

1. Personal details :

- Name
- Age
- Sex
- Address
- Informant
- Reliability
- DOA
- DOE

2. Presenting complaints :

- Chronological order

3. H/o present illness :

- Onset
- Duration
- Progression
- Associated symptoms
- Present status
- Severity
- Frequency
- Diurnal variation
- Aggravating & relieving factors

4. Past history :

- History of similar condition
- Wheeze (Nebulisation history)
- Seizures
- Travel to known endemic areas
- Drug history
- TB
- Jaundice
- Chronic diseases
- Suffered from vaccines preventable diseases
- Hospital admissions
- Surgeries

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5. Antenatal history:

- Age of mother during conception
- Birth order
- **Past obstetric history**
 - Neonatal death
 - Abortion
 - NICU admission
 - Any illness/ complications
- GDM, PIH
- Booked case/ not (number of hospital visits)
- Consanguinity

STORCH

- Fever with rash – **Rubella**
- Painful palpable post-auricular/sub-occipital swelling
– **Rubella, Toxoplasmosis**
- Contact with pets – **Toxoplasmosis, Cytomegalovirus**
- Non healing genital ulcers – **Herpes, Syphilis**

➤ **1st trimester** (upto 12 weeks)

- Detection of pregnancy – urine pregnancy kit.
- Conception
- **USG - Dating scan**
- Nausea/vomiting
- Hyperemesis gravidarum
- UTI
- **Folic acid (5mg/day)**
- Bleeding profusely
- Infection
- Radiation
- Drug intake

➤ **2nd trimester** (12-28 weeks)

- **USG - Anomaly scan**
- Quickening – 5th or 6th month
- TT 1st dose- 5th month (to prevent tetanus neonatorum for the child)
- **Iron(60-100mg elemental/day),**
- **calcium(1g/day)**
- folic acid(only if needed)
- **GDM, PIH**
- Bleeding pv

➤ **3rd trimester** (29-40 weeks)

- **USG - Growth scan**
- TT 2nd dose – 7th month
- **Iron(60-100mg elemental/day)**
- **calcium(1g/day)**
- folic acid(only if needed)
- Bleeding pv
- UTI
- Weight gain – adequate(10-12 kg) / not

6. Natal history:

- Mode of delivery
 - Vaginal / C.S / Instrumental
 - Indication ?
- Birth weight (2.8kg – average B.W in India)

Weight	
2.5-3.5 kg	Normal
<2.5 kg	Low birth weight
<1.5 kg	Very low birth wt.
<1 kg	Extremely low birth wt.

- Term (37 weeks)/ pre-term(<37 weeks)/ post-term(>42 weeks)
- Onset of labour – (Spontaneous/ induced)
- Indications of LSCS

7. Post-natal history:

- Cry (**immediately !!!**)
- Breastfeeding ($\frac{1}{2}$ hr in normal ; **4hrs** in c.s) within 6hrs.
- Meconium – within 24 hours
- Micturition – within 48 hours
- H/o jaundice, respiratory distress, seizures
- NICU admission.
- Day of discharge

The Apgar Scoring System

Clinical Sign	Assigned Score		
	0	1	2
Heart rate	Absent	<100	>100
Respiratory effort	Absent	Slow and irregular	Good; strong
Muscle tone	Flaccid	Some flexion of the arms and legs	Active movement
Reflex irritability*	No responses	Grimace	Crying vigorously, sneeze, or cough
Color	Blue, pale	Pink body, blue extremities	Pink all over
1-Minute Apgar Score		5-Minute Apgar Score	
8-10	Normal	8-10	Normal
5-7	Some nervous system depression	0-7	High risk for subsequent central nervous system and other organ system dysfunction
0-4	Severe depression, requiring immediate resuscitation		

*Reaction to suction of nares with bulb syringe.

8. Development history :

➤ Gross motor

Milestones	Age
Neck control	3-4 months
Roll over	5 months
Sit with support	6 months
Sit without support	8 months
Stand with support	9 months
Stand without support	12 months
Creeps	12 months
Walks with support	12 months
Walks without support	15 months
Runs	18 months (1 ½ years)
Climbing stairs	2 years
Tricycle	3 years
Hops on 1 foot	4 years
Climbs stairs (alternate feet)	4 years

➤ Fine motor

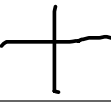
Milestones	Age
Bi-dexterous reach	4 months
Uni-dexterous reach	6 months
Crude palmar grasp	7 months
Immature pincer grasp	9 months
Pincer grasp	12 months
Imitate scribbling	15 months
Scribble	18 months
Vertical & circular stroke 	2 years
Copies circle 	3 years
Copies cross 	4 years
Copies triangle 	5 years

TABLE 2.2.16: Primitive reflexes to be examined during developmental assessment

Reflexes	Age of appearance	Age of disappearance
Stepping	Birth	6 weeks
Placing	Birth	6 weeks
Moro	Birth	3 months
Sucking and Rooting	Birth	4 months while awake 7 months while asleep
Palmar grasp	Birth	6 months
Plantar grasp	Birth	10 months
Tonic neck	2 months	4 to 6 months
Landau	3 months	24 months
Neck righting	4 months	24 months
Parachute	9 months	Persists

➤ Social & adaptive milestones

Milestones	Age
Social smile	2 months
Recognise mother	3 months
Stranger anxiety	6 months
Waves 'bye bye'	9 months
Comes when called	1 year
Imitate parents	1 ½ years
Ask for food, toilet	2 years
• Dry by night • Knows gender • Full name	3 years
▪ Play co-operatively ▪ Wash face ▪ Brush teeth ▪ Go to toilet alone	4 years
• Dressing & undressing • Help in house hold works	5 years

Milestones	Age
Tower 2 blocks	15 months
Tower 3 blocks	18 months
Tower 6 blocks	2 years
Tower 12 blocks	3 years
Bridge with blocks	4 years
Gate with blocks	5 years

➤ Language milestones

Milestones	Age
Alerts to sound	1 month
Coo s	3 months
Laugh loud	4 months
Monosyllables	6 months
Disyllables	9 months
1-2 words	12 months
8-10 words	1 ½ years
Sentence	2 years
• Ask questions • Tells name, age	3 years
Says poems, stories	4 years
Ask meaning of words	5 years

Development quotient = $\frac{\text{Development age}}{\text{Chronologic age}} \times 100$

Assess the development of an infant or child using standard scales for each type of development. Assign to a child a gross motor developmental quotient, a fine motor developmental quotient, a cognitive developmental quotient, and so forth.

