



Job Aids

Rashtriya Bal Swasthya Karyakram (RBSK)

Child Health Screening and
Early Intervention Services under NRHM



Ministry of Health & Family Welfare
Government of India

DECEMBER, 2013

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National Rural Health Mission

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Preface

The Job Aids presented here is a complementary and supportive set of tool. The Participants Manual and Job aids under Rashtriya Bal Swasthya Karyakram (RBSK) have been developed as reference about the selected health conditions and explaining screening by Look, Ask and Perform especially for the Mobile Health Teams.

The Job aids consisting of pictorials, guiding tools, reference charts, list of Equipment for Mobile Health Team for Screening, Micro-planning and Register formats, Screening tool cum Referral cards, will add value to the screening process and will help standardize screening methodology.

The Job aids along with Participants' manual is to build capacity of RBSK Mobile Health teams. The job aids are to be carried to the field by each member of the Mobile Health Team and use it as handy reference.

States/UTs are to ensure adequate priority to effectively address 4 Ds' – Defects at Birth, Diseases, Deficiencies, Developmental delays including disabilities.

National RBSK Team

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Pediatric Assessment: The Major Focus

Major concepts in Pediatric Physical Assessment

- Children are not little adults

Skills for working with children

- Knowledge of growth and development
- Communication skills with children and their parents
- Understanding of family dynamics and parent-child relationships
- Knowledge of health promotion and anticipatory guidance

Major concepts for assessment and health promotion

- Development assessment
- Medical history
- Nutritional status
- Physical assessment
- Guidelines for well child supervision
- Anticipatory guidance

Environmental Setting

- Safety is primary
- Pleasant, comfortable settings are helpful
- Accessible toys for young children are distracters and may reduce anxiety
- Age appropriate literature or items for teens and older children provide diversion in waiting areas

Standard Measurements

- Weight
- Height
- Head Circumference
- Blood Pressure

Sensory Issues

- Vision: right eye (OD), left eye (OS), both eyes (OU)
- Hearing: correlates with language development; localization requires both ears

Specific Evaluations

- Development
- Vision
- Hearing
- Language
- Speech

Key Points to Assessment Procedure

- Head to toe screening is most orderly
- Vary sequence according to child's response
- Examine young children in parent's lap
- Do intrusive examinations last.

Approach to Physical Exam

- Consider age and developmental level;
- Observe for "readiness" clues
- Take time to get "acquainted"
- Use play techniques for infants and young children
- Determine best screening place (table, parent's lap, examiner's lap)
- Use systematic approach; but be flexible to accommodate child's behavior
- Examine least intrusive areas first (i.e., hands, arms)
- Examine sensitive, painful or intrusive areas last (i.e. ears, nose and mouth)
- Determine what screening you want to complete before the child starts crying (i.e. heart)

Age Groups

- Neonate/Newborn: Birth to 28 days
- Pre-term Gestational age <37 weeks
- Term Gestational age 37-42 weeks
- Post-term Gestational age > 42 weeks
- Infant: Birth to 1 year
- Young, Immobile: Birth to 6 months
- Older, Mobile: 6 to 12 months
- Young Child: 1-6 years
- Toddler : 1-3 years
- Pre School child: 3-6 years
- Adolescent: 10 to 19 years
- Early-Adolescent: 10-12 years

Approach to Infants: Birth to 1 year

Birth to 6 months: Young, Immobile: If baby is comfortable and stress free, screening can be conducted on table. Sensory methods, such as voice, noise makers, toys to see or touch, or skin touch attract babies. They like a smiling human face. Do quiet things first, then head to toe.

6 to 12 months: Consider exam in parent's lap due to separation or stranger anxiety (up to 4 years). "Warm up" more slowly with play techniques. Object permanence and ability to anticipate develops, so provide comfort measures after unpleasant procedures. Increased mobility leads to additional safety measures and limit-setting concepts, which continue with each age group.

Approach to Toddlers: 1-3 years

Exam in parent's lap, due to need for parent security. Play games. Do least intrusive things first. Save ears, nose, and throat for last. Avoid "no" responses or choices they cannot make. Offer simple acceptable choices. Let them touch equipment

Approach to Pre-School: 3-6 years

Keep parent close. Some will cooperate with screening on table. Protect modesty. Use dolls, animals or parents to "examine" first. The child may be afraid thinking equipment is alive and may be thinking it has magical. Let them play with equipment. Use familiar, safe, non-frightening words and approaches.

Approach to School-Age Child

Do a head to toe screening. Respect modesty. Address questions more directly to child. Explain in concrete terms. Medical diagrams or teaching dolls are helpful. Elicit their active participation in history, exam and care plan. Answer questions honestly.

Approach to Adolescents

Confidentiality, privacy, protection of modesty are important. Explain confidentiality parameters. Offer to examine alone, without parent present. A girl child to be screen by a female Doctor and a boy child by a male doctor.

Address questions to patient. Keep in mind, depression is more common in adolescents, especially girls. More common concerns among girls include body-image distortion, loss of appetite & weight, & lack of satisfaction. More common concerns among boys include irritability, social withdrawal & drop in school performance.

Materials required for screening

Head Circumference Tape



Mid Arm Circumference Tape



RED RING



- Ring tied to a thread & dangled in front of the baby
- Visual fixation and tracking
- Reaching for objects ≥ 4 months

RATTLE



- To attract infant's attention
- To test response to sound in young infant (Observe Behavioral responses)
- Holds rattle when placed in hand (≥ 12 weeks)

BELL



- To test response to sound in young infant (Observe behavioral responses and Murphy's sequences)
- Bell is held at a distance of at least 30 cm away from ear and out of sight of baby

RAISINS OR KISMIS



1-INCH CUBES



- Transfer of objects (≥ 6 months)
- Test different types of grasp
- Building/imitating tower, bridge, train, gate, steps etc.

CRAYONS



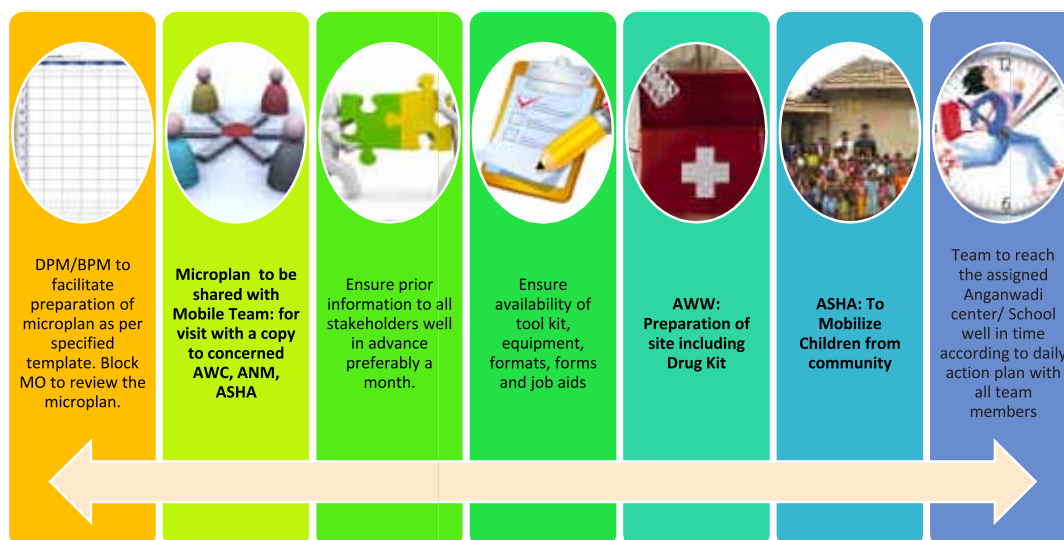
- Scribbling (> 18 months)
- Imitating and copying different shapes
- Naming colors

- Torch-2
- Pictorial book with only single photo on each page - 2
- Weighing machine - infants and adults one each
- Infantometer
- Stadiometer
- Sphygmomanometer - 2
- Stethoscope - 2

RBSK MOBILE TEAM SCREENING AT AWC

Screening for 4D's: Children upto 6 years

Preliminary Activities:



RBSK Mobile Team: 4 members

Venue: AWC



TEAM A

Doctor+ Paramedic Staff (ANM)

- Doctor Screens for 4D's
- Paramedic Staff performs anthropometry and maintains register

Normal

Refer



TEAM B

Doctor+Paramedic Staff (Pharmacist)

- Doctor Screens for 4D's
- Paramedic Staff performs anthropometry and maintains register

Normal

Refer

Acute illness such as Fever, Diarrhoea, Cough etc to be managed by the local ANM as per the IMNCI guidelines



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Rashtriya Bal Swasthya Karyakram (RBSK)
Screening Tool cum Referral Card for Children, 0 - 6 years

Preliminary Particulars														
District / Block			Mobile Health Team ID			Name of AWC			AWC ID					
Name of ASHA & Contact no.			ASHA ID			Name of Child			Gender (M / F)					
Age (in MM/YYYY)			MCTS No. / Unique ID (16 Digit)						Name of Mother/ Father/ Guardian			AADHAAR No.		
*Below 2 years, age in completed months only. Above 2 years age in completed years & Month														
Weight (in Kg.)			Height/ Length (in cm.)			Head Circumference (in cm.)			Contact no.			Weight for Height Classification		

Refer job aid for instructions and pictures

A. Defects at Birth		If Yes, refer
A1	Head - Abnormally large or small in size/shape deformity. Size: Check >2 SD <2D	
A2	Eyes - Any visible abnormality i.e. white pupil, Squint (important esp. after 3 months), frequent jerky movements, tilting the head when focussing, (important esp. after 6 months)	
A3	Ear - Any abnormality of shape <i>* do not refer if isolated finding</i>	
A4	Lips and Palate - Cleft (One side or both sides)	
A5	Difficulty in sucking and swallowing , including sweating on forehead while trying to suck/breast feed (sign is especially important if infant is less than 6 months of age)	
A6	Neck - exceptionally short <i>* do not refer if isolated finding</i>	
A7	HIP: DDH: In case of a female child born through a breech delivery or child walking with a limp or asymmetrical thigh and gluteal skin folds.	
A8	Limbs - Any deformity/ club foot	
A9	Spine - Neural tube defect	
A10	Features Suggestive of Down's Syndrome (Pictorial) <i>*Refer if more than one sign is present</i>	
A10(a)	Eye: upward slant of eyes (Imaginary line extended from the inner canthus to the outer canthus, goes below the outer canthus), and or epicanthic fold	
A10(b)	Nose: -Depressed Bridge	
A10(c)	Ears: Low set Ears (Imaginary line extended from inner to outer canthus and to the ear, passes above ear)	
A10(d)	Palm - Single crease across centre of palm (Simian crease)	
A10 (e)	Feet - wide gap (cleft) between the great and first toe	
A11	Congenital Heart Disease: any loud murmur on the chest or cyanosis on lips or Bluish spells or features of congestive cardiac failure (Sweating during feeding, recurrent breathing difficulties, poor weight gain, Exercise intolerance, Easy fatigability, bilateral pitting edema)	
B. Deficiency		If Yes, refer
B1	SAM -Weight for Height/ length: refer if the child is less than -3SD as per WHO chart, counsel if <- 2SD.	
B2	SAM-Oedema: Bilateral pitting oedema	
B3	Severe anaemia - Look for severe palmar pallor	
B4	Vitamin A Deficiency - Ask for night blindness/look for Bitot's spot (white patches on sclera)	
B5	Vitamin D Deficiency - Look for Wrist Widening/Bowing of legs/ nodular swelling on the chest	

C. Diseases		If Yes, refer
C1	Convulsive Disorders - Ask mother if child ever had spells of unconsciousness and fits include momentary blackouts or momentary loss of contact with real world with or without history of sudden falls or sudden jerky contractions.	
C2	Otitis Media - Did child have more than 3 episode of ear discharge in last 1 year/Look for active discharge from ear	
C3	Dental Condition - Look for white/ brown areas, cavitations, Swollen/bleeding/red gums	
C4	Skin Condition - Does the child have itching on skin (especially at night)/ Look for round or oval scaly patches/ pustules in finger webs. Any other lesion on the skin.	
D. Developmental Delays		
For infants over 2 months but less than 4 months, Look and ask		If No, Refer
D1.1	Does the child move both arms and both legs freely & equally when awake or when excited? (GM)	
D1.2	Does the child raise his or her head momentarily when lying face down? (GM)	
D1.3	Does the child keep his hands open and relaxed most of the time? (By 3 months) (FM)	
D1.4	Does the child respond to your voice or startles with loud sounds or becomes alert to new sound by quietening or smiling? (H)	
D1.5	Does the child coos or able to vocalize other than crying ? like "ooh", "ng" (S)	
D1.6	Does the child make eye contact? (Focus their eyes on the eyes of a care giver) (V)	
D1.7	Does the child give a social smile? (Reciprocal, responds to mothers expression or smile i.e smile back at you) (S)	
D1.8	Does the child suck and swallow well during feeding i.e. without any choking? (Sp)	
For infants over 4 months but less than 6 months of age Look and ask		If No, Refer
D2.1	Does the child hold head erect in sitting position without bobbing i.e. hold her head straight? (while sitting with support, head is held steadily) Refer if head flops or falls back on any one side when child is pulled to sitting position (GM)	
D2.2	Does the child reaches out for an object persistently? (should use either hands but refer if preference for one hand only) Observe that grasp of the object is in the ulnar side of palm and there is lack of thumb involvement (FM)	
D2.3	Does the child respond to mother's speech by looking directly at her face? (H)	
D2.4	Does the child laugh aloud or make squealing sounds? (Sp)	
D2.5	Does the child follow an object with his or her eyes? (without any visible squint) (V)	
D2.6	Does the child sucks on hands? (C)	
For infants over 6 months but less than 9 months of age Look and ask		If No, Refer
D3.1	Does the child roll over or turn over in either direction? (GM)	
D3.2	Does the child grasps a small object by using his whole hand ? (secures it in the centre of the palm) (FM)	
D3.3	Does the child locate source of sound? i.e. turns his head or eyes if you whisper from behind? (H)	
D3.4	Does the child utter consonant sounds like "p""b""m" ? (Sp)	
D3.5	Does your baby watch TV or any toy without tilting his /her head ? (V)	
D3.6	Does the child raises hands to be picked up by parents? (S)	
D3.7	Does the child look for a spoon or toy that has dropped ? (C+V)	
For children over 9 months and less than 12 months of age		If No, Refer
D4.1	Does the child sit without any support ? (GM)	
D4.2	Does the child transfer object from hand to hand? (FM)	
D4.3	Does the child respond to his or her name? (H & C)	
D4.4	Does the child babble example- "ba", "ba", "da", "da", "ma", "ma"? (Sp)	
D4.5	Does the child avoid bumping into objects while moving? (V)	
D4.6	Does the child enjoy playing hide-and-seek (peek-a-boo)? (S)	

