

Pediatric Basic Information:

Name:

Age:

Sex:

Address:

Education:

Religion:

Chief Complaints:

History Of Presenting Illness:

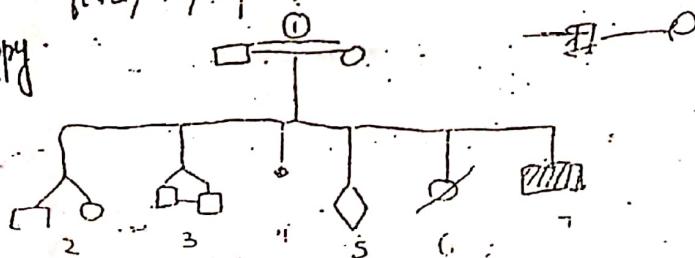
Past History:

- Vaccine preventable diseases?
- Similar complaints
- Jaundice/joint pain/recurrent URTI, LRTI.
- Previous hospitalization.
- TB contacts/Convulsion.

Family History: fever, TB, leprosy, asthma, Hep, typhoid, alleqk

aemo
privedohypothiphil miss
Pedigree chart: 1st trophy
a.GPD def

2) K.I.T



- Similar Complains parents
- Consanguinity Among parents.
 - 1^o cons: Son—Daughter (50%)
 - 2^o cons: Maternal Uncle (25 %)
 - 3^o cons: 1st cousins (12.5%)

1-consanguineous carrier

2-Non Identical Twins

3-Identical Twins

4-Abortion

5-Sex unknown

6-female child dead

7-Index child

Compiled By /007-2012/5/2013

TORCH infection
diff b/w congenital vs acquired.
b/w UP, LP (30%)

Consultation:

DOB:

DOA:

DOE:

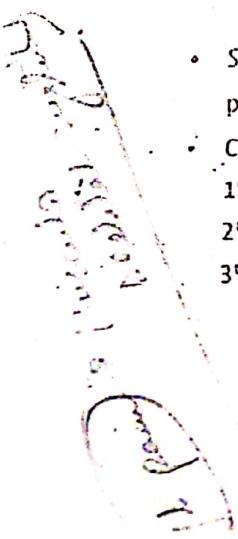
Deve history

time

Time of examination:

Informant:

predisolone - 60 mg



Inherited disorder:

Autosomal Dominant:

- Martfan Syndrome → Extracheal character of connective tissue
- Achondroplasia → Abnormality of bone growth
- Neurofibromatosis

The nervous system develops during birth.

Mother's age Greater than 35 yrs - Down's syndrome

Father's age Greater than 35 yrs - Martfan's, achondroplasia.

Autosomal Recessive:

- β Thalassemia - Reduced or absent production of β -globin chain of
- PKU Phenylketonuria
- Galactosemia

Deficiency of Phenylal by hydroxylase engy hence phenylalanine is accumulated & is converted to Phenyl Ketone which will be present in urine.

Birth History: Folic Acid: 500 μ g, Calcium: 1g, Iron: 100 mg, Tl.

Antenatal:

- Mother's immunization
- Drugs
- Infection (TORCH)
- Radiation → X-Rays
- Typhoid/jaundice
- Gastroenteritis

Natal:

- Preterm/full term
- Labour/c-section (what presentation if c-section)
- Complication (PIH, GDM, Oligoamnios in renal disease, Polyamnios in GIT disease, Premature rupture of membranes, smoking and drinking-IUGR constriction of blood vessels)
- Crying after birth (birth asphyxia)
- Wt. Ht.
- Place of delivery

Post Natal:

- Jaundice
- Meconium → earliest stool produced by baby after birth
- Seizures
- Feeding problems/Breast feedings/Complementary feeds
- Infection

Diff b/w Vaccination & Immunization?

Diff b/w UIP n IAP? a) delayed speech → deaf mutism
 b) standing / walking → pmt & long t's of sp's

Developmental History: (3 months deficit is delay)

Gross Motor:	Fine Motor:	Language:	Social:
2m roll - Smile		1m - turns head to sound	
3m-neck holding	4m-grasp objects when placed in hand	3m-cooing	2m-social smile 3m-recognise mom
5m-sit with support	5m-reaches out with both hands, transfer.		
8m-sit w/o support	7m-palmar grasp.	6m-monosyllable M,D,B	6m-smiles at mirror
9m-stand with support	9m-pincers grasp.	9m-bi-syllable	9m-wave bye n peek-a-boo
10m-walk with support			
11m-crawl & creep			
12m-stand wit out support	12m-release objects on command.	12m-2 words with meaning (true speech).	12m-Simple ball goes n comes when called
13m-walk w/o support			
15m-walk sideways	15m-feeds from spoon.		
18m-run	18m-feeds from cup.	18m- 10 words at time	18m-Bowel control
2yrs-jump, walk upstairs	2yrs-lines drawing	2yrs-single sentence	2yrs-plays with others
3yrs-rides tricycle	3yrs- <input checked="" type="checkbox"/> 4yrs- <input type="radio"/> 5yrs- <input type="radio"/> 6yrs- <input type="radio"/>	3yrs-tell stories	3yrs-knows gender 3-5yrs-bladder control

Immunization:

Cerebral polio →麻痹 NNB
ANTR 4 weeks, grasp 4-5 mo

hyper / hypo tonia

slow head movements

{ Paraparesis reflex
hand and reflex}

IAPS Schedule:

Schedule:

Age	Vaccine
Birth	BCG, OPV0, HepB1
2 week	DPT1, OPV1, HepB2, Hib1
6 week	DPT1, OPV1, HepB2, Hib1
10 Week	DPT2, OPV2, Hib2
14 week	DPT3, OPV3, HepB3, Hib3
9months	Measles
12m-18	MMR, DPTB1, OPV4, HibB1
18-24m	-
2 yrs	Typhoid, Hib
5 yrs	DPT B2, OPV5, MMR2
10 yrs.	TT
16 yrs	TT

Pregnancy- early TT, one month after TT2.

Optional Vaccine:

- Chicken Pox: 15 month, single dose.
- Hep A: 18 month (2dose) interval 6m.
- PCV - pneumococcal > 6 week
- Rotavirus > 6 week

Dietary history

Include following details

1. Duration of breast feeding
2. If exclusively breast fed
3. If top fed whether cow's milk or formula milk and the dilution used
4. Frequency of feeding
5. Age of weaning
6. Introduction of new foods
7. Effect of Diseases on appetite & diet intake
8. Last 24 hrs recall method.

Birth	BCG, OPV0
6Week	DPT1, OPV1
10week	DPT2, OPV2
14week	DPT3, OPV3
9months	Measles
18-24m	DPT-Opv Booster
5-6Yrs	DPT B2
10Yrs	TT
16y	TT

UP

- B - BCG, OPV0, HepB1
 6 - DPT, HepB2, OPV
 10 - DPT, OPV
 14 - DPT, OPV, HepB3
 9 - Measles
 18-24 - (OPV, DPT)
 2 - OPV, DPTB2
 5 - OPV
 10 -
 16 -

IAP - 2016

- Birth - BCG, OPV0, HepB1
 6w - DTwP1, IPV1, HepB2, Hib1, Rota1, PCV1
 1m " "
 14m " "
 6m OPV1 HepB3
 9m OPV2 HepB3, MMR1
 9-12m Typhoid conjugate vaccine
 12m HepA1
 15m MMR2 Varicella 1 PCV8, 1
 16-18m DTwP8, IPV8, Hib8, 1
 18m HepA2
 2y Typhoid CV 8
 4-6y DTwP2, IPV2, OPV3
 Varicella 2, MMR3
 10-12y Tdap/Td, IPV

Compiled by I.C.I. 2013

Recommended dietary allowances for Indian children

Group	Particulars	Body weight	Energy (kcal/day)	Proteins (g/day)
infants	0-6 months	5.4	108/kg	2.05/kg
	6-12 months	8.6	98/kg	1.65/kg
children	1-3 years	12.2	1240	22
	4-6 years	19	1690	30
boys	7-9 years	26.9	1950	41
	10-12 years	35.4	2190	54
girls	10-12 years	31.5	1970	57
	13-15 years	47.9	2450	70
boys	13-15 years	46.7	2060	65
	16-18 years	57.1	2640	78
girls	16-18 years	49.9	2060	63

Nutritive value of milks (per 100 grams)

	Human	Buffalo	cow
fat(gms)	3.5	9	4
protein(gms)	1	4.25	3.25
lactose(gms)	7.5	5	4.5
minerals(gms)	0.1	0.8	0.8
calcium(gms)	30	200	120
energy(kcals)	65	120	65
water(gms)	90	80	85

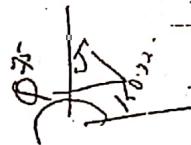
IAP classification of malnutrition

Grade of malnutrition	Weight-for-age of the standard
Normal	>80
Grade 1	71-80
Grade 2	61-70
Grade 3	51-60
Grade 4	<50

Age independent indices

Name of index	Calculation	Normal value	Value in malnutrition
Kanawati and mclarens	MAC/HC (CMS)	0.32-0.33	Severely malnourished <0.25
Rao and singh	Weight(kg)/ht ² (cms) x 100	0.14	0.12-0.14
Dugdales	Wt(kg)/ht ² (cm)	0.88-0.97	<0.79
Quack stick	MAC for given height		<75%: severely malnourished
Jelliffe's ratio	HC/CC		<1 in a child >1 year: malnourished

Udani's classification



Grade	Loss of fat from
I	Buttocks
II	Axilla/groin
III	Abdomen, chest, back
IV	Buccal pad of fat

Jelliffe's classification

OK
Normal
(Accept)
Wt
by

Grades	Percentage for standard weight for age
I	80-90%
II	70-80%
III	60-70%
IV	<60%

Welcome trust classification

Weight for age (percentage of std wt)	80-60%	<60%
with edema	kwashiorkar ✓	marasmic kwashiorkar ✓
without edema ↗	underweight ✓	marasmus ↗

A

$$\text{Dextrose } 2.5\% = 85 \text{ kcals/l}$$

$$\text{Dextrose } 5\% = 170 \text{ kcals/l}$$

$$\text{Dextrose } 10\% = 340 \text{ kcals/l}$$

Calorie and protein content of common food stuff

The calories provided by some IV fluids are (1.dextrose 2.5% : 85kcals/(2.dextrose 5% : 170 kcals/l

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Food items	Qty.	In number	Qty. in gms/ml	Kcals	Proteins(gms)
breakfast items					
chapathi	1		30	80	2
bread	1		20	60	2
plain dosa	1		60	110	3
masala dosa	1		80	250	2
idly	1		30	60	3
vada	1		50	140	1
chutney	2 table spoon		30	120	6
upma	1 cup		150	320	
kesari halwa	1/2 cup		75	120	2
parota	1		50	140	
pongal	1		150	120	
pullyogare	1 cup		150	150	1
puri	1		30	120	2
roti	1		60	120	
Lunch & Dinner items					
rice	1 cup		150	120	3
ragi ball	1		150	140	3
sambhar	1 cup		150	115	10
green leafy					
vegetables	1 cup		150	30	2
curd	1 cup		120	60	3.3
butter milk	1 cup		120	30	
papad-fried	1		15	40	
papad-grille	1		15	25	
diary products (without sugar)					
cow milk	1 cup		120	80	3.3
buffulo milk	1 cup		120	140	4.4
coffee/tea	1 cup		120	40	2
Fruits					
apple	1		50	60	0.47
orange	1		50	50	1.23
banana	1		80	100	1.29
mango	1		100	180	1.06
papaya	1		100	32	0.6
animal food items					
mutton	2 pieces		100	195	22
chicken	2 pieces		100	150	20
fish	2 pieces		100	90	20
egg	1		50	170	6
Raw foods					
sugar	2 teaspoons		10	35	
oil	1 teaspoon		5	45	
ghee	1 teaspoon		5	45	

Socio economic History:

- Type of family member
- Housing
- Sanitation
- Child-interactive behaviour, habits, hobbies, interests.
- Adolescents-worries, anxieties, psychosexual difficulties, abuse tendencies.
- Parents-Smoking, Alcohol, Drug abuse.
- Social/cultural practices regarding feeding: dummy nipple, pacifier, Kajari.