Developmental Quotients

>85	Normal
70-85	Possibly delayed; follow-up needed
<70	Delayed

➤ Bladder & bowel control

Milestones	Age
Dry by day	1 ½ years
Bowel control	1 ½ years
Dry by night	3 years

9. Dietary history:

- Exclusive breastfeeding (**6 months**) **atleast 8 times/day**
- Complimentary feeding
- Calorie requirement for weight
 - 1st 10 Kg – 100 kcal/kg
 - 2nd 10 Kg – 50 kcal/kg
 - 3rd 10 Kg – 20 kcal/kg
- Calorie requirement for age
 - 1st year – 1000 kcal
 - Every year – add 100 kcal
- Protein requirement
 - 1-3 years – 20 gm
 - 4-6 years – 30 gm
 - 7-9 years – 40 gm
 - 10-12 years – 50 gm
- Balanced diet
 - ❖ Carbohydrates – 55-60%
 - ❖ Fat – 35%
 - ❖ Protein – 15%

Ages	Calories required/day	Protein/day
1 month-1 year	100-110 kcal/kg/day	2 g/kg
1 year	1000 kcal/day	20 g/day
2 year	1100 kcal/day	20 g/day
3 year	1200 kcal/day	20 g/day
4 year	1300 kcal/day	30 g/day
5 year	1400 kcal/day	30 g/day
6 year	1500 kcal/day	30 g/day
7 year	1600 kcal/day	40 g/day
8 year	1700 kcal/day	40 g/day
9 year	1800 kcal/day	40 g/day
10 year	1900 kcal/day	50 g/day
11 year	2000 kcal/day	50 g/day
12 year	2100 kcal/day	50 g/day
Adolescent boy	2400 kcal/day	70 g/day
Adolescent girl	2100 kcal/day	65 g/day

Food	Quantity	Calories	Protein
Idly	1	50	2
Puri	1	35	1
Chappathi	1	70	2
Bread	1	70	2
Dosa	1	70	2
Uppuma	1 cup	250	6
Biscuits	1	25	0.5
Vada	1	50	1
Chutney	1 tsp	15	-
Sambar	100 g	50	2.5
Vegetable curry	¼ cup	25	0.5
Dal curry	¼ cup	40	2
*Breast milk	100 ml	70	1.5
Cow milk	100 ml	70	3.5
Formula milk	30 ml	60	0.5
Tea	100 ml	50	1
Coffee	100 ml	60	1.8
Sugar	1 tsp	20	-
Lactogen	100 g	100	2
Fish	1 piece	80	6
Egg	1	80	6
Cooked rice	1 cup	175	4
Ragi flour	6 tsp	100	2
Banana	100 gm	120	1.5

Table 6.3: Nutritive value of common food items

Foods	Quantity	Household measure (cooked amount)	Calories kcal	CHO g	Protein g	Fats g	Na mg	K mg
Milk and milk products								
Milk (cow)	250 ml	1 glass	166	11	8	10	40	350
Milk buffalo	250 ml	1 glass	238	12.5	11	16	47	225
Full cream milk (Mother dairy)	250 ml	1 glass	215	12	8	15	?	?
Toned milk (Mother dairy)	250 ml	1 glass	144	11	8	7.5		
Double toned milk	250 ml	1 glass	110	11	8	3.75		
Curd (cow milk)	125 ml	1 katori (medium)	77	4	4		40	165
Paneer (cow milk)	25 g	1 small piece	64	3	4	4	60	29
Butter milk (cow milk)	250 ml	1 glass	39	1	2	3	—	—
Skimmed milk (fresh)	250 ml	1 glass	75	12	6	0.3	—	—
Skimmed milk (dry)	25 g	—	93	13	9.5	0.3	40	350
Cream	25 ml	—	35	1	1	3	10	25
Processed cheese	25 g	1 small piece	84	1.5	6	6	175	21
Meat and poultry								
Meat (muscle)	100 g	4 pieces	191	—	18.5	13	33	270
Chicken	100 g	1 portion	136	—	25	4	7	50
Fish (rohu)	100 g	2-3 pieces	106	5	17	2	101	288
Egg (hen)	50 g	1	77	0.90	6.0	5.35	52	63
Egg white (hen)	25 g	1 Egg white	13	0.18	2.73	0.04	42	41
Egg yolk (hen)	20 g	1 Egg yolk	64	0.72	3.17	5.31	10	22
Bacon	25 g	1 slice	188	—	2	20	170	32
Ham	25 g	1 slice	29	—	5	1	275	85
Cereal and pulses								
Wheat flour	25 g	1 medium roti	84	17	3	0.4	5	80
Rice	25 g (raw)	3/4 katori (75 g)	86	19	2	0.2	2	17
Bread	25 g	1 slice	61	13	2	0.1	120	20
Corn flakes	25 g	1/2 cup	94	21	2	0.2	251	30
Wheat dalia	25 g	1/2 cup	87	18	3	0.3	1	87
Green gram	25 g	1 katori	87	15	6	0.3	7	211
Lentils	25 g	1 katori	86	15	6	0.2	10	157
Rajmah	25 g	1 katori	87	15	6	0.3	—	—
Bengal gram	25 g	1 katori	89	15	4	1.4	9	202
Soya beans	25 g	1 katori	109	5	11	5	—	—
Khichri (rice + dal 4:1)	25 g	1 katori (cooked)	89	18.2	3	1.5	3.2	33.6
Vegetables								
Leafy (spinach, bathua, amaranth)	125 g	1 katori	42	7.5	1.2	0.8	100	182
Seasonal (cauliflower, bhindi, and peas, brinjal)	100 g	1 katori	51	10	2.5	0.1	15	96
Roots and tubers (potato, arbi and zimkand)	100 g	1 katori	93	21	2	0.1	10	345
Fruits								
Papaya	100 g	1 slice	32	7	1	—	6	69
Grapes	100 g	8-10 nos.	71	16.5	0.5	0.3	—	70
Apricots	100 g	2 nos.	55	12	1	0.3	—	430
Lichi	100 g	4-5 nos.	61	13	1.5	0.3	104	159
Pears	100 g	1 medium	52	12	0.5	0.2	6	96
Watermelon	100 g	1 small size	16	3.3	0.2	0.2	27	160
Musk melon	100 g	1 slice	17	3.5	0.3	0.2	104	341

Table 6.3: Nutritive value of common food items (Contd.)