For children over 12 months but less than 15 months of age			If No, Refer
D5.1	Does the child crawl on hands and knees ?	(GM)	
D5.2	Does the child pickup small object using thumb and index finger like peas, raisins (kismis)?	(FM)	
D5.3	Does the child stops activity in response to "NO"?	(H & C)	
D5.4	Does the child say one meaningful word clearly like mama, dada?	(Sp)	
D5.5	Does the child imitate action like bye-bye/clap/kiss? (wave good bye or greet you)	(S)	
D5.6	Does the child cry when a stranger picks him up? Differentiates familiar faces from strangers	(S & C)	
D5.7	Does the child search for completely hidden objects?	(C)	
For children over 15 months but less than 18 months of age			If No, Refer
D6.1	Does the child walk alone?	(GM)	
D6.2	Does the child play by putting small things or objects into a container ? (cup or katori)	(FM)	
D6.3	Does the child make gesture on verbal request like pointing to objects? (Pointing with Index finger when asked "Where is the bottle"	(FM)	
D6.4	Does the child follow simple one step direction as for eg "Sit down"?	(H & C)	
D6.5	Does the child say at least two words other than mama or dada like dog, cat, ball even if it is not clear?	(Sp)	
D6.6	Does the child manipulate or explore a toy with his /her fingers like poking or pulling the toy?	(C)	
For children over 18 months but less than 24 months of age			If No, Refer
D7.1	Does the child walk steadily even while pulling a toy?	(GM)	
D7.2	Does the child scribble spontaneously?	(FM)	
D7.3	Does the child say atleast five words consistently even if not clear?	(Sp)	
D7.4	Does the child imitate house hold tasks? (try to copy domestic chores like sweeping, washing clothes)	(C)	
D7.5	Does the child point to 2 or more body parts? (eg show me your nose, child points to nose by using one finger)	(H & C)	
For children over 24 months and less than 30 months of age			If No, Refer
D8.1	Does the child climb upstairs and downstairs?	(GM)	
D8.2	Does the child feed self either with hand or spoon?	(FM)	
D8.3	Does the child join 2 words together like mama-milk, car-go? (2 word phrases)	(Sp)	
D8.4	Does the child play along with other children?	(S)	
D8.5	Does the child enjoy simple pretend play like feeding a doll?	(C)	
D9.1	Any Neuro-motor abnormality (Refer to picture in Job Aid)		If Y, Refer
Autism Specific Questionnaire: (15-24 months)			Answer Y/N Discretely
15-18 months			
D10.1.1	Does your child look in your eyes for more than a second or two (poor eye contact)?	(If N Refer)	
D10.1.2	Does your child ever use his/her index finger to point to ask for something?	(If N Refer)	
D10.1.3	Have you ever wondered that your child is deaf or is not responding to his/her name when you call (not communicating even through gestures)?	(If Y refer)	
18-24 months			
D10.2.1	Does your child take an interest in other children or play with other children?	(If N Refer)	
D10.2.2	Does your child make unusual finger movement/ repetitive hand and body movements like finger wriggling /flapping/spinning/jumping (repeated purposeless motor activity)?	(If Y refer)	
D10.2.3	Does your child ever pretend play (talk on phone/take care of dolls)?	(If N Refer)	

For children above 2.5 – 6 years			(If "Yes", Refer)
D11.1	Does your child have difficulty in seeing, either during day/night?(without spectacles)	(V)	
D11.2	Compared with other children of his/her age, did your child have any delay in walking?	(GM)	
D11.3	Does your child have stiffness or floppiness and/or reduced strength in his/her arms or legs?	(GM)	
D11.4	From birth till date, has your child ever had fits, or became rigid, or had sudden jerks or spasms of arms, legs or whole body?	(Convulsive Disorder)	
D11.5	From birth till date, has your child ever lost consciousness?	(Convulsive Disorder)	
D11.6	Compared to children of his age, does your child find it difficult to read or write or do simple calculations?	(C)	
D11.7	Does the child have difficulty in speaking (as compared to other children of his/her age)?	(SP)	
D11.8	Is your child's speech in any way different from other children of his/her age?	(SP)	
D11.9	Does your child have difficulty in hearing? (without hearing aid)	(H)	
D11.10	Compared with other children of his / her age, does your child have difficulty in learning new things?	(C)	
D11.11	As compared to children of his/her age, does your child have difficulty in sustaining attention on activities at school, home or play?	(C)	

Preliminary Findings (tick as applicable):

Code	Finding	Code	Finding	Code	Finding	Code	Finding
Defects at Birth		Deficiencies		Childhood Diseases		Developmental delay and disability	
1	Neural Tube Defect	10	Anaemia	15	Skin Conditions	21	Vision Impairment
2	Down's Syndrome	11	Vitamin A Deficiency (Bitot Spot)	16	Otitis Media	22	Hearing Impairment
3	Cleft Lip & Palate	12	Vitamin D Deficiency, (Rickets)	17	Rheumatic Heart Disease	23	Neuro-Motor Impairment
4	Talipes (club foot)	13	SAM/Stunting	18	Reactive Airway Disease	24	Motor Delay
5	Developmental Dysplasia of Hip	14	Goiter	19	Dental Conditions	25	Cognitive Delay
6	Congenital Cataract			20	Convulsive Disorders	26	Speech and Language Delay
7	Congenital Deafness					27	Behaviour Disorder (Autism)
8	Congenital Heart Disease					28	Learning Disorder
9	Retinopathy of Prematurity (only at DH)					29	Attention Deficit hyperactivity Disorder
30 Others (specify)							

Please circle	Defects at Birth		Deficiency		Diseases		Developmental delay	
	Yes	No	Yes	No	Yes	No	Yes	No
If Yes, refer to Referral (Y/N)	DH/DEIC		CHC, SAM to NRC		CHC/DH		DEIC	
Name and sign of Doctor, MHT					Date of Visit			

*In case the referral has to be made for more than 1D especially involving the DEIC the child must be referred to DEIC first.

GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social

Developmental Red Flags: No Head Control by 3 months, Fisting beyond 3 months, No two word phrase or No pointing or pretend play by 24 months, Echolalia after 30 months.

General Assessment

Body: Symmetry, posture, movement, nutrition

Skin – Key Points

- Color: Jaundice, pallor, cyanosis.
- Edema: **Periorbital** (crying, allergies, renal disease) Dependent(SAM, cardiac disease or at times renal disease)
- Skin Infection

Birth Marks: Normal

- **Infectious lesions:** Viral, bacterial, fungal (erythema, macule, papule, vesicle, pustule)
- **Pruritus:** Dry skin, allergy, eczema, contact dermatitis and Scabies
- **Hand:** Down syndrome (single palmar crease) and pallor:

HEENT: Head & Neck: Eyes: Ears: Nose, Face, Mouth & Throat

- **Head:** Head Circumference (HC): Frontal Occipital Circumference (FOC)
- **Neck:** Short or not, thyroid swelling
- **Eyes:** Vision, external exam, including squint
- **Ears:** Hearing, external ear canal , any discharge
- **Nose:** Exam of nose for depressed bridge
- **Mouth:** Structures of mouth, teeth and pharynx
- **Abnormal facies:** “Diagnostic facies” of common syndromes esp. Down syndrome



Eyes: Key Points

- Vision: Red reflex & blink in neonate
- Visual following at 5-6 weeks: 180 degree tracking at 4 month. • Amblyopia (lazy eye)
- E chart & strabismus check for preschool child and Snellen charts for older children
- Placement& symmetry: Wide set: hypertelorism – Down syndrome. Close set: hypotelorism
- Epicanthal folds or upward slants – ethnicity, Down's.
- Character of eyebrows
- Eyelids: Ptosis, lid lag, blepharitis (stye), swelling, Dacryocystitis (blocked tear duct) may cause redness, swelling and discharge.
- "Allergic shinner" (dark circles) may indicate allergy
- Periorbital edema may indicate renal problems
- Conjunctive: Inflammation, pallor (anemia)
- Anomalies or opacities of cornea, anterior chamber or lens(i.e. cataract)
- White retinal reflex indicates pathology (i.e., retinoblastoma,

Outer canthus and inner canthus should be in the same horizontal line, if outer canthus is above the horizontal line: Upward slant

Ears: Key Points

- Attempt last in younger children
- control young children in lap, head braced against parent's chest
- Hearing: Especially if language delay or frequent otitis media
- Ears: Variations: • External: Malformed auricle/pinna, or low-set or obliquely-set ears may be associated with many syndromes, or genitourinary & chromosomal abnormalities. Line passing at 1/3rd and 2/3rd junction of the Ear if an imaginary line is drawn from the inner canthus to outer canthus and then to the Ear. Low set Ears if the line passes above the ear.
- Otitis media: recurrent pus discharge

Nose: Structure variations: Observe flattened nose or nasolabial folds that may indicate congenital anomalies.

Mouth & Pharynx: Key Points

- Inspect lips for color esp. cyanosis or any cleft. • Color variations: Central cyanosis can be observed in lips & mucosa.
- Count teeth & inspect for caries, malocclusion and loose teeth.



Inspect uvula for symmetrical movement or bifid uvula (indicating cleft palate or WNL)

- Observe infants for rooting and sucking reflexes & oral thrush
- Observe breath for halitosis
- **Palate & uvula: An absent or bifid (notched) uvula** may indicate sub mucosal or soft palate cleft.
- **Tooth markings:** Brown & black spots may indicate caries. "Baby bottle" caries appear on teeth at gum line and are due to babies taking a bottle to bed, and milk pools around the teeth. Brown-white mottling may indicate excessive fluoride intake. Green & black staining may indicate oral iron intake contacting teeth

Neck: Key Points

- Short neck
- Head control in infant
- Thyroid in midline
- Torticollis
- Webbing

Neck: Variations

- Head lag: Significant lag after 6 months may indicate cerebral palsy
- Torticollis: "Stiff neck" with resistance to lateral head turn as result of injury to

Sternocleidomastoid muscle, more often seen in newborn

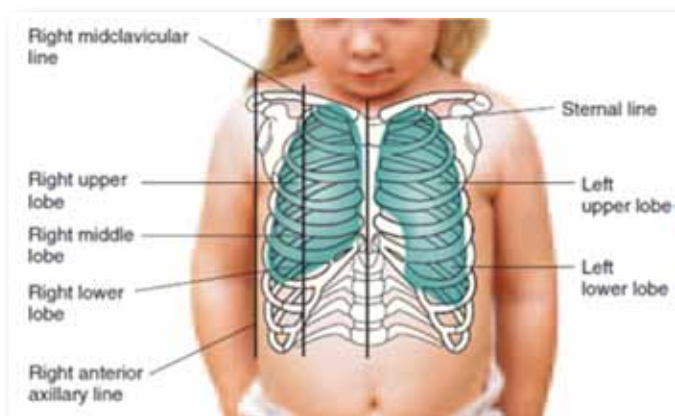
- Thyroid Ascends with swallowing (not normally palpable in young child). Check bruits, nodules or goiter (& accelerated growth, staring eyes)

Thorax & Lungs: Key Points

- Structure: Observe for shape, symmetry & posture
- Chest deformities: can be WNL, but significance varies with severity etiology
- Pectus carinatum or pigeon breast: concavity of sternum
- Pectus excavatum or funnel chest protrusive sternum
- Beading or rachitic rosary: protrusive deformities along costochondral junctions, may indicate vitamin D deficiency (rickets)

Lungs & Respiratory Status: Key Points

- Prolonged expiratory phase
- Resp rate (>40 at rest, after neonate period = respiratory distress)



- Color: cyanosis or mottling
- Nasal flaring
- Adventitious (adventitious) sounds. • **Crackles** (rales), • **Rhonchi** (course breath sounds). • **Wheeze**

Cardiovascular: Key Points

- Peripheral pulses: femoral pulses absent or diminished in aortic stenosis
- Skin: pallor, cyanosis (lips, nail beds, ear lobes)
- Elevated BP

Stethoscope: Diaphragm: high pitch, S1. Bell: low pitch, S2

Murmurs: may be systolic, diastolic or continuous

GRADE: I - faint, may not be heard sitting

II - readily heard with stethoscope

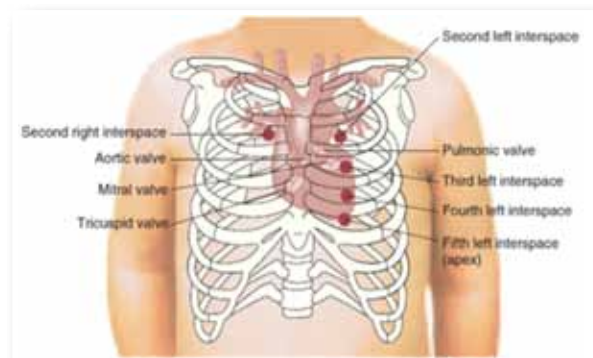
III - loud, no thrill

IV - loud with stethoscope, thrill

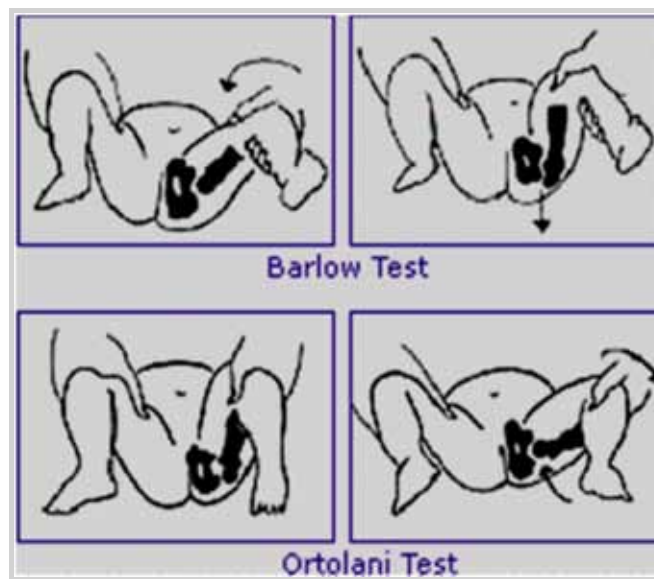
V - Loud with stethoscope barely to chest, thrill

VI - loud with stethoscope not touching chest, thrill

Functional Murmurs: Change or disappear with position change (usually loudest supine)



- **Congenital hip dislocation or dysplasia:**



- Check hip abduction & symmetry • asymmetrical hip abduction
- Asymmetrical thigh & gluteal folds. • Ortolani's click. • Barlow's test
- Limp

Age in presentation	Clinical features
Birth to 3 months	Diagnostic: Hip instability demonstrated by positive Ortolani method or Barlow test Suggestive: Asymmetrical leg creases Apparent shortening of femur: upper part of leg Associated findings: Club foot or torticollis or Plagiocephaly. (Asymmetry of skull)
3-12 months	Limitation of hip abduction in 90 degree flexion Apparent shortening of femur: upper part of leg Marked Asymmetrical leg creases Laterally rotated posture of lower limbs
After the child begins to walk	Excessive Lumbar lordosis Short leg limp Increasing adduction contracture of hip

- **Feet/legs:** Variations may begin in feet, tibia or upper leg & hip area

Feet turning in: varus

Feet turning out: valgus

- Legs:

Bowleg (genu varum – knees 2 inches apart)

Knock-knee (genu valgum -- ankles 3 inches apart)



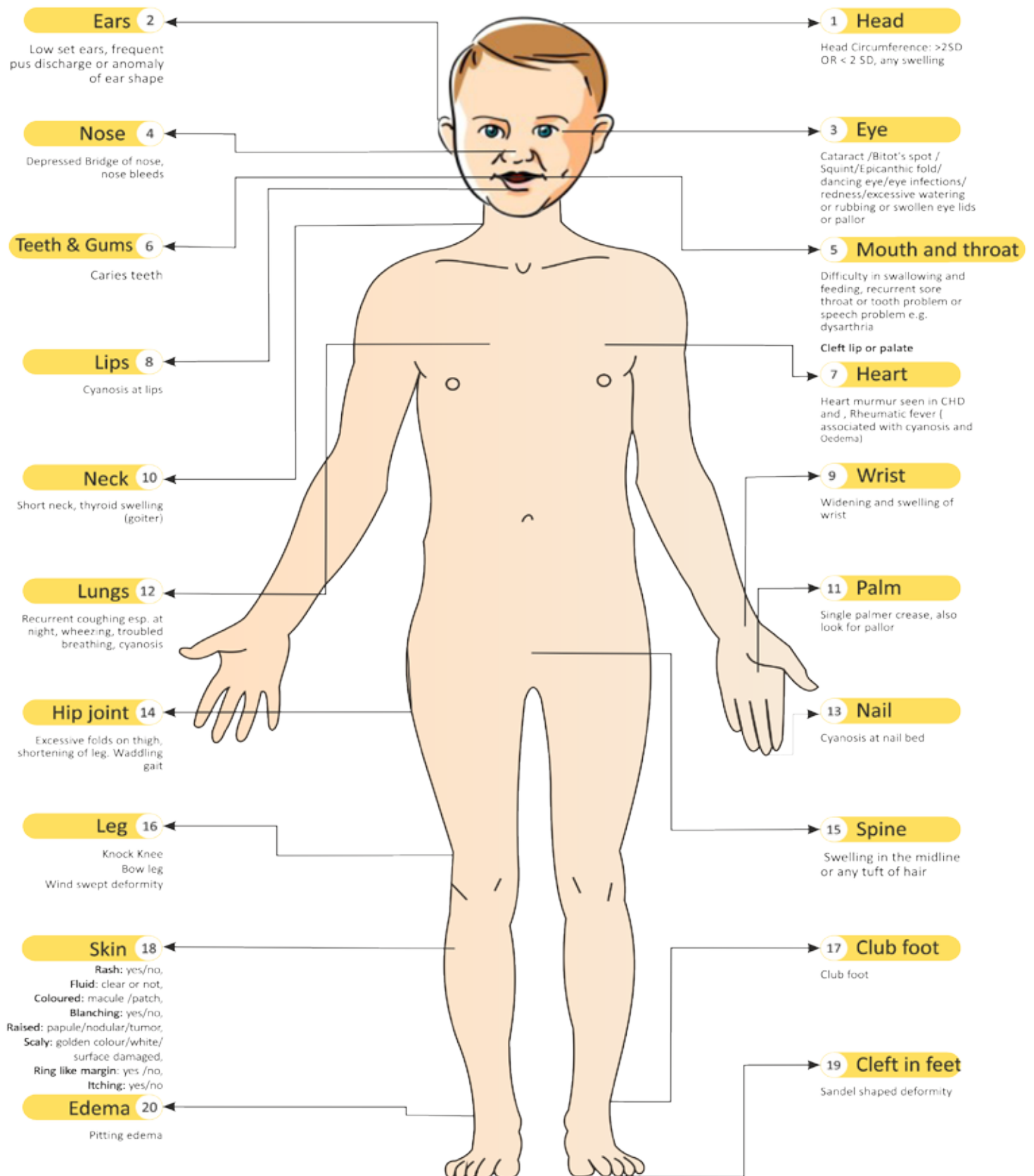
Indicators of hearing loss in infant:

