HOUSE OFFICERS WORKSHOP

DEDICATED TO DEPT OF PAEDIATRICS HOSPITAL AMPANG

THE PAEDIATRICS

HO GUIDE

BOOK OF PAEDIATRIC PROBLEMS & RELATED INFORMATION FOR YOUR ASSESSMENT

compiled by Gerard Loh

2013

The Pediatrics HO Guide

Contents

The pocket essentials:
1) Calculator 2) Scissors 3) Frank Shan 4) Peds Protocol 5) Pen torch

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Peds Posting Feb – June 2013
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- A House Officers Workshop Project-
www.myhow.wordpress.com
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References , images, tables
- Peds protocol 3rd edition
- various internet sources

Hospital Ampang Peds wards

NICU

1) Intensive (+ Isolation)
2) Semi-Intensive (intermediate)
3) Recovery / Mother's Room

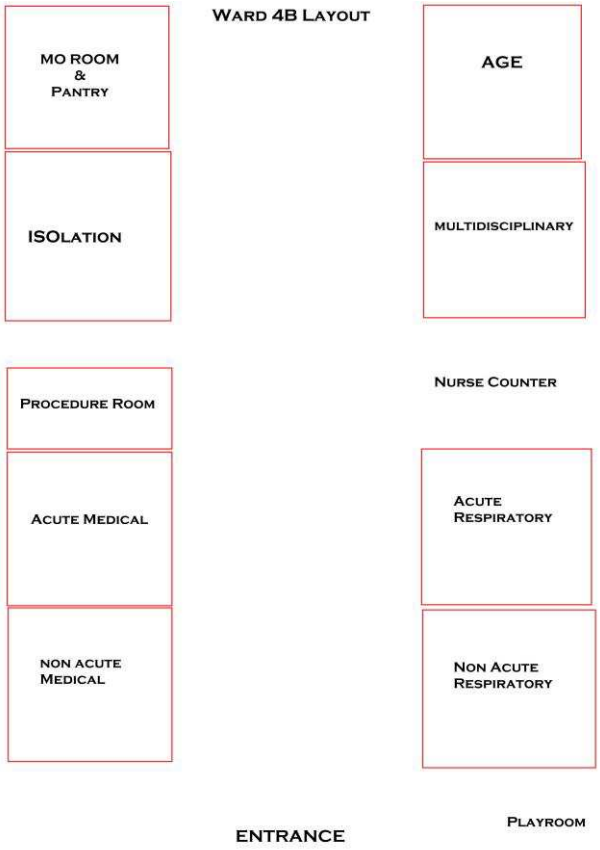
4B

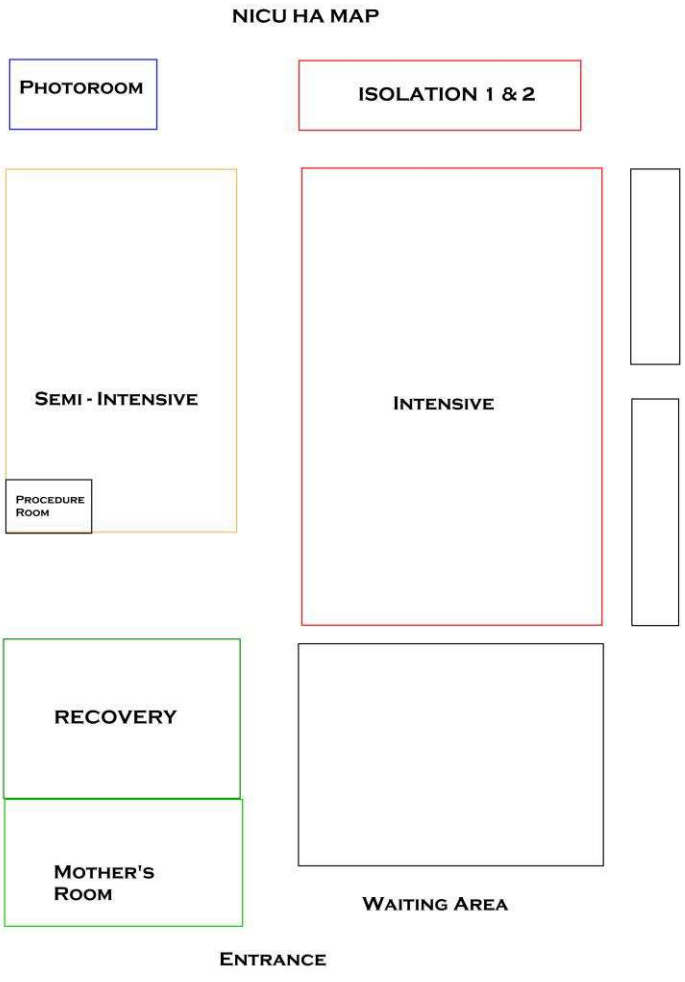
1) Respiratory (Acute + non acute)
2) Medical (Acute + Non acute)
3) AGE
4) Isolation
5) Multi-discipline

4A

Neonates + General Peds

Hospital Ampang Setup





General Neonatal Clerking

1) Age / Sex / Term/preterm , mode of delivery@ Gestational age / Apgar Score / Birth Weight / Current Weight
-TSH / G6PD status
- any weight loss (%)
eg: Day 5 / FT SVD @ 38wks / AS 9/10 / BW 3kg / CW 2.9kg
G6PD normal, TSH 5.6

2) History of Presenting Illness
-p/w jaundice since D3 of life …. etc or
attended EMLSCS for fetal distress... events leading to admission (chronologically)

3) Maternal Hx:
-Age / Gravidity & Parity / Gestation
-Antenatal check up problems: PROM > 24 hours..HVS GBS…etc
-Blood Group + Infectious Screening

4) Mother and Father's Data
Age / Occupation / Gravida/Para
H/o abortion or consanguinity etc

5) Physical Examination

Anthropometry: Weight / COH / Length

Respiratory: clear? Air entry
CVS : murmurs?
Abdomen: soft/ distended

Genitalia: normal? (testis descended in male)

Mouth: cleft lip/palate
Eyes: clear/discharge? Cataract?
Ears: external meatus present? Skin tag? Discharges?

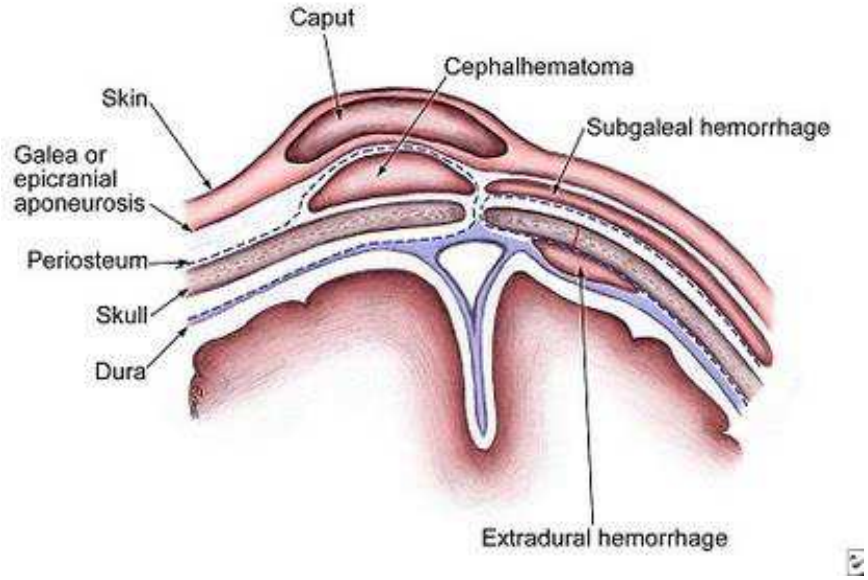
Neuro: Spine normal/spinia bifida? Skin tuft?

Reflexes: Moros / Sucking / Grasp

Radiology: CXR findings

Impression:

Management:



General Pediatrics Clerking

1)Problem:
Age / sex / Race
underlying medical illness /treatment/ follow up and TCA
any h/o admission?

Main complains: (short)
p/w fever 2/7 , Cough + RN 1/7, rapid breathing 1/7

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2) History of presenting illness (elaborate complains)
c/o:
1) Fever 2/7
– documented temperature..
- chills/rigor etc

2) Cough + RN 1/7
- chesty cough, sputum…etc

Important points:
- Sick contact? PTB contact?
- Visited GP? Antibx given? Completed course?
- Interval Symptoms? Atopy? (BA)
- Child sent to nursery? How many children there? Any sick children
- Recent travelling / swimming / jungle trekking (dengue/leptospirosis)
- feeding: Usual feeding and current feeding (in Oz)

Otherwise (negative symptoms)
- No URTI / UTI, Vomiting/diarrhoea, fever ..etc

In ED: (short summary of mx)
- tachypnoic, RR →given nebs x 2, IV hydrocort…etc

Medical / Surgical Hx: previous admissions? Surgery?

Allergies: food or drug allergies?

Birth Hx: Term? Mode of delivery / BW / admission to NICU?

Neurodevelopmental Hx : Gross Motor / Fine Motor / Speech / Social (refer appendix for dev milestone)

Family History: Fam hx of asthma? Fitting etc..

Social History: siblings, age, healthy / Parents age and occupation / living conditions

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Physical Examination
anthropometry: weight / height / length

General examination:
alert, conscious…etc
Vital signs..

ENT: throat injected? Tonsils enlarged? Ears TM intact?
Respiratory: lungs clear / air entry
CVS: murmurs?
Abdomen: soft / distended? / liver and spleen
Others: genitalia? Skin rashes…LN etc

Diagnosis : Imp: AEBA 2 URTI
Lab: FBC/RP/LFT etc
Radiology: CXR…

Action plan: Management, investigations, medications

Offtag notes by Dr Gerard

1) Asthma

Defn: Chronic airway inflammation leading to increase airway responsiveness, that leads to recurrent episodes of WHEEZING, BREATHLESSNESS, CHEST TIGHTNESS, COUGHING (Night/early morning)

Hx: - Precipitating factor (URTI, allergen etc) - current mx, prev admission, - home/school environment - response prior to tx/compliance - atopy- eczema, rhinitis, conjunctivitis - Fam hx of Asthma	**Interval sx** Day/Nocturnal sx Cold/exercise induced Exacerbation frequency Need for reliever/nebs Pets/ carpets at home
Acute - tachypnoic / tachycardic - hyperinflated chest - wheeze/ronchi - recession - drowsy/cyanosed	**Chronic** - Harrison sulci - hyperinflated chest| - eczema/dry skin - hypertrophied turbinate
i) Episodic (viral) wheeze – only wheeze during viral infections *ii) Multiple trigger wheezer – smoke, allergen, crying, laughing, exercise*	**Triggers** - environmental allergens - Smoke - Respiratory Tract Infections - Food allergy - Exercise induced

Clinical index (to define Risk of asthma)

> 3 wheezing episodes/year during first 3 years + 1 Major or 2 minor Criterion

Major:
- Eczema
- Parental asthma
- AERO Allergen skin test +

Minor:
- Skin test +
- Wheezing w/o URTI
- Eosinophilia > 4

Classification

1) Intermittent : - EIA

2) persistent : + EIA, + need for prophylaxis MDI

Degree of Asthma severity

	Intermittent	**Mild persistent**	**Mod Persistent**	**Severe Persistent**
Daytime sx	< 1x / week	> 1x /week	Daily	Daily
Nocturnal sx	<1x / month	>2x / month	>1x / week	Daily
EIA	-	+	+	Daily
Exacerbations	Brief Not affecting sleep	> 1x / month Affect sleep/activity	> 2x / month Affect sleep/activity	>2x / month frequent Affect sleep/activity
PEFR/FEV1	Normal lung fn	>80%	60-80%	< 60%

GINA – Level of asthma control (after starting MDI)

	Controlled	**Partly controlled**	**Uncontrolled**
Daytime sx	-	> 2x / week	> 3 of partly controlled features
Nocturnal sx	-	+	
Limit activities /EIA	-	+	
Exacerbations	-	> 1 / year	
Lung Fn test	Normal	< 80% predicted best	
Need for reliever	-	> 2x / week	1 in any week

Management

Assessment of severity

- Diagnosis = cough + wheezing + SOB / pneumonia
- Trigger factor = food, weather, exercise, infection, emotion, drugs, allergens
- Severity = RR, colour , respiratory effort, consciousness level

Sx	mild	Moderate	Severe
Altered Consciousness	-	-	**+**
Physical Exhaustion	-	-	**+**
Talks in	Sentences	Phrases	**Words**
Pulsusparadoxus	NO	+/-	**PALPABLE**
Central cyanosis	-	-	**+**
RONCHI	**+**	**+**	**SILENT CHEST**
Use acc. muscles	-	Moderate	**MARKED**
Sternal Retraction	-	Moderate	**MARKED**
Initial PEF	>60%	40-60%	**<40%**
SpO2	>93%	91-93%	**<90%**
OUTCOME	**Discharge**	May need admit	**ADMIT**
Mx: **MDI** ventolin (blue) 200mcg 2 puff PRN Fluticasone (orange) 125mcg 2 puff BD Budesonmide (brown) 125mcg BD Seretide (purple) 25/125 1 puff BD Montelukast /singulair 4mg granules (Chew @8pm) IV hydrocort 4-5mg/kg QID for 1/7, then change to Syr Prednisolone 1-2mg/kg OD for 5/7	**1) Neb Salb** **< 1 yo: 0.5 : 3.5** **>1yo : 1:3** **or** **MDI Salb in spacer** 4-6 puffs (<6yo) 8-12 puffs (>6yo) **2) Oral prednisolone** SyrPred 1mg/kg/day for 3-5/7 *Reasses after 60mins* *if no improvement* *Tx as moderate*	1) Neb Combivent x 3 2) O2 8L/min 3) Oral Prednisolone *Reasses after 60mins* *if no improvement,* *Tx as severe*	**1) Neb Combivent x 3 / cont** **2) O2 8L/min** **3) IV Hydrocort 5mg/kg QID 1/7** **4) IVI Salbutamol continous** Bolus: 5-10mcg/kg/10mins, then Infusion: 0.5-1mcg/kg/min **5mg in 50ml** **1amp = 0.5mg (5mcg = x 10amp)** **0.6ml/kg = 1mcg/kg/hr** **max 20mcg** *** S/C Bricanyl (terbutaline)** 0.005-0.01mg/kg (max 0.4mg) every 5-10mcg/kg 15-20mins *** IV MgSO4 50%** Bolus: 0.1ml/kg(50mg/kg) in 20mins ***IV Aminophyline** Bolus:6mg/kg bolus then Infusion: 0.5-1.0mg/kg/hr *Mechanical ventilation and observation in HDW/ICU