Foods	Quantity	Household measure (cooked amount)	Calories kcal	Carbohydrate g	Protein g	Fats g	Na mg	K mg
Fruits and vegetables								
Tomato ripe	100 g	2 nos	20	3.4	1	0.2	12	146
Apple	100 g	1 medium	58	13	0.2	0.5	28	75
Orange	100 g	1 medium	46	10.5	0.5	0.2	5	93
Banana	100 g	1 medium	116	27	1.2	0.3	37	88
Guava	100 g	1 medium	51	11	1	0.3	6	91
Mussambi	100 g	1 medium	43	9	1	0.3	—	490
Mango	100 g	1 small	72	16	1	0.4	26	205
Lemon	100 g	1 medium	14	3	—	0.2	—	70
Dried fruits and nuts								
Raisin (kishmish)	25 g	1 1/2 tsp.	78	19	0.5	—	8	216
Apricot (dried)	25 g	4-6 nos.	76	18	0.5	0.2	8	215
Dates (fresh)	25 g	4 nos.	35	8	0.5	0.1	1	—
Almonds	25 g	8-10 nos.	163	3	5	14.5	1	170
Cashewnut	25 g	8-10 nos.	150	5.5	5	12	1	113
Walnuts	25 g	8-10 nos.	172	3	4	16	1	120
Ground nuts	25 g	15-20 nos.	142	6.5	6.5	10	—	—
Coconut (fresh)	100 g	—	444	13	4.5	41.6	—	—
Coconut (dry)	25 g	—	165	4.6	1.7	15.5	—	—
Fats and oils								
Oil	10 g	2 teaspoon	90	—	—	10	—	—
Ghee	10 g	1 teaspoon	90	—	—	10	—	—
Butter	10 g	1 teaspoon	72	—	—	8	—	—
Miscellaneous								
Sponge cake	—	1 small piece	114	21	3	2	145	22
Ice cream plain	100 g	1 cup	203	21	5	11	63	181
Burfi	40 g	1 piece	135	13	5	7	—	—
Rasgulla	35 g	1 piece	163	32	2	3	30	15
Pakora or samosa	40 g	1 piece	132	14	1	8	—	—
Puri	25 g	8-10 nos.	187	19	3	11	—	—
Biscuit salt	25 g	5-6 nos.	132	14	1	8	3	20
Biscuit sweet	25 g	—	112	18	1	4	—	—
Arrowroot powder	25 g	5 tablespoons	84	21	—	—	1	7
Pastry	25 g	1 small piece	265	35	2	13	—	—
Sugar cane juice	250 ml	1 glass	88	22	—	—	15	750
Honey	25 ml	5 teaspoons	80	20	—	—	6	60
Sago	25 g	2 tablespoons	88	22	—	—	—	—
Jaggery	25 g	—	96	24	—	—	—	—
Sugar	25 g	5 teaspoons	100	25	—	—	—	—
Mushrooms	100 g	—	33	1	5	1	4	103
Macaroni	25 g	1/4 cup	88	19	3	—	2	221
Marmalade	10 g	1 teaspoon	28	7	—	—	7	2
Milk chocolate	40 g	1 slab	221	23	3	13	—	37
Horlicks and Viva	25 g	5 teaspoons	88	19	3	—	—	—
Protinex	30 g	—	88	5	17	—	—	—
Soya nuggets	25 g	8-10 nos.	80	7	13	—	—	80
Custard powder	25 g	5 teaspoons	25	—	—	—	—	100
Coffee	5 g	1 teaspoon	—	—	—	—	—	—
Ovaltine/Bournvita	5 g	1 teaspoon	25	3	1	1	—	—
Cornstarch	25 g	5 teaspoons	100	25	—	—	—	—
Dalmoth	25 g	—	190	12	4	14	150	157
Sev	25 g	—	105	3	5	105	150	157
Fried moong dal	25 g	—	170	15	5	10	400	157

10. Family history:

- Age of parents
- Present & past health status
- Siblings
- Spacing b/w siblings
- Infectious disease in family
- Hereditary disorder in family
- **Consanguinity**
 - 1⁰ – brother sister
 - 2⁰ – maternal uncle
 - 3⁰ – 1st cousin

11. Socio-Economic history:

Table 3.2 Modified Kuppuswamy scale of social classification (updated – IJP, Dec 2007)		
(A) Education		Score
1	Profession or honours	7
2	Graduate or postgraduate	6
3	Intermediate or post high school diploma	5
4	High school certificate	4
5	Middle school certificate	3
6	Primary school certificate	2
7	Illiterate	1
(B) Occupation		Score
1	Profession	10
2	Semi-profession	6
3	Clerical, shop-owner, farmer	5
4	Skilled worker	4
5	Semi-skilled worker	3
6	Unskilled worker	2
7	Unemployed	1
(C) Family income per month (Rs) (modified for 2007)		Score
1	≥19,575	12
2	9788–19,574	10
3	7323–9787	6
4	4894–7322	4
5	2936–4893	3
6	980–2395	2
7	≤979	1

Total score	Socioeconomic class
26–29	Upper (I): E.g., top business people, IAS, etc
16–25	Upper middle (II): Professionals like doctors, engineers
11–15	Lower middle (III): Trained workers like plumbers, electricians, etc
5–10	Upper lower (IV): Untrained workers, i.e., manual labourer
<5	Lower (V): No jobs (like street dwellers)

- **House** (Katcha/Pukka)
- **Bathroom**
- **Sanitation**
- **Cooking** (firewood/gas stove)
- No. of rooms & no. of people – **overcrowding**
- **Source of drinking water**

12. Immunisation:

National Immunization Schedule					
TT Vaccination of Pregnant Women					
• Early in pregnancy 					
• 4 weeks after first dose ⁽¹⁾ 					
For infants	BCG	Hepatitis B	DPT	OPV	Measles
• At birth					
• 1 ½ months (6 weeks)					
• 2 ½ months (10 weeks)					
• 3 ½ months (14 weeks)					
• 10 – 12 months					
For children	DPT	OPV	Measles	JE	TT
• At 16 – 24 months					
• At 5 – 6 years					
• At 10 years					
• At 16 years					