- No startle reaction to loud noises
- Does not turn toward sounds by 4 months of age
- Babbles as a young infant but does not keep babbling or develop speech sounds after 6 months of age

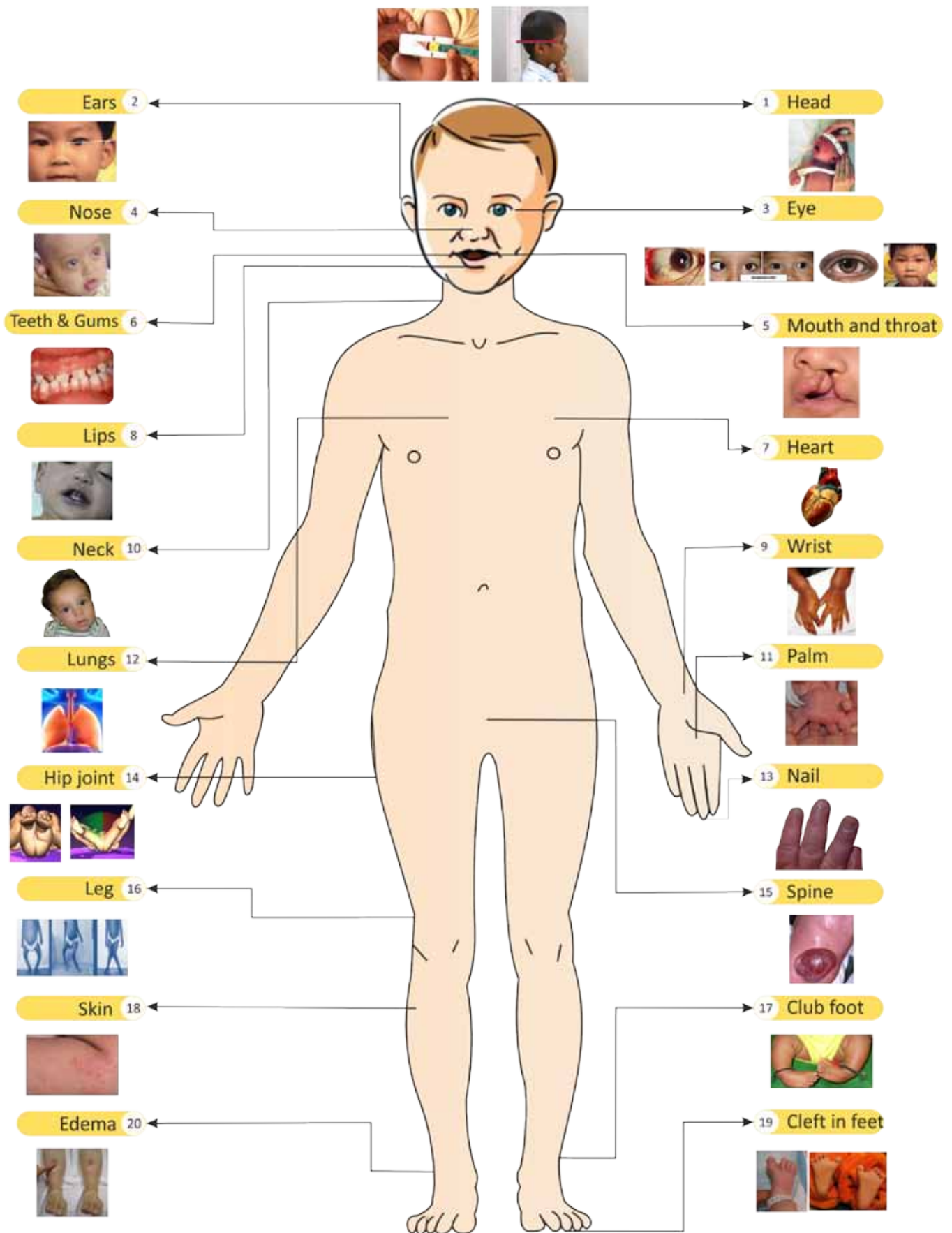
Indicator of hearing loss in a young child:

- No speech by 2 years of age
- Speech sounds are not distinct at appropriate ages

Examination of a Child: Head to Toe

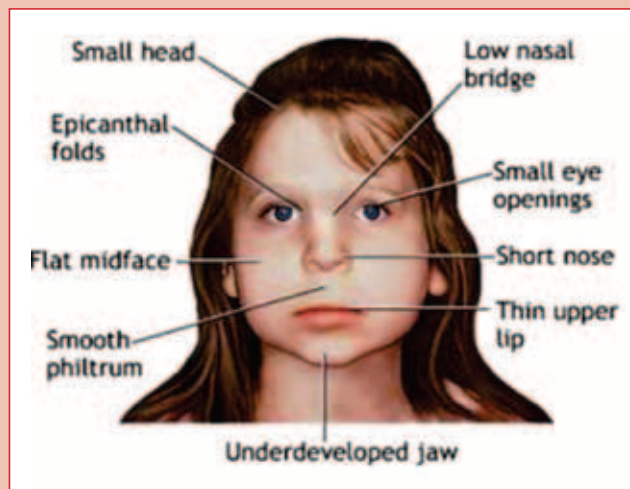


Examination of a Child: Head to Toe



Pictorial Tool

Down's syndrome



Facial Features



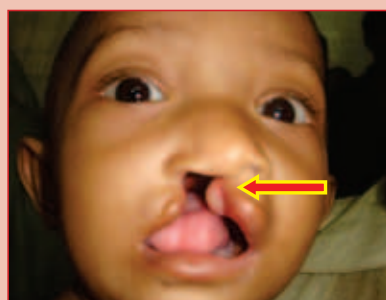
One single crease that goes straight across the palm



Increased gap between the first toes and great toe



Cleft Lip



Cleft Palate



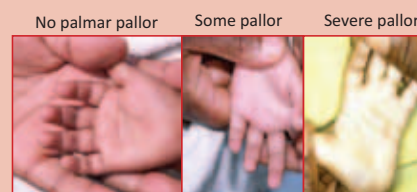
Neural Tube Defect

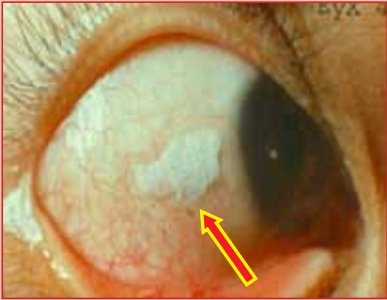



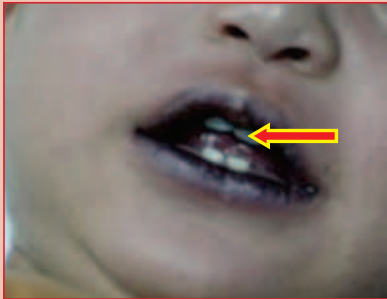








Club Foot



Anemia



Bitot's Spot	Wrist Swelling
	
Otitis Media (Middle ear Infection)	Cyanosis-Congenital Heart Disease
<div data-bbox="154 741 541 1039">  </div> <div data-bbox="611 741 999 1039">  </div> <div data-bbox="164 1052 526 1084"> Schematic Diagram of discharging ear </div> <div data-bbox="619 1052 987 1084"> Picture of a watery discharge from ear </div>	<div data-bbox="1059 741 1447 1039">  </div> <div data-bbox="1120 1052 1383 1084"> Bluish Discoloration of lips </div>
Scabies	Skin lesions
<div data-bbox="154 1200 659 1498">  </div> <div data-bbox="684 1200 999 1498">  </div> <div data-bbox="256 1512 434 1541"> Lesions of scabies </div> <div data-bbox="724 1512 956 1570"> Localised warm, tender swelling or redness </div>	<div data-bbox="1173 1200 1335 1498">  </div> <div data-bbox="1074 1512 1434 1543"> Crusting, flaking, blistering, cracking </div>
Dental conditions	
<div data-bbox="154 1680 541 1977">  </div> <div data-bbox="188 1993 502 2022"> Yellow or brown discolored area </div>	<div data-bbox="598 1680 1038 1977">  </div> <div data-bbox="689 1993 944 2051"> White, opaque, dull, band of de-mineralized enamel </div> <div data-bbox="1104 1680 1444 1977">  </div> <div data-bbox="1236 1993 1311 2022"> Cavity </div>






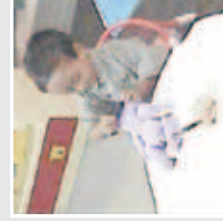
Early detection of Developmental Delay (D1 & D2:-2-6 months)

2 – 4 Months													
Gross Motor		Fine Motor	Hearing	Speech	Vision	Cognition & Socialization							
	D1.1 Moves both arms and both legs, freely and equally when awake		D1.2 Raises the head occasionally when awake		D1.3 Keeps his hands open and relaxed		D1.4 Responds to sound		D1.5 Vocalizes by cooing especially after feeding		D1.6 Eye contact		D1.7 Social Smile
4 – 6 Months													
	D2.1 Holds Head Straight while sitting or when held on shoulder		D2.2 Reaches and tries to grasps to an object		D2.2 Grasp of the object is in the ulnar side of palm		D2.3 When spoken to, responds by looking directly at speaker's face		D2.4 Laugh aloud		D2.5 Follows an object		D2.6 Sucks on hands

Early detection of Developmental Delay (D3 & D4:-6-12 months)

6 – 9 Months					
Gross Motor	Fine Motor	Hearing	Speech	Vision	Cognition & Socialization
 <p>D3.1 Roll over or turn over in either direction</p>	 <p>D3.2 Grasps a small object by using his whole hand</p>	 <p>D3.3 Locates source of sound</p>	 <p>D3.4 Child utters consonant sounds like “p” “b” “m”</p>	 <p>D3.5 Child watches TV without tilting his/her head</p>	 <p>D3.6 Child stretches his arms to be picked up by the parents</p> <p>D3.7 Child looks for a spoon or toy that has dropped</p>
9 – 12 Months					
 <p>D4.1 Child can sit without any support</p>	 <p>D4.2 Transfer object from hand to hand</p>	 <p>D4.3 Respond to his/ her name</p>	 <p>D4.4 Babbling example- “ba”, “ba”, “da”, “da”, “ma”, “ma”</p>	 <p>D4.5 Avoid bumping into objects while moving</p>	 <p>D4.6 Child enjoys playing hide-and-seek (peek-a-boo)</p>

Early detection of Developmental Delay (D5 & D6:-12-18 months)

12 – 15 Months				
Gross Motor	Fine Motor	Hearing	Speech	Cognition & Socialization
 <p>D5.1 Reciprocal crawling on hands and knees</p>	 <p>D5.2 Child picks up small object using thumb and index finger</p>	 <p>D5.3 Child stops activity in response to “NO”</p>	 <p>D5.4 Child says one meaningful word clearly like mama, dada</p>	 <p>D5.5 Imitate action like bye-clap/kiss</p>  <p>D5.6 Child cries when a stranger picks him up</p>  <p>D5.7 Child searches for completely hidden objects</p>
15 – 18 Months				
 <p>D6.1 Child walks alone</p>	 <p>D6.2 Child put small things into a container</p>	 <p>D6.3 Points to objects</p>	 <p>D6.4 Follow simple one step direction, “Sit Down” , “Give me the ball”</p>	 <p>D6.5 Child says at least two words other than mama or dada like dog, cat</p>  <p>D6.6 Child manipulates or explores a toy with his fingers like poking or pulling the toy</p>

Early detection of Developmental Delay (D7 & D8:-18-30 months)

18 – 24 Months				
Gross Motor	Fine Motor	Hearing and Speech	Cognition & Socialization	
 <p>D7.1 Walks steadily even while pulling a toy</p>	 <p>D7.2 Scribble spontaneously</p>	 <p>D7.3 Says at least five words consistently even if not clear</p>	 <p>D7.4 Imitates house hold tasks</p>	 <p>D7.5 Points to one or more body parts</p>
24 – 30 Months				
 <p>D8.1 Child climbs upstairs and downstairs</p>	 <p>D8.2 Child feeds self either with hand or spoon or drink from a cup</p>	 <p>D8.3 Joins 2 words together like mama-milk, car-go</p>	 <p>D8.4 Parallel play: Playing along with other children</p>	 <p>D8.5 Simple pretend play eg feeding the doll</p>

Checklist for Developmental Milestones

Motor milestones:

GROSS MOTOR

- Moves both arms and legs freely and equally when awake by 2 months
- Head holding by 4 months
- Roll over/turn over in either direction by 6 months
- Sit alone by 9 months
- Crawl by 12 months
- Stand-alone 15 months
- Walk alone by 15-18 months
- Walks steadily while pulling a toy by 18 months
- Climb upstairs and downstairs by 24 months

FINE MOTOR

- Keeps hand open and relaxed by 2 months
- Reaches and tries to grasp an object by 4 months (inner side of palm)
- Hold rattle by using whole palm by 6 months
- Transfer object from hand to hand by 9 month.
- Pincer grasp by 12 months.
- Putting objects or toys in a container by 15 month.
- Scribble by 18 months
- Feeds self with hand or by spoon by 24 months

SPEECH & LANGUAGE

- Coos or vocalize or gurgling by 2 months ("oo" and gurgling "gghh")
- Laughs aloud/Make squealing sounds by 4 months
- Utters "p", "b", "m" by 6 months
- Babbles "baba", "dada", "mama" by 9 months
- Says one meaningful word of a familiar object by 12 months
- Says at least two words like cat, ball other than baba, mama by 15 months
- Says at least five words by 18 months
- Says two words together like "mama-milk", "car-go" by 24 months
- Speak sentences by 36 months

VISION

- Responds to light, face at birth (*blinks/shift eyes/turns towards diffuse light*)- At birth
- Eye contact by 2 months
- Follows object by 4 months
- Watches TV without tilting head by 6 months
- Avoid bumping into objects while moving by 9 months
- Putting small things into a cup by 15 months

External eye appearance in form of 3 circle:

- Droopy Eyelid-Y/N
- Dry spot (Bitot spot)-Outer circle
- Difference in size, shape and color of Cornea & pupil-Middle and inner circle
- Pupil
- Round in shape Yes No
- White in colour in torch light
- On ophthalmoscope, absent red reflex
- Deviated Eye (squint after 3 months)

HEARING

- Becomes alert to sound by 2 months produced by clapper bell/rattle/voice of mother (Infant will brighten/startle/eyes will widen/becomes still/show respiratory changes/blink/shift of eyes to sound)
- Responds to mother's speech by 4 months (call the infant from one and a half feet distance and out of the line of vision)
- Turns head or eyes to a whisper sound by 6 months
- Responds to name by 9 months

