood immunization- updated 2016.

**Jadual Baru :**

IMUNISASI	Umur (Bulan)											(Tahun)		
	0	1	2	3	5	6	8	12	18	21	7	13	15	
BCG	Dos 1													
Hepatitis B	Dos 1	Dos 2				Dos 3								
DTaP			Dos 1	Dos 2	Dos 3				Booster					
Hib			Dos 1	Dos 2	Dos 3				Booster					
Polio (IPV)			Dos 1	Dos 2	Dos 3				Booster					
Measles						Sabah sahaja								
MMR							Dos 1	Dos 2						
MR										Booster				
DT										Booster				
OPV														
HPV											Perempuan sahaja			
Tetanus												Booster		
JE (Sarawak)						Dos 1			Dos 2					

**Jadual baru Imunisasi MMR digunakan bermula tahun 2016**

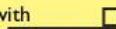


Diterbitkan oleh:  
Bahagian Pendidikan Kesihatan  
Kementerian Kesihatan Malaysia

### Childhood Developmental Milestone

Age	Gross Motor	Fine Motor	Speech/Language	Social
6 wks	<i>Pull to sit:</i> Head lag, rounded back <i>Ventral Suspension:</i> Head briefly in same plane as body. <i>Prone:</i> Pelvis high, knees no longer under abdomen. Chin raised occasionally.	Fixates and follows to 90 degrees	Vocalising by 8 weeks. Quiets to sound. Startles to sound.	Smiles responsively.
3 mths	<i>Pull to sit:</i> Slight head lag. Head occasionally bobs forward. <i>Ventral Suspension:</i> Head above plane of body. <i>Prone:</i> Pelvis flat. Lifts head up 45° - 90°.	Hand regard. Follows object from side to side (180°). Hands held loosely. Grasps object placed in hand. Not reaching out.	Squeals with delight. Turns head to sound.	Laughs.
5 mths	<i>Pull to sit:</i> No head lag and sits with straight back. <i>Lying supine:</i> Feet to mouth.	Reaches for objects. Plays with toes.		Mouthing.
6 mths	<i>Pulls to sit:</i> Lifts head in anticipation. Sits with support. Bears weight on legs. <i>Prone:</i> Supports weight on hands; chest, upper abdomen off couch. Rolls prone to supine.	Palmar grasp of cube, ulnar approach. Moves head, eyes in all directions. No squint (after 4 months).		

Age	Gross Motor	Fine Motor	Speech/Language	Social
7 mths	Sits with hands on couch for support. Rolls from supine to prone.	Feeds self with biscuits. Transfers objects - hand to hand. Rakes at pea.	Babbling in single syllables. (combined syllables at 8 months). Distraction Test	Stranger anxiety.
9 mths	Sits steadily. Leans forward but cannot pivot. Stands holding on. Pulls self to sit.	Inferior pincer grasp (Scissors grasp)	Localises sound at 3 feet, above and below the ear level.	Feeds with spoon occasionally. Looks for fallen toys. Understands "NO!"
10 mths	Crawls on abdomen. Pull self to stand.	Index approach. Uses index finger to poke at pea. Lets go of cube in hand.		Waves "Bye bye" Plays "Pat-a-Cake"
11 mths	Creeping on all fours. Pivoting. Cruising. Walks with both hands held.		One word with meaning.	Plays "peek-a-boo"
1 year	Gets from lying to sitting to crawling to standing. Walks like a bear. Walks with one hand held. Walks well (13 months). Stands alone	Neat pincer grasp. Bangs 2 cubes. Sees and picks up hundreds and thousands.	Understands phases; 2 - 3 words with meaning. Localising sound above head.	Casting (13 months) Less mouthing. Shy.
13 mths	Creeps upstairs. Stoops for toy and stands up without support. (best at 18 months)	Tower of 2 cubes. Scribbles spontaneously (15-18 months)	More words. Points to objects he wants. Continual jabber and jargon.	Takes off shoe. Feeds self with cup and spoon (but spills). Mouthing stops