- BCG scar
- Adequate immunisation for age

❖ ADDITIONAL VACCINE

- MMR
- Hib vaccine
- Conjugate pneumococcal vaccine
- Hepatitis B
- Hepatitis A
- Varicella vaccine
- Typhoid vaccine
- Tdap vaccine

❖ Pentavalent vaccine

- DPT
- Hib vaccine
- Hepatitis B



Administering Vaccines:

Dose, Route, Site, and Needle Size

Vaccine	Dose	Route
Diphtheria, Tetanus, Pertussis (DTaP, DT, Tdap, Td)	0.5 mL	IM
<i>Haemophilus influenzae</i> type b (Hib)	0.5 mL	IM
Hepatitis A (HepA)	≤18 yrs: 0.5 mL ≥19 yrs: 1.0 mL	IM
Hepatitis B (HepB) Persons 11–15 yrs may be given Recombivax HB (Merck) 1.0 mL adult formulation on a 2-dose schedule.	≤19 yrs: 0.5 mL ≥20 yrs: 1.0 mL	IM
Human papillomavirus (HPV)	0.5 mL	IM
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL in each nostril)	Intranasal spray
Influenza, inactivated (IIV); recombinant (RIV), for ages 18 years and older	6–35 mos: 0.25 mL ≥3 yrs: 0.5 mL	IM
Influenza (IIV) Fluzone Intradermal, for ages 18 through 64 years	0.1 mL	ID
Measles, Mumps, Rubella (MMR)	0.5 mL	Subcut
Meningococcal conjugate (MCV4 [MenACWY])	0.5 mL	IM
Meningococcal serogroup B (MenB)	0.5 mL	IM
Meningococcal polysaccharide (MPSV)	0.5 mL	Subcut
Pneumococcal conjugate (PCV)	0.5 mL	IM
Pneumococcal polysaccharide (PPSV)	0.5 mL	IM or Subcut
Polio, inactivated (IPV)	0.5 mL	IM or Subcut
Rotavirus (RV)	Rotarix: 1.0 mL Rotateq: 2.0 mL	Oral
Varicella (Var)	0.5 mL	Subcut
Zoster (Zos)	0.65 mL	Subcut
Combination Vaccines		
DTaP-HepB-IPV (Pediarix) DTaP-IPV/Hib (Pentacel) DTaP-IPV (Kinrix; Quadracel) Hib-HepB (Comvax) Hib-MenCY (MenHibrix)	0.5 mL	IM
MMRV (ProQuad)	≤12 yrs: 0.5 mL	Subcut
HepA-HepB (Twinrix)	≥18 yrs: 1.0 mL	IM

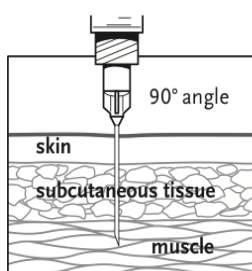
Injection Site and Needle Size		
Subcutaneous (Subcut) injection Use a 23–25 gauge needle. Choose the injection site that is appropriate to the person's age and body mass.		
AGE	NEEDLE LENGTH	INJECTION SITE
Infants (1–12 mos)	5/8"	Fatty tissue over anterolateral thigh muscle
Children 12 mos or older, adolescents, and adults	5/8"	Fatty tissue over anterolateral thigh muscle or fatty tissue over triceps
Intramuscular (IM) injection Use a 22–25 gauge needle. Choose the injection site and needle length that is appropriate to the person's age and body mass.		
AGE	NEEDLE LENGTH	INJECTION SITE
Newborns (1st 28 days)	5/8"	Anterolateral thigh muscle
Infants (1–12 mos)	1"	Anterolateral thigh muscle
Toddlers (1–2 years)	1–1 1/4"	Anterolateral thigh muscle
	5/8–1"	Deltoid muscle of arm
Children and teens (3–18 years)	5/8–1"*	Deltoid muscle of arm
	1–1 1/4"	Anterolateral thigh muscle
Adults 19 years or older		
Female or male <130 lbs	5/8–1"*	Deltoid muscle of arm
Female or male 130–152 lbs	1"	Deltoid muscle of arm
Female 153–200 lbs Male 130–260 lbs	1–1 1/2"	Deltoid muscle of arm
Female 200+ lbs Male 260+ lbs	1 1/2"	Deltoid muscle of arm

* A 5/8" needle may be used for patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle **only** if the skin stretched tight, the subcutaneous tissue is not bunched, and the injection is made at a 90-degree angle.

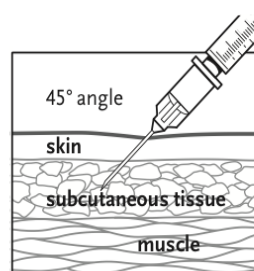
NOTE: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as well. Access the ACIP recommendations at www.immunize.org/acip.

OPV – 0.1 ml

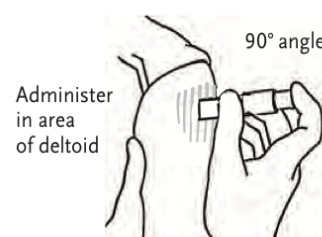
Intramuscular (IM) injection



Subcutaneous (Subcut) injection



Intradermal (ID) administration of Fluzone ID vaccine



Intranasal (NAS) administration of Flumist (LAIV) vaccine



Technical content reviewed by the Centers for Disease Control and Prevention

13. General examination:

- Emotional status
 - Alert & playful
 - Anxious
 - Apathetic (dull & uninterested)
 - Restless
- **PICCLe**
 - Pallor
 - Icterus
 - Clubbing
 - Cyanosis
 - Lymphadenopathy
 - Bilateral pedal pitting oedema

➤ Vitals

❖ **Temperatures – 97.7-99.5 F**

❖ **Respiration**

- Rate
- Rhythm
- Pattern
- Type

❖ **Pulse**

- Rate
- Rhythm
- Volume
- Character
- Radio femoral delay
- Peripheral pulses

❖ **Blood pressure**

TABLE 2.2.5: Normal blood pressure values in children

Age groups	Blood pressure (systolic/diastolic)
Newborn	65/45 mm Hg
1 year	75/50 mm Hg
3 years	90/60 mm Hg
8 years	95/65 mm Hg
10 years	100/70 mm Hg