SOCIAL DEVELOPMENT:

- Social smile by 2 months
- Raises arms to be picked by parents by 6 months
- Enjoys peek-a-boo by 9 months
- Differentiates familiar faces from strangers by 12 months
- Imitate actions like "byebye", "Namaste" by 15 months
- Parallel play by 24 months

COGNITION

- Social smile by 2 months
- Sucks on hands by 4 months
- Reaches out for an object by 6 months
- Looks for a spoon or a toy that has dropped by 6 months
- Responds to his/her name by 9 months
- Responds to "NO" by 12 months
- Searches for hidden objects by 12 months
- Pointing to objects by 15 months
- Child plays with toys by poking or pulling by 15 months
- Imitate house hold tasks by 18 months
- Pretend play by 24 months
- Parallel play by 24 months
- Cross play by 36 months

Age Specific Milestones

By 2 months:

- Moves both arms and legs freely and equally when awake –GM
- Keeps hand open and relaxed- FM
- Coos or vocalize or gurgling (“oo” and gurgling “gghh”) -Speech
- Eye contact – Vision
- Becomes alert to sound- Hearing
- Social smile-Social & Cognition

By 4 months:

- Head holding- GM
- Reaches and tries to grasp an object by 4 months (inner side of palm)- FM
- Laughs aloud/Make squealing sounds- Speech
- Follows object – Vision
- Responds to mother’s speech – Hearing
- Sucks on hands- Cognition

By 6 months:

- Roll over/turn over in either direction –GM
- Hold rattle by using whole palm - FM
- Utters “p”, “b”, “m”- Speech & Language
- Watches TV without tilting head – Vision
- Turns head or eyes to a whisper sound- Hearing
- Raises arms to be picked by parents- Social
- Reaches out for an object- Cognition
- Looks for a spoon or a toy that has dropped- Cognition

By 9 months:

- Sit alone – GM
- Transfer object from hand to hand – FM
- Babbles “baba”, “dada”- Speech
- Avoid bumping into objects while moving – Vision
- Responds to name- Hearing
- Enjoys peek-a-boo- Social
- Responds to his/her name- Cognition

By 12 months:

- Crawl- GM
- Pincer grasp- FM

- Says one meaningful word of a familiar object - Speech
- Differentiates familiar faces from strangers- Social
- Responds to "NO"- Cognition
- Searches for hidden objects- Cognition

By 15 months:

- Stand-alone- GM
- Walk alone by 15-18 months -GM
- Putting objects or toys in a container- FM
- Says at least two words like cat, ball other than baba, ma- Speech & Language
- Putting small things into a cup – Vision
- Imitate actions like "bye bye", "Namaste"- Social
- Pointing to objects- Cognition
- Child plays with toys by poking or pulling- Cognition

By 18 months:

- Walks steadily while pulling a toy by 18 months -GM
- Scribble- FM
- Says at least five words- Speech & Language
- Imitate house hold tasks- Cognition

By 24 months:

- Climb upstairs and downstairs- GM
- Feeds self with hand or by spoon- FM
- Says two words together like "mama-milk", "car-go"- Speech & Language
- Parallel play- Social & cognition
- Pretend play

Features of Mental retardation:

1. Slow Reaction
2. Absence of Clarity
3. Inability to Learn fast
4. Inability to Understand quickly
5. Inability to Decide
6. Lack of Concentration
7. Short Temper
8. Inability to Remember
9. Lack of Coordination
10. Delay in Development

Checking the child's hearing and vision

For the child age 6 months and older who may be having difficulty learning

Ask the caregiver these questions:

Hearing

- Does your child turn his head to see someone behind him when the person speaks?
- Does your child show any reactions to strong or loud sounds?
- Does your child make a lot of different sounds (tata, dada, and baba)?

Vision

- Does your child look at your eyes?
- Does your child follow a moving object with the head and eyes?
- Does your child recognize familiar people (like mother, father, brother, or sister)?
- Is your child able to grab an object?

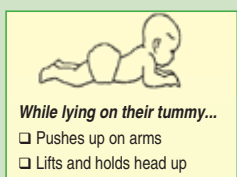
Neuro motor impairment, watch your baby for these signs

Normal Development

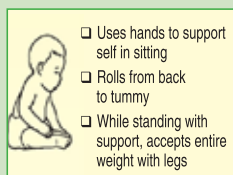
At Birth



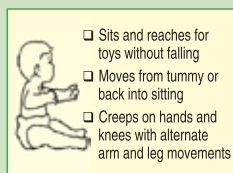
By 3 Months



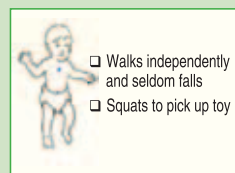
By 6 Months



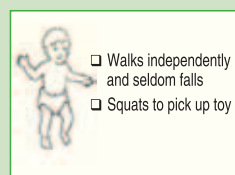
By 9 Months



By 12 Months



By 15 Months



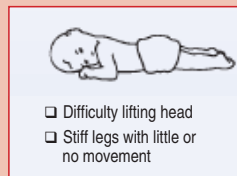
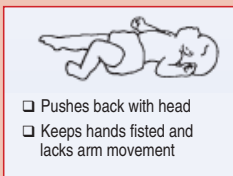
Neuro motor impairment, watch your baby for these signs

Abnormal Development

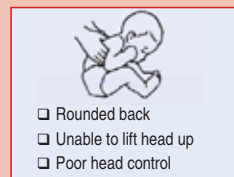
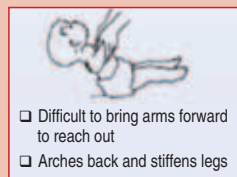
At Birth



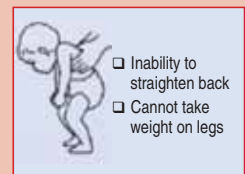
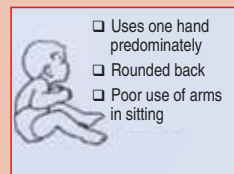
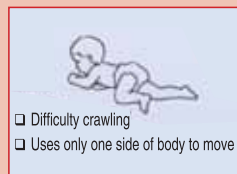
By 3 Months



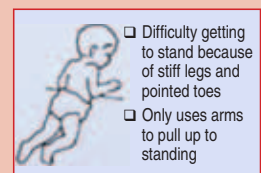
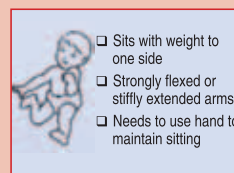
By 6 Months



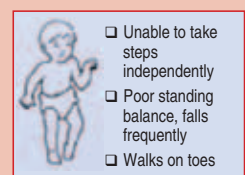
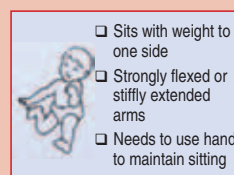
By 9 Months



By 12 Months



By 15 – 18 Months



Clinical clues of a possible motor disorder

1. Hypotonia of the trunk: The baby slips through the hands when held under the arms in a vertical position
2. Plantar flexed feet
3. Hands held habitually in a fist position
4. Non sequential motor development
 - a. Early rolling. Rolling as a unit (log rolling) after the age of six months
 - b. Brings head and chest up on forearms in prone position prior to developing good head control
 - c. Preference for early standing prior to sitting
 - d. Walking with support before crawling
5. Qualitative difference in Motor development:
 - i. Startles easily and is jittery
 - ii. Does not like to be cuddled; seems stiff
 - iii. Arches back frequently
 - iv. Baby seems “floppy”
 - v. Infrequent or limited variety of movements
 - vi. Favours one side of the body than the other
 - vii. Feeding problems, particularly after 6 months
 - Viii. Falls backward when in a sitting position
 - ix. Crawls in a “bunny hop” position
 - x. Walks on tiptoes
 - xi. “Scissors” legs while standing
 - xii. Sits only in “W” position
6. Observation of movement:
 - Rolling as a unit (log rolling)
 - Hyperextension of head and neck when prone in conjunction with significant head lag when pulled to sit.
 - Readily lifts head and neck when prone, but arms are extended along trunk
 - When pulled to sit from lying down position, comes to standing instead of sitting position
 - One or more of the following occurs in the sitting position:

- a. Child sits on lower lumbar sacral region
- b. Hips and knees are flexed and hips are adducted
- c. Legs are positioned a “W” posture
- d. A tendency to thrust trunk backward while sitting
- One or more of the following is observed during crawling:
 - a. Legs are moved as a unit resulting in “bunny hopping” movements
 - b. Hips are excessively adducted, reciprocal movements are done very slowly, and movements are jerky in appearance
 - c. Legs are kept extended and adducted while child creeps (pulls body forward with arms)
 - In a supported standing position, legs are excessively extended and adducted, and child stands on toes
 - While walking one or more of the following are observed:
 - a. Crouched gait (hips are flexed and adducted, knees are flexed, and feet are pronated)
 - b. Intermittent tiptoe gait and overextension of the knees

Neuro motor impairment tool

Typical development (Birth -2 months)



Supine – Symmetrical flexed posture



Prone – symmetrical flexed posture, clears nose



Sitting - Head and trunk flexed



Stands with Positive support reflex

Atypical development (Birth -2 months)



Hypotonia (floppiness) of the trunk. The baby slips through the hands when held under arms in a vertical position



Prone- Cannot clear airway



Sitting – pushes head backward



Crossed extension of legs



Increased tone : arms rigid and extended



Arching of the back with legs extended



Persistent cortical thumb



Scissoring of legs with increased rigidity in the arms

Typical development (3 to 4 months)



Maintains head in midline for brief periods. Symmetrical posture, alternate movements of arms and legs



Lifts head up to 45°. Hips and knees begin to move from flexed newborn posture into extended, abducted position allowing head lifting



Able to engage neck muscles to sustain midline head control when upright Holds and sustain posture with assistance



Sustain weight on lower extremities with support at the trunk. Typically shows intermittent bouts of flexion and extension. Good vertical alignment from head through trunk and feet

Atypical development at 3 to 4 months



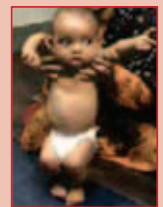
Supine – Asymmetrical posture. Persistent fencing posture



Difficulty lifting head at 4 months



Unable to lift head up and sustain at 4 months



Unable to sustain weight on legs at 4 months



Persistent fencing posture after 4 months (ATNR)



Persistent Plantar flexed feet (highlighted with the red ring)



Roll over like a log of wood before three months



Hands held habitually in a fist position after 4 months



Head lag falling to the side or back or front



Difficult to cuddle seems stiff by the mother



Significant head lag when pulled to sit



Baby slips through the hands when held under the arms in an erect position. (Floppy baby)



Child is jittery (startles easily)
Infrequent or limited variety of movements
Favors one side of the body more than other
Feeding problems

Rigidity and toe pointing

Typical development By 6 months



Brings arms forward in supine, maintains midline symmetry
Reach out with arms and grasp a toy

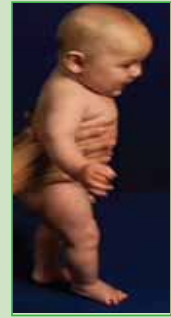


Lifts head up bearing weight on forearms. **Brings elbows in front of shoulders** Moves arms forward to reach for an object **and turns head to follow an object**



Holds head up steady in sitting shows good head control with head in midline.

Rolling: cork screw pattern on both sides



Can sustain standing posture
Keeps hips just behind shoulders

Atypical development at 6 months



Appears visually interested in objects but unable to reach and grasp. Cannot bring arms forward



Unable to bear weight through forearms, cannot lift head



Rolls over without assistance



Unable to Roll even with assistance



Unable to sustain upright posture, knees bend

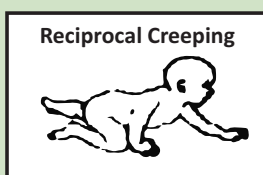
Typical Development 9 months



Sits without support



Rocks back and forth in a crawling position



Maintains standing by holding some support



Holds blocks with the whole palm and the fingers (palmar grasp: From the central of palm)

Atypical Development-9 months



Child cannot be put to a sitting position



Hypertonia demonstrated even in sitting



Hypotonia seen with curved back and abducted legs to form the support



Other abnormal sitting postures



If the child only sits in W-sitting posture and no other position
Sits with one arm and leg flexed (hemiparesis)



Buuny hopping movements



Bottom shuffling.
May be normal



Rounded back
Unable to lift head up
poor head control



- Difficult to bring arms forward to reach out
- Arches back and stiffens legs

Typical Development at 12 months



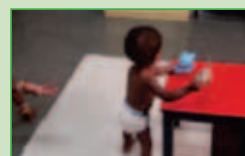
Crawls well



Pulls to stand holding something



Attempt to walk



Atypical Development at 12 months



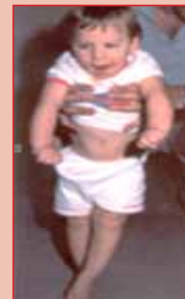
Difficulty crawling uses only one side of the body to move



Difficulty getting to stand because of stiff legs and pointed toes
Only uses arms to pull up to standing



Sits with weight to one side
Strongly flexed or stiffly extended arms
Needs to use hand to maintain sitting



Stiff leg, pointed toes



Unable to hold head straight



Stiff legs and Toe walking



Hemiplegic gait and hyperextension of knee joint and Tip toe.



"Postural Tone is the readiness and balance of postural muscles to respond to gravity, actively and reactively, to forces generated from support contact and body movements. This is operationally defined as the ability to maintain an erect head and 90-90-90 degree relationships among pelvis, thigh, leg and ankle while maintaining relaxed shoulders, arms, hands and legs.

Note: Abnormal tone and posture produce abnormal patterns of movements. Abnormal tone is always manifested through abnormal patterns of movements. Early detection of abnormal tone and posture demands early correction of abnormal posture and movements otherwise degree of disability will jeopardize a child's function.

Vision Tool

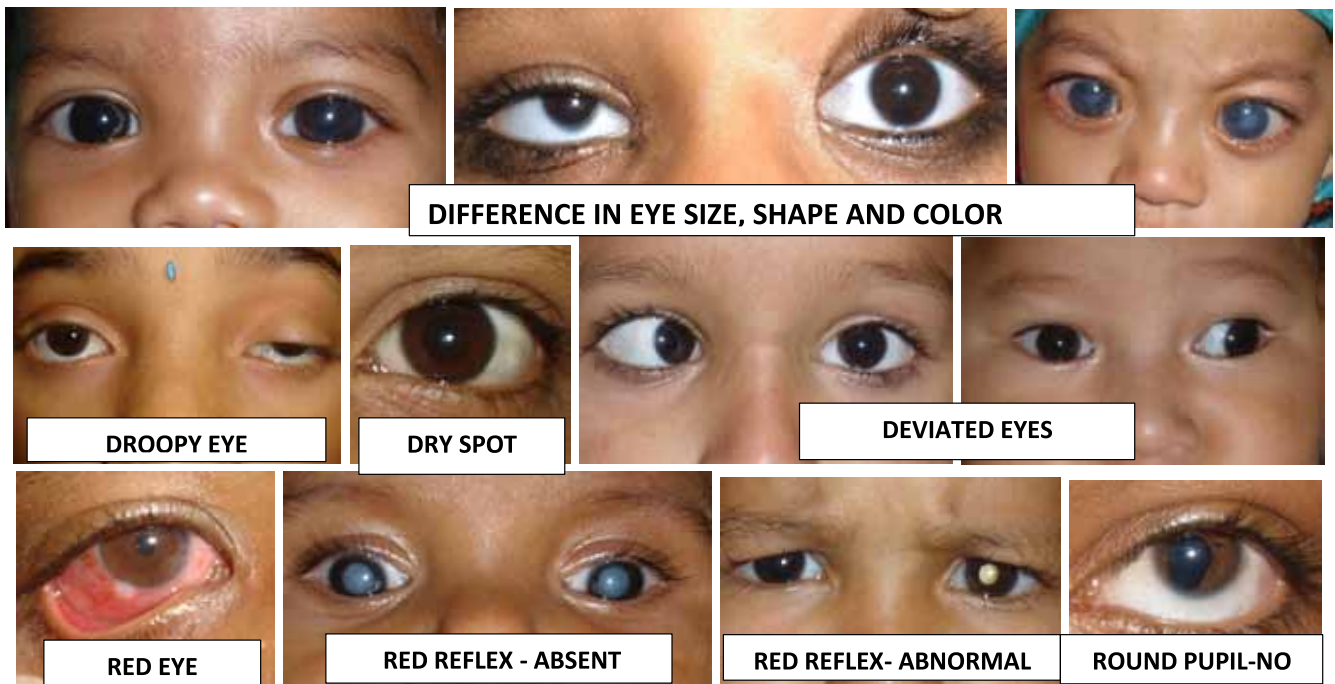


Photo Courtesy: Clinical color Atlas and Manual of Pediatric ophthalmology, Strabismus & Neuro-ophthalmology, Karthikeyan A.S, Jaypee publishers, July 2013.