Modified Kuppu swamy Scale:

• Education of head:	→	(4)
1. Professional degree/pg	7	55
2. BA/BSc	6	22
3. Intermediate/post HS diploma	5	22
4. HS certificate	4	
5. Middle school	3	
6. Literate/primary schoo	2	
7. Illiterate	1	
• Occupation:	→	(5)
1. Profession	10	
2. Semi profession	6	
3. Clerk, shop owner, farm owner	5	
4. Skilled Worker	4	
5. Semi skilled	3	
6. Unskilled	2	
7. Unemployed	1	
• Per capita income:	→	(12)
1. ≥19575	12	
2. 9788-19574	10	
3. 7323-9787	6	
4. 4894-7322	4	
5. 2936-4893	3	
6. 980-2936	2	
7. ≤979	1	
• Total score:	→	(5)
1. 26-29 = upper social	26	29
2. 16-25 = upper middle	16	25
3. 11-15 = lower middle	11	15
4. 5-10 = upper lower	5	10
5. <5 = lower		

Prasads classification: Per capita Income

- >3056
- 1528-3055
- 917-1528
- 458-916
- <457

>3056
..... 1528 - 3055
..... 917 - 1528
..... 458 - 916
..... <457

\rightarrow hyper extension of back

General Physical Examination

1. Altitude & posture: Bed ridden/Ambulatory/Ophisthotonus/Side posture/Orthopneic/motlopless.
2. Expression & mental State: Fully conscious/ Drowsy/Delirium/Stuporous/Semi comatosed/Coma.
3. Abnormal Movements:
4. Signs of meningeal irritation:
5. Peculiar odour:
6. Nature of Cry:

Vital Signs:

1. Temperature: $(98.4^{\circ}\text{F}/37^{\circ}\text{C} \pm 0.2)$ never a febrile.
 2. Pulse rate: Rate, Rhythm, Volume, Character, Peripheral pulses. Newborn: 120-140/min
 3. RR: 40-60 upto 2 months : $2-12\text{m} = <50 : 1-5y <40. (>60 = \text{tachypnoea})$
 4. BP: 80/40 mm Hg
- Formula: $SBP = (\text{age} \times 2) + 70$, $DBP = 2/3 SBP$
 Cuff size: infants=4-6cms, children=7-9cms.

Age	Temp	PR/min	RR/min	BP mmHg
Newborn	36-37	140	40	60/40
1 yrs	36.5-37.5	120	30	70/50
5 yrs	37±0.2	100	20	90/50
10 yrs	37±0.2	90	18	100/70
>10 yrs	37±0.2	80	18	110/80

Pallor:

Icterus:

Clubbing: Grades

Cyanosis:

Lymphadenopathy

Edema:

Hallux - i/o

firm - Holliston

various types: anasarca, ascites, pyodema, cellulitis

A. Anemobutylopernia
 Tourniquet test (5 min)
 Tourniquet sign (3 min) (4)
 Panniculitis sign (15')

mental \rightarrow critical child
 forehead (Thermocrystalline strips)

Anthropometry:

	Weight	Height/Length	HC	MAC	CC
Expected					
Present					
Comment					

Weight

Birth weight:

- ① Normal - 2.5 to 3.5 kg.
- Initial reduction $\approx 10\%$ at 14 days
- LBW - 1.5 to 2.5 kg
- VLBW - 1 to 1.5 kg
- ~~ELBW~~ - <1kg

Doubles by 1st m

$$ht \times 2 = 4 \text{ cms}$$

Triples by 1 yr
Quadruples by 2 yrs

Weight doubles at 1st m
doubles
weight triples at 2 yrs
wt 3x at 12 months
ht 3x at 12 yrs

Formulae

3-12 m: Age (Months) + 9 kgs

- 1-6 yrs: Age (Years) $\times 2 + 8$ kgs
- 7-12 yrs: Age (Years) $\times 7 - 5$ kgs

3) Increment in Weight

- 1st 4 months - 30 g/day
- 2nd 4 months - 20 g/day
- 3rd 4 months - 10 g/day
- 1 to 2 yrs - 3 kg/yr
- 3 to 12 yrs - 2 kg/yr
- >12 yrs - 5 kg/yr

10 commandments of early feeding

- ① Policy making
- ② ~~disseminate~~ Train the health care workers (good)
- ③ Identify beneficiaries
- ④ Engage help of DHO, DR, OR
- ⑤ Initiate - breast feed
- ⑥ Promote in practice
- ⑦ Proper way of breast feeding
- ⑧ Take care of complications
- ⑨ Give demand feed
- ⑩ Refer the mother & child to the health workers

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Height Growth

- ① Doubles by 4 yrs
- ② Triples by 12 yrs

③ Birth : 50 cms

3m : 60 cms

9m : 70 cms

1 yr : 75 cms

2 yr : 87.5 cms

Height velocity - RULE OF HALFGain during 1st year - 25 cmsGain during 2nd year - 12.5 cmsGain during 3rd year - 6.5 cms

Gain during 3 to 12 yrs - 7.5 to 10 cms

Gain during Adolescence - 8 cms / year for girls

10 cms / year for boys

Prediction of adult height

Boys - Mean parental height + 6.5 cms

Girls - Mean parental height - 6.5 cms

Formula = 2 to 12 yrs : Age (Years) x 6 + 77

Head Circumference: At
70% of Brain growth occurs ~~birth~~ birth.

Growth velocity

- Birth : 33-35 cms.
- 3m : 40 cms
- 6m : 43 cm
- 9m : 44.5 cms
- 12m : 45 cms

Till 3 months - 2 cms / month
3m to 6m - 1 cm / month
6m to 9m - 0.5 cm / month
9m to 12m - 0.25 / month

- 2 yrs = 48 cms } 2-7 yrs : 0.5 cm / yr
- 7 yrs = 50 cms } 7-12 yrs : 0.33 cm / yr
- 12 yrs = 52 cms }

Microcephaly = < 3rd percentile

- 1-2 yrs.
- 2-5 yrs
- 5-12 yrs

head circumference increase by 2 cm.

Head Circumference in 1st yr of life : Length 19.5

Chest Circumference

Birth = 2.5 to 3 cms less than head circumference

1 yr: CC = HC

Later: CC > HC

$$\begin{array}{r} CC \\ \text{Birth} \\ \text{at } 2.5-3.0 \text{ cm} \\ \text{ie } 30 \text{ cm} \\ \text{at } 2.45 = 4.5 \\ \text{ie } 15 \end{array}$$

Body segment ratio lower segment : upper segment ratio

Birth - 1.7:1

1 yr - 1.5:1

3 yrs - 1.3:1

5 yrs - 1.2:1

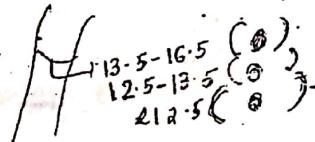
7 yrs - 1:1

Mid arm circumference

Green: 13.5-16.5 - no malnutrition

Yellow: 12.5 - 13.5 - Borderline malnutrition

Red: <12.5 - Severe malnutrition.



By Shakirs tape, Quack stick, Bangle method

Head to toe examination:

- Skull:

- Size
- Shape
- Symmetry
- Bossing/prominence
- AF/PF
- Surface

(Percussion of skull) 7. Macewans Sign - raised SEP after tapping of skull.

8. Transillumination → 2-3 years $\frac{\text{Two hyphae}}{\text{Two hyphae}}$ 2-2.5

9. Intracranial Bruit Cong heart & ↑ ICP

Eye

amblyopia (X itis) (curv
heterochromia iridi
periorbital lymphadenopathy
eye lash)

Ear (earache)

- Face: Characteristics facies

Dysmorphism, puffiness/rashes

• Eyes: size & alignment

1. Vitamin A deficiency
2. Cataract
3. Coloboma
4. Fundus
5. Cornea
6. Pupils
7. Ptosis
8. Exophthalmos
9. Hypertelorism or hypo
10. Chorioretinitis
11. Aniridia
12. Squint
13. Upward or downward slant

• Ears: Low set, tympanic membrane- color, clarity, bulge, cone of light, perforation.

• Nose: Shape of nasal tip n bridge, Size of philtrum, Choanal atresia.

• Mouth & Throat:

1. Vitamin B Complex deficiency
2. Angular stomatitis
3. Chelosis/petechiae
4. Tongue: Dry/wet, coated, colour, size, papillae, tremor, symmetry, aphous ulcers, fissuring.
5. Teeth: hygiene, bleeding, dentition, brownish discoloration.
6. Tonsils: Follicles/membranous

add
• Skin & appendages:

1. Nail: clubbing, flattening, koilonychia, colour, translucency bands, splinter hemorrhage
2. Skin- colour, texture, turgor, palmar erythema, spider naevi, purpura, echinosis, skin rashes, nodules, pyoderma.
3. Hair: distribution, color, texture, brittleness, eye brows & lashes, hirsutism.

add
• Bones & Joints:

1. Thorax
2. Spine
3. Longbones

• Genitals:

- Evidence of deficiency state: Dehydration, PEM, deficiency of vit/min/trace elements

NBIC - WGBSSD NBIC - TUKNEC, SHUBH
SHOULDER - BCB: STRIKE

TERMS OF GROWTH:

Prenatal Period:

- Ovum = 0-14 days
- Embryo: 14 days - 9 wks
- Fetus: 9 wks - birth

Perinatal: 22 wks of gestation - 7 days after birth

Postnatal:

- Newborn: 0-28 days after birth
- Infant: < 1 yr
- Toddler: 1-3 yrs
- Preschool: 3-6 yrs
- School: 6-10 females, 6-12 males
- Adolescence: 12-19 yrs



SYSTEMIC EXAMINATION:

RESPIRATORY SYSTEM:

Examination of upper respiratory tract:-

- Examine nostrils, nasal septum, throat, tonsils and posterior pharyngeal wall.
- Tenderness over frontal / maxillary sinuses
- * - Movement of alae nasi -

Examination of chest :-

INSPECTION

- Shape and symmetry of chest: normal shape is CIRCULAR in infants.
- Pigeon shaped - rickets (pectus carinatum)
- Funnel shaped - Marfan's syndrome (pectus excavatum)
- Position of trachea and apical impulse. Look for Traill's sign.
- Localized areas of retraction (seen in collapse) or bulging (empyema) seen intercostally.



(eg) (Right)
 Boundaries marks placing hand firmly
 metacarpal on any part
 of body according to
 1. → Imitation
 2. → Spine

- Respiratory movements: equal or not, rate, rhythm, use of accessory muscles. look for Indrawing, retractions.

✓ Shoulders: drooping of affected in fibrosis of one side of the lung (seen in tb).

✓ Pulsations, dilated veins, scars, sinuses, rachitic rosary.

✓ Spine: kyphosis or scoliosis

Rt side hemiplegia

PALPATION

→ Trachea sign

- Position of trachea, apical impulse.
- Respiratory movements assessed.
- Measurements: chest circumference and hemithorax during inspiration and expiration.
- Tactile vocal fremitus, palpable respiratory sounds.

AP TD

PERCUSSION:

Areas percussed are:

- Clavicular percussion on either side.
- All the lung fields (normal lung: resonant)
- Determining liver dullness on right and cardiac dullness, on left.
- Shifting dullness, tidal percussion, traube's space.

other fingers out of the body

dull - Pneumonia

stony dull - PE, consolidation

hyperresonant - pneumothorax, asthma

→ spine → lower edge of left lung

anterior border of spleen

LCM, inferior margin of left lobe of liver

AUSCULTATION

All lung fields are auscultated to determine:

Breath sounds: → some places heard loudly as where stethoscope can be placed properly

Intensity of breath sounds - normal, increased or decreased on either side.