Table 1.3.2 Normal respiratory rate in children of different age groups

Age groups	Normal respiratory rate (per minute)
Newborn	40
1 year	30
5 years	20
10 years	18

Table 1.3.3 Tachypnea indicating significant respiratory disease (From RCH Program)

Age groups	Normal respiratory rate (per minute)
Below 2 months	60 or more
2 to 12 months	50 or more
12 months to 5 years	40 or more

Table 1.3.4 The normal heart rates in children of different age groups

Age groups	Normal heart rate (per minute)
Newborn	140
1 year	110
3 years	100
8 years	90
10 years	80

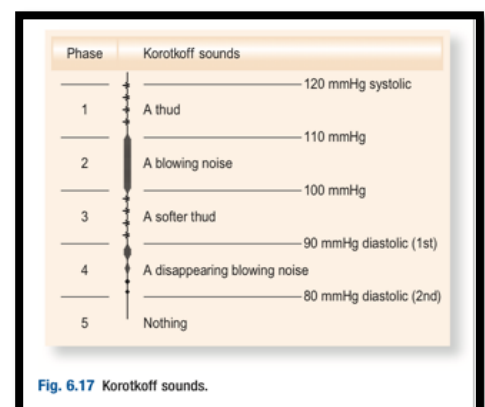


Fig. 6.17 Korotkoff sounds.

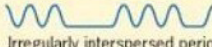
➤ Danger signs

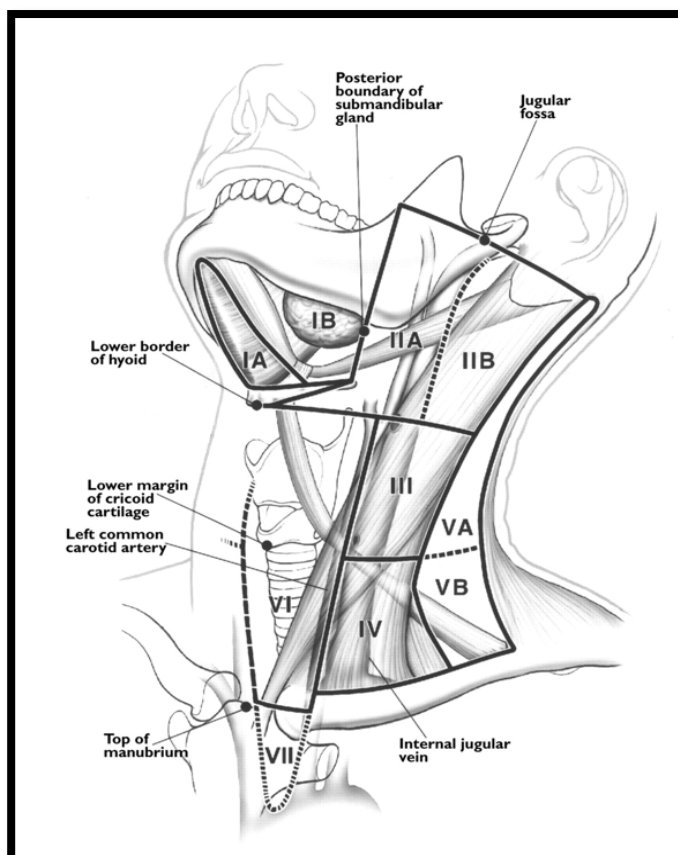
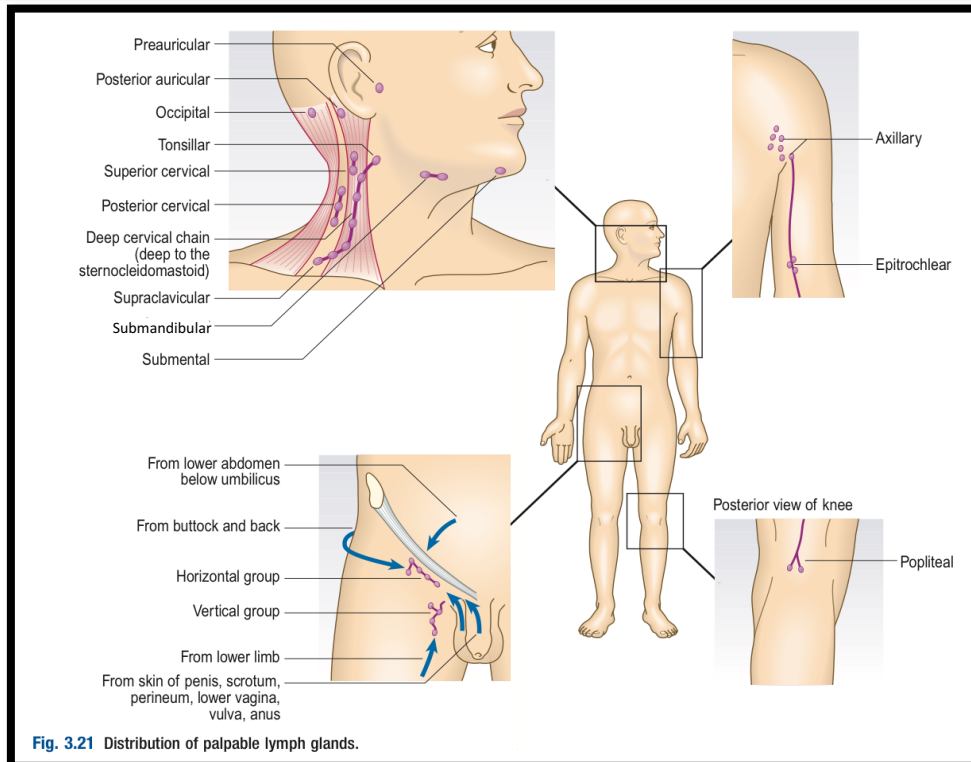
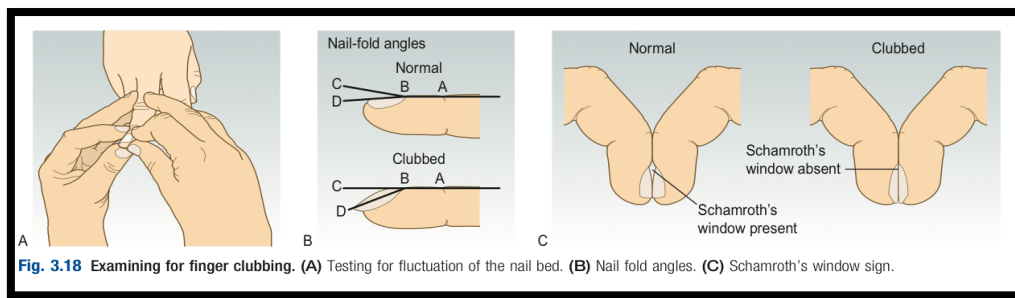
- Lethargy and poor sucking
- Failure to pass meconium/urine
- Drowsy or unconscious
- No movements
- Fast breathing (>60 breaths per min)
- Raised temperature (>38° c)
- Hypothermia (<35.5° c)
- Central cyanosis
- Seizures
- Severe dehydration
- Severe vomiting
- Severe jaundice
- Severe abdominal distension