External eye appearance, remember 3 circles

- Droopy Eyelid-Y/N – A2
- Difference in size, shape and color of Cornea & pupil-Middle and inner circle – A2
- Outer circle(white in colour)
 - Dry spot (Bitot spot)- B4
- Pupil – A2
 - Round in shape, Yes/NO
 - White in colour in torch light
 - On ophthalmoscope, absent red reflex
- Deviated eye (squint) after 3 months – A2
- Dancing eyes (jerky movements) – A2
- Observe/ask –
 - Does the child have problem seeing in dark or an aversion to bright light source – B4
 - Does the Child make eye contact (2 months) – D1.6
 - Does the child follow an object with his/her eyes (follows a moving object with out any visible squint) (4 months) – D 2.5
 - Does the child tilt head while watching any toy/TV (after 6 months) – D3.5
 - Does the child bump into objects while moving (after 9 months) – D 4.5

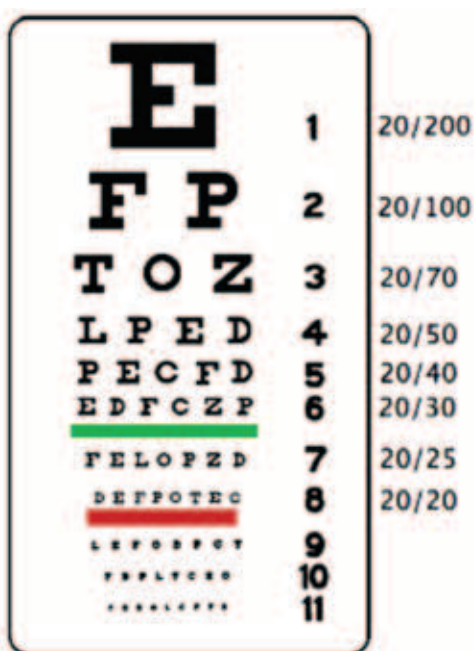
Vision Tests

Snellen Distant Acuity Test:

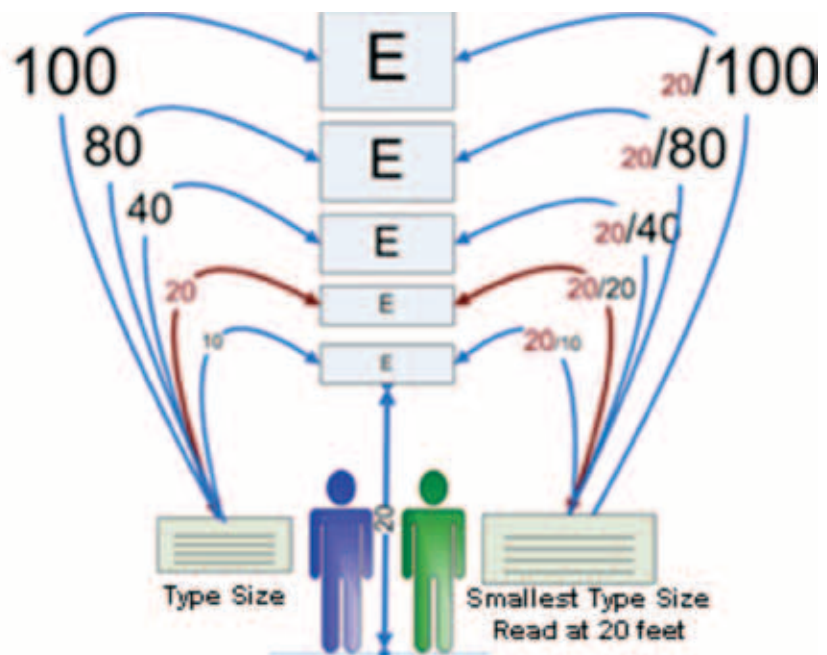
A Snellen chart is a tool for measuring visual acuity, the ability to resolve fine details at a distance. The chart consists of rows of individual black characters printed on a white background. The first row is often a single large letter, with letters becoming more numerous and successively smaller with each additional row. Acuity is determined by having a subject stand at a standard distance from the chart and read out letters until they are unable to accurately identify the letters on a given row.

The Snellen chart is widely used for measuring central visual acuity.

- The Snellen wall chart should be 20 feet away from the child.
 - Measure distance.
 - Mark testing location.
- The chart should be illuminated with white light.
- When the child is reading larger lines easily, the medical examiner may ask the child to skip to smaller lines.



**Snellen chart is illustrative only
and not suitable for vision testing.**



Visual acuity test results

The Snellen eye test results use 20 feet as the norm, represented by the numerator in the Snellen test result. The number of the last line of type the driver read accurately is recorded as the denominator in the Snellen test result.

The minimum qualification requirement is distant visual acuity of at least 20/40 in each eye and distant binocular acuity of at least 20/40.

Visual acuity = Distance at which test is made / distance at which the smallest optotype identified subtends an angle of 5 arc minutes

Distance Vision Test

This test, also known as the Visual Acuity Test, tests the sharpness of vision by grading the ability of the eye to see diminishing sizes of alphabets, numbers or shapes at a specified distance of 6 metres.

Visual acuity results are designated by fractions e.g. 6/60, 6/30, 6/24, 6/18, 6/12, 6/9, 6/6, 6/5.

What do these fractions mean?

6/6 visual acuity is normal vision. 6/5 represents the fortunate 10 percent of the population that has better than normal vision.

When we say that an eye has 6/24 visual acuity, we mean to say that the smallest row of letters the tested eye can see at a distance of 6 metres is what a normal eye can see at a greater distance of 24 metres. From this, we can see that the numerator 6 is a constant. The denominator varies and a number greater than 6 would represent less than normal visual acuity. The larger the denominator number, the poorer is the vision.

A person seeing worse than 6/60 despite best spectacle correction is considered to be legally blind.

The test is ideally done at 6 metres because light rays from objects seen at 6 metres and beyond reaches the eye as parallel rays and in the NORMAL EYE are focused precisely onto the central macula region of the retina without the need for any focusing effort.

Instructions:

Stand at a distance of 6 metres or 20 feet from the monitor and read down to the smallest row of numbers that you can see.

Test one eye at a time, first without your glasses and then with.

Keep your other eye covered using an eye patch.

To make a simple eye patch, just fold a piece of tissue and tape it over your eye.

Your visual acuity is given by the fraction (i.e. 6/60, 6/36, 6/24, 6/18, 6/12, 6/9, 6/6 or 6/5) designated to the smallest row of numbers you can read correctly.

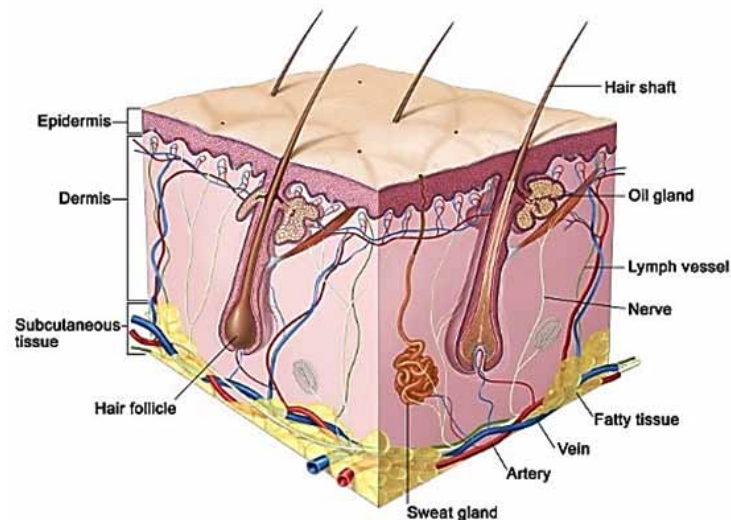
First test your right eye, then your left eye.

Record your visual acuity without (unaided visual acuity) and with your glasses (aided visual acuity)

Refer : if vision less than 20/40 Or 6/12

Skin Tool

Anatomy:



Skin terminology:

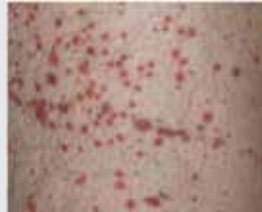
- a) **Macule:** Spot. A flat lesion you can't feel, as it is not raised from the skin surface but if pressure is applied using a thumb the red color disappears. Thus macule: flat but not raised and less than 1 cm in diameter but blanches on pressure. e.g. measles rash etc.
- b) **Petechiae:** Like Macule, Coloured but not raised and less than 1 cm and does not blanch on pressure (hemorrhage)
- c) **Patch:** like Macule but more than 1 cm. Coloured but not raised and more than 1 cm e.g. Vitiligo or Mongolian spot
- d) **Papule:** A solid bump <10 mm.
- e) **Nodule:** A solid bump >10 mm.
- f) **Plaque:** Something that is >10 mm but either completely flat, or a plateau.
- g) **Vesicle:** A fluid-filled cavity in or under the epidermis, <10 mm.
- h) **Blister / bulla:** A fluid-filled cavity in or under the epidermis, >10 mm
- i) **Pustule** when a vesicle contains pus and the size is < 1cm and if it is more than 1cm it is abscess.

Rash

Coloured but not raised and less than 1 cm blanches on pressure: **Macule** (Measles)



Coloured but not raised and less than 1 cm: does not blanch on pressure **Petechiae (hemorrhage)**



Petechiae, hemorrhage

Coloured but not raised and More than 1 cm **Patch** (Vitiligo, Mongolian spot)



Mongolian spot



Vitiligo

Raised, elevated and firm: but less than 1 cm: **Papule** (wart, urticarial, scabies, Molluscum Contagiosum, insect bite)



(wart)

Raised and elevated, 1-2 cm: **Nodule** (Erythema nodosum)



Erythema nodosum

Raised and elevated, More than 2 cm: **Tumor**



Hemangioma (Tumor)



Scabies



Molluscum contagiosum



Erythema nodosum



Molluscum contagiosum
Umbilicated surface
depressed central portion



Scabies



Scabies

Linear red papules & Pustules: Scabies



Scabiessymmetric,
linear red papules

Elevated and Contains fluid – clear fluid but less than 1 cm.
Vesicle (Chicken pox)



Chicken pox

Elevated and Contains fluid – clear fluid but greater than 1 cm.
Bulla (burn blister)



Bulla

Elevated and Contains fluid – purulent fluid
Pustule (pyoderma, Impetigo, infected acne) usually less than 1 cm and if more than 1 cm it is **abscess**



Pustule

Elevated but irregular with solid areas of edemated skin: Wheal : (urticarial, insect bite)



Urticaria



Insect bite

Plaque: Large slightly raised with flat surface which is rough often topped with scale and greater than 1 cm

Scaly with epidermal (top surface of the skin) breakage : Eczema
Eczema is usually diagnosed based on the appearance of the itchy rash in typical areas, including the **forehead, cheeks, arms and legs in infants, and the creases or insides of the elbows, knees, and ankles in older children**. Eczema is often described as a very itchy rash that is often red, rough or irritated, scaly, and can become oozing.



Eczema

Scaly with no epidermal breakage: Psoriasis, Seborrhoeic Dermatitis

Colour of the scales – white (Psoriasis, Seborrhoeic Dermatitis)



Psoriasis



Seborrhoeic dermatitis

Scaly with ring like margin: Ring worm infection



Impetigo

Colour of the scales – golden yellow (Impetigo (With Crusts))



Question 1): Has the rash got fluid-filled (vesiculobullous) lesions?

If Yes:

Consider: Chickenpox (varicella) - vesicles (initially papules, often not noticed), appearing as 'drops of water'. Superficial, thin-walled with surrounding redness rapidly changing to pustules and crusts. First appears on the face and scalp and then spreads to the trunk and extremities. Crusts fall off in 1-3 weeks leaving a pink base. Initial fever is classically high before becoming low-grade.

Impetigo - this usually takes the form of *itchy lesions* with macules, vesicles, bullae, pustules and gold coloured crusts caused by *Staphylococcus aureus* or group A beta-haemolytic streptococci

Question 2): Is the Rash papular (raised)?

If Yes:

Consider: a) Urticaria

b) Molluscum contagiosum (pearly or fleshy, umbilicated i.e. central depression in papule)

c) Scabies (itchy, excoriated, S-shaped burrows, which should be visible with a magnifying glass)

d) Insect bites

Question 3): Is it red and scaly?

A) With epidermal breakage (eczematous)?

Atopic eczema, typically involves itching erythematous patches, papules and plaques with moist crusted erosions on the face, neck and upper trunk, and also the elbows and knees.

B) Without epidermal breakage Consider:

a) Seborrhoeic dermatitis.

b) Psoriasis

c) Fungal infection e.g. Ring worm (*Tinea corporis/capitis*, *Pityriasis rosea*)

Ques. 4) Is it red but not scaly and blanches on pressure and less than 1 c.m. (Macule and papules)?

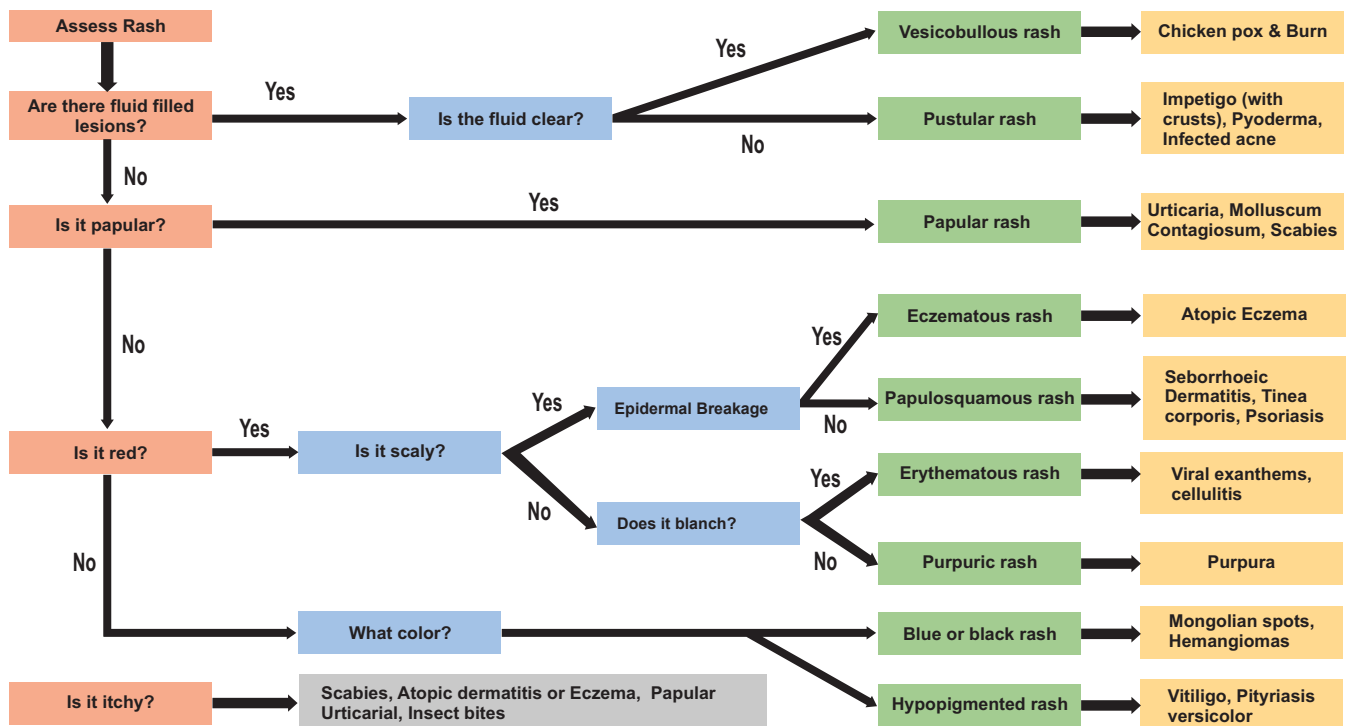
Consider: 1) Viral infection e.g. Measles, Rubella 2) Bacterial infection: cellulitis

Ques.5) Is it red but not scaly and does not blanch on pressure?