Type of breath sounds: vesicular (normal), bronchial (heard in consolidation or large cavity) or bronchovesicular. (heard in bronchial asthma and emphysema).

Vocal resonance: increased in consolidation, superficial cavity. Decreased in pleural effusion, pneumothorax, emphysema, collapse, bronchial obstruction.

Alterations in vocal resonance include: whispering pectoriloquoy (occurs in cavitary TB), bronchophony (occurs in pneumonia), aegophony (occurs above the level of pneumothorax and pleural effusion).

Foreign sounds: rales (crackling sounds) heard in pneumonia, bronchiectasis, lung abscess, cavity, pulmonary edema and left sided heart failure.

Ronchi/wheeze (musical sounds due to continuous air passage through narrowed airways) heard in bronchial asthma, foreign body obstruction and in bronchitis.

Pleural friction rub (harsh creaking sound heard all over chest associated with pain and tenderness, audible during inspiration disappears on expiration) heard in early stages of pleural effusion.

Clinical signs:

- i. **Hippocratic succession:** A splashing sound heard on auscultation in a patient with hydropneumothorax or pyopneumothorax.
- ii. **Ewart's sign:** Seen with large pericardial effusion. Percussion is woody in quality, egophony, and bronchial breath sounds may be appreciated at the inferior angle of the left scapula when the effusion is large enough to compress the left lower lobe of the lung, causing consolidation oratelectasis.
- iii. **D'espine sign:** bronchophony over the spinous processes heard, at a lower level than in health, in pulmonary tuberculosis.
- iv. **Hammans sign:** described as a series of precordial crackles that correlate with the heart beat and not the respirations.
- v. **Coin test**

ALIMENTARY SYSTEM

Special attention should be given to signs of liver cell failure (such as spider naevi, palmar erythema, parotid swelling, flapping tremors etc), pallor icterus, lymphadenopathy and edema of feet in general examination.

Examination of oral cavity.

Examination of abdomen:

- INSPECTION**
- Ascaris - transversely stretched - smiling, appendicitis - diagonal area
 - Shape of abdomen : Normal / Scaphoid (sunken) seen in PEM distended seen in obese persons, ascites, organomegaly, in rickets etc diaphragmatic hernia flanks - normal shape
 - Movements of the abdomen with respiration : absent in peritonitis.
 - Umbilicus : Normal or everted (in ascites), presence of umbilical granuloma or discharge (serous or blood), discharge of URINE seen in PERSISTANT URACHUS.
 - Peristaltic movements : exaggerated in pyloric stenosis, Hirschsprung's disease or any other cause of intestinal obstruction. - intussusception, volvulus, meconium ileus, sigmoid wall
 - Dilated veins : caput medusae (in portal hypertension). In SVC, IVC obstruction dilated veins seen in the flanks.
 - Visible mass or peristalsis.
 - Hernial orifices, scars, sinuses, abnormal pulsations, BRANDING.

PALPATION

- Gentle palpation - whether abdomen is normal or there is tenderness, GAURDING or RIGIDITY.
- Edema of abdominal wall.
- If engorged vessels present see the direction of blood flow. In SVC obstruction flow of blood is above downwards, in IVC obstruction its below upwards. In caput medusae flow

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of blood is away from the umbilicus.
 - Hernial sites.

PALPATION OF VARIOUS ORGANS:

LIVER: Normal (Normally liver is palpable upto 1 inch below RCM in the right MCL upto 2-3 yrs of age.)
 Enlarged (determine span), margins rounded or sharp, consistency, tenderness over liver.

SPLEEN: Normally palpable in neonates and paraneonates. Later on, a palpable spleen denotes splenomegaly.

KIDNEY: Palpated bimanually.

Palpation of any lump (if present)

PERCUSSION

- Liver and splenic dullness.
- Liver span, tympanic note.
- Shifting dullness, horseshoe shaped dullness or fluid thrill is noted. Puddle's sign is elicited if minimal fluid accumulation is suspected.
- Abnormal mass is percussed to see if cystic or not. in ascites, transperitoneum infusis

AUSCULTATION

- Peristaltic sounds should be auscultated: best heard to the right of the umbilicus. Normal (2-3/min), decreased or absent in paralytic ileus; exaggerated in intestinal obstruction, gastroenteritis, hypokalemia, dehydration
- Bruits may be heard due to aortic aneurysms, bruit over liver suggests tumor or telangiectasia.
- Venous hum heard in portal hypertension over caput medusae. (Cruveilhier-Baumgarten bruit)

time - elbow press
 pressure release
 wait for 3-5 sec
 keep hand there
 for 3-5 min

GENITALS AND RECTAL EXAMINATION

- Hernial sites
- External genitalia: hydrocoele, epididymitis, orchitis, un-descended testis etc.

A

CNS EXAMINATION

- 1) Presence of Neurocutaneous markers
- 2) Systemic Examination

a) Higher mental Functions :

Appearance

Intelligence

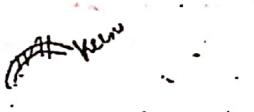


Behaviour

Memory

Consciousness

Emotional Disturbance

- Delusions - Speech
- Hallucinations
- b) Cranial Nerves (1-12) - Doll's eye movt, papillary reflex, facial symmetry, gag reflex, deviation of Uvula, tone (12th), fibrillation.
- c) Motor System :
 - i) Posture of limbs
 - ii) Nutrition (bulk)
 - iii) Tone: N / ↑ed / ↓ed
 - iv) Power; grade
 - v) Co-ordination: finger nose, Knee heel
 - vi) Involuntary Movements
 - vii) Gait
- d) Sensory System: Pain, Temperature.
- e) Reflexes :
 - i) Deep Tendon Reflexes - Biceps, Triceps, Ankle, Knee
 - ii) Superficial - Abdominal, Cremastric, Plantar, Corneal
- f) Cerebellar Signs: ↓ed tone, Nystagmus, Incoordination, Pendular Jerks
- g) Signs of Meningeal Irritation : 
- h) Autonomic Dysfunction :
 - i) Sphincter disturbance
 - ii) Wide fluctuation of vital signs
 - iii) Changes in Salivation, Lacrimation, Sweating

Peripheral CVS examination

APEX BEAT

- A
- <3 years: Left IVth ICS lateral to the MCL
 - 3-5 years: Left IVth ICS on the MCL
 - >5 years: Left Vth ICS medial to MCL
- 

Examination of the Pericardium

Inspection:

Precordial bulge

Position of the apical impulse

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Pulsations → find left and right ICS = pulmonary hypertension

Epigastric = aortic aneurysm

Suprasternal = AR

Engorged Veins (SVC obstruction)

Spine

Scars → midline sternotomy - open heart surgery / valve replacements

Submammary - mitral valvuloplasty

Palpation:

Apical impulse: 1) Position

2) Character: tapping → MS.

Heaving → AS, concentric HOCM

Hyperdynamic → fever, pregnancy, thyrotoxicosis,

AR, MR anaemia

Double → dilated cardiomyopathy, LBBE

left parasternal heave

Palpation of epigastric pulsations

Thrills → site and timing in relation to cardia

Palpable heart sounds

Percussion:

R & L Cardiac Borders

Aortic dullness → aneurysm

Pulmonary → pulmonary conus, pericardial effusion

Mediastinum → mediastinal mass

Shifting dullness over the pulmonary area on sitting position → pericardial effusion.

Auscultation:

Mitral/Tricuspid/Aortic/Pulmonary

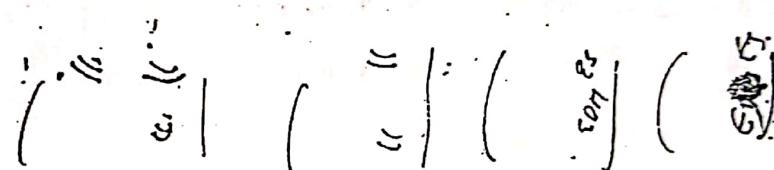
Other areas → neck vessels, sides, back of chest

S1 & S2

Additional sounds → split, S3, gallop rhythm, S4

**MURMURS: (Grade)**

1. Timing: systolic/diastole
2. better heard on inspiration/expiration
3. low/high
4. Character: soft, blowing, rumbling (pansys, crescendic)
5. presence of thrill
6. point of maximum intensity & direction

MURMURS

1) Areas of

murmur heart

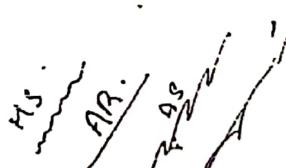
Mitral	Tricuspid	Pulmonary	Aortic
MR - PSM	TS - MDM	PR - EDM	AR - EDM
MS - MDM	TR - PSM	PS - ESM	AS - ESM
AS - ESM	VSD - 3 rd and 4 th ICS	VSD - ESM	

• Erb's area / left 3rd IGS / 2nd aortic area : AR - EDM (Syphilis, marfan's, RHD [EDM in Erb's R/o marfan's])

2) Variation with Respiration : (L) side → best on expiration, (R) side → best on inspiration

3) Character of Murmur :

- Rough and rumbling – MS (MDM)
- Soft and blowing – AR (EDM)
- Harsh Grating – AS (ESM)
- Train in tunnel – PDA (continuous, (L) infraclavicular area)



4) Radiation and Conduction

a) Conduction → If murmur is heard with same intensity as the site of origin

- i) AS - Neck
 ii) Radiation - ↓ed intensity at a different area of chest from site of origin.
 iii) MR to axilla in anterior valve involvement.
 iv) MI to (L) 2nd ICS in posterior valve involvement.

5). Pitch

- a) Low - Heard with bell (MS)
 - b) Medium - Innocent murmur
 - c) High - Heard with diaphragm (AR, MR)

Gladding of Murmurs

Grade 1=Very faint

Granic 2 = soft

Grade 3 = Heard all over the precordium

Group 4 = Loud, with palpable thrill

Grade 5 - very loud, with thrill. May be heard if stethoscope is partly off the chest.

Grade 6 = Very loud, with thrill: May be heard with stethoscope entirely off the chest.

Grades of Chipping.

Grade I: Softening of nail bed

Grade II: Obiteration of the

Grade III: Swelling of the nail bed
... Alteration of the angle of the nail bed

Grade III: Swelling of the subcutaneous tissues over the base of the nail causing the overlying skin to become tense, shiny and wet and increasing the curvature of the nail, resulting in parrot beak or drumstick appearance.

Grade IV: Swelling of the fingers in all dimensions associated with catastrophic pulmonary osteoarthropathy causing pain and swelling of the joints, wrist etc, and radiographic evidence of subperiosteal new bone formation.

Alertability rate 50% <

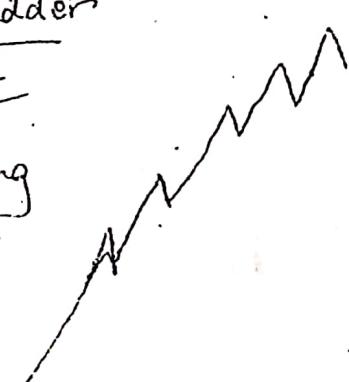
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Z. und

- ② Diarrhea
 - ③ Malaria + Pneumonia
 - ④ Measles
 - ⑤ Malaria

Step ladder

According
pattern



HISTORY-TAKING

Name

Informant

Age

Reliability

Sex

Address

ORDER OF HISTORY-TAKING

- Chief complaints
 - Chronological order
- History of Presenting illness
- Past history
- Family history
- Antenatal history
 - I, II, III trimester
- Natal history
- Post natal history
- Immunization history
- Developmental history
- Diet history
- Socio economic history
- Allergic history
- Treatment history
- Contact history

Common chief complaints:

- Fever
- Cough
- Abdominal pain
- Diarrhoea
- Convulsions
- Vomiting

History of presenting illness

- Fever
 - Duration
 - Onset
 - High grade or low grade
 - Chills and rigors
 - ✓ Evening rise of temperature
 - Continuous or intermittent

By Dr. VINAY KRISHNA L.