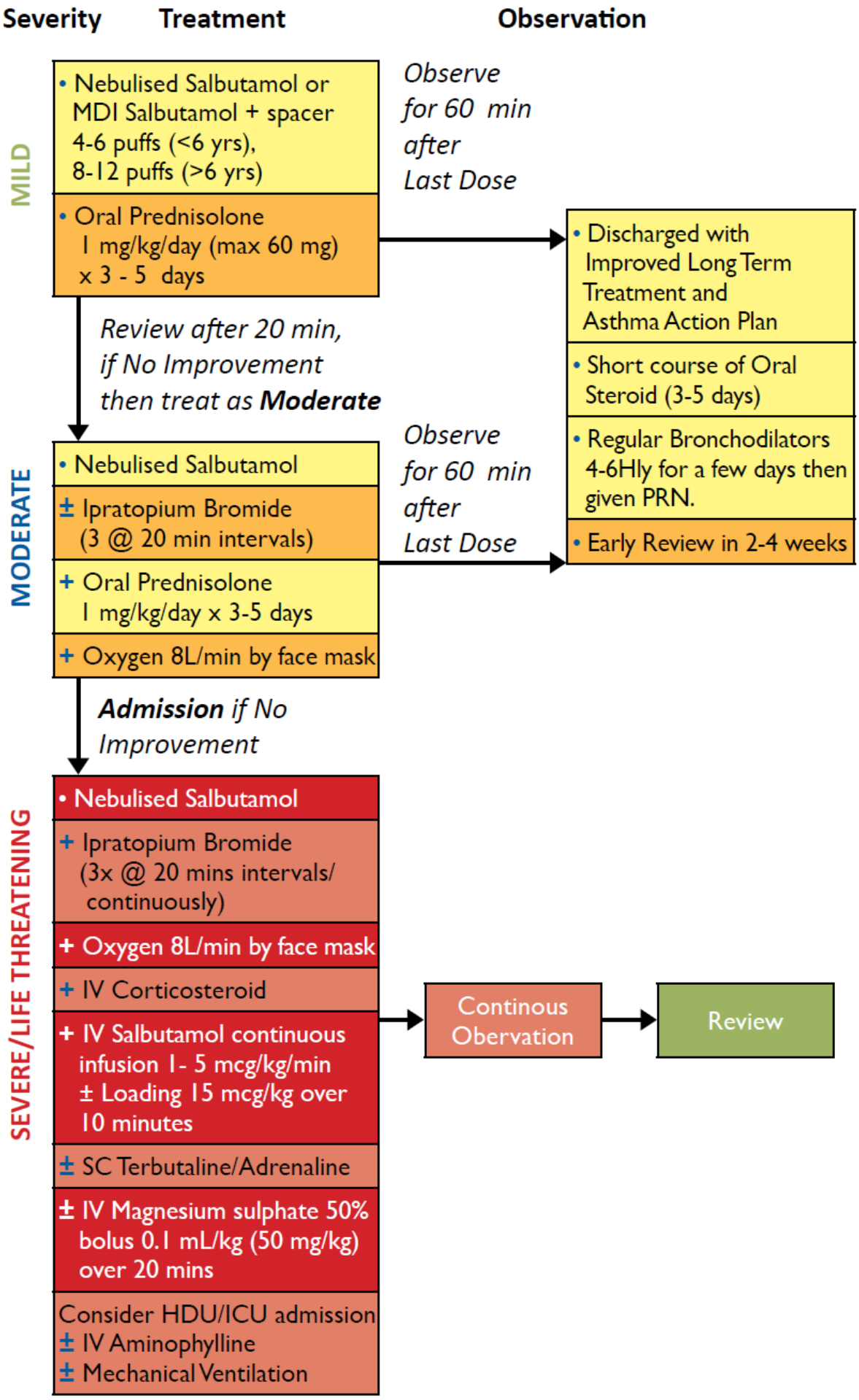
Criteria for admission

1) failure to respond to standard tx at home
2) failure to respond to NEB
3) Relapse within 4 hours of NEB

Asthma Action plan

	MDI Ventolin 100mcg	MDI Fluticasone 125mcg
Healthy	2 puff PRN	1 puff BD
Unhealthy	2 puff QID	1 puff BD
Exacerbation	MDI Ventolin 1puff →10 breaths, repeated up to 10times, may repeat every 20mins Bring child to hospital immediately * 10 puffs ventolin = 1 Neb	

Management of Acute Exacerbation of Bronchial Asthma in Children



Drug Dosages for Medications used in Acute *Asthma*		
Drug	Formulation	Dosage
β_2-agonists		
• Salbutamol	Nebuliser solution 5 mg/ml or 2.5 mg/ml nebule Intravenous	0.15 mg/kg/dose (max 5 mg) or < 2 years old : 2.5 mg/dose > 2 years old : 5.0 mg/dose Continuous : 500 mcg/kg/hr Bolus: 5-10 mcg/kg over 10 min Infusion: Start 0.5-1.0 mcg/kg/min, increase by 1.0 mcg/kg/min every 15 min to a max of 20 mcg/kg/min
• Terbutaline	Nebuliser solution 10 mg/ml, 2.5 mg/ml or 5 mg/ml respule Parenteral	0.2-0.3 mg/kg/dose, or < 20 kg: 2.5 mg/dose > 20 kg: 5.0 mg/dose 5-10 mcg/kg/dose
• Fenoterol	Nebuliser solution	0.25-1.5 mg/dose
Corticosteroids		
• Prednisolone	Oral	1-2 mg/kg/day in divided doses (for 3-7 days)
• Hydrocortisone	Intravenous	4-5 mg/kg/dose 6 hourly
• Methylprednisolone	Intravenous	1-2 mg/kg/dose 6-12 hourly
Other agents		
Ipratropium bromide	Nebuliser solution (250 mcg/ml)	< 5 years old : 250 mcg 4-6 hourly > 5 years old : 500 mcg 4-6 hourly
Aminophylline	Intravenous	6 mg/kg slow bolus (if not previously on theophylline) followed by infusion 0.5-1.0 mg/kg/hr
Montelukast	Oral	4 mg granules 5mg/tablet on night chewable 10mg/tablet ON

2) Febrile Seizures

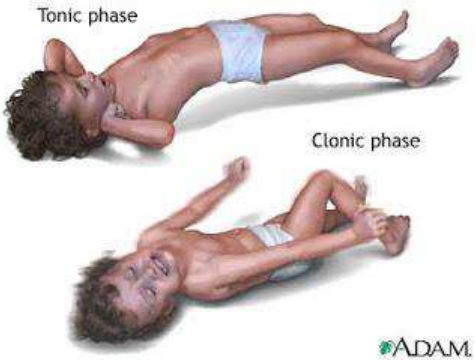
Defn: Fit with fever in children aged 3months – 6 yo (with no evidence of intracranial pathology/metabolic derangement) (24hrs)

Sx	Simple	Complex
Duration	<15mins	>15mins
Type of convulsion	Generalized tonic-clonic	Focal
Occurrence	1 in 24 hours (does not recur during febrile episode)	>1 in 24 hours
Post Ictal Drowsiness	+	-

Causes
- Otitis Media
- URTI / UTI(tonsilopharyngitis)
- gastroenteritis
- viral infection
- meningitis (irritability, full fontanelle, meningismus)

Risk factors
Fam hx of febrile fits (%recur: none: <15% | >2:>30% | > 3: >60%)
age < 18mo
low degree fever (<40 C) during 1st episode
< 1 hour btwn onset Fever & Fit

Criteria for admission
1) Fear of recurrent fits
2) To exclude intracranial pathology
3) investigate and treat cause
4) Allay parental anxiety (stay far from hospital)



Hx:
1) Duration of fitting, type of fitting (GTC/focal etc)
2) Family hx of fitting
3) Sx of infection
4) Neurological development

Management
1) Control fever – Syr PCM 15mg/kg or tepid sponging
2) Supp Diazepam 0.5mg/kg (if Fit >5min)
3) I/O
4) Encourage orally
5) Fit Education and diary

Ix: FBC, RP, RBS, C&S blood/urine, UFEME
* LP if evidence of meningitis
* EEG if multiple recurrent/complex febrile fit

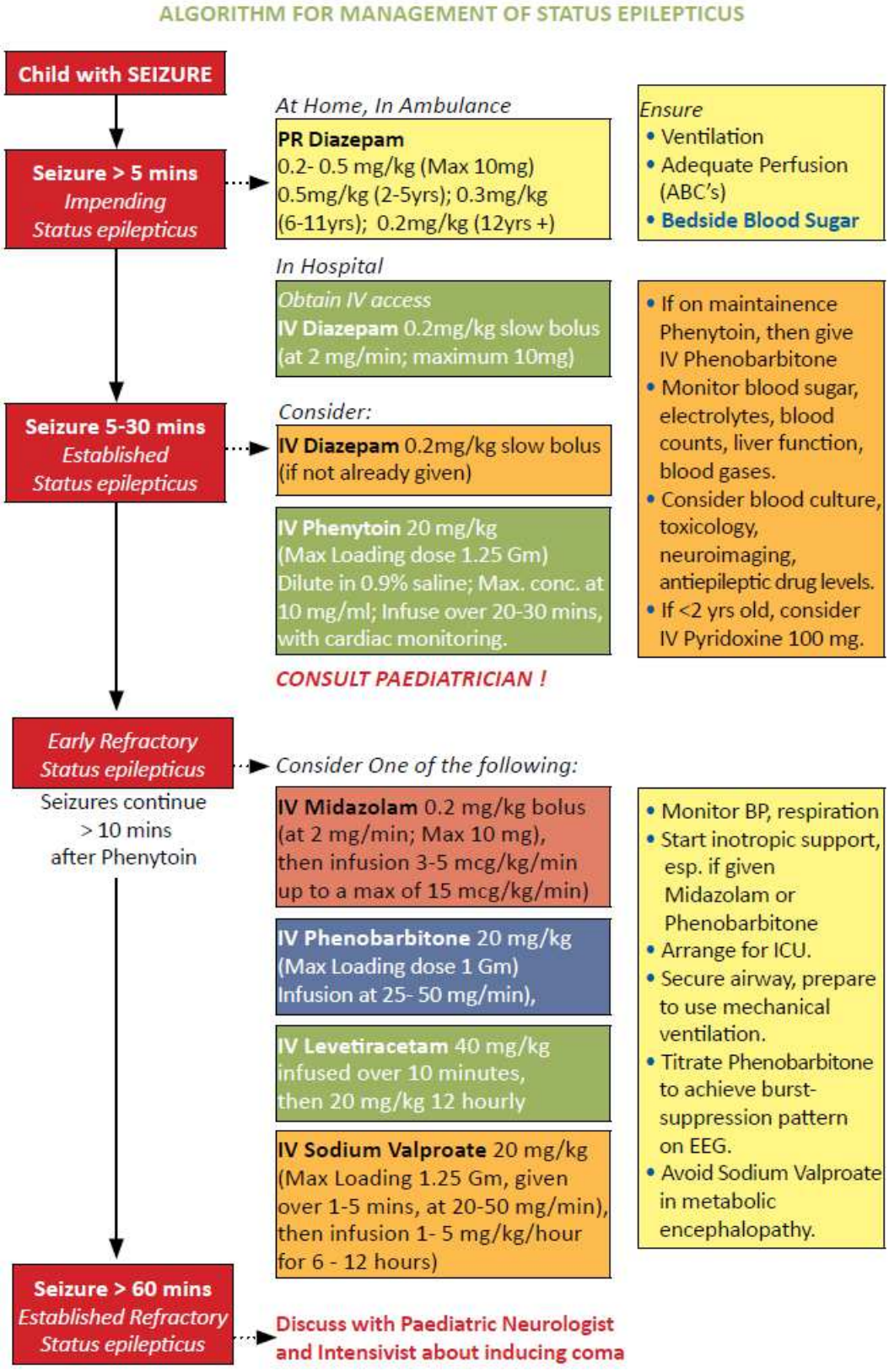
Fit education
- stay calm during onset
- loosen clothes, esp around neck
- Left Lateral Position
- Don't insert anything into mouth
- Wipe any secretions from mouth

* Time the duration, if > 5mins bring child to Clinic/Hospital
* During fever, give PCM/tepid sponging, encourage fluids intake, good aeration

Status Epilepticus

Defn: Any seizure > 30mins or intermittent seizure w/o regaining full consciousness > 30mins

Seizure > 5 mins : Impending Status Epilepticus
5-30 mins : Established Status Epilepticus
post phenytoin > 10 mins : Early Refractory Status Epilepticus
> 60 mins : Established Refractory Status Epilepticus



3) Acute GastroEnteritis

Abdomen turgor **G**eneral Condition **E**yes sunken, **T**urgor

Signs of shock = Tachycardia, weak peripheral pulse, delayed CRT, cold peripheries, depressed mental state