Age	Gross Motor	Fine Motor	Speech/Language	Social
18 mths	Gets up and down stairs holding on to rail or with one hand held. Pulls toy or carries doll. Throws ball without falling. Sits on a chair.	Tower of 3 cubes. Scribbles spontaneously. Visual test: Picture charts. Handedness	Points to 2 - 3 body parts. Picture Cards - identify one.	Imitates housework. Toilet trained. Uses spoon well. Casting stops.
2 yrs	Goes up and down stairs alone, 2 feet per step. Walks backwards (21 months) Runs. Picks up toy without falling. Throws, kick ball without falling.	Tower of 6 cubes. Imitates cubes of train with no chimney.  Imitates straight line. Visual test: Snellen's chart.	2-3 word sentences. Uses 'you' 'me' 'I'. names 3 objects. Obeys 4 simple commands. Points to 4 body parts.	Puts on shoes, socks, pants. Dry by day. Play near other children but not with them.
2.5 yrs	Jumps on both feet. Walks on tip toes.	Tower of 8. Imitates train with chimney.  Holds pencil well. Imitates — and	Knows full name and gender. Names one colour.	
3 yrs	Goes up stairs one foot per step. Down stairs 2 feet per step. Jumps off bottom step. Stands on 1 foot for seconds. Rides tricycle.	Tower of 9. Imitates bridge with cubes:  Copies O Imitates + Draw a man test. (3 - 10y)	Can count to 10. Names 2 colours. Nursery rhymes. Understands "on", "in", "under".	Dresses, undresses with help. Dry by night. Plays with others.

Age	Gross Motor	Fine Motor	Speech/Language	Social
4 yrs	Goes up and down stairs one foot per step. Skips on one foot. Hops on one foot.	Imitates gate with cubes. Copies + Goodenough test 4.	Names 3 colours. Fluent conversation. Understands "in front of", "between", "behind".	Buttons clothes fully. Attends to own toilet needs.
4.5 yrs		Copies gate with cubes. Copies square. Draws recognisable man and house.		
5 yrs	Skips on both feet. Runs on toes.	Copies 'X' (5 years) X Copies (5½ years) triangle.  Goodenough test 8.	Knows AGE. Names 4 colours. Triple order preposition. Tell's the time.	Ties shoelaces. Dresses and undresses alone.
6 yrs	Walks heel to toe. Kicking, throwing, climbing.	Copies:   Goodenough test 12. Imitates or copies steps with 10 cubes		

Note: Goodenough test: 3 + a/4 years (a = each feature recorded in his picture).

## DEVELOPMENTAL ASSESSMENT

It is progressive, orderly acquisition of skills & abilities as a child grows. It is influenced by genetic, physical, neurological, environmental & emotional factors.

### **Important points to note:**

- Child must be cooperative, not tired/hungry/fretful/sick. Remember that a child may behave differently in an unusual environment
- Take note parental account of what the child can/cannot do
- Normal development depends on child's hearing & vision

- Normal pattern of speech / language development is essential for a normal social, intellectual & emotional development
- Assess child by 4 division: Gross motor/Fine motor/Speech/Social. Combination of 2 & more division= GDD Global Developmental Delay
- Allowance made for prematurity up till 2 years

#### KEY DEVELOPMENT WARNING SIGNS!

- Discrepant head size crossing centiles-too small(microcephaly)/ too large(macrocephaly)
- Persistent of primitive reflex >6months
- No response to environment/ parents by 12 months
- Not walking by 18 months
- No 2 words sentence by 2 years
- Problem social interactions at 3 years
- Congenital anomaly/ odd facies
- Any delay/ failure upon milestone

Child assessment by MO is done at 1/12, 18 months & 4 years of age.

M CHART (Modified check list for autism in toddler) is done by nurse at 18 months & 3 years. Any abnormality will be referred to MO for further assessment

Contraindication for immunisation – MUST KNOW - refer paed protocol

\*nurses will ask/refer MO to ask for confirmation whether safe to give vaccine or not \*