Consider: Purpura

Ques 6) Is it Itchy

Consider : Scabies



Red Patch:

- 1) Reddish or blistering patches on the cheeks or behind the knees and elbows of young children with itching : Eczema or atopic dermatitis
- 2) Reddish, hot, painful patch that spreads rapidly: Cellulitis or serious bacterial infection.
- 3) Reddish area between the baby's legs or the groin area : Diaper dermatitis due to wet surface
- 4) Beef Red Patches with white milky curds in the skin folds esp. in the groin area: Candida infection
- 5) Raised reddish or gray patches with silvery scales esp. on elbows and knees: Chronic , long term: Psoriasis

Reddish	A reddish, hot, painful patch that spreads rapidly	Erysipelas (Cellulitis or very serious bacterial infections)
	A reddish area between the baby's legs	Diaper rash from urine or heat
	Beef-red patches with white milky curds in the skin folds	Moniliasis (Yeast infection)
Reddish or gray	Raised reddish or gray patches with silvery scales: especially on elbows and knees: chronic (long term)	Psoriasis (or sometimes tuberculosis)

White Patches:

- 1) White Patch in the mouth of an infant : candida infection of mouth
- 2) Round or irregular white patches esp. on the face or body of children :tinea versicolor or Fungal infection

White patches on face, hands, feet's or lips without any other signs : Vitiligo

White	Round or irregular patches on the face or body, especially of children		Tinea versicolor (fungus infection)
	White patches, especially on hands, feet, or lips	That begins with reddish or bluish pimples	Pinta (infection)
		That begins without other signs	Vitiligo (loss of color, nothing more)

Dark patches:

Dark patches on legs with edema: due to malnutrition

Psoriasis is a chronic inflammatory disorder of unknown origin (shows familial tendency). Psoriasis is a skin condition where the cells in the skin have an increased rate of turnover resulting in thick scales on the skin

- Onset usually occurs in the teen years
- Marked by remissions and exacerbations
- Cases vary in severity
- The rate of cellular proliferation is greatly increased, leading to thickening of the dermis and epidermis
- Epidermal shedding may occur in 3-4 hours rather than the normal several weeks
- The lesion begins with a small red papule that enlarges
- A silvery plaque forms while the base remains red because of inflammation and vasodilation
- Lesions are commonly found on the face, scalp, elbows and knees



Lesion Name: Macule

Description:

Flat, nonpalpable, diameter < 1 (% In.)

Example: Freckle, nodule, nevi, petechiae



Lesion Name: Patch

Description:

Macule, diameter > 1 cm (% In.)

Example: Vitiligo, mongolian spot

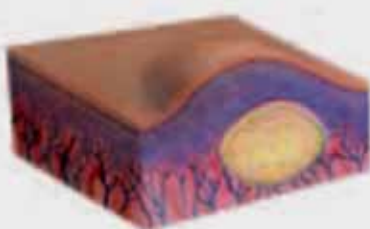


Lesion Name: Papule

Description:

Elevated, firm, diameter < 1 cm (% In.)

Example: Warts, pigmented nevi

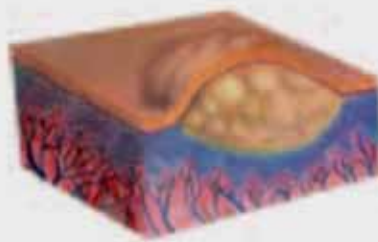


Lesion Name: Nodule

Description:

Elevated, firm, deeper in dermis than papule, diameter 1-2 cm (% In. - 1 In.)

Example: Erythema nodosum

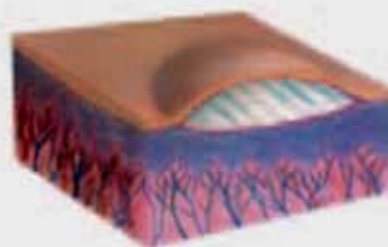


Lesion Name: Tumor

Description:

Elevated, solid, diameter > 2 cm (1 In.)

Example: Neoplasm, hemangioma

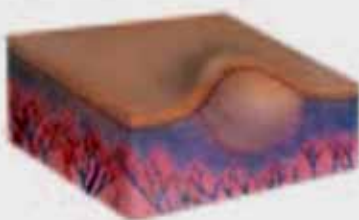


Lesion Name: Vesicle

Description:

Elevated, filled with fluid, diameter < 1 cm (% In.)

Example: Early chickenpox, herpes simplex



Lesion Name: Pustule

Description:

Vesicle filled with purulent fluid

Example: Impetigo, acne



Lesion Name: Bulla

Description:

Vesicle diameter > 1 cm (% In.)

Example: Burn blister



Lesion Name: Wheal

Description:

Irregular elevated solid area of edematous skin

Example: Urticaria, insect bite

Dental Tool

The inside of a child's mouth is an indication of lifestyle. The child's dentition changes with age

- **Primary dentition** - 6 month to 6 years old,
- **Mixed dentition** - 6 years to 12 years old, when both primary and permanent teeth exist and
- **Permanent dentition** - 12 years old and after.

The structure of the tooth includes the visible white portion above the gum line called the crown and the portion below the gum line is the root and is not visible.

- **The Crown** is protected by the hard white enamel, and the root is protected by the cementum.
- **The second layer of protection is by Dentin.** Dentin is the hard but porous tissue located under both the enamel and cementum of the tooth. Dentin is harder than bone. Within the dentin is the pulp with nerve and blood vessels.



Check for Normal Healthy Teeth- Incisor, Canine, Premolar (only in permanent teeth) and Molar.

- 20 primary ("baby") teeth and
- 28 to 32 permanent teeth.



- 1) Check for
 - white,
 - opaque,
 - dull,
 - white band of de-mineralized enamel especially in upper front teeth



- 2) Check for
 - Yellow or brown discolored area,
 - break in continuity of tooth



- 3) Look for Breakdown of teeth



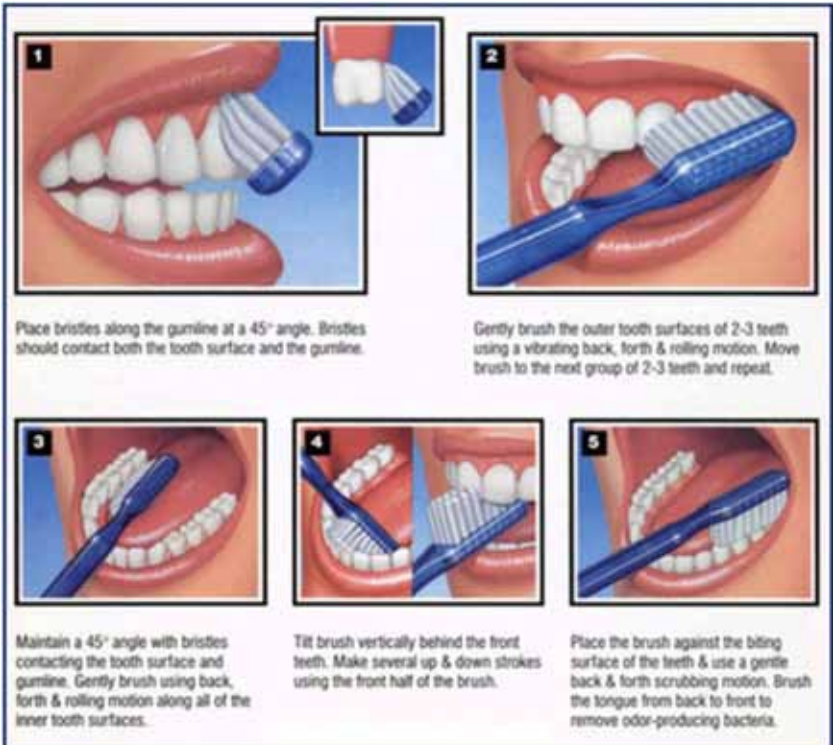
- 4) look for Gums :
 - Red gums
 - Swollen gums
 - Bleeding gums
 - Plaque / calculus

Advanced Decay



Prevention of carries:

- 1) **About 300 kinds of bacteria live in the mouth:** Nearly 30 percent of the bacteria are Streptococcus, and among them, Streptococcus mutans resolve sugar, resynthesize polysaccharide and produce acid, which is a powerful enemy of the teeth. Streptococcus mutans is mainly transmitted by the mother when licking the rubber nipple of baby bottle to check the temperature of the milk, feeding milk from mouth to mouth or by spoon, or kissing. Thus, **at the time of prenatal checkup, all to-be-mothers, have to clean their own mouths first.** It is well known that the number of mutans detected in saliva is proportional to that of caries in the mouth. **Prevention of tooth decay starts before the child is born.**
- 2) **Dietary habits are the basis of lifestyle:** Sugar in the mouth decreases the mouth's pH to acid. Enamel begins to demineralize when pH comes down to 5.4 and below. Then, saliva with high pH begins to appear and the value goes back to normal in about 20 to 30 minutes. Thus enamel which once begins to demineralize would be remineralized soon. However, if you snack on a bag of sweets for half a day, the pH value in the mouth continues to decrease, advancing demineralization and causing a cavity in due course.
- 3) **Proper Brushing Techniques**

<ul style="list-style-type: none">• Brushing teeth twice a day – after getting up in the morning and before going to sleep at night• Maintenance of good oral hygiene• Avoid tobacco smoking and chewing• vigorous use of toothpicks	 <p>1 Place bristles along the gumline at a 45° angle. Bristles should contact both the tooth surface and the gumline.</p> <p>2 Gently brush the outer tooth surfaces of 2-3 teeth using a vibrating back, forth & rolling motion. Move brush to the next group of 2-3 teeth and repeat.</p> <p>3 Maintain a 45° angle with bristles contacting the tooth surface and gumline. Gently brush using back, forth & rolling motion along all of the inner tooth surfaces.</p> <p>4 Tilt brush vertically behind the front teeth. Make several up & down strokes using the front half of the brush.</p> <p>5 Place the brush against the biting surface of the teeth & use a gentle back & forth scrubbing motion. Brush the tongue from back to front to remove odor-producing bacteria.</p>
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Dietary habits are the basis of lifestyle

Sugar in the mouth decreases the mouth's pH to acid. Enamel begins to demineralize when pH comes down to 5.4 and below. Then, saliva with high pH begins to appear and the value goes back to normal in about 20 to 30 minutes. Thus enamel which once begins to demineralize would be remineralized soon. However, if you snack on a bag of sweets for half a day, the pH value in the mouth continues to decrease, advancing demineralization and causing a cavity in due course.



Ministry of Health & Family Welfare
Government of India



Rashtriya Bal Swasthya Karyakram (RBSK)
Screening Tool cum Referral Card for Children, 6-18 years

Preliminary Particulars											
District / Block						Mobile Health Team ID		Name of School		School ID / DISE code	
Name of Child						Gender (M/ F)		Class / Section		Age (in MM/YYYY)* in completed years & month	
MCTS No. / Unique ID						Name of Mother/ Father/ Guardian		Contact no.		AADHAAR No.	
Weight (in Kg.)						Height/Length (in cm.)		Body Mass Index(Weight (in kg)/ Height ² (in metres ²)		BMI classification	
Blood Pressure (Systolic/ Diastolic) (mm Hg)						Acuity of Vision: (Snellen's Chart)		Left Eye:	Right Eye:	Name of Teacher	

Refer job aid for instructions and pictures

A. Defects at Birth		If Yes, Refer
A1	Look for any visible Defect at Birth in the Child viz Cleft Lip/Palate/Club foot/Down's syndrome/ Cataract etc.	
B. Deficiency		
B1	Severe anaemia - Look for severe palmar pallor	
B2	Vitamin A Deficiency - Ask for night blindness/look for Bitot's spot (white patches on sclera)	
B3	Vitamin D Deficiency - Look for Wrist Widening/Bowing of legs	
B4	Goitre - Any swelling in the neck region	
B5	Oedema of both feet	
C. Diseases		If Yes, Refer
C1	Convulsive Disorders - Did the child ever have had spells of unconsciousness and fits?	
C2	Otitis Media - Did the child have more than 3 episodes of ear discharge in last 1 year?	
	Look for Active discharge from ear	
C3	Dental Condition - Look for white demineralized/ brown tooth, Discoloration, cavitation, Swollen/bleeding/ red gums, Visible Plaque/stains	
C4	Skin Condition - Does the child c/o itching on skin (especially at night)? Look for round or oval scaly patches/ pustules in finger webs. Any other lesion on the skin.	
C5	Rheumatic Heart Disease - Auscultate for Murmur	
C6	Others [Tuberculosis - cough > 2 weeks, Asthma - More than 3 Episodes of increased shortness of breath and difficult breathing and wheezing in past 6 months.	
D. Developmental Delays for 6-9 years only (If answer to any of the following is "YES", Child needs to be referred)		
D1	Does the child have difficulty in seeing, either during day or night? (without spectacles) (V)	
D2	Compared with other children of his/her age, did the child have any delay in walking? (GM)	
D3	Does the child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM/NMI)	
D4	From birth till date, has the child ever had fits, or became rigid, or had sudden jerks or spasms of arms, legs or whole body? Refer if the fits are uncontrolled (Convulsive disorder)	
D5	Compared to his/her classmates, does the child find it difficult to read or write or to do simple calculations? (LD)	
D6	Does the child have any difficulty in speaking as compared to other children of his/her age? (SP)	
D7	Does the child have difficulty in hearing? (without hearing aid) (H)	
D8	Compared with other children of his / her age, does the child have difficulty in learning new things? (LD/C)	
D9	As compared to children of his/her age, does the child have difficulty in sustaining attention on activities at school, home or play? (ADHD)	

E. ADOLESCENT SPECIFIC QUESTIONNAIRE (10-18 years)								Answer Y/N discretely
Instruction: Following questions to be asked maintaining audio visual privacy ONLY.								
E1	Do you always find it difficult to handle things in your life that has resulted from changes occurring in your body? (If Y, Refer)							
E2	Are you able to say "NO" and leave the place when your friends pressurize you to smoke or drink with them? (If N, Refer)							
E3	Do you feel unduly tired early in the morning or you feel depressed most of the time? (If Y, Refer)							
E4	In case of females-Have your menstrual cycles started yet? (If not by 16 years, Refer)							
E5	Do you have your periods every months (i.e.28 ± 7 days)? (If N, Refer)							
E6	Do you experience any pain or burning sensation while urinating? (If Y, Refer)							
E7	Do you have any discharge/ foul smelling discharge from the genitor-urinary area? (If Y, Refer)							
E8	Do you feel extreme pain during menstruation so much so that it stops you from doing routine activities/ attend schools? (If Y, Refer)							

Preliminary Findings (tick as applicable):

Code	Finding	Code	Finding	Code	Finding	Code	Finding	Code	Finding
Defects at Birth		Deficiencies		Childhood Diseases		Developmental delay and disability		Adolescent Health concerns	
1	Neural Tube Defect	10	Anaemia	15	Skin Conditions	21	Vision Impairment	31	Growing up concerns
2	Down's Syndrome	11	Vitamin A Deficiency (Bitot Spot)	16	Otitis Media	22	Hearing Impairment	32	Substance abuse
3	Cleft Lip & Palate	12	Vitamin D Deficiency, (Rickets)	17	Rheumatic Heart Disease	23	Neuro-Motor Impairment	33	Feel depressed
4	Talipes (club foot)	13	SAM/Stunting	18	Reactive Airway Disease	24	Motor Delay	34	Delay in menstruation cycles
5	Developmental Dysplasia of Hip	14	Goiter	19	Dental Caries	25	Cognitive Delay	35	Regular periods
6	Congenital Cataract			20	Convulsive Disorders	26	Speech and Language Delay	36	Experience any pain or burning sensation while urinating
7	Congenital Deafness					27	Behaviour Disorder (Autism)	37	Discharge/ foul smelling discharge from the genitor-urinary area
8	Congenital Heart Disease					28	Learning Disorder	38	Pain during menstruation
9	Retinopathy of Prematurity (only at DH)					29	Attention Deficit hyperactivity Disorder		
30	Others (specify)								