(cough)

- diarrhoea
- 1) gastrocolic reflex
- 2) cont / infected feeds
- dysentery (blood & mucus)
- tenebrismus (little even cushion)

- Duration
- Onset
- Character
- Diurnal variation
- Associated with sputum
- Colour
- Quantity
- Foul smelling
- Blood stained

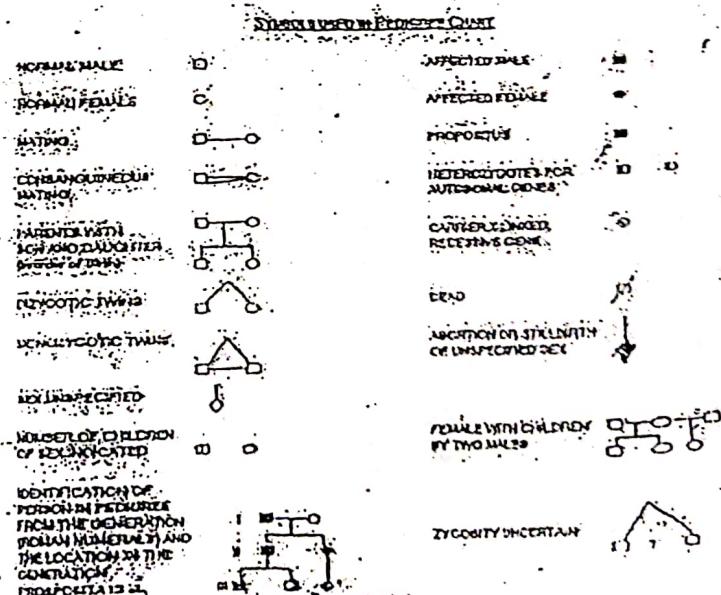
(Abdominal pain)

- Site
- Type
- Severity
- Radiating or non radiating
- Aggravating factors
- Relieving factors

(Convulsions)

- Generalized or localized
- H/o Aura
- Duration
- Associated with fever or vomit
- Bowel and bladder incontinence present or not
- H/o LOC, Headache
- Post-ictal drowsiness

Past history



Family planning - (checkmark)

arthritis / *arthropathy* / *syringomyia* / Joint pain - rheumatic heart disease

- Similar illness in past
 - Any significant disease in the past
 - Any illness like measles, tuberculosis, asthma jaundice
 - Contact present with any disease or I&B
 - Previous history of hospitalization
 - H/o Medications
 - Surgical History

Family history

- Age of parent at marriage
 - H/o Consanguinity
 - Number of, siblings
 - Abortions or infant deaths
 - History of contact
 - Nuclear or joint family
 - H/o Mental retardation, diabetes mellitus

Birth history

- Previous obstetric history
 - Normal delivery or not
 - ✓ Complications
 - Weight of the baby
 - Deformity present or not
 - H/o Complications during pregnancy

First trimester

- Any antenatal check-ups (Booked Case)
 - Last menstrual period date
 - Fever with rash with painful post auricular lymphadenopathy
 - History of handling of pets present or not
 - H/o Exposure-to-drugs-/ Irradiation
 - Weight gained by mother

Second trimester

- Quickenning felt or not
 - TT injection given or not
 - Iron and folic acid tablets
 - USG done or not
 - Mother had PIH or diabetic mellitus
 - Bleeding / Leaking PV
 - Antenatal checkup

Third trimester

- ### Bleeding per vaginum

- Any infections
 - USG done or not
 - H/o of drug intake
 - H/o of exposure to radiation

Natal history

- Child - term, preterm or post term
 - Born - hospital or home
 - Mode of Delivery
 - Child cried immediately after birth or
 - Child passed - meconium or not
 - Any resuscitation done or not
 - Prolongation of labour
 - Birth weight

Post natal history

- Child developed icterus or cyanosis
 - Child - breast fed or on artificial feed
 - History of convulsions
 - Weaning foods
 - Which day umbilical cord fell down
 - Feeding problems

Immunization history

UIP schedule (universal Immunisation programme)

<u>AGE</u>	<u>VACCINE</u>
1) Birth-15 days <u>(20 weeks)</u>	BCG, OPV - zero dose, Hepatitis B Vaccine - 1 st d
2) 6 weeks-8 weeks	DPT - 1 st dose, OPV - 1 st dose, Hepatitis B Vaccine - 2 nd d
3) 10 weeks - 12 weeks	DPT - 2 nd dose, OPV - 2 nd dose
4) 14 weeks - 16 weeks	DPT - 3 rd dose, OPV - 3 rd dose
5) 6 months - 9 months	Hepatitis B Vaccine - 3 rd dose
6) 9 months (Completed)	OPV - 4 th dose, Measles vaccine.
7) 15 months - 18 months	MMR (Measles, Mumps, Rubella)

Compiled by Vinay Krishna LN 9th term 2008-2013 batch

③ DPT: Diphtheria: peritonsilar swelling (cough) & tetanus. (toxoids) (mycobacteria)
also available as oral vaccine

TT = Tetanus
 (1st. give as DPT), Hib = Hemophilus influenzae
 (-ve bacteria isolate amorphous)

	DPT - 1 st Booster dose, OPV - 1 st Booster dose.
5 years	DPT - 2 nd Booster, OPV - 2 nd Booster
10 years	TT - 3 rd Booster dose, Hepatitis B Vaccine - Booster dose.
15 - 16 years	TT - 4 th Booster dose.

<u>4-6 years</u>	2 nd booster of OPV + DPT.
10 years	Tetanus Toxoid 3 rd bo.
16 years	Tetanus Toxoid 4 th bo.

Developmental history

- Gross motor - head holding, rolling
- Fine motor - palmar grasp
- Language - mono syllabus, bi syllab
- Personal and social - recognizing m

Dietary history

- Calorie requirement for a child
 - 1-10 kg - 100 Kcal/ kg/day
 - 11-20 kg - 50 Kcal/ kg/day
 - > 20 kg - 20 Kcal/ kg/day
- Protein requirement for a child
 - 1.5 gram / kg / day

Simple formula

- Till one year age 1000 Kcal
- Add 100 Kcal every year

Caloric value of few food stuff

Cereals	Protein,	Calories
1 cup of rice	2gms	100 cals
1 chappatti	2gms	50 cals

Pulses

1 cup of	10gms	300 cals
cooked dal		

Milk / 100 ml

Human mil	1.1gms	65 cal
Cows milk	3.3gms	67 cal

Fats

Ghee - 1 tsp	-	45 cal
Butter 100 gms	-	730 cal

Non veg

1 egg	6gms	60-70 cals
Fish 100 grams	20gms	118 cals
Mutton 100 grams	22gms	118 cals

Varicella vaccine is against chicken pox (caused by varicella)

Socio economic history

- Number of persons living
- Occupation
- Education
- Housing condition.
- Type of water for drinking, cooking
- Income
- Per capita income = Total income of family / No. of family members

	Score
A. Education	
1. Professional degrees, M.A. and above	7
2. B.A. B.Sc. degree	6
3. Intermediate/secondary high school certificate	5
4. High school certificate	4
5. Middle school completion	3
6. Primary school certificate	2
7. Illiterate	1
B. Occupation	10
1. Professional	8
2. Semi-professional	7
3. Clerical, shopkeepers	5
4. Skilled worker	4
5. Semi-skilled worker	3
6. Unskilled worker	2
7. Unemployed	1
C. Income	10
1. Rs. 3000 and above	10
2. Rs. 2000-3000	8
3. Rs. 1500-2000	6
4. Rs. 1000-1500	4
5. Rs. 500-999	3
6. Rs. 200-499	2
7. Rs. < 200	1
Total score	Socio-economic status scale
23-27	Class I (upper)
18-22	Class II (upper middle)
11-15	Class III (lower middle)
5-10	Class IV (upper lower)
<5	Class V (poor)

Allergic history

- Allergy to drugs
- Allergy to food items like
 - Egg
 - Milk
 - Meat

Contact history

- Any history of contact with disease like
 - Measles
 - Whooping cough
 - Tuberculosis

ANTHROPOMETRY

Anthropometry is a simple valuable tool & the gold standard for evaluating the nutritional status of the child

Growth chart

- It is of value to have serial records of child's weight periodically on a GROWTH CHART (ROAD TO HEALTH CHART) which is based on percentile curves.
- A flat curve (growth flattening) - indicates a slowed or arrested growth which must alert the pediatrician to take action both diagnostic as to its cause correct so as to lead to normal once again.

Use of growth chart

- To make growth a tangible, visible & attributable attribute.
- To create a felt need, a demand for growth.
- To detect the earliest sign of faltering growth.
- To reinforce effective behavior resulting in growth.
- To illustrate the adverse effects. (e.g. infection-diarrhea/measles & mental deprivation etc).
- To facilitate the transfer of information to the mother regarding means to promote growth.

Note : The growth chart is primarily meant for the mother, to visualize & motivate concern for healthy growth in her child.

Parameters

- Weight
- Growth chart
- Length/Height
- Weight/Height
- Growth velocity
- Body ratio
- Head circumference
- HC/CC ratio
- Mid arm circumference
- Body mass index
- Dentition

Weight

- Most reliable criteria
- Recorded with - beam type weighing scale
- detecto scale
- Salter type of scale

Weight formula

$$3 - 12 \text{ months} = \frac{\text{age in months} + 9}{2}$$

$$1 - 6 \text{ years} = \frac{\text{age (yr)} \times 2 + 8}{2}$$

$$7 - 12 \text{ years} = \frac{\text{age (yr)} \times 7 - 5}{2}$$

Simple weight calculation

- 4 - 5 months - $2 \times \text{Birth weight}$
- 1 year - $3 \times \text{Birth weight}$
- 2 year - $4 \times \text{Birth weight}$
- 7 year - $7 \times \text{Birth weight}$

Weight gain

- Newborn
 - 10% of birth weight is lost initially
 - Regain birth weight by 10 days
 - 200 gm / week - 1st three months (30 g/day)
 - 150 gm / week - 2nd three months (20 g/day)
 - 100 gm / week - next 6 months (15 g/day)
- 1 - 3 years - 3.0 kg / year
- 3 - 12 years - 2.0 kg / year

Length/height

- < 2 years - recumbent length using infantometer
- > 2 years - standing height - Stadiometer

Formula : $2 - 12 \text{ yrs} = \text{age in years} \times 6 + 77$ (in cm)

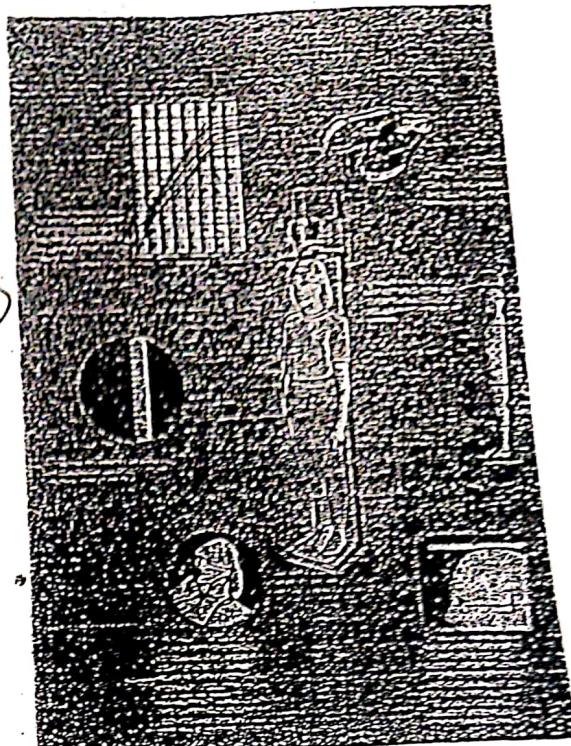
Tanner formula

- In girls at 2 yrs - half of adult height is attained.
- In boys at $2\frac{1}{2}$ yrs - half of adult height is attained

Tanner formula

$$\begin{aligned} 2 \text{ years} &\times 2 \\ &3 \times 1.37 \end{aligned}$$

$$\begin{aligned} 6 &\times 17 \\ 2.5 &\times 30 \end{aligned}$$



Height - Normal

- At birth - 50 cm
- 3^{months} - 60 cm
- 9^{months} - 70 cm
- 1 year - 75 cm
- 2 years - 90 cm
- $4\frac{1}{2}$ years - 100 cm
- Till 10 years - 5 cm / year

Weight/height

- $\text{Wt/Ht} = (\text{actual height/weight corresponding to the height}) \times 100$.
- A value below 90.5% indicates malnutrition.