Assess			
General Condition	Well, alert	Restless, irritable	Lethargic, unconscious
Sunken eyes	-	+	+
Offer Fluid	Drinks normally	Drinks eagerly, thirsty	Not drinking, poor
Pinch skin (abdomen)	Skin goes back immediately	Skin goes back slowly	Skin goes back slow >2sec
DEHYDRATION	**MILD (<5%)**	**Moderate (5-10%)**	**Severe (>10%)**
Treatment	**Plan A (Tx at home)** - Give extra fluid (ORS/H20) - Cont feeding on demand - Return when poor oral intake, fever, bloody stool	Plan B - Give ORS over 4 hours - Reassess after 4 hours	Plan C - Start IVD immediately!
	ORS 8 sachets at home <2 yo : 50-100ml after BO >2yo : 100-200ml after BO - give frequent small sips frm cup/spoon * if vomit, wait 10mins then give slowly (1 spoon/2-3mins)	**ORS over 4 hours** <6kg : 200-400ml 6-10kg : 400-700ml 10-12kg : 700-900ml 12-19kg : 900-1400ml	0.9 % NS bolus 20ml/kg then reassess Correction +maintenance

Fluid Management

Maintenance (over 24H)	D31 - 6 mo : 150cc/kg/day (1/5NSD5%) 6mo – 1 year : 120cc/kg/day (1/5NSD5%) > 1 yo : Holliday segar formula (1/2 NSD5%) 1st 10kg = 100ml/kg (10kg = 1000ml) 2nd 10kg = 50ml/kg (20kg = 1500ml) > 20kg = 20ml/kg
Metabolic acidosis, pH <7.1	IV 8.4% NaHCO3 = 1/3 base deficit x Wt
Correction of Na **Na deficit** = (135 – Se Na) x 0.6 x Wt **Daily req Na** = 2-3mmol/kg/day 1pint = 500ml 0.9% NS = 154 mmol / L 1/2NS = 77mmol / L 1/5 NS = 39mmol / L	Eg Na: 128 , BW 15 kg , 2yo **Deficit** : (135 – 128) x 0.6 x 15 = **63mmol** **Daily requirement** = 3 x 15 = **45mmol** **Total** = 63+45 = **108 mmol** 1 pint ½ NS = 39 mmol Na TF = 1150ml/ day ; 1150/24Hr = 48cc/hr (90mmol Na)
Correction of K **K deficit** = (4-Se K) x 0.4 x Wt) **Daily req K**= 2-3mmol/kg/day 1g KCL = 13.3mmol 10ml Mist KCL = 1g K 1g = 13.3mmol, 1 pint 500ml, 1 ml=0.02 *no more than 0.05mmol/ml	Eg: Se K : 2.5 , weight 15 kg **Deficit:** (4 - 2.5) x 0.4 x 15 = **9 mmol** **Daily requirement** = 2 x 15 = **30mmol** **Total** = 9 + 30mmol = **39 mmol** 39 mmol → g = 39/13.3 = **3g** therefore if a) IVD = 1.5 g in each pint **check:** no more than 0.05mmol/mL/min in each pint (1.5g x 13.3mmol) / 500ml = 0.03mmol/ml (not more than 0.05) b) Mist KCL = 3g x 10 = 30ml
Correction (fluid deficit)	% dehydration x BW in grams (= % x BW(kg) x 10) Eg: 10% dehydration, BW 15kg 5/100 x 15kg x 1000 = 5 x 15 x 10 = 750cc Run over 12 / 24 / 48 hours
Investigations	Stool C&S, FEME and Rotavirus Antigen Ddx lactose intolerance: stool reducing sugar (diarrhoea >14 days)

4. Dengue Fever

New classification
1) Dengue with or without warning signs
2) Severe Dengue

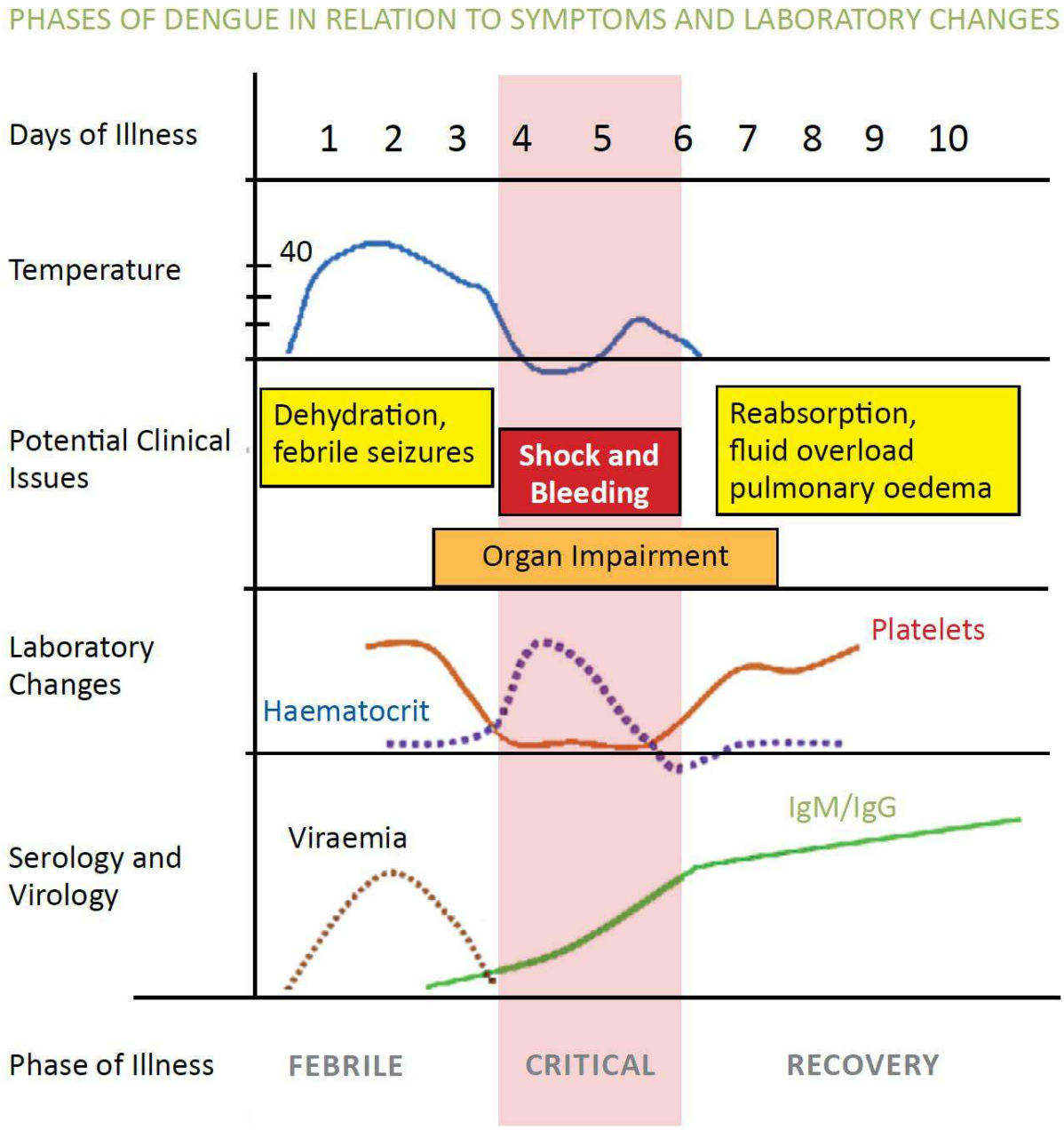
WARNING SIGNS	**Probable Dengue**	**Severe DengueSx**
Water accm	Endemic area + Fever, and 2 of:	Severe plasma leakage (rising HCT)→
Abdominal pain	Nausea/vomiting	Fluid Accm (ascites/ pleural effusion)
Raised HCT/ decreased Plt	Rashes	Respiratory Distress
Non stop vomiting	Muscular aches and pain	Severe bleeding
Increased Liver size > 2cm	Torniquet test +	Severe organ involvement
Nasal/mucosal bleed	Any warning sx	Liver enzymes AST/ALT >1000
General: lethargy, restlessness	Lab: leucopenia / IgM	CNS: impaired consciousness/seizures

Normal Circulation	Compensated shock	Decompensated / Hypotensive shock
Clear consciousness	Clear consciousness – shock can be missed if you do not touch the patient	Change of mental state – restless, combative or lethargy
Brisk capillary refill time (<2 sec)	Prolonged capillary refill time (>2 sec)	Mottled skin, very prolonged capillary refill time
Warm and pink extremities	Cool extremities	Cold, clammy extremities
Good volume peripheral pulses	Weak & thready peripheral pulses	Feeble or absent peripheral pulses
Normal heart rate for age	Tachycardia	Severe tachycardia with bradycardia in late shock
Normal blood pressure for age	Normal systolic pressure with raised diastolic pressure Postural hypotension	Hypotension/unrecordable BP
Normal pulse pressure for age	Narrowing pulse pressure	Narrowed pulse pressure (<20 mmHg)
Normal respiratory rate for age	Tachypnoea	Metabolic acidosis/ hyperpnoea/ Kussmaul's breathing
Normal urine output	Reduced urine output	Oliguria or anuria

First encounter, determine:
1) Establish Dengue
2) Phase of illness
3) warning sx / severe dengue sx

Management goals
1) Replace plasma losses
2) Early recognition/tx of haemorrhage
3) Prevent fluid overload

Phases
1) Febrile T > 38
2) Critical (defervescent <38.5)
3) Recovery



History

1) Fever how many days? Last taken T PCM?
2) Alarm signs
3) Mental state
4) Urine output
5) relevant hx – fogging, recent travel, jungle trekking, swimming in waterfall, high risk behaviour etc

Physical

1) GCS
2) Hydration
3) Hemodynamics – skin, cold/warm limbs, CRT, pulse volume, BP, PR, pp
4) Respiration: tachypnoea, effusion
5) PA: abdominal tenderness? Ascites?Hepatomegaly
6) bleeding manifestations (tourniquet test)

Ix:

1) **FBC** – neutropenia, HCT rising, Plt decreasing
2) **LFT** – AST elevation > ALT (DHF)
3) **Dengue serology Tests**:
a) **Dengue IgM** – taken ASAP when suspected, then repeat Day 7 (seroconversion)
b) **sero surveillance** – taken for statistics purposes, before Day 5

Management

Hydration

5-7ml/kg/hr – 1-2hours
3-5ml/kg.hr – 2-4hours
2-3ml/kg/hr – adjust and taper
* according to clinical response and HCT

Compensated Shock

1) Obtain HCT level before fluid resus→ **IVD 5-10ml/kg/hr x 1Hour**
2) repeat: FBC/HCT/BUSE/LFT/RBS/CoAg/ *Lactate/Bicarb / GXM*
- check HCT if no improvement repeat **IVD 5-10ml/kg/hr** (up to 2 cycles, if no improvement change to colloids)
*** If HCT decrease, consider occult bleeding →Tx PC**
*** If persistent shock after x 3 cycles, consider other causes of shock =** *sepsis, cardiogenic shock*
** adjust fluids clinically, avoid overload = ascites/pleural effusion/APO*

Decompensated shock

1) Obtain HCT level before fluid resus
2) **IVD 10-20ml/kg/hr give over 15-30mins** then repeat Ix: FBC/HCT/BUSE/LFT/RBS/CoAg/ *Lactate/Bicarb / GXM*
3) Check HCT if no improvement repeat **2nd bolus 10-20ml/kg/hr 30-60mins** then repeat HCT,
3rd Bolus 10-20ml/kg/hr over 1 hour (with colloids)
* if persistent shock after 3x fluid resus, other causes of shock must be considered→bleeding, sepsis, cardiogenic
* if after fluid resus HCT decrease, consider Tx with packed cell

Mx of bleeding

1) Gum bleeding →Tranexamic acid oral gargle TDS, monitor Hb
2) Occult bleed →when HCT drop without clinical improvement despite fluid resus, blood tx with PC is recommended

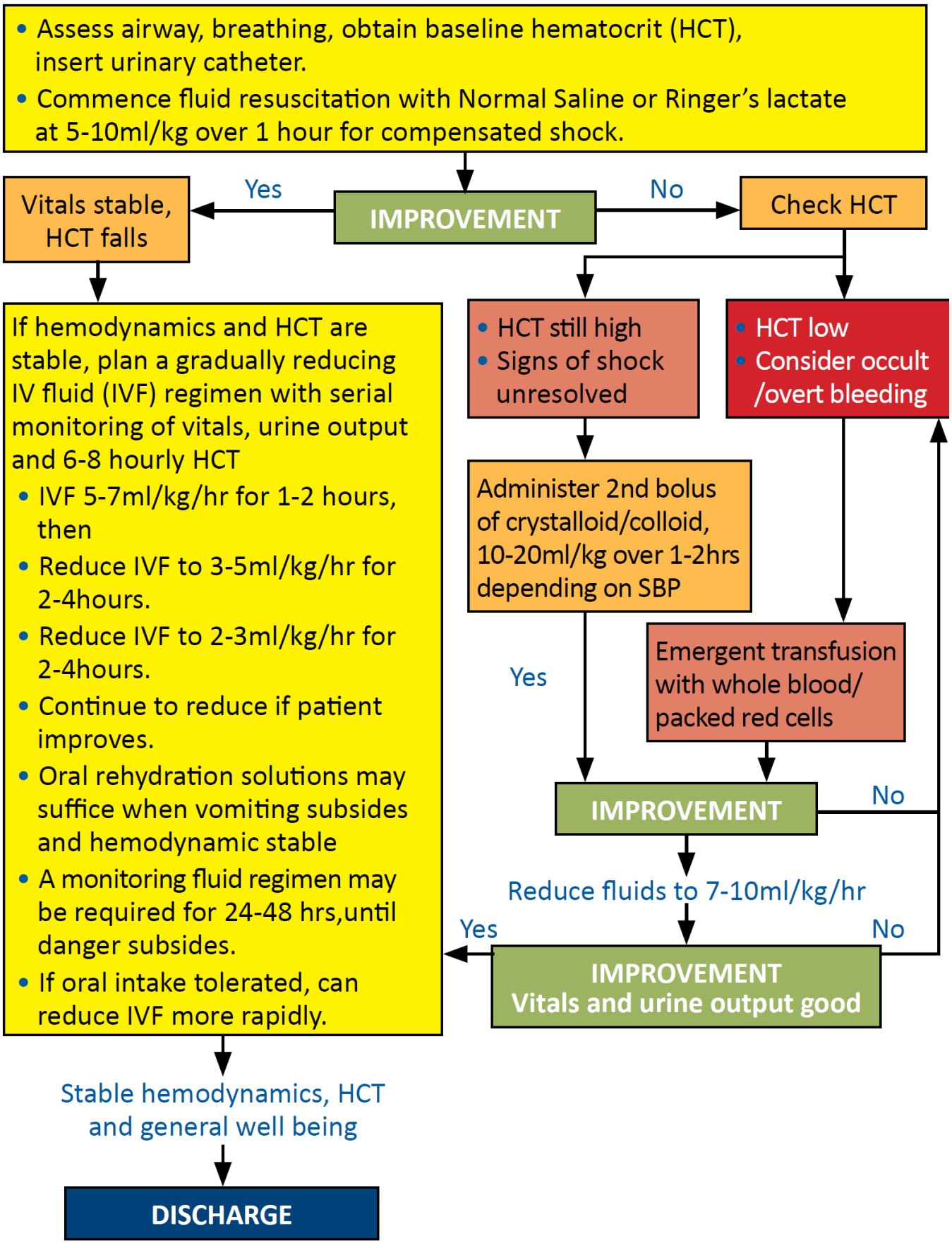
ICU care

Ind: persistent shock, respiratory support (mech ventilation), significant bleeding, encephalopathy/encephalitis