Please Circle	Defects at Birth		Deficiency		Diseases		Developmental delay		Adolescent Health concerns	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
If Yes, Refer to	DEIC/DH		CHC/ SAM to NRC		CHC/DH		DEIC		CHC/AFHC	
Referral (Y/N)										
Name and sign of Doctor, MHT			Sign of Teacher				Date of Visit			

*In case the referral has is made for more than one Ds, especially involving the DEIC, the child must be referred to DEIC first

ACTION PLAN FORMAT (MICROPLANNING)

NATIONAL RURAL HEALTH MISSION - CHILD HEALTH SCREENING AND EARLY INTERVENTION SERVICES

ACTION PLAN OF YEAR _____

State		District		Taluka										
Education Department		Woman & Child Department		Dedicated team UID										
Name of B.E.O. :		Name of CDPO. :-		Details of Dedicated team Staff										
Mob. No.		Mob. No.		Name										
Office No.		Office No.		Designation										
				Off. Phone										
Sr. No.	Name of Institution	School/ Anganwadi	Anganwadi code	School Code	Category of School	Category of standard	Number of children in institution		Male	Female	Total	School Contact No.	Visit Date	Day
														Monday
														Tuesday
														Wednesday
														Thursday
														Friday
														Saturday
														Sunday

Note:

1. Plan for a daily average screening of 110/120 children in school. Thus more than one day visit to school may be required if the enrolment to the school is beyond 110/120.
2. Advance plan to be developed for the whole year.
3. Date of institution to be informed to parents through school/Anganwadi/ASHAs
4. Mark Sunday/holiday in red and don't plan for clinic or screening, On School holidays Anganwadi visit plan is to be made.
5. Microplanning should be done in a manner that Routine Immunization days are not affected



Ministry of Health & Family Welfare
Government of India



Rashtriya Bal Swasthya Karyakram

MONTHLY REPORTING FORMAT (Block/ District/ State) - Screening

State:		District:					Block:					Month & Year:				
	Number of children			Mobile Health team		No. of Functional Block MHT*	HR Training status (District/State)			Screening visits organised (Monthly)						
	Target No. of beneficiaries	No. of beneficiaries screened	Found positive for selected health conditions	Sanctioned	Functional			Training load	Trained		Desired Session	Planned	Held	Carried forward		
Male						Doctors		Doctors			At AWC					
Female						Pharmacist		Pharmacist				At School				
Total						ANM/ Staff nurse		ANM/ Staff nurse								
		0-6 weeks					6 weeks to 6 years			6 years to 18 years			Total children			
		Delivery points			ASHA, HBNC											
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Number of Children screened in the month																
Sl No	Health Condition	Number of children with selected health conditions														
1	Neural tube defect															
2	Down's Syndrome															
3	Cleft Lip & Palate															
4	Club foot															
5	Developmental dysplasia of the hip															
6	Congenital cataract															
7	Congenital deafness															
8	Congenital heart diseases															
9	Retinopathy of Prematurity															
10	Severe Anaemia															
11	Vitamin A deficiency (Bitot spot)															
12	Vitamin D Deficiency, (Rickets)															
13	SAM															
14	Goitre															
15	Skin conditions															
16	Otitis Media															
17	Rheumatic heart disease															
18	Reactive airway disease															
19	Dental Conditions															
20	Convulsive disorders															

		0-6 weeks						6 weeks to 6 years			6 years to 18 years			Total children		
		Delivery points			ASHA, HBNC											
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
SI No	Health Condition	Number of children with selected health conditions														
21	Vision impairment															
22	Hearing Impairment															
23	Neuro motor impairment															
24	Motor delay															
25	Cognitive delay															
26	Language delay															
27	Behaviour disorder (Autism)															
28	Learning disorder															
29	Attention deficit hyperactivity disorder															
30	Others (specify)															
31	Growing up concerns															
32	Substance abuse															
33	Feel depressed															
34	Delay in menstruation cycles															
35	Regular periods															
36	Experience any pain or burning sensation while urinating															
37	Discharge/ foul smelling discharge from the genitor-urinary area															
38	Pain during menstruation															
Children Referred to																
CHC																
DH																
Tertiary facilities																
NRC																
SNCU																
DEIC																
AFHC																
		Report prepared by			Report verified by						Block/ District / State Nodal person					
Name																
Signature																
Designation																
Date																



Rashtriya Bal Swasthya Karyakram

MONTHLY REPORTING FORMAT (Block/ District/ State) - Service accesss

State:		District:		Block :				Month & Year:		
	In the Month									
	Target No. of beneficiaries			No. of beneficiaries screened			Found positive for selected health conditions			
Male										
Female										
Total										
Sl No	Health Condition	Number of children with selected health conditions accessed services								
		Delivery points	ASHA	Anganwadi by mobile health team	Govt and Govt Aided schools by Mobile health teams	Self referral	Confirmed	Service accessed		
								Male	Female	Total
1	Neural tube defect									
2	Down's Syndrome									
3	Cleft Lip & Palate									
4	Club foot									
5	Developmental dysplasia of the hip									
6	Congenital cataract									
7	Congenital deafness									
8	Congenital heart diseases									
9	Retinopathy of Prematurity									
10	Severe Anaemia									
11	Vitamin A deficiency (Bitot spot)									
12	Vitamin D Deficiency, (Rickets)									
13	SAM									
14	Goitre									
15	Skin conditions									
16	Otitis Media									
17	Rheumatic heart disease									
18	Reactive airway disease									

SI No	Health Condition	Number of children with selected health conditions accessed services								
		Delivery points	ASHA	Anganwadi by mobile health team	Govt and Govt Aided schools by Mobile health teams	Self referral	Confirmed	Service accessed		
								Male	Female	Total
19	Dental Conditions									
20	Convulsive disorders									
21	Vision impairment									
22	Hearing Impairment									
23	Neuro motor impairment									
24	Motor delay									
25	Cognitive delay									
26	Language delay									
27	Behaviour disorder (Autism)									
28	Learning disorder									
29	Attention deficit hyperactivity disorder									
30	Others (specify)									
31	Growing up concerns									
32	Substance abuse									
33	Feel depressed									
34	Delay in menstruation cycles									
35	Regular periods									
36	Experience any pain or burning sensation while urinating									
37	Discharge/ foul smelling discharge from the genitor-urinary area									
38	Pain during menstruation									
		Report prepared by			Report verified by			Block/ District / State Nodal person		
Name										
Signature										
Designation										
Date										

Measuring head circumference

- Head circumference-measurement of a child's head around its widest area, or the distance from above the Eye brows and ears and around the back of the head, on the lower part of the forehead; also referred to as the Occipital-frontal circumference [OFC].
- This measurement is mainly to show brain growth. The size of the skull serves as an approximate index of the volume of its contents (normally brain and cerebrospinal fluid [CSF]). Brain growth slows down once the child is 12 months old and, for all practical purposes, stabilizes by age 5.
- Any increase in head circumference (larger than +2 SDs) is called macrocephaly; and any reduction in head circumference (smaller than -2 SDs), microcephaly. Both conditions force us to rule out any diseases that need treatment or can be associated with developmental disorders.

Technique:

- Use a non –stretchable tape. Place it on the most prominent point at the back of the skull (the occiput) and just above the eyebrows (on the superciliary ridge).
- The measuring tape passes just above the eyebrows and around the prominent posterior aspect of the head.



- If the child has any protuberance on his or her forehead that makes it asymmetrical, put the tape over the most prominent part.
- Measure head circumference in cm and refer to the growth chart
- After taking the measurement, confirm the percentile according to the WHO head circumference growth charts for girls or boys.

See WHO Head Circumference Referrance Chart in the Job Aids

Refer if above or below 2 SD.

WHO Head Circumference Reference Charts

Head circumference-for-age BOYS Birth to 5 years (z-scores)							Age		Head circumference-for-age GIRLS Birth to 5 years (z-scores)						
-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
30.7	31.9	33.2	34.5	35.7	37	38.3	0:00	0	30.3	31.5	32.7	33.9	35.1	36.2	37.4
33.8	34.9	36.1	37.3	38.4	39.6	40.8	0:01	1	33	34.2	35.4	36.5	37.7	38.9	40.1
35.6	36.8	38	39.1	40.3	41.5	42.6	0:02	2	34.6	35.8	37	38.3	39.5	40.7	41.9
37	38.1	39.3	40.5	41.7	42.9	44.1	0:03	3	35.8	37.1	38.3	39.5	40.8	42	43.3
38	39.2	40.4	41.6	42.8	44	45.2	0:04	4	36.8	38.1	39.3	40.6	41.8	43.1	44.4
38.9	40.1	41.4	42.6	43.8	45	46.2	0:05	5	37.6	38.9	40.2	41.5	42.7	44	45.3
39.7	40.9	42.1	43.3	44.6	45.8	47	0:06	6	38.3	39.6	40.9	42.2	43.5	44.8	46.1
40.3	41.5	42.7	44	45.2	46.4	47.7	0:07	7	38.9	40.2	41.5	42.8	44.1	45.5	46.8
40.8	42	43.3	44.5	45.8	47	48.3	0:08	8	39.4	40.7	42	43.4	44.7	46	47.4
41.2	42.5	43.7	45	46.3	47.5	48.8	0:09	9	39.8	41.2	42.5	43.8	45.2	46.5	47.8
41.6	42.9	44.1	45.4	46.7	47.9	49.2	0:10	10	40.2	41.5	42.9	44.2	45.6	46.9	48.3
41.9	43.2	44.5	45.8	47	48.3	49.6	0:11	11	40.5	41.9	43.2	44.6	45.9	47.3	48.6
42.2	43.5	44.8	46.1	47.4	48.6	49.9	1:00	12	40.8	42.2	43.5	44.9	46.3	47.6	49
42.5	43.8	45	46.3	47.6	48.9	50.2	1:01	13	41.1	42.4	43.8	45.2	46.5	47.9	49.3
42.7	44	45.3	46.6	47.9	49.2	50.5	1:02	14	41.3	42.7	44.1	45.4	46.8	48.2	49.5
42.9	44.2	45.5	46.8	48.1	49.4	50.7	1:03	15	41.5	42.9	44.3	45.7	47	48.4	49.8
43.1	44.4	45.7	47	48.3	49.6	51	1:04	16	41.7	43.1	44.5	45.9	47.2	48.6	50
43.2	44.6	45.9	47.2	48.5	49.8	51.2	1:05	17	41.9	43.3	44.7	46.1	47.4	48.8	50.2
43.4	44.7	46	47.4	48.7	50	51.4	1:06	18	42.1	43.5	44.9	46.2	47.6	49	50.4
43.5	44.9	46.2	47.5	48.9	50.2	51.5	1:07	19	42.3	43.6	45	46.4	47.8	49.2	50.6
43.7	45	46.4	47.7	49	50.4	51.7	1:08	20	42.4	43.8	45.2	46.6	48	49.4	50.7
43.8	45.2	46.5	47.8	49.2	50.5	51.9	1:09	21	42.6	44	45.3	46.7	48.1	49.5	50.9
43.9	45.3	46.6	48	49.3	50.7	52	1:10	22	42.7	44.1	45.5	46.9	48.3	49.7	51.1
44.1	45.4	46.8	48.1	49.5	50.8	52.2	1:11	23	42.9	44.3	45.6	47	48.4	49.8	51.2
44.2	45.5	46.9	48.3	49.6	51	52.3	2:00	24	43	44.4	45.8	47.2	48.6	50	51.4
44.3	45.6	47	48.4	49.7	51.1	52.5	2:01	25	43.1	44.5	45.9	47.3	48.7	50.1	51.5
44.4	45.8	47.1	48.5	49.9	51.2	52.6	2:02	26	43.3	44.7	46.1	47.5	48.9	50.3	51.7
44.5	45.9	47.2	48.6	50	51.4	52.7	2:03	27	43.4	44.8	46.2	47.6	49	50.4	51.8
44.6	46	47.3	48.7	50.1	51.5	52.9	2:04	28	43.5	44.9	46.3	47.7	49.1	50.5	51.9
44.7	46.1	47.4	48.8	50.2	51.6	53	2:05	29	43.6	45	46.4	47.8	49.2	50.6	52
44.8	46.1	47.5	48.9	50.3	51.7	53.1	2:06	30	43.7	45.1	46.5	47.9	49.3	50.7	52.2
44.8	46.2	47.6	49	50.4	51.8	53.2	2:07	31	43.8	45.2	46.6	48	49.4	50.9	52.3
44.9	46.3	47.7	49.1	50.5	51.9	53.3	2:08	32	43.9	45.3	46.7	48.1	49.6	51	52.4
45	46.4	47.8	49.2	50.6	52	53.4	2:09	33	44	45.4	46.8	48.2	49.7	51.1	52.5
45.1	46.5	47.9	49.3	50.7	52.1	53.5	2:10	34	44.1	45.5	46.9	48.3	49.7	51.2	52.6
45.1	46.6	48	49.4	50.8	52.2	53.6	2:11	35	44.2	45.6	47	48.4	49.8	51.2	52.7
45.2	46.6	48	49.5	50.9	52.3	53.7	3:00	36	44.3	45.7	47.1	48.5	49.9	51.3	52.7

Head circumference-for-age BOYS Birth to 5 years (z-scores)							Age		Head circumference-for-age GIRLS Birth to 5 years (z-scores)						
-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
45.3	46.7	48.1	49.5	51	52.4	53.8	3:01	37	44.4	45.8	47.2	48.6	50	51.4	52.8
45.3	46.8	48.2	49.6	51	52.5	53.9	3:02	38	44.4	45.8	47.3	48.7	50.1	51.5	52.9
45.4	46.8	48.2	49.7	51.1	52.5	54	3:03	39	44.5	45.9	47.3	48.7	50.2	51.6	53
45.4	46.9	48.3	49.7	51.2	52.6	54.1	3:04	40	44.6	46	47.4	48.8	50.2	51.7	53.1
45.5	46.9	48.4	49.8	51.3	52.7	54.1	3:05	41	44.6	46.1	47.5	48.9	50.3	51.7	53.1
45.5	47	48.4	49.9	51.3	52.8	54.2	3:06	42	44.7	46.1	47.5	49	50.4	51.8	53.2
45.6	47	48.5	49.9	51.4	52.8	54.3	3:07	43	44.8	46.2	47.6	49	50.4	51.9	53.3
45.6	47.1	48.5	50	51.4	52.9	54.3	3:08	44	44.8	46.3	47.7	49.1	50.5	51.9	53.3
45.7	47.1	48.6	50.1	51.5	53	54.4	3:09	45	44.9	46.3	47.7	49.2	50.6	52	53.4
45.7	47.2	48.7	50.1	51.6	53	54.5	3:10	46	45	46.4	47.8	49.2	50.6	52.1	53.5
45.8	47.2	48.7	50.2	51.6	53.1	54.5	3:11	47	45	46.4	47.9	49.3	50.7	52.1	53.5
45.8	47.3	48.7	50.2	51.7	53.1	54.6	4:00	48	45.1	46.5	47.9	49.3	50.8	52.2	53.6
45.9	47.3	48.8	50.3	51.7	53.2	54.7	4:01	49	45.1	46.5	48	49.4	50.8	52.2	53.6
45.9	47.4	48.8	50.3	51.8	53.2	54.7	4:02	50	45.2	46.6	48	49.4	50.9	52.3	53.7
45.9	47.4	48.9	50.4	51.8	53.3	54.8	4:03	51	45.2	46.7	48.1	49.5	50.9	52.3	53.8
46	47.5	48.9	50.4	51.9	53.4	54.8	4:04	52	45.3	46.7	48.1	49.5	51	52.4	53.8
46	47.5	49	50.4	51.9	53.4	54.9	4:05	53	45.3	46.8	48.2	49.6	51	52.4	53.9
46.1	47.5	49	50.5	52	53.5	54.9	4:06	54	45.4	46.8	48.2	49.6	51.1	52.5	53.9
46.1	47.6	49.1	50.5	52	53.5	55	4:07	55	45.4	46.9	48.3	49.7	51.1	52.5	54
46.1	47.6	49.1	50.6	52.1	53.5	55	4:08	56	45.5	46.9	48.3	49.7	51.2	52.6	54
46.2	47.6	49.1	50.6	52.1	53.6	55.1	4:09	57	45.5	46.9	48.4	49.8	51.2	52.6	54.1
46.2	47.7	49.2	50.7	52.1	53.6	55.1	4:10	58	45.6	47	48.4	49.8	51.3	52.7	54.1
46.2	47.7	49.2	50.7	52.2	53.7	55.2	4:11	59	45.6	47	48.5	49.9	51.3	52.7	54.1
46.3	47.7	49.2	50.7	52.2	53.7	55.2	5:00	60	45.7	47.1	48.5	49.9	51.3	52.8	54.2