Value > 120% indicates over wt or obesity.

Growth velocity

Is the rate at which the child grows, a period of time.

BOYS

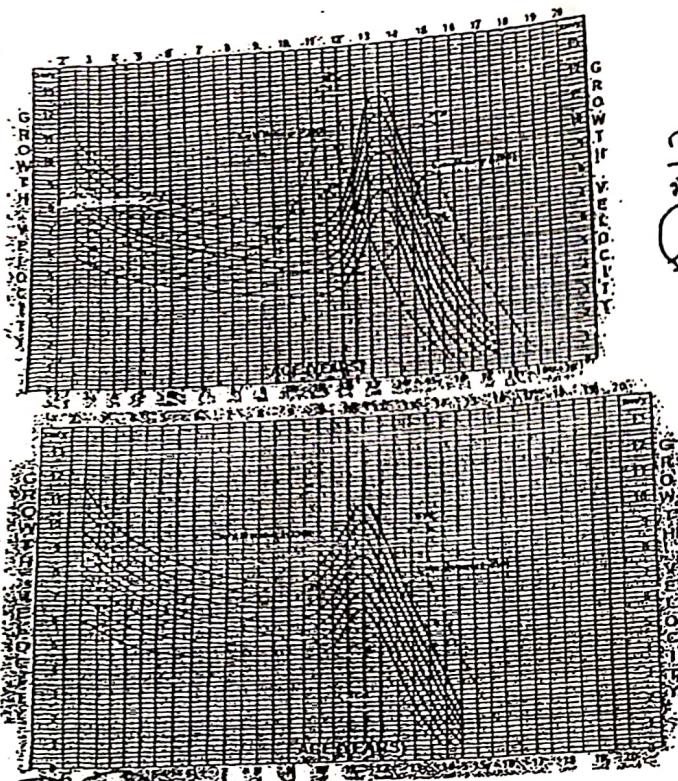


GIRLS

Compiled by Vinay Krishna LN 9th term 2008-2013 batch

Weech's formula (inch)

$$\begin{aligned} \text{Body height} &= 0.545 \text{ (age)} + 0.544 \text{ (A)} + 14.84 \\ &0.545 \text{ (age)} + 0.544 \text{ (A)} + 10.09 \end{aligned}$$



Body ratio

- Upper segment/Lower segment ratio
 - At birth - 1.7:1
 - 3 yrs - 1.3:1
 - 10-12 yrs - 1:1

STEM STATURE INDEX (Sitting height) or (crown rump length)

As a % of total height/recumbent length)	
At birth	- 70
At 6months	- 66
At 1 yr	- 64
At 2 yrs	- 61
At 3 yrs	- 58
At 5 yrs	- 55
At puberty	- 52

Arm span

- Distance between the tips of middle fingers when the arms are out stretched.
- It is equal to height at 10 yrs.
- In earlier years it is 1-2 cms less than ht/length.

- After 12 yrs it is 1-2 cms higher
 - At 6 months - 66 cm
 - At 1 yr - 64 cm
 - At 2 yrs - 61 cm

Mid arm circumference
 Age independent
 Measured at 1/4 acromial process
 1-5 years: Arm C constant
 12.5 cm

Head circumference

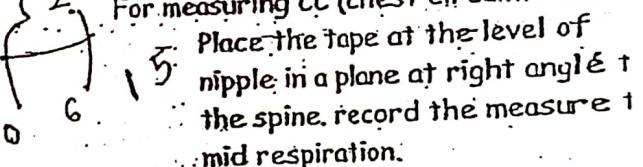
- Brain growth is rapid during infancy is unaffected by mild to moderate of malnutrition
- Morbid children will have relatively large head compared to body size
- Should not be measured within 24 hr after birth
- HC should be measured using steel tape
- Bony landmarks - superior orbital rim (ant), external occipital protuberance (post)

Normal head circumference

- Birth - 35 cm
- 3 months - 40 cm
- 12 months - 45 cm
- 2 years - 48 cm
- 12 years - 52 cm
- 2 cm/month in 1st 3 months
- 1 cm/month in next 3 months
- 0.5 cm/month in 6 months

Chest circumference

For measuring CC (chest circumferential



- At birth H.C is more than CC (by about 2.5 cm).
- By 6 to 12 months H.C = CC.
- At 1st yr CC > H.C (larger by 2.5 cm).
- At 5 yrs CC > H.C (by 5 cm).
- In PEM CC may continue to be less than HC

Mid arm circumference

- Age independent criteria
- Measured at the mid point between acromian process and olecranon
- 1 - 5 years : Arm Circumference fairly constant
 - >13.5 cm - Normal
 - 12.5 - 13.5 cm : moderate malnutrition
 - <12.5 cm : severe malnutrition
 - For men : 30 - 33 cm
 - For women : 27 - 30 cm



Shakris tape

- It is a plastic tape with colored zone - green, yellow & red
 - Red indicates severe malnutrition <12.5cm
 - Yellow indicates moderate malnutrition (12.5-13.5cm)
 - Green indicates normal >13.5cm

Bangle test

- Bangle made of metal with internal diameter of 4 cm (circumference 12 cm)
- If the bangle crosses the elbow, the child is malnourished.

It is a simple but less sensitive test

Quac stick

- It is the short name for Quacker arm circumference stick (QUAC)
- It is a rod with two sets of marking one indicating the height and other for MAC for the corresponding height
- The MAC is measured, and the QUAC stick is placed behind the standing child
- If the height is more than the expected height for the measured arm circumference the child is considered malnourished

Modified quac stick

- This utilizes a rod that is colored green, yellow and red that represents normal, borderline and severe malnutrition status respectively



- The upper zone is colored red

Nabarro's Thinness chart (Leaness board)

- It is a graphic chart that represents expected weight for height has been prepared
- In severely malnourished child the head touches upper red zone when the child made to stand against the column on the chart for the recorded weight of the child

Skin fold thickness

- Measured with Herpenden's caliper over the triceps or sub scapular region
- Gives an indication of subcutaneous fat and indirectly the caloric reserve in the body

Tissue growth measurements

- Triceps skin fold thickness
- Sub scapular skin fold thickness
- Biceps skin fold thickness

Upper segment: Lower segment

- Upper segment - vertex to pubic symphysis
- Lower segment - pubic symphysis to foot
- Normal
 - Birth - 1.7 : 1
 - 6 months - 1.6 : 1
 - 1 year - 1.5 : 1
 - 2 years - 1.4 : 1
 - 4 years - 1.2 : 1
 - 9 - 10 years - 1 : 1

Mid parental height

$$\text{MPH for boys} = \frac{\text{paternal height} + \text{maternal height}}{2} + 13$$

$$\text{MPH for girls} = \frac{\text{paternal height} + \text{maternal height}}{2} - 13$$

- Predicted height is MPH +/- 2.5 cm

MAC : HC ratio - Konawati Index

- 0.28 - 0.314 : mild PEM
- 0.25 - 0.279 : Moderate PEM
- <0.249 : Severe PEM

HC:CC
 - Ratio > 1 - normal
 - < 1 in PEM (more than 9 months of age)

MAG:Ht ratio
 - Ratio 0.32 - 0.33 : normal
 - Ratio < 0.29 severe PEM
Rao & Singh Weight / Height² ratio
 - Ratio > 0.0015 : normal
 - 0.0013 - 0.0015 : moderate PEM
 - < 0.0013 : severe PEM

Ponderal index

- Weight in Kg / Height²
- Ratio > 2.5 normal
- Ratio 2 - 2.5 : borderline PEM
- Ratio < 2 : severe PEM

Dugdale Weight / Height²

- Ratio > 0.79 : Normal
- Ratio < 0.79 : malnutrition

Body mass index

$$- \text{BMI} = \text{weight in kg} / \text{height}^2 (\text{m}^2) \times 100$$

BMI	Children	Adult
18.5 - 25	Normal	-
<15	Moderate malnutrition	-
<13	Severe Malnutrition	-
>22	Over weight	>25
>25	Obesity	>30

Dentition

- It is not a dependable parameter for assessment of growth, since there is a wide variation in eruption of teeth and its timing.
- Average age at which first tooth erupts 6 to 7 months.
- The rest of milk, deciduous or temporary teeth appear at the rate of one tooth every month.
- No. of teeth in infant=age in months-6.

- By 2 $\frac{1}{2}$ yr to 3 yr child has a full set temporary teeth, numbering 20.
- The first permanent teeth-at 6 yrs (molar).

Primary dentition

Eruption Sequence

Central Incisors	6 - 7 months
Lateral Incisors	8 - 9 months
Canine	16 - 18 months
First molar	12 - 14 months
Second molar	20 - 24 months

Completion of enamel formation

Central Incisors	1 $\frac{1}{2}$ months
Lateral Incisors	2 $\frac{1}{2}$ months
Canine	9 months
First molar	6 months
Second molar	11 months

Permanent Dentition - Eruption Sequence

Central Incisors (2)	7 - 8 years
Lateral Incisors (2)	8 - 9 years
Canine (1)	11 - 12 years
First Premolar (1)	10 - 11 years
Second Premolar (1)	10 - 12 years
First molar (1)	6 - 7 years
Second molar (1)	12 - 13 years
Third molar (2)	17 years +



Permanent dentition - completion of enamel formation

Central Incisors	4 - 5 years
Lateral Incisors	4 - 5 years
Canine	6 - 7 years
First Premolar	5 - 6 years
Second Premolar	6 - 7 years
First molar	2 $\frac{1}{2}$ - 3 $\frac{1}{2}$ years
Second molar	7 - 8 years

Developmental assessment

- Development is a continuous process from conception to maturity.
- The sequence of development is the same in all children, but the rate of development varies from child to child
- Development is in the cephalocaudal direction
- The first step towards walking is the development of head control of strength in the neck muscles
- The infant can do much with his hands before he can walk
- He can crawl, pulling himself forward with his hands before he can creep, using hands and knees.

Occurs in four areas

- Gross motor
- Fine motor adaptive
- Language
- Personal social

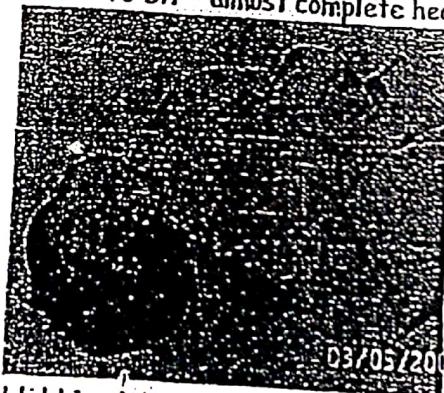
The average level of development at different ages

4 weeks, (1 month)

Gross motor

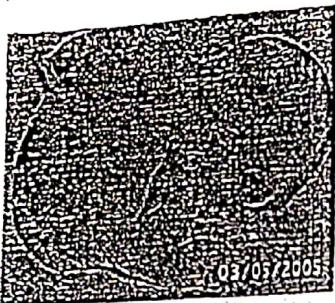
- Ventral suspension head held up momentarily elbows flexed, hips partly extended knees flexed.
- Prone - pelvis high, knees under abdomen head predominantly to one side.