Discharge criteria (GO BACK LA)

1) General condition improves
2) Organ dysfn recovered
3) Bleeding episodes resolved
4) Afebrile >48hours
5) Clear lungs- pleural effusion/ascites
6) Kencing (good urine output)
7) Lab-Plt rising>50 000, Hct Stable
8) Appetite returns

VOLUME REPLACEMENT FLOWCHART FOR PATIENTS WITH SEVERE DENGUE AND COMPENSATED SHOCK



Neonatal Jaundice
Etio: Liver immaturity /Hemolysis
Bilirubin (present from breakdown of heme) >85mcmol/L or 5mg dL [1mg/dl = 17mcmol/L]
- Yellowish discolouration of skin, mucous membrane and sclera
- normally direct <15%
Pathophysiology
1) Break down of HbF by →increased biliverdin (+ heme) →accm of unconjugated bilirubin = clinical jaundice
2) Hemolysis → increased circulation of unconjugated bilirubin = jaundice
Risk factors

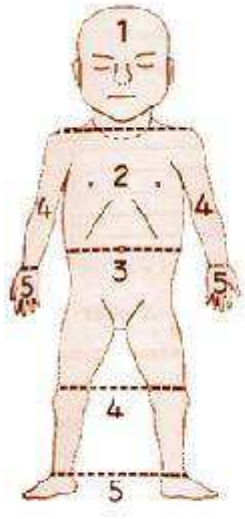
Maternal	**Neonates**
ABO/Rh incompatibility	Birth trauma. Cephalohematoma
Breast feeding volume/traditional medicine	Bruising (VAD, forceps)
Diazepam/oxytoxin	Excessive weight lost
Asian/native American	Infections
GDM	Decreased/infrequent feeding
	Polycythemia
	Prematurity

Physiological (24-72H)
-marked physiological release of Hb (RBC life span decrease)
-hepatic bilirubin metabolism less efficient
Pathological (<24hrs , 24-2weeks , >2weeks)
1) Early onset (<24H)
- unconjugated (Rh/ABO, G6PD, spherocytosis, pyruvate kinase deff, drugs)
- congenital infection (TORCHES), sepsis
Ix: TSB, G6PD, Mother and Baby ABO, Coombs Test, Retic Count, FBC
2) Late (24-2weeks)
- physiological
- BF jaundice
- Infection (UTI, septicaemia, meningitis)
- Hemolysis
- ABO/G6PD
- bruising/cephalohematoma
- polycythemia
- dehydration

* CriglerNajiar Syndrome
→ disorder of metabolism of bilirubin, autosomal recessive, consanguinity, TSB >345, no response to tx)

Breast Feeding jaundice **-** caused by inadequate feeding leading to weight loss and increased enterohepatic circulation (deconjugation by B-glucoronidases in colon, hence unconjugated bilirubin is reabsorbed into circulation causing jaundice) - Weight loss >10% **Breast Milk Jaundice (D4-7OL)** - adequate breast feeding but certain enzymes/genetic problem, result in poor conjugation of bilirubin (exact mechanism still unknown)	Phototherapy as indicated, TSB stat, taper photo accordingly Encourage BFOD, try EBM and top up with supplemental formulated milk Cont Breast feeding, add supplementation
ABO/Rh incompatibility - Usually early onset within 24hours - Mother BG O+ (anti A + anti B), Baby BG A or B - hemolysis result in increased bilirubin	Phototherapy as indicated *Baby ABO, Coombs test, Retic Count , FBC, LFT, RP*
Sepsis / infection **-** poor feeding, lethargy, temperature instability, tachypnoic - risk of maternal sepsis (PROM>24H, maternal pyrexia etc)	*Blood C&S, FBC* Start antibiotics strict I/O
Bruising / Cephalohematoma	**COH 4hourly monitoring**
G6PD / Spherocytosis	G6PD → observe 5/7, lifestyle advise *FBP*
Hypothyroidism	**TFT**
Polycythemia **HCT > 65%, Hb > 20**	
Prolonged Jaundice	**>14 weeks** **TFT, Urine C&S, UFEME, urine reducing sugar** **FBP**
Conjugated hyperbilirubinemia	**+ TORCHES, IEM screening, HEP B/C**

Kramer's rule



The bilirubin range associated with each zone is:

Zone	1	2	3	4	5
SBR (micromol/L)	100	150	200	250	>250

Phototherapy
Conventional Photo (single, double, triple)
Clinically jaundiced, start with single/double photo as indicated, take TSB and adjust accordingly
(refer to Photo Level and ET Level)
When to stop Phototherapy: when TSB is 30mcmol below photolevel

Intensive Photo Therapy = 4 photo
* cont rising TSB despite phototherapy suggests hemolysis (KIV Exchange Transfusion)
TSB monitoring: **1P** : CM , **2P** : 12Hrly, **3P** : 6Hrly, **4P** : 4Hrly

Exchange Transfusion
Ind:
When phototherapy fails (no decline in TSB (17-34mcmol/L) after 4-6H)
Sx of Acute bilirubin encephalopathy (hypertonus, retrocollis, opisthotonus, high pitch cry, fever)

- use RH isoimmunization / ABO compatible / Rh –ve Blood
- 2 x 80ml/kg/hr, use fresh whole blood (1 cycle 3-4mins: 1min In : 1min Out:1min rest ; 90-120min – 30-35cycles)
- correct hydration / infection

Pre ET: Blood C&S , FBC, RP, LFT, Ca,mg, PO4, VBG, RBS, FBP, Retic count, Coombs test, ABO Infectious Screening (HIV,Hep,VDRL), TORCHES
Post ET: Blood C&S , FBC, RP, LFT, Ca,mg, PO4, VBG, RBS
6H post ET: TSB,FBC,RP

Kernicterus
- Encephalopathy due to deposition of unconjugated bilirubin in basal ganglia and brainstem nuclei

Sx:
Acute: lethargy, poor feeding
Severe: irritable, high pitch cry, hypertonicity, opisthotonus, seizures, coma

Long term complications: learning difficulties, sensorineural deafness

Prolonged jaundice (jaundice for > 14 days in Term, > 21 days in Pre term)

Unconjugated	**Conjugated**
Septicaemia (UTI)	Biliary atresia, choledochal cyst,
Breast milk jaundice	Idiopathic neonatal Hepatitis
Hypothyroidism	TORCHES infection
Hemolysis (G6PD, spherocytosis)	Metabolic diseases - Citrin deficiency, galactosemia, PFIC, alpha-1-antitripsin deficiency
Galactosemia	
Gilbert's syndrome	

Neonatal Hypoglycemia

Defn:Glucose < 2.6 mmol/L after first 4 hours of life

Neonatal **DXT 1.7mmol within 1-2 HOL** is considered normal, then increase to more stable level **>2.5mmol by 12 HOL**

Sx

Jitteriness and irritability
Apnoea, cyanosis
Hypotonia, poor feeding
Convulsions
* hypoglycaemia may be asymptomatic therefore monitor if risk present

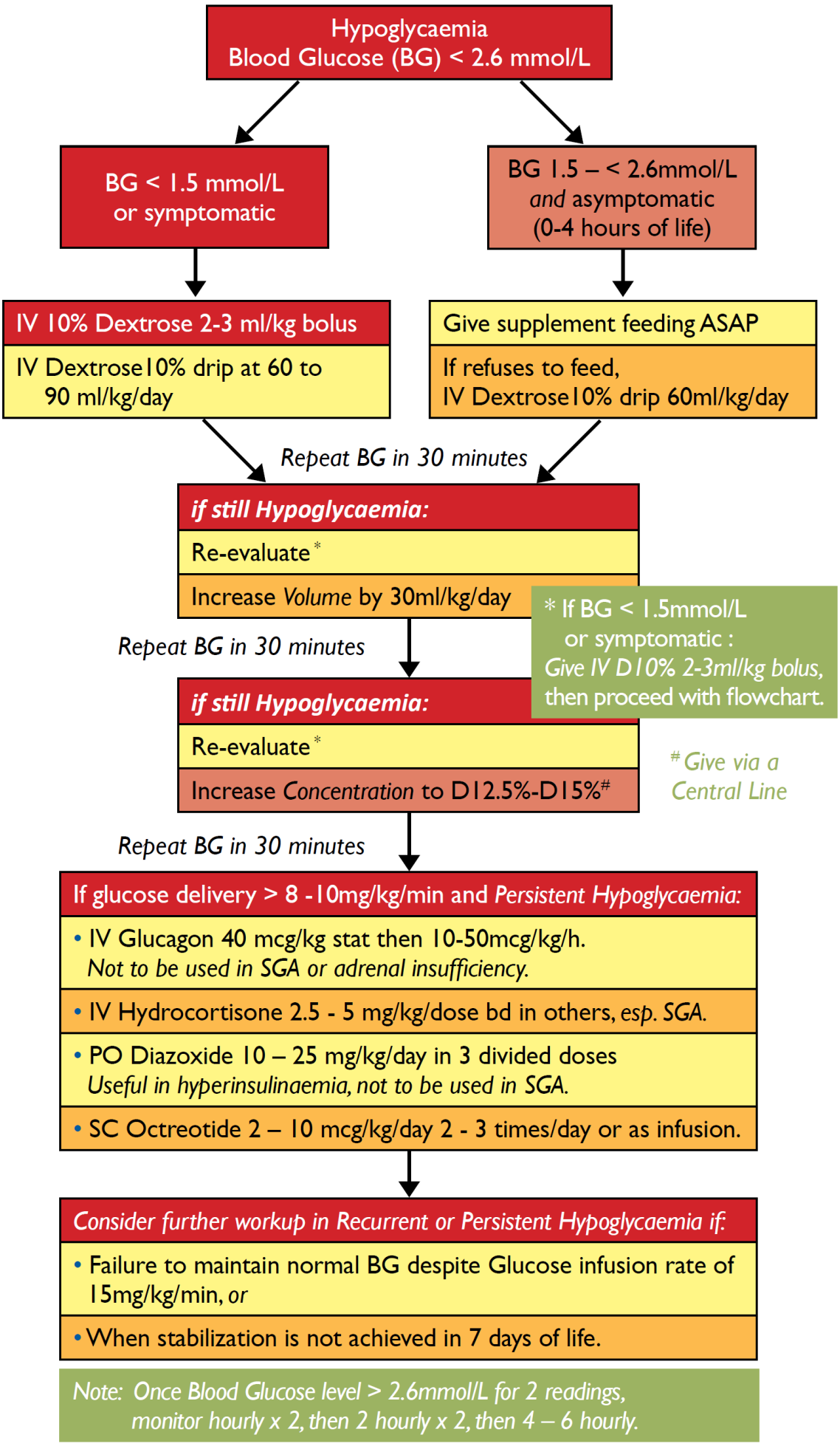
High Risk:

Infant of GDM mother
Premature babies
SGA and LGA (>4.0kg)
Ill infants: sepsis, hypothermia, polycythemia, Rh dis, HIE

	DXT 1.5 – 2.5, asymptomatic	**DXT < 1.5 / Symptomatic**
Initial Mx	1) Feeding: early BF / EBM / FSM 2) monitor DXT: 1H x 2, 2H x 2, then 4H if stable, DXT QID, Inform if DXT < 2.6	1) repeat capillary DXT and send *RBS* 2) Bolus **IV D10% , 2-3ml/kg** 3) start IVD D10% (60-90cc/kg/day, D1)
DXT still low	If DXT remain < 2.6 or baby refuse feed + start **IVD 10%** , can increase 2mg/kg/min till DXT stable > 2.6 * Start feeding when DXT stable, reduce IVD	* if still low DXT despite on IVD D10%, increase rate to 8-10mg/kg/min
Persistent Hypoglycemia **Ddx** hyperinsulinemia adrenal insuff Galactosemia Metabolic dis	+ increase volume 30ml/kg/day or increase DXT 12.5% or 15% (by central line) If given > 8 – 10mg/kg/min, consider **IV Hydrocortisone 2.5-5mg/kg BD** Ix: *Insulin , Cortisol, growth hormone level*, *Serum ketones , Urine for organic acids* PO Diazoxide 10 -25mg/kg/day (hyperinsulinemia→reduces insulin secretion; CI: SGA) SC Octreotide 2-10mcg/kg/day BD/TDS (synthetic somatostatin)	

Glucose req (mg/kg/min) = $\frac{\%\ \text{Dextrose x Rate (ml/hr)}}{\text{weight (kg) x 6}}$	**Rate** = $\frac{\text{Glucose Req x Weight x 6}}{\%\ \text{Dextrose}}$