Character of PULSE

- **Pulsus alternans** : (progressive systolic ♥ failure)
Strong pulse followed by weak pulse.
- **Pulsus bigeminus** : (hypertrophic obstructive cardiomyopathy)
Gallop rhythm of heart.
- **Pulsus bisferiens** : (AR ; AS)
2 pulses to each heartbeat.
- **Pulsus tardus et parvus/Anacrotic pulse** : (AS)
Slow rising pulse
- **Pulsus paradoxus** : (COPD ; cardiac tamponade ; pericarditis)
 - Missing pulse wave
 - During inspiration
- **Collapsing pulse/Water hammer pulse** : (AS)
Tapping impulse felt when the arm is raised above the level of heart.

6.13 Surface markings of the arterial pulses	
Artery	Surface marking
Radial	At the wrist, lateral to the flexor carpi radialis tendon
Brachial	In the antecubital fossa, medial to the biceps tendon
Carotid	At the angle of the jaw, anterior to the sternocleidomastoid muscle
Femoral	Just below the inguinal ligament, midway between the anterior superior iliac spine and the pubic symphysis (the mid inguinal point). It is immediately lateral to the femoral vein and medial to the femoral nerve
Popliteal	Lies posteriorly in relation to the knee joint, at the level of the knee crease, deep in the popliteal fossa
Posterior tibial	Located 2 cm below and posterior to the medial malleolus, where it passes beneath the flexor retinaculum between flexor digitorum longus and flexor hallucis longus
Dorsalis pedis	Passes lateral to the tendon of extensor hallucis longus and is best felt at the proximal extent of the groove between the first and second metatarsals. It may be absent or abnormally sited in 10% of normal subjects, sometimes being 'replaced' by a palpable perforating peroneal artery

Normal  Regular and comfortable, 12 to 20 breaths per minute	Air trapping  Increasing difficulty in getting breath out
Ataxic  Significant disorganization with irregular and varying depths of respiration	Blot respirations  Irregularly interspersed periods of apnea in a disorganized sequence of breaths
Bradypnea  Slower than 12 breaths per minute	Cheyne-Stokes breathing  Varying periods of increasing depth interspersed with apnea
Hyperpnea  Faster than 20 breaths per minute, deep breathing	Kussmaul respirations  Rapid, deep, labored breathing
Sighing  Frequently interspersed deeper breaths	Tachypnea  Faster than 20 breaths per minute



Level 1 (sub mental & submandibular)

- A.** Submental – B/w anterior belly of digastric muscles
- B.** Submandibular – around submandibular gland

Level 2 (Upper jugular nodes)

- A.** Anterior, medial, lateral or posterior to internal jugular vein
- B.** Posterior to internal jugular vein

Level 3 (Middle jugular nodes)

- B/w hyoid bone and cricoid cartilage

Level 4 (Lower jugular nodes)

- B/w cricoid cartilage and clavicle

Level 5 (Posterior cervical/Spinal accessory)

- Posterior to sternocleidomastoid muscle

- A.** Base of skull to bottom of cricoid cartilage
- B.** B/w cricoid and clavicle

Level 6 (Central compartment)

- Pre-laryngeal, Pre-tracheal, Para-tracheal

Level 7 (Superior mediastinal nodes)

- Top of manubrium sternum

➤ Head to toe examination

• Head

- **Size** – Normal/microcephaly/macrocephaly
- **Shape** –
 - ✓ Dolichocephaly – AP diameter more
 - ✓ Brachycephaly – transverse diameter more(Down syndrome)
 - ✓ Trigonocephaly – narrow anterior; wider posterior (**Triangle shape**)
 - ✓ Turricephaly – **conical shape**;
- **Occiput** – flat/prominent (flat – Down syndrome)
- **Bossing** (rickets, hydrocephalus)
 - ✓ **Frontal bossing**
 - ✓ **Parietal bossing**
- **Suture lines** – palpable upto 6 months
- **Craniotables**(ability to indent under pressure) - normal upto 3 months
- **Head tilt/Torticollis**
- **Abnormal head movements**(severe respiratory distress)

• Fontanelle

- **Anterior fontanelle (Bregmatic/Frontal)**
 - ✓ Closure – 18 months
 - ✓ Normal/Sunken(**dehydration**)/Bulging(↑ Intracranial pressure)
- **Posterior fontanelle**
 - ✓ Closure – 2 months
- **Sphenoidal fontanelle**
 - ✓ Closure – first few months
 - ✓ Both sides