Pulled to sit - almost complete head lag



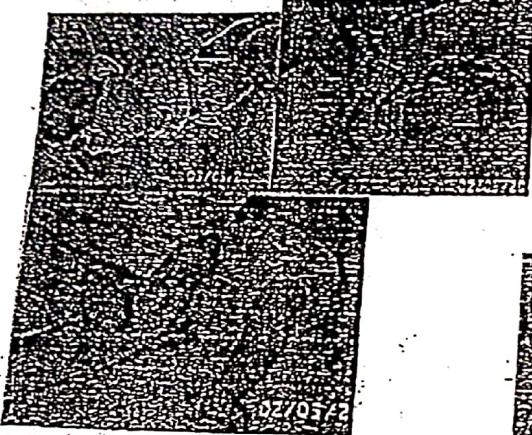
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Held in sitting position - back uniformly rounded



Supine - asymmetrical tonic neck reflex seen

- Held standing - walking reflex present
- Hands - hands predominantly closed (grasp reflex)
- Social - Beginning to smile
- Vision - follows moving object, less than 90°
- Sound - quite when bell is rung.



6 weeks (1 $\frac{1}{2}$ month)

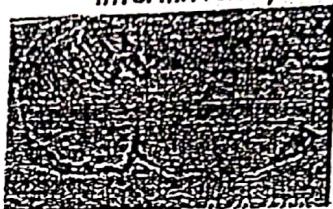
- Gross motor - ventral suspension - Head in plane of body
- Some extension of hips and flexion of knees, flexion of elbows
- Prone - pelvis high, but knees no longer under abdomen, intermittent extension of hips: Chin raised intermittently off couch. Head turned to one side.
- Pulled to sit: Head lag considerable but not complete.
- Held in sitting position: Intermittently holds head up
- Held standing: Head sags forward



- Supine: ATNR at rest intermittently
- Hands: Grasp may be lost
- Social: Smile (+)
- Vision: Eyes fixate on object, follow moving person.

8 weeks (2 months)

- Gross motor
- Ventral suspension: Can maintain head in same plane
- Prone: Head mostly in midline intermittently lifts chin off couch



- Head in sitting position: Less rounding of back
- Supine: ATNR

seen intermittently

- Held in standing position: Able to hold head up more
- Hands: Only slight grasp reflex
- Vocalization: Smiles and vocalizes when talked to

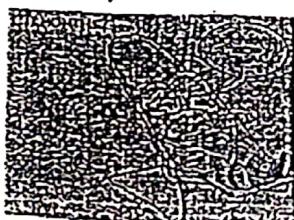


12 weeks (3 months)

- Gross motor: Head held up for prolonged period
- Prone: Pelvis flat on couch
- Pulled to sit: Only slight head lag
- Held in sitting position:

Head mostly held up, but still bobs forward

- Supine: No more ATNR
- Hands: No grasp reflex, hands loosely open
- Vocalization: Squeals of pleasure
- Vision: Binocular vision develops watches movement of his own hands
- Vocalization: Squeals of pleasure
- Vision: Binocular



vision develops watches movement of his own hands

- Headings: Turns head to sound

16 weeks (4months)

- Gross motor: Supine: Head and chest off couch limbs stretched out in full extension.
- Pulled to sit: Slight head lag in beginning of movement
- Held in sitting position: Head held up constantly, child looks actively around curved only in lumbar region.
- Hands: Hand comes together as he plays tries to reach the object but over shoots it.
- Vocalization: Laughs aloud
- Vision: Immediate regard of dangling object.

20 weeks (5 month) *Bidet voice*

- Gross motor: Prone: Weight on forearms
- Pulled to sit: No head lag
- Held in sitting position: No head wobble back straight



- Held in sitting position: Bears most of weight
- Hand: able to grasp objects voluntarily plays with toes, splashes in bath, Bidextrous grasp; takes it to mouth
- Social : Smile at mirror image
- Vocalization: AH-goo

24 weeks (6months)

- Gross motor: Prone: Weight on hands, chest and upper part of abdomen off couch sit with support.
- Held in standing position: Almost full weight on legs.
- Rolls prone to supine.
- Hand: Holds bottle, Grasp his feet

- Cube: Palmar grasp of cubes
- Feeding: Drinks from cup when it is held to lips
- Play: Laughs when head is hidden in toy



28 weeks (7 months)

- Gross motor: Bears weight on one hand sits with hands on couch for support.
- Rolls from supine to prone
- Held in standing position: Bunches with pleasure
- Hand: Feeds self with biscuit, likes to play with paper



- Cube: Transfer it from hand to hand
- Social: Imitates simple acts
- Responds to name
- Speech: Syllable - ba, da, ka

32 weeks. (8 month) *Nox*

- Gross motor: Sits momentarily on floor without support.
- Adjust posture
- Social: Responds to No
- Looks for dropped toy:
- Imitates sounds
- Speech: Continuous syllable - da-da, ba-bi



40 weeks (10 months)

- Gross motor: Prone: Crawl position, on abdomen crawls by pulling self forward with hands

- Sitting position: Can go over into prone, or change from prone to sitting /6th
- Can pull self to sitting position



- Standing: Can stand holding on to furniture



- Hands: Goes for objects with index finger



- Cubes: Beginning to let go of objects
- Social: Respond to commands
- Waves bye-bye



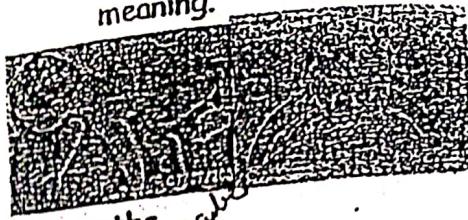
47 weeks (11 months) No for

- Prone: Creeps; abdomen off ground
- Lifts foot
- Cubes: Beginning to put objects in and out of containers
- Social: Hold arm out for sleeve hold the object tightly, and won't release it.
- Speech: Says one word with meaning.

48 weeks (12 months)

- Gross: Prone - walks on hands and feet like bear
- Walks side way holding the furniture.
- Social: Rolls ball to examiner,
- Drinks from a cup

- Speech: Two or three words with meaning.



15 months July

- Gross Motors:
- Creeps up stairs
- Kneels without support
- Walks without help (from 13 months).
- Can get into standing position without support.
- Hands: Casting less
- Cubes: Holds two cubes in one hand
Builds tower of two



- Dressing: Likes to take off shoes
- Feeding: Feeds self, picking up cup, drinking, putting it down
- Social: May kiss pictures of animal. Imitates mother in domestic duties
- Speech: Several intelligible words
- Simple form board: Inserts round block without being shown.

18 months July
Gross Motors: Throw the A

- Gets up and down stairs
- Walks up stairs
- Seats self on chair
- Beginning to jump (both feet)

Cubes: Tower of three or four

Ball: Throws ball without falling



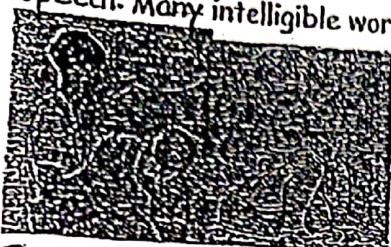
Parts of body:

- Points to two or three (nose, eye, hair, etc.,)

Books: Points to picture of car or dog.

Sphincter control: Dry by day, occasional accident.

Speech: Many intelligible words



2 years ~~2~~

Gross Motors:

- Picks up object without falling.
- Runs, Kicks ball without overbalancing.

Hands:

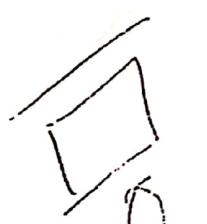
- Turns door knob, unscrews lid.
- Washes and dries hands.

Cubes:

- Tower of six or seven (five or six at 21 months)



- Ball: Kicks
- Pencil: Imitates vertical and circular stroke
- Dressing:
 - Puts on shoes, socks, pants
 - Takes off shoes and socks.
- Books : Turns pages singly.
- Speech : Talks incessantly



2 and half year

Gross Motors:

- Jumps with both feet
- Walks on tiptoes when asked

Cubes:

Tower of eight



Sphincter control

- Attends to toilet need without help, except for wiping.
- Climbs on to lavatory seat.

General understanding:

- Begins to notice sex differences
- Knows full name

Knows sex

3 years A

Gross Motors:

- Jumps off bottom step.
- Goes up stairs, one foot per step, and down stairs, two feet per step..
- Stands on one foot for seconds
- Rides tricycle.
- Dressing: Dresses and undresses fully if helped with buttons

Cubes:

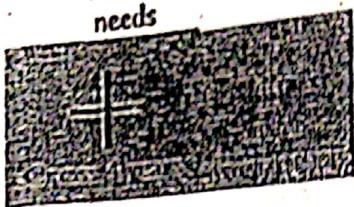
- Tower of nine.
- Imitates building of bridge

Pencils

- Copies circle (from a card)
- Imitates cross



- ~~4 years~~
- Gross motor: Goes down stairs
 - One foot per step
 - Skips on one foot
 - Hands: Can button clothes fully
 - Cubes: Imitates gate
 - Pencil: Copies cross
 - Speech: Tells tall stories
 - Sphincter control: Attends to own toilet needs



- ~~5 years.~~
- Gross motor: Skips on both feet
 - Dressing: Can tie shoelaces
 - Pencil: Copies triangle
 - General understanding: Gives age
 - Distinguishes morning from afternoon
 - Compares 2 weights



FACTORS AFFECTING CHILD DEVELOPMENT

- Genetic factors
- Physical factors
- Nutritional factors
- Emotional factors
- Socio-cultural factors

SCREENING TEST FOR DEVELOPMENTAL ASSESSMENT

- The Denver Developmental screening test (DDST).
- Gesell developmental schedule
- Bayley scale of infant development (BSID)
- Baroda developmental screening test
- Trivandrum developmental screening chart

Development quotient

- DQ is computed using the following formula

Developmental age

$\times 100$

Chronological age

Compiled by Vinay Krishna LN 9th term 2008-2013 batch
Verbal supervision - Well & Peone position

~~newborn~~
~~within month~~

8 weeks |

Assessment of intelligence

- The intelligence quotient (IQ) is computed using the following formula

Mental age

$\times 100$

Chronological age

Various levels of retardation according to IQ

Level of Retardation	IQ	Remarks
Normal	90 - 110	
Borderline / average	70 - 90	Vulnerable to educational problems
Mild / educable	50 - 70	Often need special classes.
Moderate / Trainable	35 - 50	Trainable in workshop setting
Severe	20 - 35	Trainable for self care skills
Profund	Below 20	Need custodian care.

Simplified developmental information chart (SDIC-1 & 2)

Age	Skills
1-2 months	Smile, cooing sounds.
2-3 months	Holding voluntary grasp.
3-4 months	Reaches out with right hand and transfer objects.
4-5 months	Performs abdомinal (l, criss & bang, 2 cubes).
5-6 months	Performs grasps (pincer, pincer, acha, laha).
6-7 months	Able to stand make steps, pick up pellets.
7-8 months	Speaks 1-3 words, able to feed self.
8-9 months	Can use cup and spoon.