Management of Persistent Hypoglycaemia



The Premature Baby

Term : 37-42weeks
Prem : < 37weeks Gestation
Moderate Prem : 31/32 – 36weeks
Severe prem : 24-30weeks
LBW : < 2.5kg
VLBW : < 1.5kg
ELBW : <1.0k

Risk of prem
Pregnancy problem – multiple gestation, poly/oligohydramnios, placenta previa/abruptio, fetal abnormality
Risky Behaviour – smoking, substance abuse, poor nutrition
Early delivery – Rh Incompatibility, IUGR
Medical – Uterine/cervical abnormality, myoma, hypertension

Care of prem babies
1) Monitor temperature, Vital signs, DXT
2) I/O
3) Ventilation
4) IV line / Central Line
5) Feeding – trickle feeding, multivitamin, folic acid, FAC (6wks)
- increase slowly, start 2.5cc/kg/feed, if tolerating x 2, increase slowly, maximum 200cc/kg/day
6) strict hand hygiene
7) antibx
8) aminophyline (<34wks)
9) Immunization – BCG (wt >1.8kg), Vit K (at birth)

Ix:
Routine bloods: FBC/LFT/RP/Ca/Mg/PO4
US Brain (< 32 weeks) : 1st week (IVH) and 28days (PVL)
ROP @ 36weeks / 4-6weeks (if <1.5kg, < 32weeks, ventilated)

Hearing Assessment
Indications:
Fam hx of hearing loss
Ventilation >5days
Hyperbilirubinemia
Craniofacial abnormalities
Head Trauma
VLBW < 1.5kg
Ototoxic medication
Parental concern
In-Utero infections
Meningitis
Low Apgar Score

Early Complications (**Hypo**: thermia/glycemia/Ca/Na + **Resp**: RDS/apnea + **CVS**: PDA + **CNS**: IVH)

1) Hypothermia
– large surface area, thin skin, less fat (less brown fat, more glycogen)
mechanism of heat loss : radiation, conduction, convection, evaporation
Mx: Incubator care

2) RDS (respiratory distress syndrome)
- reduced surfactant (phospholipid protein)
- 24-28wks, lungs mature at 35weeks
- decreased surface tension, increases alveolar function
Sx: Tachypnoea, labored breathing, recessions, nasal flaring, expiratory grunting, cyanosis
CXR: ground glass appearance, larger airway outlined, no heart border, diffuse granular
Mx:
Prevention → IM Dexa, tocolytic agent, surfactant replacement
Respiratory support→ETT ventilation, CPAP, SIMV (complications→pneumothorax) , SEDATION
Fluid & nutritional support
Antibx

3) Hypoglycemia (RBS < 2.6mmol in first 4 hours)

4) Apnea of prematurity
= pause of breathing > 20secs with brady or desaturation, HR drop 30bpm from baseline
cause: Immaturity of respiratory centre, lack of pharyngeal muscle tone and collapsed upper airway
- resolves at 36weeks
Mx: Supportive O2, relieve obstruction (CPAP), aminophyline to rinhibit adenosin receptor, mechanical ventilation

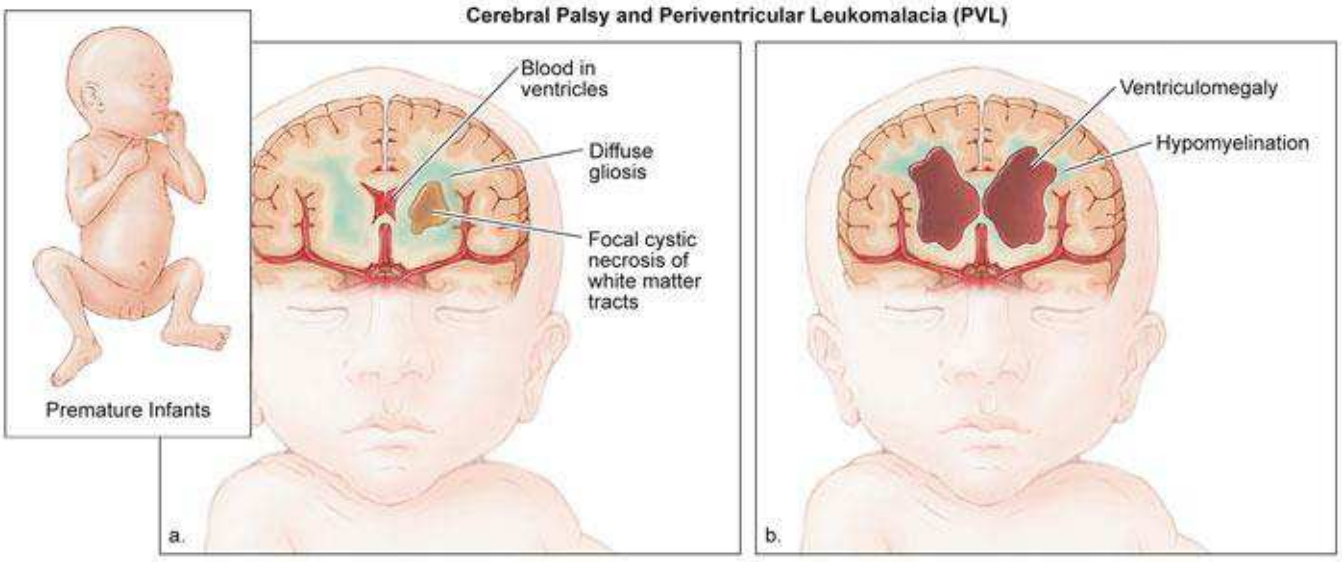
5) IVH (intraventricular hemorrhage)
- fragile blood vessels in germinal matrix above caudate nucleus
- occurs in < 32wks (within 5 days after birth)
- Sx: pallor, shock, hypotonia, apnoea, seizure, hydrocephalus

6) Infection

7) PDA (patent ductus arteriosus)
sx: asymptomatic, brady/apnea, increased O2 requirment
Systolic murmur at 2nd Left ICS
Ix: CXR= cardiomegaly, pulmonary venous congestion

8) Hyponatremia – dehydration/transepidermal h2o loss, immature kidney

9) Hypocalcemia – Immature pancreas and reduced calcium from mother



Late Complications CNS – Eye- Resp – Bone – GIT – Blood - Sepsis

1) NEC (necrotising enterocolitis) - occurs within 1st week of life

- immature gut→ compromised gut circulation → bacterial invasion of ischemic bowel→serious intestinal injury

Sx: Feeding intolerance, abdominal distension, hematochezia, vomit milkcurd /greenish bile, shiny skin abdomen, reduced BS

AXR: distended loops of bowel, thick

Mx: keep NBM, start paraenteral feeding (TPN/OGT), antibx

Complications: bowel perforation, strictures, malabsorption

2) ROP (retinopathy of prematurity) *retina working too early*

- Retina is formed but blood supply is limited→ vascular proliferation to ischemic area → retina detachment

Sign: white pupil (retinal detachment)

Tx: laser therapy

ROP screening Indications: < 1.5kg, < 32weeks, supplemental O2, hypoxemia, hypercarbia

3) BPD (bronchopnuemonary dysplasia) / CLD

- Lung damage from pressure and volume trauma (artificial ventilation/ O2 toxicity/ infection)

CXR: widespread opacity and cystic changes

Mx: prolonged artifical O2, Corticosteroids

4) PVL (Periventricular leucomalacia)

- necrosis of white matter at dorsal and lateral

complications: spastic displegia, coignitive and inelectual deficit, visual deficit, seizure disorder

5) Osteopenia of prem

- rickets/chronic reduced Calcium

CXR: Bone deminieralization

Sx: Poor wt gain, fracture, respiratory distress

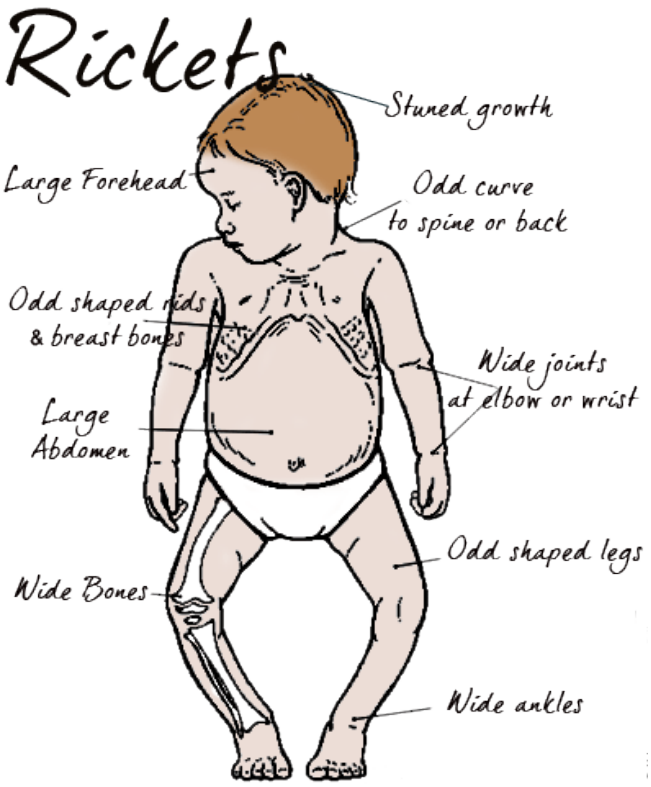
6) GERD

7) Prolonged jaundice

8) Sepsis

9) Anemia : < 8 (<12 if ventilated)|

Hematinics, Folic Acid, appeton , FAC(ferrous amino citrate, after 42/7)



General Peds common problems guide

Bronchial Asthma

AEBA 2 to URTI/CAP/environmental factor
underlying asthma – control? Intermittent / persistent

Determine severity and mx:

Sx	mild	Moderate	Severe
Altered Consciousness	-	-	**+**
Physical Exhaustion	-	-	**+**
Talks in	Sentences	Phrases	**Words**
Pulsusparadoxus	NO	+/-	**PALPABLE**
Central cyanosis	-	-	**+**
RONCHI	**+**	**+**	**SILENT CHEST**
Use acc. muscles	-	Moderate	**MARKED**
Sternal Retraction	-	Moderate	**MARKED**
Initial PEF	>60%	40-60%	**<40%**
SpO2	>93%	91-93%	**<90%**
OUTCOME	**Discharge**	May need admit	**ADMIT**
Mx: **MDI** ventolin (blue) 200mcg 2 puff PRN Fluticasone (orange) 125mcg 2 puff BD Budesonmide (brown) 125mcg BD Seretide (purple) 25/125 1 puff BD Montelukast /singulair 4mg granules (Chew @8pm) IV hydrocort 4-5mg/kg QID for 1/7, then change to Syr Prednisolone 1-2mg/kg OD for 5/7	**1) Neb Salb** **< 1 yo: 0.3 : 3.5** **>1yo : 1:3** **or** **MDI Salb in spacer** 4-6 puffs (<6yo) 8-12 puffs (>6yo) **2) Oral prednisolone** SyrPred 1mg/kg/day for 3-5/7 *Reasses after 60mins* *if no improvement* *Tx as moderate*	1) Neb Combivent x 3 2) O2 8L/min 3) Oral Prednisolone *Reasses after 60mins* *if no improvement,* *Tx as severe*	**1) Neb Combivent x 3 / cont** **2) O2 8L/min** **3) IV Hydrocort 4-5mg/kg QID 1/7** **4) IVI Salbutamol continous** Bolus: 5-10mcg/kg/10mins, then Infusion: 0.5-1mcg/kg/min **5mg in 50ml** **1amp = 0.5mg (5mcg = x 10amp)** **0.6ml/kg = 1mcg/kg/hr** **max 20mcg** *** S/C Bricanyl (terbutaline)** 0.005-0.01mg/kg (max 0.4mg) every 5-10mcg/kg 15-20mins *** IV MgSO4 50%** Bolus: 0.1ml/kg(50mg/kg) in 20mins ***IV Aminophyline** Bolus:6mg/kg bolus then Infusion: 0.5-1.0mg/kg/hr *Mechanical ventilation and observation in HDW/ICU

Once stable, get full history:
a) Medication - MDI compliance
b) Sick contact / travelling
c) Interval symptoms: need for reliever/nebs, EIA/CIA, Fam Hx asthma
d) Atopy , rhinitis, eczema