• Forehead

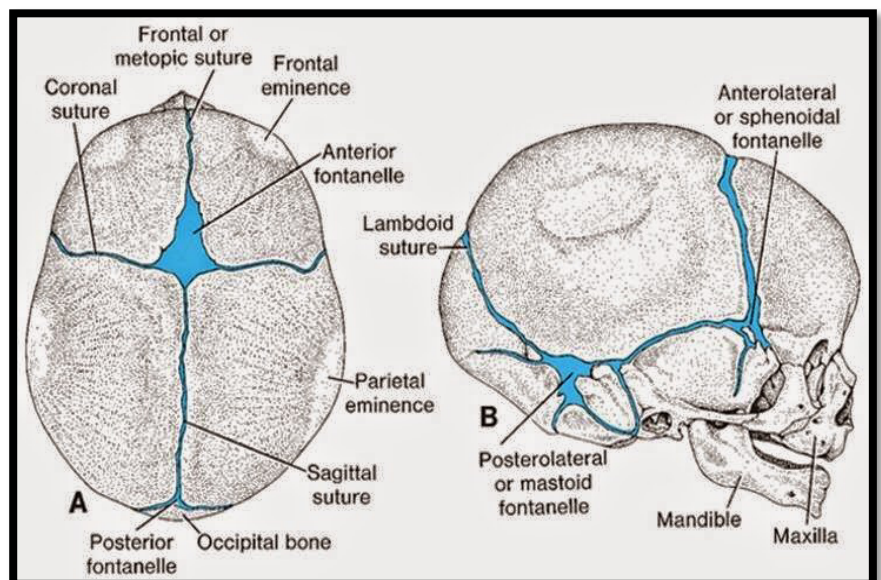
- Normal/swelling

• Hair

- Hypo-pigmentation
- **Flag sign**
- **Alopecia/Hypertrichosis** (cushing's)
- **Low hair line**
 - ✓ Back – Turners syndrome
 - ✓ Front – hypothyroidism

• Face

- **Myopathic facies**
- **Moon**
- **Puffy**
- **Coarse facies**
- **Mask like facies**
- **Potter's facies**
- **Mongoloid facies**
- **Haemolytic facies**
- **Triangular facies**



- **Eye**
 - **Eyeball tension** – **raised**(glaucoma)/ **sunken**(dehydration)
 - **Exophthalmos/Enophthalmos**
 - **Size** – **microphthalmos**(congenital rubella)
 - **Slant**
 - ✓ **Mongoloid slant** – medial to lateral slanting up (**Down syndrome**)
 - ✓ **Antimongoloid slant** – medial to lateral slanting down (**Turner syndrome**)
 - **Telorism**
 - ✓ **Hypertelorism** – distance b/w medial canthi of 2 eyes is more than the width of a eye
 - ✓ **Hypotelorism**
- **Ears**
 - **Low set ears**
 - **Bat ears**
 - **Microtia**(small ears)
 - **Anotia**(no ears)
- **Nose**
 - **Flaring of alae nasi**
 - **Deviated nasal septum**
- **Mouth**
 - **Oral hygiene**
 - **Saliva** – present/dehydration
 - **Cleft lips/palate**
 - **Angular stomatitis**
- **Tongue**
 - **Protruding**
 - **Macroglossia**
 - **Coating of tongue**
 - **Glossitis**
- **Neck**
 - **Short neck**
 - **Webbing of neck**
 - **Swelling** (goitre)
 - **Stiffness**
 - **Tracheal shift**
- **Chest**
 - **Barrel shaped**
 - **Pectus carinatum**(pigeon)
 - **Pectus excavatum**(funnel)
 - **Harrison sulcus**(pulling of weak chest wall by diaphragm)
 - **Gynaecomastia**
- **Spine**
 - **Loss of normal curvature of spine** (juvenile rheumatoid arthritis)
 - **Scoliosis**
- **Upper limb**
 - **Cubitus valgus** – forearm directed away from body
 - **Cubitus varus** – forearm directed towards body
 - **Fingers**
 - ✓ **Clinodactyly** – shortening of middle phalanx of little finger (**Down syndrome**)
 - ✓ **Arachnodactyly** – long fingers (**marfan syndrome**)

- ✓ **Thumb sign** – thumb can protrude beyond ulnar border of palm(**marfan syndrome**)
- ✓ **Polydactyly**
- ✓ **Syndactyly**
- ✓ **Absent thumb – fanconi syndrome**
- ✓ **Osler's nodes** – transient, small, pea-sized, tender nodules in the pulp of fingers and toes. (**Infective endocarditis**)

- **Nail**

- **Koilonychia** – soft, thin, brittle, flat/concave (**iron deficiency**)
- **Half & half nail** – white proximal, red distal (**chronic renal failure**)
- **White nail** – (anaemia; hypoalbuminaemia; nephrotic syndrome)
- **Red nail** (polycythaemia as in cyanotic heart disease)
- **Brittle nails** – nutritional deficiency
- **Transverse ridges in nails** – growth arrest during acute severe malnutrition
- **Splinter haemorrhage** – **Infective endocarditis**
- **Clubbing**

- **Lower limbs**

- **Coxa valga** – angulated away from midline
- **Coxa vara** – angulated towards midline
- **Genu valgus** – knock knee (**Rickets**) ; normal upto 2 years
- **Genu varus** – (**Rickets**) ; normal upto 2 years
- **Genu recurvatum** – hyperextension of knee joint (**polio**)
- **Pes planus** (flat foot) - normal upto 2 years
- **Pes cavus** (claw foot) – **polio**
- **Hallux valgus** – lateral deviation of big toe

- **Abdomen**

- Abdominal mass
- Umbilical hernia

- **Genitalia**

- **Undescended testis**
- **Micro penis**
- **Micro orchidism**
- **Macro orchidism**
- **Ambiguous Genitalia**
- **Nappy rash** (contact dermatitis)
- **Candidiasis**

- **Skin**

- **Macule** – flat, non palpable
- **Papules** – palpable, elevated <5mm
- **Nodules** – palpable, elevated >5mm
- **Vesicles** – fluid filled <5mm
- **Pustules** – pus filled
- **Petechiae** – pin head sized macules of blood
- **Lichenification**
- **Crust formation**
- **Desquamation**
- **Ulceration**
- **Pruritus**
- **Skin turgor in case of diarrhoea with dehydration**

14. Anthropometry:

➤ **Weight** (malnutrition)

- Birth – 3kg
- 5 months – 6kg (**doubles**)
- 1 year – 9kg (**triple**)

• Weight age:

Age of a normal child who will have the same weight as the child under evaluation.