2 4 6 8 9 12 18

9^{1/2} 10^{1/2} 11^{1/2} 12^{1/2} 13^{1/2} 14^{1/2} 15^{1/2} 16^{1/2} 17^{1/2} 18^{1/2}

minimally 0.5

borderline 1.5

below normal 2

7 months → bounces

6 steps

Sitting moment kly → 1 month

bob forward → 3 month

stand 4 month

Age (months)	Gross motor	Fine motor	Perceptual	Emotional
1-2	Head control, rolling over	Climbing, reaching for objects	Spatial skills	Crying, smiling
2-3	Creeping	Grasping objects, putting mouth	Enjoyment	Mimicry, imitation
3-4	Squatting	Hand-to-mouth	Play, perception	Laughter, pleasure
4-5	Walking, pulling up	Prehension, pick things up	Wanderlust, speech	Adolescence
5-6	Running	Solid foods, toilet training	Play, imitation	
6-7	Jumping	Individualized play, make-believe	Play, imagination	
7-8	Running, climbing	Copy others, self-control	Play, imagination	
8-9	Running, jumping	Imaginative play	Play, imagination	
9-10	Running, jumping, climbing	Imaginative play	Play, imagination	

Male

- Early testicular growth
- Pubarche
- Testicular and penile growth
- Nocturnal emissions
- Height velocity changes
- Marked velocity changes
- Facial hair growth
- Final pubertal changes
- Height & muscle development

Early Adolescence

Age (yr)	10 - 13
SMR	1 - 2
Somatic	Secondary sex characteristics; beginning of rapid growth; awkward
Sexual	Sexual interest usually exceeds sexual activity
Cognitive & moral	Concrete operations; conventional morality
Self concept	Preoccupation with changing body; self-consciousness
Family	Bids for increased independence; ambivalence
Peers	Same sex groups; conformity; cliques
Relationship to society	Middle school adjustment

Periods of Adolescence

Three periods based on stages of development

Early: 10 - 13 years

Middle: 14 - 16 years

Late: 17 - 20 years

Sequential changes of puberty

(these changes normally occur over 2 - 4 years period)

Female

Breast bud (thelarche)

- Pubic hair development (pubarche)
- Height velocity
- Menarche
- Axillary hair
- Final pubertal changes
- Pubic hair & completed height development

Middle Adolescence

Age (yr)	14 - 16
SMR	3 - 5
Somatic	Height growth peaks; body shape and composition change; acne and odor; menarche / spermatarche
Sexual	Sexual drive surges; experimentation; questions of sexual orientation
Cognitive & moral	Emergence of abstract thought; questioning mores; self centered
Self concept	Concern with attractiveness, increasing introspection
Family	Continued struggle for acceptance of greater autonomy.
Peers	Dating; peer groups less important
Relationship to society	Gaging skills and opportunities

Late adolescence

Age (yr)	17 - 20 and beyond
SMR	5
Somatic	Slower growth
Sexual	Consolidation of sexual identity
Cognitive & moral	Idealism; absolutism
Self concept	Relatively stable body image
Family	Practical independence; family remains secure base
Peers	Intimacy; possibly commitment

to society

(male)
Change: Change

Sexual Maturity Rating or Tanner Staging in Males

Stage	Testes	Penis	Pubic Hair	Range
I	No change (4ml)	Prepubertal 2.5 cm or less	None	Birth - 15 years
II	Enlargement of testes, ↑ stippling and pigmentation of scrotal sac	Minimal or no enlargement	Long, downy hair often occurring several months after testicular growth; variable pattern noted with pubarche	
III	Further enlargement (6 - 8 ml)	Significant penile enlargement especially in length	Increase in amount, now curling	10 - 16.5 years

- Assessment of Growth*
- Anthropometry
 - Assessment of Tissue growth
 - Bone age
 - Dental Age
 - Biochemical & Histological
- Parameters - age dependent*
- Weight
 - Length / height
 - Head circumference
 - Chest circumference
 - Mid arm circumference
 - Skin fold thickness
 - Upper segment - lower segment ratio
 - Arm span
 - Mid parental height

Parameters - age independent

- Bangle test
- Shalär's tape
- Quack stick
- Body mass index
- Ponderal index

Low birth weight

- Low Birth weight - < 2500 gms
- Very LBW - < 1500 gms
- Extremely LBW - < 1000 gms

Classification for weight - GOMEZ

Wt. / age in %	Grade of malnutrition
>90	Normal
76 - 90	I
61 - 75	II
<60	III

Classification for weight - WELCOME TRUST

60-80%	Edema +	Kwashiorkor
60-80%	-	Under wt
<60	-	Marsasmus
<60	Edema +	m.k

Classification for weight - IAP

>80%	Normal
71-80%	Grade I
61-70%	Grade II
51-60%	Grade III
<50%	Grade IV

Classification of PEM by Height

Height	water low	Mc laren	v.sao
Normal	95	>93	>90
I° stunting / short	90-95	80-93	80-90
II° stunting	85-90	-	-
III° stunting/dwarf	<85	<80	<80

Wht	Water low	Mc laren
Normal	>90	>90
I° mild (wasting)	80-90	85-90
II° mod (wasting)	70-80	75-85
III° sev (wasting)	<70	<75

Weight for Height

Acute malnutrition :

- Height for age is normal
- Weight for age is low

Chronic Malnutrition :

- Height for age and weight for age are low

Bone age / Skeletal Maturity

- Appearance & Fusion of Various Epiphyseal centres
- Radiological examination of Wrist and elbow

- Chronic - Kwashiorkor
- Adaptation - Marasmus
- Dysadaptation - Kwashiorkor
- Management of PEM
- Assessment - History, Anthropometry
- Classification - Wellcome trust and IAP
- Investigation
 - Sr. Albumin
 - Urinary urea & Creatinine
 - Urinary Hydroxyproline
 - Sr. essential amino acid index
 - Peripheral smear
 - Liver biopsy

Management of Acute emergency

- Hypothermia
- Hypoglycemia
- Specific infection
- Dehydration & electrolyte disturbances
- Chronic renal failure
- Anemia
- Vitamin & Mineral supplements

Restoration / Nutritional Management

- ORS → Milk → Family pot feeding
- High energy milk
- Cereal milk
- 150 - 200 calories / kg / day
- 3 - 4 gms / kg / day

Diff b/n Marasmus & Kwashiorkor.

	<u>Marasmus</u>	<u>Kwashiorkor</u>
Age	<1	1-3
Edema	None	Lower legs or generalized
Wasting	Gross loss of subcutaneous fat, skin and bone	Hidden
Muscle wasting	Obvious	Hidden
Growth retardation	Obvious	Obvious

Mental change	Quite	Irritable, moaning, apathetic
Appetite	Good	Poor
Diarrhea	Present	present
Hair change	Seldom	Often diffuse depigmentation occasional flanky paint or enamel dermatosis
Sr. Albumin	Usually Normal	Low
Urinary Urea / gm creatinine	Usually Normal	Low
Urinary Hydroxyproline / gm Creatinine	Low	Low
Sr. Essential amino acid	Low	Low
Anemia	Uncommon	Common
Liver-biopsy	Normal or atrophic	Fatty changes

Poor prognosis in PEM

- Age < 6 month - 12 months
- Deficit in Wt / Ht > 30% Wt / age > 40%
- Stupor or coma
- Severe infection
- Petechiae / hemorrhagic tendencies
- Signs of CCF / resp. difficulty
- Total serum protein < 3 gm %
- Sr. Albumin < 2 gm %
- Severe anemia with clinical signs of hypoxia
- Increased serum bilirubin level, increased transaminase levels
- Extensive exudative or exfoliative cutaneous lesions
- Hypoglycemia / hypothermia
- In serum protein electrophoresis low gamma globulin fraction
- Low Sr. phospholipids and total lipids

Energy protein chart

	Protein gms	Kilocalories
1	2	50
2	2	50
3	2	50
4	2	50
5	2	50
6	6	250
7	2	100
8	0.5	15
9	1	18
10	0	20
11	0	15
12	0	15

Rasam 1 cup	0	20
Coconut water 1 cup	1.4	24
Coffee 100 ml	1.4	60
Buttermilk 100 ml	0.8	15
Butter 100 gm	-	729
Ragi 100 gm	7.3	328
Rice 100 gm (Par boiled)	6.4	346
Wheat 100 gm	11.8	346
Wheat bread 100 gm	7.8	245
Bengal gram roasted 100 gm	22.5	369
Black gram Dhal 100 gm	24	347
Green gram dhal 100 gm	24.5	348
Red gram dhal 100 gm	22.3	335
Tomato 100 gm	1.4	21
Egg Hen 1	6	8
Biscuit 1	0.5	25
Popadom 1	0.5	25
Banana 1	0.6	50
Spinach 100 gm	2	26
Cow's milk 200 ml	6	120
Curd 30 ml	1	20
Papaya ripe 100 gm	0.6	32
Ground nut 100 seeds	9	200

Food Values

- 1 cup - 100 ml or 100 gms
- 1 tea spoon - 5 ml or 5 gm
- 1 table spoon - 15 ml or 15 gm (3 tea spoon)
- 1 tumbler - 200 ml (2 cup).

6 gms of Protein

- 1 egg
- 2 cup milk
- 3 idlis
- 3 chappatis
- 3 dosas
- 6 puris
- 12 tsp cooked dal
- 18 tsp ragi
- 1 ounce (30 ml) meat / fish
- 50 groundnuts
- 15 cashewnuts
- 3 cup cooked rice
- 6 tsp bengal gram

General physical examination

POSITION FOR EXAMINATION

- 0 - 3 months - examination table
- 3 months to 1 year - mother's lap
- 1 - 3 year - standing or mother's lap
- After 3 years - examination table
- Adolescent girl - female attender or nurse should be present at the time of examination

Head to toe examination

Head

- Size
- Shape
- Bossing or prominence
- Fontanel
- Scalp swelling
- Hair

Size

• Microcephaly: HC < 3 SD below normal
Primary

asymptomatic

- Primary

Primary symptomatic

- Secondary

- Intra uterine infections
 - CMV, rubella, toxoplasmosis
- Intra uterine toxin
 - Fetal alcohol syndrome
 - Fetal hydantoin syndrome
- Perinatal / post natal insult
 - Meningitis, encephalitis, ICH

• Macrocephaly

o HC > 2 SD

- Familial
- Hydrocephalus
- Achondroplasia
- Cerebral gigantism
- Fragile X syndrome
- Mucopolysaccharidosis
- Rickets
- Thalassemia

Shape

• **Craniosynostosis** is responsible for abnormal shape

- Dolichocephaly
- Brachycephaly
- Plagiocephaly
- Trigonocephaly

BOSSING / PROMINENCE

• Frontal bone is involved it is called **frontal bossing** or both central parts of frontal and parietal bone is involved

- Rickets
- Hydrocephalus
- Congenital syphilis
- Thalassemia
- Achondroplasia

ANTERIOR FONTANEL

- 2.5×2.5 cm, closes between 9 - 18 months

Delayed closure / large fontanel

- Rickets
- Hydrocephalus
- Cong. Hypothyroidism
- Achondroplasia
- Osteogenesis imperfecta
- Down syndrome
- Small AF
 - Craniosynostosis
 - Variation of normal
- Sunken AF
 - Dehydration
- Bulging AF
 - Increased intracranial tension / hydrocephalus

SCALP SWELLING

- Dermoid
- Traumatic
- Osteoma
- Histocytosis

HAIR

- Colour, texture, pigmentation, luster
- Malnutrition

- Sparse straight, thin, pluckable, lack luster with alternate areas of pigmented and depigmented hair (Flag sign)

Alopecia

- Congenital ectodermal dysplasia
- Alopecia areata
- Treatment for malignancy

Hypertrichosis - increased quantity of hair

- Cushing's syndrome
- Precocious puberty eg: congenital adrenal hyperplasia
- Drugs like dilantin

Hair line

- Low hair line in back below C4 spine - Turner's syndrome

- Low hairline in front - Hypothyroidism
- Excess projection of hair into cheek - Treacher Collins syndrome

FACE

- Myopathic facies
- Moon face - Cushings syndrome
- Puffy face - Nephrotic syndrome
- Coarse facies - Hypothyroidism, Hurler's syndrome, Soto syndrome
- Mask like facies - Wilsons disease, Mobius syndrome, Depression
- Mongoloid facies - Downs syndrome
- Triangular facies - Russel silver syndrome

EYES

- Eyelids
- Intercanthal distance
- Eyebrows
- Eyelashes
- Conjunctiva
- Cornea - lens
- Sclera
- Fundus

EYE LID

- Lid edema:
 - Nephritis /Nephrotic Syndrome/Renal failure
 - Local causes - Conjunctivitis, Sty
 - Angioedema
 - Hypothyroidism
- Eyelid Coloboma:
 - Upper eyelid - Goldenhar's Syndrome
 - Lower eyelid - Treacher Collin's Syndrome

Ptosis:

- Cong. Ptosis
- Oculo Motor Nerve Palsy
- Horner's Syndrome
- Myasthenia Gravis
- Noonan's Syndrome
- Mongoloid slant
- Down Syndrome

- Antimongoloid slant - Turner's syndrome, Noonan's syndrome

Proptosis

- Malignancy - Retinoblastoma
- Apert's Syndrome
- Hyperthyroidism

Epicranthal fold

- Down Syndrome
- Noonan's Syndrome
- Turner's syndrome

Intercanthal distance

Hypertelorism - The distance between the medial canthus of both eyes is more than one eye width
Seen in : Downs, Noonan, Turner

Eyelashes

Trichiasis - inward misdirection of cilia
(Trachoma, Burns)

Conjunctiva

- Conjunctival Xerosis
- Bitot spots
- Conjunctivitis

Cornea

- Keratitis
- Corneal Ulcer

Lens

- Congenital Cataract
- Rubella, Galactosemia,
- Wilsons Disease

Sclera

- Blue Sclera - Marfans
- Osteogenesis Imperfecta, Ehler Danlos Syndrome

Fundus

- Papilledema - ICSOL, Meningitis, IC Bleed

Ear

- Low set ears - Downs, Turners, Noonan's
- Large prominent ear - Marfans and Fragile X Syndrome
- Pinna - Deformed Pinna : Treacher Collins, Fragile X
- Ear tag - Turners, Goldenhar Syndrome

- External auditory canal
- Tympanic membrane

Mouth

- Lip
- Philthrum
- Gums
- Teeth
- Palate
- Tonsil
- Uvula
- Posterior pharyngeal wall



- Rhagades - Congenital Syphilis
- Angular Stomatitis (Riboflavin Def.)
- Cheilositis (Iron Def.)