<u>Community Acquired Pneumonia</u> **C/o**: **chesty/productive cough + RN** - sputum whitish/blood streak **Fever** - chills/rigor? highest documented T? **Rapid breathing** **-** Nebs given? **Less active/post tussive vomiting?** Sick contact? PTB contact? Visit GP/KK?→ antibx given? Recent admission? Tx with antibx? (TRO nosocomial pneumonia) Chronic cough (TRO PTB)	**Lungs:** **coarse crepts?** **air entry?** **tachypnoic?** **+ recessions?** **+ hyperventilated chest?** **Ix**: FBC: WCC **CXR**: patchy consolidation + perihilar haziness **If start antibx** **Blood C&S** **Antimycoplasma IgM**	**Mx:** 1) Antibx IV C Pen 100 000U/kg QID 5-7 days IV Azithromycin 15mg/kg (D1) / 5mg/kg (D2-5) → * cover for atypical Syr Azithromycin 15mg/kg (D1) / 7.5mg/kg (D2-5) IV Azithro 15mg/kg D1, 5mg/kg D2-D5 Syr EES 20mg/kg BD 2) Oxygen (NP or Oxykid) 3) Nebs if indicated (tight chest, tachypnoic, rhonchi (broncospasm) 4) +/- Syr bromhexine 0.3mg/kg
<u>Acute tonsilopharyngitis</u> **c/o**: **Fever** - chills/rigor? highest documented T? **vomiting** - food/blood/bile? - a/w post tussive? **Reduced oral intake** - usual intake, current intake * may present with febrile fit Sick contact?	**Throat injected?** **tonsils enlarged?** **any exudates?** **Ix: FBC** WCC raised? Neu predominant **RP: Urea >4, Cr >60** **electrolytes imbalance**	**Mx:** 1) start antibx if indicated IV C pen 25 000IU/kg QID (throat dose) IV Cefuroxime 25mg/kg TDS (exudative) 2) IVD if dehydrated 3) Syr PCM 15mg/kg QID/PRN 4) encourage orally **Can treat at home with oral antibx* **Admit if poor oral intake, dehydrated*
<u>Acute Bronchiolitis</u> - common in 1-6mo, etio- RSV **C/o:** **low grade fever + Coryza** **(nasal decongestion)** **Cough + RN** **Rapid breathing**	Lungs: rhonchi? +tachypnea, SCR/ICR, wheeze Ix: **FBC: Wcc raised?** **CXR** (if severe RD) – hyperinflated, segmental/lobar consolidation	**Admit:** **<3mo, toxic looking, severe recessions, central cyanosis, wheeze, crepts, poor feeding, aopnea , Spo2 <93%,** **Mx:** **1)** Oxykid 3L 2) IVD, encourage orally 3) Nebs if indicated 4) NS nasal drops 1/1 TDS
Febrile Fit **c/o**: **fitting** - first episode? - onset time and duration - what was child doing - nature: GTC/jerking limbs - uprolling eyeballs? - drooling of salive - post ictal drowsiness? Regain conscious? **fever** - how long? Given PCM? *Fam Hx seizure? Sick contact?*	**?source of fever** **- tonsilopharyngitis** **- Otitis media** **- AGE** **- Meningitis (meningism)** **Partial/complex** **Ix:** **FBC/RP/electrolytes**	**Mx:** 1) Syr Paracetamol 15mg/kg QID Supp Diazepam 0.5mg/kg 2) Tepid Sponging 3) antibx if indicated 4) Fit chart 5) fit education **If 2nd onset, no need admission unless parents anxious, afebrile fit, complex seizure**
Meningitis **Seizure? Fever**	Photophobia Neck stiffness raised ICP	Keep NBM, IVD maintenance till conscious VS monitoring 4hrly COH monitoring

Neck/limb stiffness **Change in behaviour/ Irritability?** **Poor feeding / Less Active** **Nausea/vomiting**	Ix: FBC/RP/LFT/e- Blood C&S * Lumbar puncture CT Brain	Fit + GCS chart neurodevelopmental follow up IV C Pen 100000IU/kg QID IV Rocephine 25-50mg/kg BD or IV Cefotaxime 25mg/kg BD
Dengue Fever **Fever day..?** **Warning signs?** *- vomiting, abd pain, bleeding gums etc* **Myalgia/arthralgia?** **Rashes →recovery phase** *Recent travelling/jungle trekking/swim* *Recent fogging in neighbourhood?* **Ddx Leptospirosis / Viral fever**	**Hydration status?** **pulse volume?** **Cold limbs?CRT** **Urine output** **Temperature >38** **< 37.5 = defervescence** **Ix: FBC / RP / LFT / Dengue IgM** *** Plt and WCC reducing, HCT >20% off baseline**	**Mx: rehydration** 5-7ml/kg/hr – 1-2hours 3-5ml/kg.hr – 2-4hours 2-3ml/kg/hr – adjust and taper * according to clinical response and HCT * FBC 4-6hourly till stable **refer to DF section for more in depth mx*
AGE **c/o:** **Diarrhoea** - frequency/day - mucous?blood? **Vomiting** - frequency/day - food particles/blood/bile **Reduced intake** - usual feeding (Oz), current feeding **Less active? Fever?** *Outside food? Fam with similar sx?*	General consciousness Hydration Sunken eyes/fontanel? Tachycardia? (SHOCK) Pulse volume skin turgor CRT prolonged? cool peripheries? hypotension? **Ix: VBG/RP/electrolytes** **Stool FEME, C&S, rotaviral antigen**	Determine degree of dehydration and treat per protocol * refer to chapter about AGE mx ORS per purge 10ml/kg repeat VBG/RP post correction
Post infectious AGN **c/o:** **Edema (facial puffiness)** **Hematuria** **Hypertension** -Headache, Blurry vision, vomiting	**UFEME-Hb+,Pro+** **FBC/RP/Electrolytes** **ASOT >200IU** **Throat swab C&S** **C3 low/C4 normal**	**Monitor BP** **Strict I/O** **Fluid restriction (control edema)** **low salt diet** **Antihypertensive** **– Syr Nifedipine 0.25-0.5mg/kg or** **Syr Captopril 0.1-0.5mg/kg** Target of BP control: - Reduce BP to <90th percentile of BP for age, gender and height percentile . - Total BP to be reduced = mean BP - Desired mean BP - Reduce BP by 25% of target BP over 3 – 12 hours. - The next 75% reduction is achieved over 48 hours **Diuretics – Syr Frusemide 1mg/kg daily RP**

Common Neonatal Problems

Neonatal Jaundice **Early onset (<24hours)** - ABO/Rh incompatibility - G6PD deficiency - spherocytosis - sepsis	**- Ix:** **TSB,** **Retic Count,** **Coombs Test** **FBC** **ABO/Rh** **- trace G6PD, TSH,** **Mother BG**	**Start phototherapy** **trace TSB, to taper photo accordingly** **(refer to PTL/ETL chart – at least 30mcg below)** **adequate feeding**
NNJ > 24hrs to 2 weeks - exaggerated physiological - inadequate feeding (wt loss?) - dehydration (renal impairment) - infection - polycythemia - traditional medication - cephalohematoma **Onset Day?** **adequate breast feeding?** **PU/BO normal?** **sick contact?** **traditional medication (jamu?)** **h/o severe NNJ prev child?**	**Ix:** **TSB** **+/- FBC/RP** **<u>ET Ix:</u>** **Pre ET**: Blood C&S , FBC, RP, LFT, Ca,mg, PO4, VBG, RBS, FBP, Retic count, Coombs test, ABO Infectious Screening (HIV,Hep,VDRL), TORCHES **Post ET**: Blood C&S , FBC, RP, LFT, Ca,mg, PO4, VBG, RBS **6H post ET:** TSB,FBC,RP	**Phototherapy / ET as indicated** **trace TSB, to taper photo accordingly** **adequate feeding**
Prolonged jaundice **Term : > 14 days** **Preterm : > 21 days**	**Ix:** **FBP** **TFT** **Urine C&S, UFEME** **urine reducing sugar**	**No need phototherapy as bilirubin cannot cross blood brain barrier, no risk for kernicterus**
Conjugated hyperbilirubinemia **Direct Bil > 15%** - biliary atresia - congenital hepatitis - TORCHES infection - IEM	**Ix:** **+ TORCHES,** **IEM screening,** **HEP B/C**	
Presumed Sepsis - Maternal risk (PROM >18H, maternal pyrexia, HVS-GBS etc) - baby fever	**Ix: FBC/blood C&S** **-if WCC > 25, Plt < 125** **readmit for cont antbx**	*** Mother tx > 4hours= stat Dose only** **IV C pen 100 000IU/kg BD** **IV Gentamycin 5mg/kg OD**
Congenital Pneumonia TRO TTN - signs of respiratory distress tachypnoic, +SCR/ICR, + nasal flare grunting, hyperinflated chest,	**CXR:** **fluid in fissure = TTN** **patchy / haziness = cong pneumonia** **Ix: FBC/blood C&S**	**IV C pen 100 000IU/kg BD** **IV Gentamycin 5mg/kg OD 5/7** **NPO2 + Spo2 monitoring**
GBS infection **- mother HVS : Grp B Streptococus**	**Ix: FBC/blood C&S** **Trace mother HVS**	**IV C pen 100 000IU/kg BD** **IV Gentamycin 5mg/kg OD** *** Mother tx > 4hours= antibx 48Hours** *** Mother not tx = antibx 5/7**
Hypoglycemia Within first 4 hours DXT <2.6 – 1.5 or symptomatic : jittery, less active, hypotonic Risk: GDM mother, macrosomic baby	**DXT monitoring** **30mins x 2, if stable** **1hrly x 2 …** **2 hrly x 2 …** **4 hrly**	**Steps** **1: encourage feeding then rpt dxt** **2:IV D10% bolus 2-3ml/kg** **+ IV D10% maintenance** **3: D 12.5-15% (via central line)**

Examination of The Newborn (from head to toe)

General Observation

- Look well or ill?
- Active/ lethargic?
- Cry normal? High pitch cry?
- Small or large for gestation?
- Obvious malformation?
- Syndromic/ dysmorphic?
- Colour - pale/jaundice/plethoric/cyanosis?

Head and Neck

- Head circumference
- Scalp – swelling (caput/cephalohematoma/scalp oedema/SAH – boggy? Tender? Enlarging in size?)
- Fontanel – normotensive? Depress? Bulging?
- Suture – overriding? Separated? Closed?
- Exclude softening esp along suture (craniotabes)
- Eye – cataract, coloboma, upslanting eye, epicanthic fold, hypertelorism, conjunctivitis
- Nose – nasal flaring, choanal atresia?
- Ear – abnormal shape, low set?
- Mouth – cleft palate/lips, sucking, neonatal teeth/pearls
- Neck and jaw – micrognathia/retrognathia, neck masses/swelling, webbed neck
- Clavicular fracture
- Facial expression – symmetrical?

Chest and Abdomen

- Shape – bell/hyperinflated
- Pectus carinatum/ excarvatum
- Absence of pectoralis muscles (Polland syndrome)
- Resp efforts – tachypnoeic, grunting, recession, stridor
- Nipple – Wide/narrow-spaced, accessory
- Apex beat – position, thrills
- Breath sound – basal creps, transmitted sound
- Heart sound – murmurs? ESM/PSM/machine-gun?
- Abdomen – scaphoid, distended? Bowel sound?
- Umbilicus – 2 a 1 v, umbilical flare, granulation
- Wall defect – hernia, omphalocele, gastroschisis, exomphalus
- Hepatomegaly, splenomegaly, ballotable kidney?

Hip, Genital, Anus

- Femoral pulses felt?
- Hips stability – Ortolani's and Barlow's maneuver
- Ambiguous genitalia?
- Vaginal opening? Clitoromegaly? Hyperpigmented labia? Fused labia? Vaginal discharge?
- Testes descended? Hydrocele? (transillumination test) cryptorchidism? Inguinal hernia? Hypospadias (opening at dorsum of phallus)/epispadia (ventral of phallus)?
- Perforated anus

Limb, Spine & CNS

- Digits: syndactyly, polydactyly, amniotic bands? Sandal toes?
- Palm: simian/single palmar crease
- Feet: CTEV – positional/fixed
- Brachial plexus injury – Erb's palsy, Klumpke's palsy
- Pulses, perfusion
- Sacral dimple (>2.5cm from anal verge, >5mm), bottom covered by skin?
- Hypertrichosis, Meningocoele, meningomyelocoele
- Scoliosis
- Moro's reflexes (complete?/asymmetrical?), sucking reflexes (good?), grasp reflex (present?)
- Moving all limbs? Hypertonus, hypotonus?

Additional Notes By Dr Goh Kiam Seong, HTAR Klang

Benign Skin lesion

Erythema toxicum with septic spots

- Onset in the 2nd-3rd day of life
- Mostly in term baby
- Intensify particularly in response to local heat
- Benign

Mongolian spot

- common benign skin pigmentation
- fade during the first few years of life
- often confused with bruises of child abuse

Milia

- Inclusion cysts which contain trapped keratinised stratum corneum.
- commonly occur on the face and scalp

Nappy rash

- Due to moisture in the nappy environment and from irritation of urine and stool.
- May be superinfected with candida albicans.

Cutis marmorata

- Also known as "mottled skin"
- Due to vasomotor instability in immature infants
- May reflect underlying poor perfusion (clinically unwell – suspect other illness or sepsis)
- Common in Down syndrome patients

Neurocutaneous Stigmata

- ***Neurofibromatosis***
  - presented with seizure, learning disability/ speech prob/ ADHD
  - at least 6 spots (flat, don't itch/hurt)
  - 2 types: type 1 (visual) type 2 (auditory)

Cafe-au-lait spot (coffee coloured)

- *Tuberous Sclerosis*
  - benign tuber in different part of body (Brain, Lung, Eye, Kidney, Heart, Skin)
  - presented with seizure, developmental delay, cognitive delay, mental retardation, kidney failure

Hypopigmented patches

- *Sturge-Weber Syndrome*
  - unusual blood vessles growth in brain, glaucoma in 30% of patient at ipsilateral eye
  - affected eye can enlarge –> buphthalmos
  - can experience stroke
  - US brain: look for AV malformation

Port Wine Stain

- *Ataxia telangiectasia*
  - tiny spiderlile vein in corner of eye, ear, cheels when exposed to sunlight
  - may a/w immune system problem (prone to get resp infection), susceptible to develop lymphoma, leukemia
  - neuro sx dev at 2nd yr of life - balance and slurred speech

Spider Nevi

- *Von Hippel Lindau Disease*
  - abnormal growht of vessels involving brain, retina, adrenal, kidney and pancreas
  - sx appear btw 10-30 yrs old
  - dx thru MRI/CT, exam, blood est
  - high risk of ca, esp kidney
  - ssx depends on location
  - req surgical removal if severe

Angioma

Dysmorphology Assessment

History

- Pregnancy hx - exposure to teratogen, amniotic fluid volume
- Results of US/amniocentesis/CVS
- Foetal movement
- Mother illness
- Delivery hx
- FHx of abnormalities
- Consanguinity

Growth, Ectodermal Features, and Overall Impression

- Birth weight, height, COH (a/c to centile)
- Skin: texture, colour, birthmark, redundancy, defect
- Hair: scalp/body hair => colour, distribution, ant-pos scalp hairline
- Skull - shape, symmetry, overriding/widely open suture, fontannel size and numbers
- Face - overall impression (down?), Shape, symmetry, facial muscles movement