% of ideal weight for age	Grade of (PEM)
>80 %	Normal
71-80 %	Grade 1 PEM
61-70 %	Grade 2 PEM
51-60 %	Grade 3 PEM
<50 %	Grade 4 PEM

IAP Classification of PEM

TABLE 2.2.8: Weech's formulae for estimating weight and height for age of normal children

Weights	Kilograms	Pounds
At birth	3.25	7
3 to 12 months	$\frac{\text{age in months} + 9}{2}$	$\frac{\text{age in months} + 11}{2}$
1 to 6 years	$(\text{age in years} \times 2) + 8$	$(\text{age in years} \times 5) + 17$
7 to 12 years	$\frac{(\text{age in years} \times 7) - 5}{2}$	$(\text{age in years} \times 7) - 5$
Heights	Centimeters	Inches
At birth	50	20
At 1 year	75	30
2 to 12 years	$(\text{age in years} \times 6) + 77$	$(\text{age in years} \times 2) + 30$

TABLE 2.2.6: The Wellcome classification of nutritional status

Nutritional status	Expected weight for age	Presence of edema
Normal	more than 80%	no
Undernutrition	60 to 80%	no
Kwashiorkor	60 to 80%	yes
Marasmus	less than 60%	no
Marasmic kwashiorkor	less than 60%	yes

➤ **Height** (stunting)

Age	Height
Birth	50cm
3 months	60cm
6 months	65cm
9 months	70cm
1 year	75cm *(Total gain in 1 st year – 25cm)
4 years	100cm
8 years	125cm
12 years	150cm

WATERLOW Classification of Stunting

% of height expected for age (Present ht./Ideal ht.) * 100	Grade/Degree of stunting
>95%	No stunting
90-95%	Grade 1
85-89%	Grade 2
<85%	Grade 3

• Height age:

Age of a normal child who will have the same height as the child under evaluation.

➤ **Weight for Height** (wasting)

WATERLOW Classification of Wasting	
Weight for height as % (Present wt./Ideal wt. of present ht.) * 100	Grade/Degree of wasting
>110%	Overweight
91-110%	Normal
81-90%	Grade 1
70-80%	Grade 2
<70%	Grade 3

➤ **Upper segment-Lower segment Ratio**

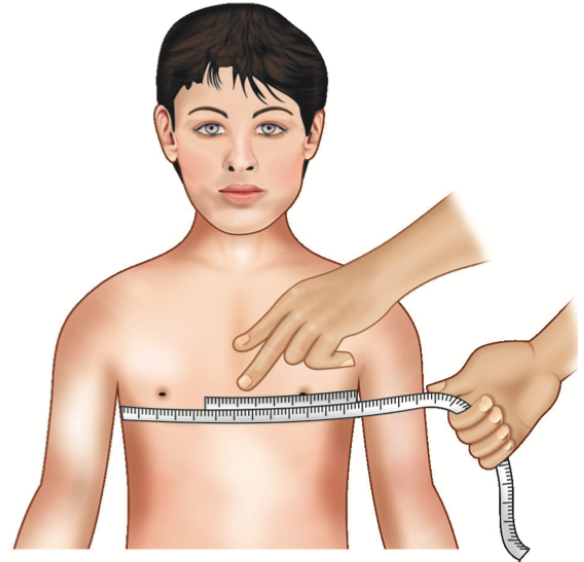
- **Lower segment** – top of pubic ramus to toes
- **Upper segment** – height minus lower segment

Age	Ratio
New born	1.7 : 1
6 months	1.6 : 1
1 year	1.5 : 1
2 years	1.4 : 1
3 years	1.3 : 1
4 years	1.2 : 1
6 years	1.1 : 1
7-10 years	1 : 1
Adolescent	0.9 : 1

- Greater than normal – **Short lower limb**
- Less than normal – **Short trunk**

➤ Chest circumference

- Measure at the level of xiphisternum at mid expiration
- Measured upto 2-3 years.
- Term baby (**Chest circumference: 2cm less than head circumference**)
- 9-12 months (**CC = HC**)
- Above 1 year (**CC > HC**)
- If HC is greater than CC after 1 year, it may indicate malnutrition.



➤ Head circumference

Age	HC
Birth	35cm
2 months	38cm
3 months	40cm
4 months	41cm
6 months	43cm
9 months	44cm
10 months	45cm
1 year	47cm
2 years	49cm
3 years	50cm
4 years	51cm
6 years	52cm

TABLE 2.2.13: Head circumference growth velocity	
Ages	Head circumference growth velocity
Till 3 months	2 cm/month
3 months to 1 year	2 cm/3 months (1/3rd of initial velocity)
1 to 3 years	1 cm/6 months (1/12th of initial velocity)
3 to 5 years	1 cm/year (1/24th of initial velocity)

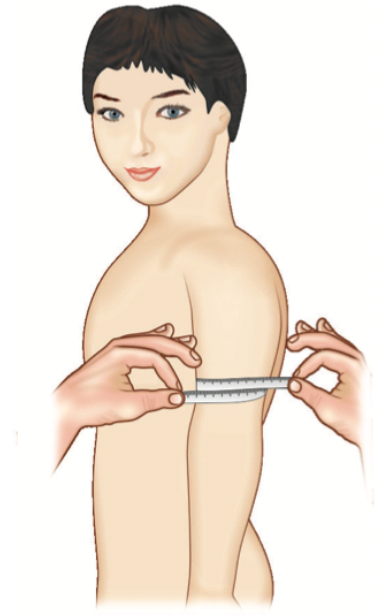
- **Microcephaly** – 3 SD below normal
- **Macrocephaly** – 2 SD above normal
 - (Rule of thumb – 1 SD $\approx$ 2.5% of expected head circumference.)
- **Dine's formula** (upto 1 year) = $(\text{length} \div 2) + 9.5 \pm 2$.



➤ Mid-arm circumference

- 6 months - 5 years of age
- **Shakir's tape**
 - ❖ Green – >13.5cm
 - ❖ Yellow – 12.5cm-13.5cm
 - ❖ Red – <12.5cm

Circumference	
>13.5 cm	Normal
12.5 cm – 13.5 cm	Moderate PEM
<12.5 cm	Severe PEM



➤ Skin fold thickness

- Only when PEM suspected
- **Harpender's calliper**
- **11mm or more** – Normal

➤ Mid Parental height

- **MPH for boys** = (father ht. + mother ht. + **13cm**) ÷ 2
- **MPH for girls** = (father ht. + mother ht. – **13cm**) ÷ 2

➤ Arm span

- Toddlers – 2cm less than height
- 7-10 years – equal height
- Adolescent – 2-3cm more than height

➤ BMI

- (Wt. in kg ÷ Ht. in m²)

	BMI
Adults	18-25
Children	15-22
Overweight	>25
Obesity	>30
Moderate malnutrition	<15
Severe malnutrition	<13