Philthrum

- Long Philthrum - Fetal Hydantoin/Fetal Alcohol
- Short Philthrum - Cohens Syndrome

Gums

- Swollen, Spongy Bleeding Gums - Scurvy
- Gum Hyperplasia - Rx with Phenytion, Scurvy, Leukemia
- Gum Blue line - Lead poisoning
- Koplik's spots - Measles

Teeth

- Delayed dentition: Hypothyroidism, Hypopituitarism, PEM, Rickets
- Discolored teeth: Poor Oral Hygiene, Fluorosis, Porphyria

- Palate: High Arch Palate, Cleft Palate
- Tonsil: Membrane on Tonsil - Diphtheria, Vincent's Angina
- Uvula: Bifid Uvula - Treacher Collins, Apert's

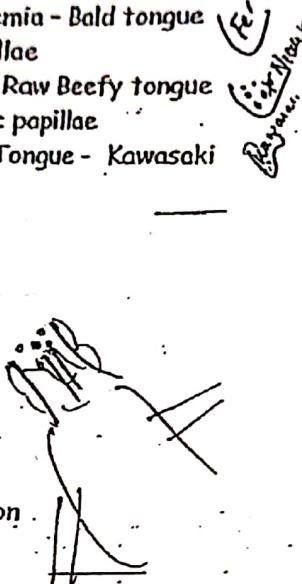
Tongue

- Macroglossia:
 - Cong Hypothyroidism
 - Down Syndrome
 - Hurlers Syndrome
 - Duchenne Muscular Dystrophy
 - Coating of Tongue:
 - Poor Oral Hygiene, Typhoid fever, Uraemia
 - Oral Thrush - Candidiasis
 - Glossitis
 - Fe Def Anaemia - Bald tongue without papillae
 - Niacin Def - Raw Beefy tongue with atrophic papillae
 - Strawberry Tongue - Kawasaki Disease

Neck

Swelling

- Webbing
- Lymphadenopathy
- Position of trachea
- Short neck
- Neck stiffness



Skin

Colour and pigmentation

- Turgor and Texture
- Haemorrhagic spots
- Rashes
- Pyoderma
- Mongoloid blue spot
- Palmar erythema
- Erythema toxicum

Hand

- Congenital malformation
- Single Palmar crease - Down Syndrome
- Finger clubbing
- Nails
 - Koilonychia - Fe Def Anemia, Lichen Planus
 - White Nail - Anemia
 - Half and Half Nail - Chronic Renal Failure

Congenital malformation:

- ~~Clinodactyly~~ - shortening of middle phalanx of little finger associated with inward curving
- Bifid thumb - Holtzman Synd
- Arachanodactyly - Marfan's Synd
- Polydactyly - Lawrence-Moon-Biedl Synd
- Syndactyly - fusion of two fingers
 - Down Synd
- Absent thumb - Holtzman Syhd

Chest

Type of chest:

- Barrel shaped - Emphysema
- Pectus Carinatum, Pectus Excavatum

Cong malformation:

- Absent clavicle, Hypoplastic nipple
- Wide spaced nipple
- Dilated veins
- Scars and sinuses
- Masses

Abdomen

- Shape of abdomen
- Engorged veins
- Scars and sinuses
- Umbilicus
- Mass

External genitalia

- Ambiguous genitalia
- Males

- Hernia
 - Hydrocele
 - Tumour of testis
 - Torsion testis
 - Phimosis / hypospadiasis
- Females
 - Clitoris enlargement
 - Vaginal discharge

Bones and joints

Deformity

- Localized swelling
- Sternal tenderness
- Joint tenderness
- Size & symmetry of limbs



Lower limbs

- Congenital dislocation of hip
- Bowleg
- Knock knee
- Foot

Spine and neck

- Spinal deformity
- Swelling
- Tenderness
- Curvatures
- Sinus
- Tuft of hair



Examination of neonate

History

- Family
- Maternal
- Previous Obs
- This pregnancy
- Labour
- Delivery

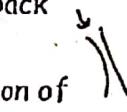
Examination @ Birth

- Air Passages
- Birth Weight
- Gestational age
- Umbilical artery
- Single-palmer crease
- Hypoplasia of DAOM
- Orifice counting & patency
- Respiratory Difficulty
- Mid line lesions - front & back



Exam @ Birth - Air Passages

- Polyhydramnios - Obstruction of Intestine



- Oligohydramnios - Bilateral renal agenesis & Potter facies

Exam @ Birth - Weight

- Low Birth weight - < 2500 gm
- Very LBW - < 1500 gm
- Extremely LBW - < 1000 gm



Exam @ Birth - Gestational Age

- 1st day of the last menstrual cycle to date of birth
- Preterm - < 37 weeks
- Term - 37 - 41 weeks
- Post term - > 42 weeks

Weight Vs Gestational Age

	Small <10%tile	Appropriate	Large >90%tile
Preterm	SGA	AGA	LGA
Term	SGA	AGA	LGA
Post term	SGA	AGA	LGA

1st Day Examination

- Vital signs
- General Examination
- Measurements

1st Day Examination - Vital signs

- RR - 40 - 60 per min
- HR - 140 +/- 20 per min
- BP - 60 / 40 mm Hg
- Temp - 36.5 C

1st Day Examination - G / E

- Color
- Respiratory rate
- Activity
- Movements
- Reflex
- Cry

1st Day Examination - Measurements

- Head Circumference - > 24 hrs
- Chest Circumference
- Length

Head to Foot Examination

- Skull - CS, CH, Forceps mark, Encephalocele, sutures
- AF - 2.5 * 2.5 : more in Cretinism, trisomy, IUGR, Rickets, Hypophosphatemia, Osteogenesis Imperfecta.
- Face - Ears, eyes, Intercanthal distance, nose, mouth
- Neck - Cyst / Sinus
- Skin - Pallor, Jaundice, Cyanosis
- Spine - Spina bifida, Pilonidal Sinus, Hair
- Limbs - Anomalies in Digits, Club foot, Deformities
- Abdomen - Hernia, Masses
- Genitalia - Undescended testis, hydrocele
- Heart - Murmurs, Dextrocardia, Femoral
- Chest - Abnormalities
- Hip joint - CDH
- Skin - Cutaneous markers



Estimation of Gestational Age

Scale tone

- Posture
- Popliteal angle
- Scarf sign
- Traction response
- Recoil
- Joint mobility - Degree of flexion at ankle and wrist

Reflexes

Ex

Moro

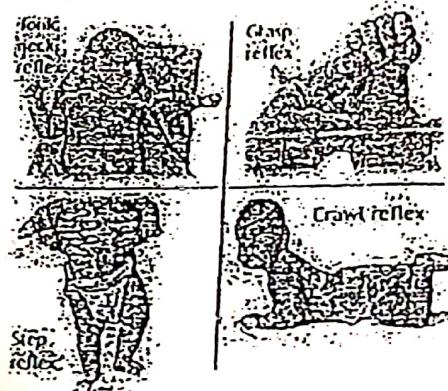
Light reflex

Blink response to glabellar tap

Grasp Response

Sucking

Rooting



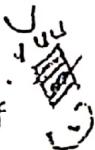
Normal for Doctors but Alarms Mother Developmental variations & Physiological Conditions

- Vomiting
- Failure to pass Meconium - 24 hrs
- Failure to pass Urine - 48 hrs
- Bowel disorder - Constipation / Diarrhea
- Physiological Jaundice - >24 hrs
- Hiccups, Sneezing, Yawning
- Dehydration fever
- Superficial infections
- Excessive Crying
- Evening Colic
- Breath Holding spells
- Excessive sleepiness
- Mastitis Neonatorum
- Vaginal Bleeding
- Mucoid Vaginal secretions
- Cradle cap
- Asymmetric head shape
- Cranio tabs
- Caput Succedaneum - presenting part, not limited to sutures
- Cephalhematoma - subperiosteal collection of blood, don't cross the sutures
- Setting sun sign
- Obstructed naso lacrimal duct
- Umbilical granuloma
- Sore buttocks & napkin rashes



Minor developmental Peculiarities

- Toxic erythema (or) urticaria neonatorum
 - Peeling skin
 - Cutis marmorata - cold
 - Harlequin color change - half pink/white
 - Subcutaneous fat necrosis
 - Milia
 - Acne neonatorum
 - Salmon patches / nevus simplex
 - Mongolian blue spots



- Sub conjunctival hemorrhage
- Epstein pearls - epi inclusion cyst
- Sucking callosities
- Congenital teeth
- Tongue tie
- Non retractable prepuce
- Congenital hydrocele
- Hymenal tags
- Sacral dimple
- Prominent xiphisternum
- Bowed legs.
- Umbilical hernia
- Stock bite

Useful Traditional Practices

- Drinking milk and avoiding tea or coffee to have fair complexioned baby
- Abstinence during pregnancy
- Confinement and delivery at mother's place
- Isolation of the mother - child dyad for 40 days
- Oil massage and sun bath
- Universal breast feeding
- Instillation of colostrum in the eyes
- Use of cup and spoon or "paladey" for top feeding
- Baby is encouraged to sleep on mother's bed and she avoids to turn her back towards the baby
- Nursing the babies in supine position which is associated with low incidence of sudden infant deaths (SIDS)

Harmful Traditional Practices

- Eating less food during pregnancy
 - Conducting delivery in a dark and ill ventilated room
 - Use of rags / dirty clothes during delivery
 - Harmful resuscitation practices. Holding the baby upside down, sprinkling cold water on face, instilling onion juice in the nostrils, excessive physical torture, casting or crushing the placenta, loud
- Ques. 11. a) b)

- beating of metal plate, blowing into the nose/ears, milking the umbilical cord etc.
- Use of unsterile knife for cutting the cord
- Application of ash, mud, cow dung, ghee, catechu, kumkum, turmeric etc. on umbilical cord
- Bathing the baby at birth
- Giving prelacteal feeds like honey, janam ghutti or tea
- Discarding colostrum and delaying breast feeding.
- Giving water to breast fed babies
- Avoiding certain foods during lactation such as pulses, legumes, vegetables, some fruits etc.
- Discrimination against girl child
- Opium for diarrhea / crying child
- Kajal
- Pacifiers
- Dilution of milk
- Castor oil for constipation and diarrhea.
- Delayed weaning
- Branding
- Instillation of oil and urine into the ears and nostrils
- Gender bias in favor of males with sub-optimal care or neglect of girls
- Diseases as personification and wrath of goddesses

Enteric fever → all

Shigella infection → fever, diarrhea
if history long → pyogenic

DRT
if fever is high grade → Reye syndrome

② → neurological signs
Mony, head injury