Peculiarities of body parts

- Forehead - broad, bitemporal narrow/tall
- Eye - palpebral fissure lenght (short/long), upslanting/ downslanting, epicanthic fold
- Eye spacing. Palpebral fissure shape, iris colour, pupil size, retina, globe position (protuberance/ deep set)
- Nose - root, bridge (depress/ broad/ prominent), tip, nostrils (patency, position)
- Ear - position fr lateral view (low set?), Ear rotation, shape, structure
- Mouth - size, shape
- Lip - shape and tickness, cleft
- Oral - gum thickness, palate shape (high arched, cleft)
- Cavity - neonatal teeth, pearl, frenulum, tongue size
- Jaw position - pro /retro /micrognathia
- Hand & feet - overall shape, size, number of digit
- Webbing between digit
- Plantar, palamar, digit crease
- Nail morphology
- CTEV (positional/fixed)
- Joint & skeleton - contracture, shortening of limb, range of movement
- Pectus carinatum, excarvatum, shape of thoracic cage
- Spine lenght, straight/curved
- Neck length, webbing
- Genitalia - phallus size, scrotum, testes, labia, opening of vagina,
- Anus- position of anus relative to genitalia, patency
- Sacral pit - floor covered by skin, hair in dimple, a/w other problem, how close to anal verge

Basic ventilator Settings
By Dr Goh Kiam Seong

Assist-control ventilation (Maquet ventilator/ IPPV – Drager ventilator)

$$Flow = \frac{Volume}{TIme}$$

- Regardless ventilator/patient initiates breath, every breath the same (operator set tidal volume and minimal ventilator rate)
- Ventilator just functions to compensate patient's effort
    - Time cycled ventilator
        - Tidal volume and Resp rate set + Time set
        - Maquet (Siemen)/ Drager ventilator
    - Volume cycled ventilator
        - Tidal volume and Resp rate set + Flow set
        - Puritan-Vennett Bear ventilator

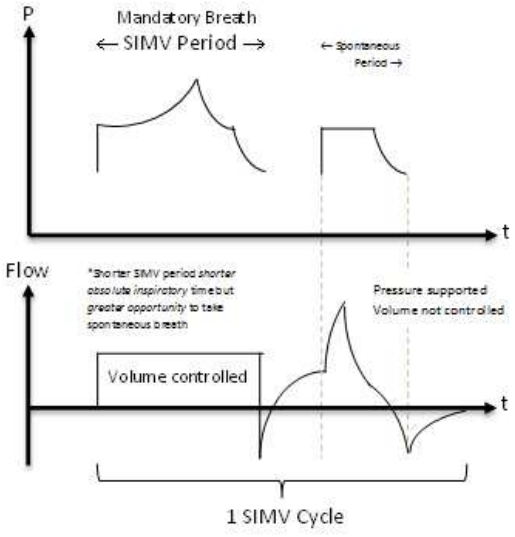
Advantage	Disadvantage
• Relative simple to set • Guarantee minimum ventilation	• No synchrony between patient-ventilator, ventilator initiate come on top • Patient may lead ventilator • Inappropriate trigger è hiccough • Fall in lung compliance => risk of barotrauma • Require sedation to achieve synchrony

Pressure control ventilation

- Time cycled assisted control ventilation in which inspiratory pressure is set instead of tidal volume
- High initial flow => fall to zero by end of inspiration
- Inspiratory pause is effectively built into the breath
- Tidal volume not set if inspiratory time short then tidal volume lower

Synchronized Intermittent Mandatory Ventilation (SIMV)

- Patient receives a set number of mandatory breaths, synchronized with any attempts by the patient to breath
- Patient can take additional breath between mandatory breaths (pressure supported)
- For improve patient-ventilator synchrony



Advantage	Disadvantage
• Better patient-ventilator synchrony • Guarantee minimum minute ventilation	Complicated

Continuous Positive Airway Pressure (CPAP)

- *Constant pressure* both inspiratory and expiratory phase -> splint open alveoli, therefore to decrease shunting
- Inspiration initiate from baseline pressure and airway pressure decrease to baseline at the end of respiration
- Patient controls rate and tidal volume himself (totally dependent on patient's inspiration effort)
- Allow spontaneous breathing at an elevated baseline pressure

Non-invasive PPV – without invasive artificial airway (Endotracheal tube/ETT)

- Due to face mask seal not perfect, usually use with ventilator (BiPAP) to provide some degree of compensation for leaks around the mask
- Require patient to be alert, cooperate, able to protect his airway, haemodynamically stable
- Low level of support initially then gradually increase to improve patient tolerance
- BiPAP = pressure support + PEEP
    - Inspiratory pressure = 8-10 cmH_2O
    - Expiratory pressure = 4-6 cmH_2O
- Effective for patient with chronic obstructive airway diseases/ cardiogenic pulmonary oedema
- Less effective for pneumonia/ARDS

Formulae and calculations

Correction of Na **Na deficit** = (135 – Se Na) x 0.6 x Wt **Daily req Na** = 2-3mmol/kg/day 1pint = 500ml 0.9% NS = 154 mmol / L 1/2NS = 77mmol / L 1/5 NS = 39mmol / L	Eg Na: 128 , BW 15 kg , 2yo **Deficit** : (135 – 128) x 0.6 x 15 = **63mmol** **Daily requirement** = 3 x 15 = **45mmol** **Total** = 63+45 = **108 mmol** 1 pint ½ NS = 39 mmol Na TF = 1150ml/ day ; 1150/24Hr = 48cc/hr (90mmol Na)
Correction of K **K deficit** = (4-Se K) x 0.4 x Wt) **Daily req K**= 2-3mmol/kg/day 1g KCL = 13.3mmol 10ml Mist KCL = 1g K 1g = 13.3mmol, 1 pint 500ml, 1 ml=0.02 *no more than 0.05mmol/ml *Hyperkalaemia* • Definition: serum K^+ > 6.0 mmol/l (neonates) and > 5.5 mmol/l (children).	Eg: Se K : 2.5 , weight 15 kg **Deficit:** (4 - 2.5) x 0.4 x 15 = **9 mmol** **Daily requirement** = 2 x 15 = **30mmol** **Total** = 9 + 30mmol = **39 mmol** 39 mmol → g = 39/13.3 = **3g** therefore if a) IVD = 1.5 g in each pint **check:** no more than 0.05mmol/mL/min in each pint (1.5g x 13.3mmol) / 500ml = 0.03mmol/ml (not more than 0.05) b) Mist KCL = 3g x 10 = 30ml
Correction (fluid deficit)	% dehydration x BW in grams (= % x BW(kg) x 10) Eg: 10% dehydration, BW 15kg 5/100 x 15kg x 1000 = 5 x 15 x 10 = 750cc Run over 12 / 24 / 48 hours depending on clinical condition
Metabolic acidosis • Treat if pH < 7.2 or symptomatic or contributing to hyperkalaemia	• ***Bicarbonate deficit = 0.3 x body weight (kg) x base excess (BE)*** IV 8.4% NaHCO3 = 1/3 base deficit x Wt

ETT Size

>3kg	**3.5-4mm**
2-3kg	**3.5mm**
1-2kg	**3mm**
<1kg	**2.5mm**

ETT length = 6 + Wt

UVC Size

< 2kg	**5**
2-3.5kg	**8**
> 3.5kg	**10**

UVC length = (Wt x 3) + 9
UAC length = ½ UVC length

AA ratio: $\frac{\text{Pa O2}}{\text{713 (FiO2 – PaCO2)}}$ < 0.22 → indication for surfactant

Peak flow = (Ht x 4) – 400

TFT:

TSH

CORD	**2.5 - 25**
Day 1-3	**2.5 - 13**
< 4/52	**0.6-10**
> 4/52	**0.5-5.5**

T4

1/52	**28.4 – 68.4**
1-2/52	**22.0 – 30.0**
2-4/52	**17 - 25**
> 4/52	**11 – 23.5**

Neonatalogy

Feeding

Day 1	**60cc/kg/day**	**D10%**
Day 2	**90cc/kg/day**	**1/5 NS D10%**
Day 3	**120cc/kg/day**	**1/5 NS D10%**
Day 4 -31	**150cc/kg/day**	**1/5 NS D10%**
1 mo – 6mo	**150cc/kg/day**	**1/5 NS D5%**
6mo – 1 year	**120cc/kg/day**	**1/2 NS D5%**

> 1 yo : Holliday segar formula (1/2 NSD5%)

1st 10kg	100ml/kg (10kg = 1000ml)
2nd 10kg	50ml/kg (20kg = 1500ml)
> 20kg	20ml/kg

Energy Expenditure
Term = 110kcal/kg/day
Prem = 120-140kcal/kg/day

Prem Babies
Max TF : 180cc/kg/day,
start feeding with 1-2ml/kg/day + IVD, if tolerating x 3 to increase slowly
* weight gain 10-25g/kg/day (too much feeding can cause overload sx, monitor weight gain daily)
* increase feeding 20-30cc/day

Method: < 34 weeks → OG tube / > 34 weeks → Syringe/cup

Calculation of total feeding
Eg: Term Baby, Weight 3kg, day 1 of life
Day 1 TF = 60cc/kg/day = 60 x 3kg = 180cc

Per feed (3 hourly) = 180cc/8 = 22.5cc/3hourly

Calculation of total kcal

Type of Feeding	**kcal**	**Per 1 ml**
100ml Prem	80 kcal	0.80 kcal
100ml EBM	67 kcal	0.67 kcal
50ml HMF	4 kcal	0.08 kcal
100ml FSM	67 kcal	0.67
Carborie 1 scoop	8 kcal	8kcal/scoop
1ml MCT oil	8 kcal	8 kcal

Eg:
Prem baby, Weight 1.8kg
Current regime : *30cc/3hourly + 1 scoop Carborie + 0.5 ml MCT oil*

Prem requirement : 120-140cc/kg/day
120 to 140kcal x 1.8kg = 216 -252 kcal/day

Total kcal = 8 [(30cc x 0.67 kcal EBM) + **8kcal** 1scp Carborie + **4kcal** MCT oil 0.5ml] **= 256 kcal**
(8 times = 3 hourly feeding over 24hours)

Total kcal/kg/wt = 256/1.8 = **142 kcal/wt** (requirement = 120-140kcal/bw)

TF = 30 x 8 / 1.8 = 133cc/kg/day *(max TF 180cc/kg/day for prem)*

PHOTOLEVEL and EXCHANGE TRANSFUSION LEVEL

>2500g

Hours	PTL	ETL
0		
5	52	150
10	75	165
15	90	195
20	112	210
24	**135**	**225**
29	150	255
34	165	270
39	180	285
44	195	300
48	**210**	**315**
53	225	330
58	240	337
63	255	*345*
68	270	*345*
72	***285***	***345***

2500-2000g

Hours	PTL	ETL
0		
5	30	105
10	52	127
15	75	150
20	97	172
24	**120**	**195**
29	135	210
34	150	225
39	165	240
44	187	255
48	**195**	**270**
53	210	285
58	225	292
63	232	*300*
68	240	*307*
72	***240***	***315***

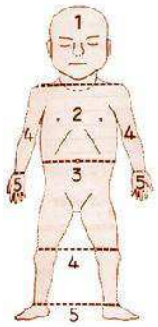
1500-2000g

Hours	PTL	ETL
0		
5	37	97
10	50	127
15	82	150
20	97	172
24	**120**	**195**
29	135	210
34	150	225
39	165	240
44	170	255
48	**180**	**270**
53	187	277
58	195	285
63	197	*300*
68	202	*307*
72	***210***	***315***

<1500g

Hours	PTL	ETL
0		
5	45	105
10	60	135
15	90	150
20	105	180
24	**120**	**195**
29	135	210
34	135	225
39	150	240
44	150	255
48	**150**	**270**
53	150	285
58	150	292
63	150	*300*
68	150	*300*
72	***150***	***300***

Neonatal Jaundice **Early onset (<24hours)** - ABO/Rh incompatibility - G6PD deficiency - spherocytosis - sepsis	**- Ix:** **TSB,** **Retic Count,** **Coombs Test** **FBC** **ABO/Rh** **- trace G6PD, TSH, Mother BG**
NNJ > 24hrs to 2 weeks - exaggerated physiological - inadequate feeding (wt loss?) - dehydration (renal impairment) - infection - polycythemia - traditional medication - cephalohematoma **Onset Day?** **adequate breast feeding?** **PU/BO normal?** **sick contact?** **traditional medication (jamu?)** **h/o severe NNJ prev child?**	**Ix:** **TSB** **+/- FBC/RP** **<u>ET Ix:</u>** **Pre ET**: Blood C&S , FBC, RP, LFT, Ca,mg, PO4, VBG, RBS, FBP, Retic count, Coombs test, ABO Infectious Screening (HIV,Hep,VDRL), TORCHES **Post ET**: Blood C&S , FBC, RP, LFT, Ca,mg, PO4, VBG, RBS **6H post ET:** TSB,FBC,RP
Prolonged jaundice **Term : > 14 days** **Preterm : > 21 days**	**Ix:** **FBP** **TFT** **Urine C&S, UFEME** **urine reducing sugar**
Conjugated hyperbilirubinemia **Direct Bil > 15%** - biliary atresia - congenital hepatitis - TORCHES infection - IEM	**Ix:** **+ TORCHES,** **IEM screening,** **HEP B/C**



The bilirubin range associated with each zone is:

Zone	1	2	3	4	5
SBR (micromol/L)	100	150	200	250	>250

Name: _____

Birth date: _____

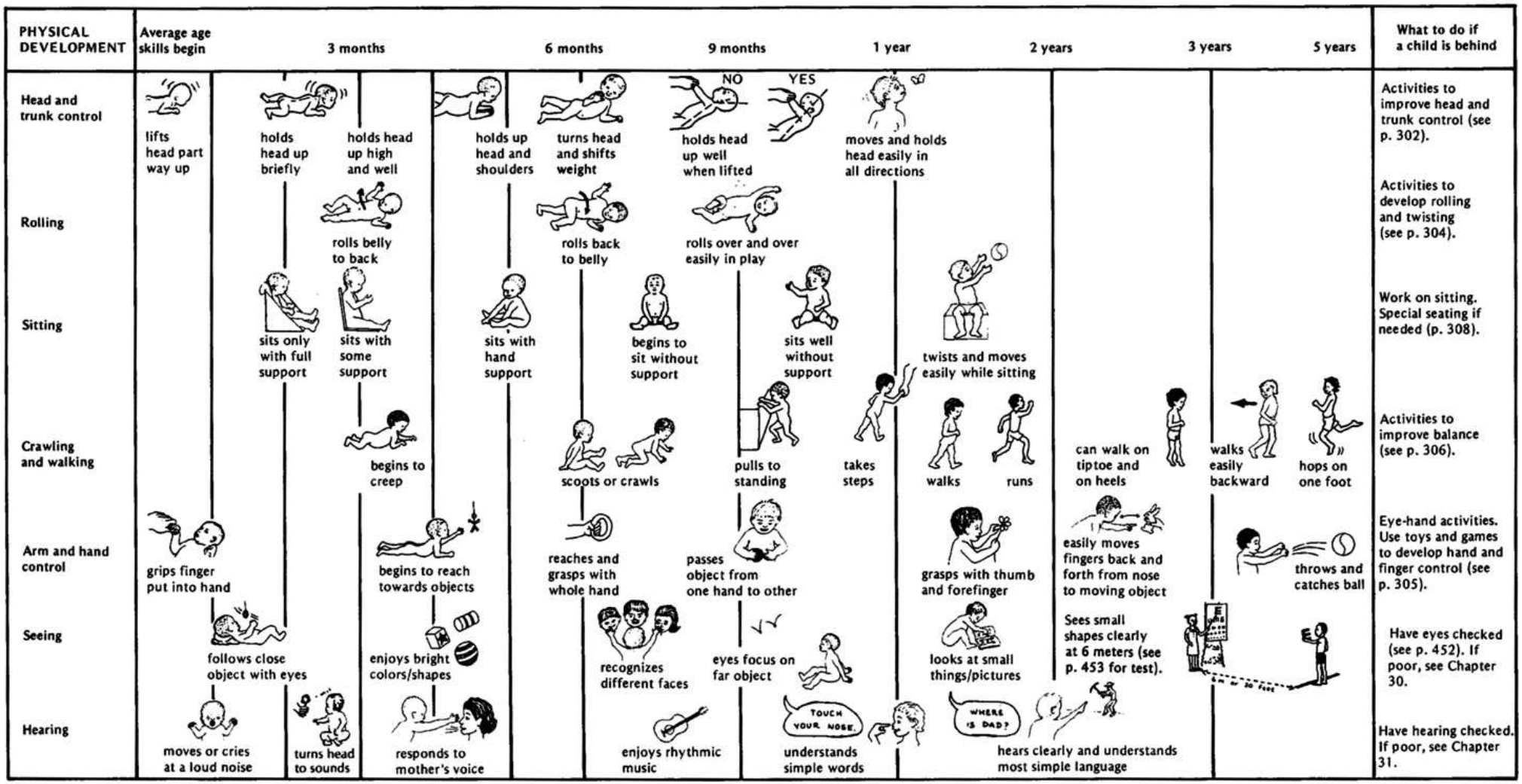
Date: _____

EVALUATION OF A CHILD'S LEVEL OF *PHYSICAL* DEVELOPMENT

RECORD SHEET 6 (page 1)

Note: Although on these guides physical and mental skills are separated, the two are often closely interrelated.

These charts show roughly the average age that a normal child develops different skills. But there is great variation within what is normal.



Name: _____

Birth date: _____

Date: _____

EVALUATION OF A CHILD'S LEVEL OF *MENTAL AND SOCIAL* DEVELOPMENT

MENTAL DEVELOPMENT	Average age skills begin	3 months	6 months	9 months	1 year	2 years	3 years	5 years	What to do if a child is behind
Communication and language	cries when wet or hungry	coos when comfortable	makes simple sounds	uses certain sounds for different things	begins to use simple single words	begins to use words together	uses simple sentences		Speak and sing often to child. If needed, develop alternatives to speech (p. 313).
Social Behavior	smiles when smiled at			begins to understand and respond to "NO!"	begins to do simple things when asked	likes to be praised after completing simple tasks	interacts with both adults and children		Consider trying behavioral approach to social behavior (see p. 349).
Self-care	sucks breast	takes everything to mouth		chews solid food; begins to feed self	drinks alone from glass	takes off simple clothes	toilet trained	bathes and dresses; helps with simple work	Encourage child to help self if possible. Use behavioral approach to learning (see p. 350).
Attention and interest	smiles when smiled at	brief interest in toys and sounds		develops strong attachments to caretakers	takes longer interest in toys and activities	sorts different objects		builds playthings with several pieces	Early stimulation activities (see Chapter 35). Provide toys and 'fun' objects.
Play	grasps things placed in hand	plays with own body	plays with simple objects	begins to enjoy first social games (peek-a-boo)	imitates and copies people	begins to play with other children	plays independently with children and toys		Guided play, lots of stimulation and interaction with other children.
Intelligence and learning	cries when hungry or uncomfortable	recognizes mother	recognizes several people	looks for toys that fall out of sight	copies simple actions	points to things when asked	follows simple instructions	follows multiple instructions	Early stimulation (p. 316). Lots of toys, talk, and step-by-step training.

Put a (circle) around the level of development that the child is now at in each area.

Put a [square] around the skill to the right of the one you circled, and focus training on that skill.

If the child has reached an age and has not mastered the corresponding level of skill, special training may be needed.

RECORD SHEET 6 (page 2)

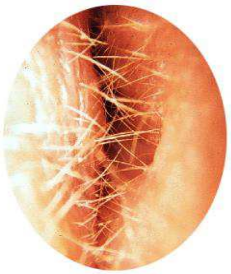
ENT findings:

OTOSCOPY

Normal Ear
(no fluid)

Some Fluid
(air-fluid levels)

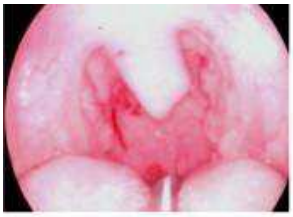
Effusion
(full of fluid)



Ear Canal Swollen Shut

Earwax and Wet Debris

TONSILS



Grade 1

Grade 2

Grade 3

Grade 4

0
Surgically removed tonsils

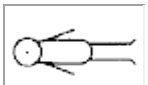
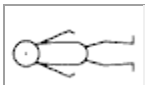
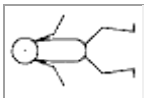
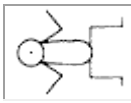
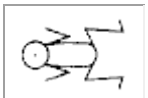
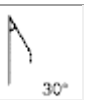
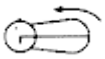
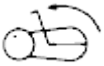
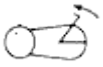
1
Tonsils hidden within tonsil pillars

2
Tonsils extending to the pillars

3
Tonsils are beyond the pillars

4
Tonsils extend to midline

NEUROMUSCULAR MATURITY

SIGN	SCORE							SIGN SCORE
	-1	0	1	2	3	4	5	
Posture								
Square Window								
Arm Recoil								
Popliteal Angle								
Scarf Sign								
Heel To Ear								
							TOTAL NEUROMUSCULAR SCORE	

PHYSICAL MATURITY

SIGN	SCORE							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 40-50mm: -1 <40mm: -2	>50 mm no crease	faint red marks	anterior transverse crease only	creases ant. 2/3	creases over entire sole		
Breast	imperceptable	barely perceptable	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		
							TOTAL PHYSICAL MATURITY SCORE	

MATURITY RATING

TOTAL 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

APGAR SCORING SYSTEM

	0 Points	1 Point	2 Points	Points totaled
Activity (muscle tone)	Absent	Arms and legs flexed	Active movement	
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimace (reflex irritability)	Flaccid	Some flexion of Extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body pink, Extremities blue	Completely pink	
Respiration	Absent	Slow, irregular	Vigorous cry	

Severely depressed	0-3
Moderately depressed	4-6
Excellent condition	7-10

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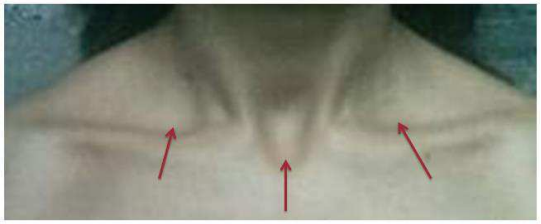
<u>Respiratory Distress</u>
+Cyanosis
+Nasal Flaring

+Grunting
+Hyperventilated Chest
+Recessions SCR/ ICR / Suprasternal / Tracheal Tug →

+Tachypnoea

< 1 week up to 2 months:	60 or more
2 to 12 months:	50 or more
12 months to 5 years:	40 or more



ASTHMA Acute mx

Sx	mild	Moderate	Severe
Altered Consciousness	-	-	**+**
Physical Exhaustion	-	-	**+**
Talks in	Sentences	Phrases	**Words**
Pulsusparadoxus	NO	+/-	**PALPABLE**
Central cyanosis	-	-	**+**
RONCHI	**+**	**+**	**SILENT CHEST**
Use acc. muscles	-	Moderate	**MARKED**
Sternal Retraction	-	Moderate	**MARKED**
Initial PEF	>60%	40-60%	**<40%**
SpO2	>93%	91-93%	**<90%**
OUTCOME	**Discharge**	May need admit	**ADMIT**
Mx: **MDI** ventolin (blue) 200mcg 2 puff PRN Fluticasone (orange) 125mcg 2 puff BD Budesonmide (brown) 125mcg BD Seretide (purple) 25/125 1 puff BD Montelukast /singulair 4mg granules (Chew @8pm) IV hydrocort 4-5mg/kg QID for 1/7, then change to Syr Prednisolone 1-2mg/kg OD for 5/7	**1) Neb Salb** **< 1 yo: 0.5 : 3.5** **>1yo : 1:3** **or** **MDI Salb in spacer** 4-6 puffs (<6yo) 8-12 puffs (>6yo) **2) Oral prednisolone** SyrPred 1mg/kg/day for 3-5/7 *Reasses after 60mins* *if no improvement* *Tx as moderate*	1) Neb Combivent x 3 2) O2 8L/min 3) Oral Prednisolone *Reasses after 60mins* *if no improvement,* *Tx as severe*	**1) Neb Combivent x 3 / cont** **2) O2 8L/min** **3) IV Hydrocort 5mg/kg QID 1/7** **4) IVI Salbutamol continous** Bolus: 5-10mcg/kg/10mins, then Infusion: 0.5-1mcg/kg/min **5mg in 50ml** **1amp = 0.5mg (5mcg = x 10amp)** **0.6ml/kg = 1mcg/kg/hr** **max 20mcg** *** S/C Bricanyl (terbutaline)** 0.005-0.01mg/kg (max 0.4mg) every 5-10mcg/kg 15-20mins *** IV MgSO4 50%** Bolus: 0.1ml/kg(50mg/kg) in 20mins ***IV Aminophyline** Bolus:6mg/kg bolus then Infusion: 0.5-1.0mg/kg/hr *Mechanical ventilation and observation in HDW/ICU

Commonly used Rx

Antibx
IV Amoxycilin 15mg/kg QID

Syr Augmentin 18mg/kg BD
IVAugmentin 30mg/kg TDS

Syr Azithromycin 15mg/kg (Day1) , 7.5mg/kf (D2-5) OD
IV Azithro 15mg/kg (D1) , 5mg/kg (D2-5) OD

IV C penicillin :
Throat dose 25000iu/kg QID,
Pneumonia 50 000IU QID,
meningitis 100000IU/kg QID,
neonates 100 000IU/kg BD

IV Gentamycin 5mg/kg OD

IV Amikacin 15mg/kg OD
IV Fortum 25mg/kg TDS

IV Cefotaxime 25mg/kg BD
IV Rocephine 25-50mg/kg BD

Syr Pen V 15mg/kg QID
Syr Cefuroxime 15mg/kg QID
Syr Clarithromycin (Klaccid) 10mg/kg BD
Syr Unasyn 15mg/kg BD
Syr EES 20mg/kg BD

Gastro
Syr Domperidone 0.25mg/kg TDS
Syr Omeprazole 0.4mg/kg BD
Syr Ranitidine 2mg/kg / IV ranitidine 1mg/kg
ORS 10ml/kg

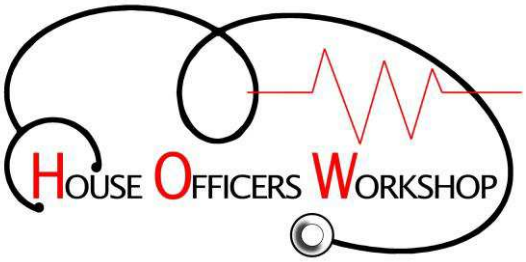
Respiratory
Syr prednisolone 1mg/kg OD
Syr Salbutamol 0.1mg/kg TDS
Syr Bromhexine 0.3mg/kg TDS
Singulair Granules 4mg ON

CVS
Syr Nifedipine 0.25-0.5mg/kg or
Syr Captopril 0.1-0.5mg/kg (up to 1mg)
Syr/IV Frusemide 1mg/kg OD/QID
Syr Spironolactone 1mg/kg BD

PR Resonium 0.25mg/kg QID

Sedation
Chloral Hydrate 50mg/kg
Midazolam 0.1-0.5mg/kg → *Antidote Flumazenil 0.01-0.02mg/kg)*
Pethidine 0.5-1mg/kg
Morphine 0.1-0.2mg/kg
Ketamine 1-2mg/kg

Adrenaline IV 0.1 – 0.3ml/kg , ET 0.5-1ml/kg
Surfactant 4mg/kg



Kindly note that this compilation serves as an early guide for your paediatrics posting only.
The management in this guide does not necessarily reflect the method of management by Hospital Ampang.
Always refer to your Malaysian Paediatrics Protocol for concise management.

A House Officers Workshop Project
www.myhow.wordpress.com
June 2013