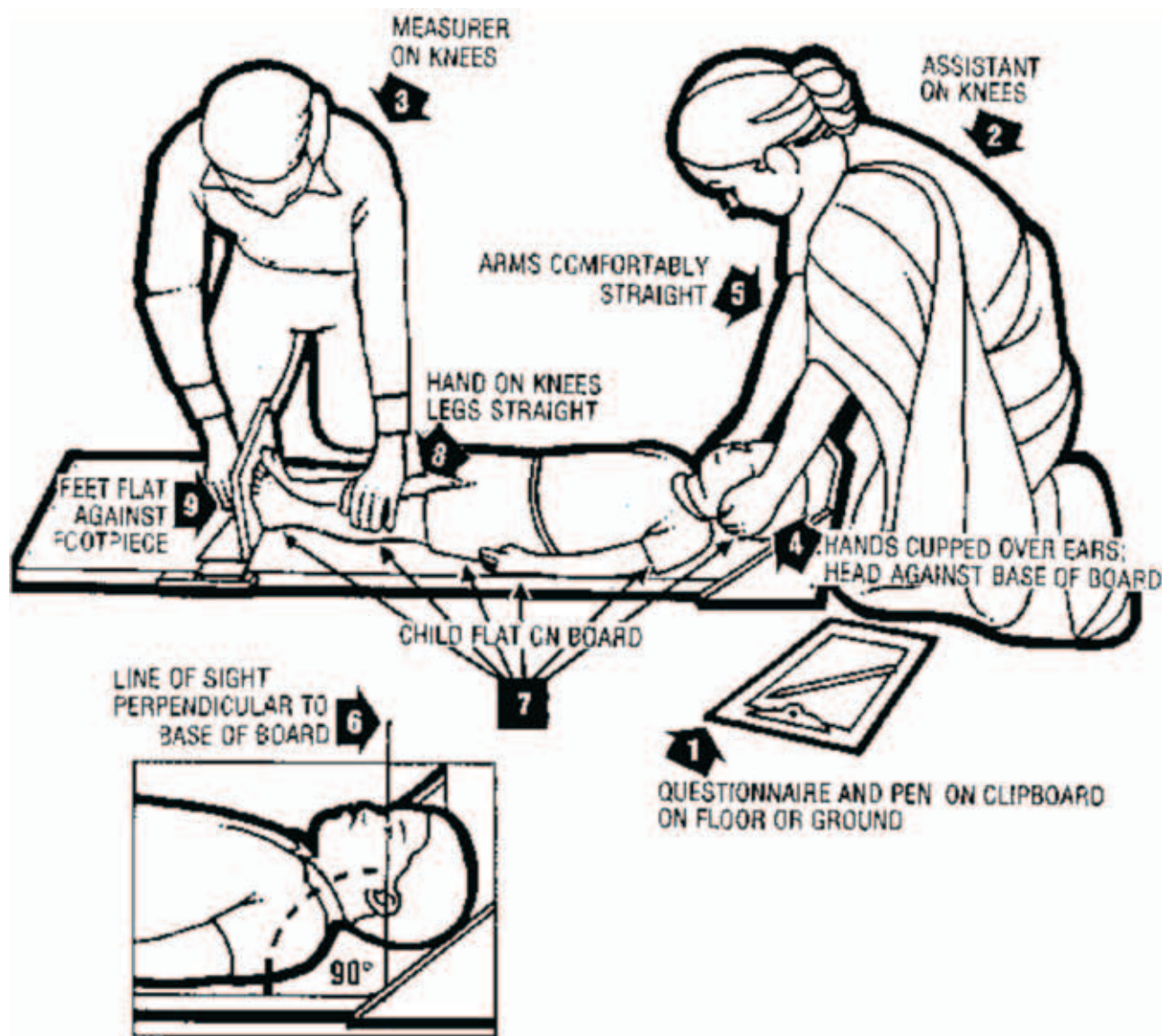
Child Length Measurement Procedure

- Place the length board on a hard, flat surface, such as the ground, floor or a solid table. Make sure the measuring board is stable.
- Kneel at the right side of the child (at the child's feet) so that you can move the foot piece with your right hand (Arrow3).
- With the help of the parent, gently lower the child on to the measuring board, making sure child is supported at the trunk of the body and head.
- Cup your hands over the child's ears (Arrow4). With your arms straight (Arrow5), place the child's head against the base of the board. The child should be looking straight up (Arrow6) so that the line of sight is perpendicular to the board. Your head should be directly over the child's head. Watch the child's head to make sure it is in the correct position against the base of the board.
- Make sure the child is lying flat in the centre of the board (Arrow7). Place the child's knees and feet in the correct position
- With your thumb against your index finger, place your left hand on the child's knees (Arrow 8) and press them gently, but firmly against the board. Do not wrap your hand around the knees or squeeze them together. Make sure the child's legs are straight.



- Check the position of the child (Arrows1-8). Repeat any steps as necessary.
- When the child's position is correct, move the foot piece with your right hand until it is firmly against the child's heels (Arrow9).
- Read the measurement to the nearest 0.1 cm and record the measurement
- Check the recorded measurement on the questionnaire for accuracy and legibility. Instruct the assistant to correct any errors.

Illustration Child Length Measurement



Taking Weight

- Preparing the Adult and Children to Take Their Weight

Show the scale to the adult and explain that you will weigh her/him and their children on the scale. Counsel the mother and explain the procedure

Ask the care giver to remove clothing as according to the weather conditions just before taking his/her weight and to remove any heavy clothing, sandals, shoes, etc.

- Preparing the weighing**

Place the scale on a hard, level surface. Soft or uneven surfaces may cause the scale to malfunction.



Calibrate the scale to zero by rotating the knob.

Check if the calibration of the scale is correct
press the pan 2-3 times and confirm that it comes back to zero.



Count the lines between two numbers.(x)
Divide 1000 gm by x.
You will get the least count of that machine
 $1000/20=50g$








Ensure exact zero. See from same eye level and not from side view.



Apply thin cloth or a sheet of newspaper on the scale pan to avoid hypothermia and then calibrate the scale to zero.
Discard the news paper after every use



<p>Do not use plastic sheet, that will stick to infant's body...</p>	
<p>Place the child on the machine horizontally</p> <p>Or if the Child can sit in center so that s/he will remain stable and calm.</p>	
<p>Take help of mother to calm the child</p>	
<p>Ask mother to hold the child and make sure that no extra pressure is added by mother.</p>	
<p>Take reading only when child is still</p>	

Identifying SAM children (Note gender differences)

Weight-for-Length Reference card (below 87 cm)

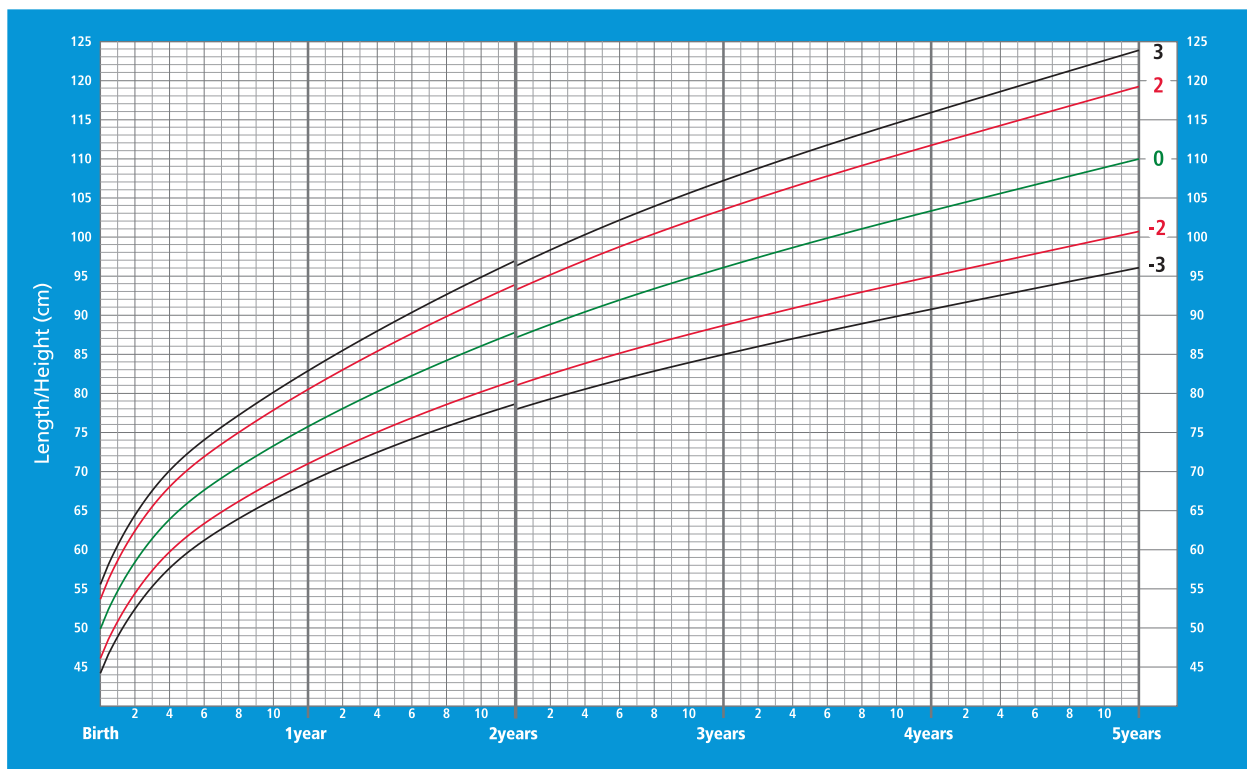
Boys' weight (kg)				Girls' weight (kg)			
Length (cm)	-3 SD	-2 SD	Médian	Médian	-2 SD	-3 SD	Length (cm)
45	1.9	2	2.4	2.5	2.1	1.9	45
46	2	2.2	2.6	2.6	2.2	2	46
47	2.1	2.3	2.8	2.8	2.4	2.2	47
48	2.3	2.5	2.9	3	2.5	2.3	48
49	2.4	2.6	3.1	3.2	2.6	2.4	49
50	2.6	2.8	3.3	3.4	2.8	2.6	50
51	2.7	3	3.5	3.6	3	2.8	51
52	2.9	3.2	3.8	3.8	3.2	2.9	52
53	3.1	3.4	4	4	3.4	3.1	53
54	3.3	3.6	4.3	4.3	3.6	3.3	54
55	3.6	3.8	4.5	4.5	3.8	3.5	55
56	3.8	4.1	4.8	4.8	4	3.7	56
57	4	4.3	5.1	5.1	4.3	3.9	57
58	4.3	4.6	5.4	5.4	4.5	4.1	58
59	4.5	4.8	5.7	5.6	4.7	4.3	59
60	4.7	5.1	6	5.9	4.9	4.5	60
61	4.9	5.3	6.3	6.1	5.1	4.7	61
62	5.1	5.6	6.5	6.4	5.3	4.9	62
63	5.3	5.8	6.8	6.6	5.5	5.1	63
64	5.5	6	7	6.9	5.7	5.3	64
65	5.7	6.2	7.3	7.1	5.9	5.5	65
66	5.9	6.4	7.5	7.3	6.1	5.6	66
67	6.1	6.6	7.7	7.5	6.3	5.8	67
68	6.3	6.8	8	7.7	6.5	6	68
69	6.5	7	8.2	8	6.7	6.1	69
70	6.6	7.2	8.4	8.2	6.9	6.3	70
71	6.8	7.4	8.6	8.4	7	6.5	71
72	7	7.6	8.9	8.6	7.2	6.6	72
73	7.2	7.7	9.1	8.8	7.4	6.8	73
74	7.3	7.9	9.3	9	7.5	6.9	74
75	7.5	8.1	9.5	9.1	7.7	7.1	75
76	7.6	8.3	9.7	9.3	7.8	7.2	76
77	7.8	8.4	9.9	9.5	8	7.4	77
78	7.9	8.6	10.1	9.7	8.2	7.5	78
79	8.1	8.7	10.3	9.9	8.3	7.7	79
80	8.2	8.9	10.4	10.1	8.5	7.8	80
81	8.4	9.1	10.6	10.3	8.7	8	81
82	8.5	9.2	10.8	10.5	8.8	8.1	82
83	8.7	9.4	11	10.7	9	8.3	83
84	8.9	9.6	11.3	11	9.2	8.5	84
85	9.1	9.8	11.5	11.2	9.4	8.7	85
86	9.3	10	11.7	11.5	9.7	8.9	86

Weight-for-Height Reference card (87 cm and above)

Boys' weight (kg)				Girls' weight (kg)			
Height (cm)	-3 SD	-2 SD	Médian	Médian	-2 SD	-3 SD	Height (cm)
87	9.6	10.4	12.2	11.9	10	9.2	87
88	9.8	10.6	12.4	12.1	10.2	9.4	88
89	10	10.8	12.6	12.4	10.4	9.6	89
90	10.2	11	12.9	12.6	10.6	9.8	90
91	10.4	11.2	13.1	12.9	10.9	10	91
92	10.6	11.4	13.4	13.1	11.1	10.2	92
93	10.8	11.6	13.6	13.4	11.3	10.4	93
94	11	11.8	13.8	13.6	11.5	10.6	94
95	11.1	12	14.1	13.9	11.7	10.8	95
96	11.3	12.2	14.3	14.1	11.9	10.9	96
97	11.5	12.4	14.6	14.4	12.1	11.1	97
98	11.7	12.6	14.8	14.7	12.3	11.3	98
99	11.9	12.9	15.1	14.9	12.5	11.5	99
100	12.1	13.1	15.4	15.2	12.8	11.7	100
101	12.3	13.3	15.6	15.5	13	12	101
102	12.5	13.6	15.9	15.8	13.3	12.2	102
103	12.8	13.8	16.2	16.1	13.5	12.4	103
104	13	14	16.5	16.4	13.8	12.6	104
105	13.2	14.3	16.8	16.8	14	12.9	105
106	13.4	14.5	17.2	17.1	14.3	13.1	106
107	13.7	14.8	17.5	17.5	14.6	13.4	107
108	13.9	15.1	17.8	17.8	14.9	13.7	108
109	14.1	15.3	18.2	18.2	15.2	13.9	109
110	14.4	15.6	18.5	18.6	15.5	14.2	110
111	14.6	15.9	18.9	19	15.8	14.5	111
112	14.9	16.2	19.2	19.4	16.2	14.8	112
113	15.2	16.5	19.6	19.8	16.5	15.1	113
114	15.4	16.8	20	20.2	16.8	15.4	114
115	15.7	17.1	20.4	20.7	17.2	15.7	115
116	16	17.4	20.8	21.1	17.5	16	116
117	16.2	17.7	21.2	21.5	17.8	16.3	117
118	16.5	18	21.6	22	18.2	16.6	118
119	16.8	18.3	22	22.4	18.5	16.9	119
120	17.1	18.6	22.4	22.8	18.9	17.3	120

Length/height-for-age BOYS

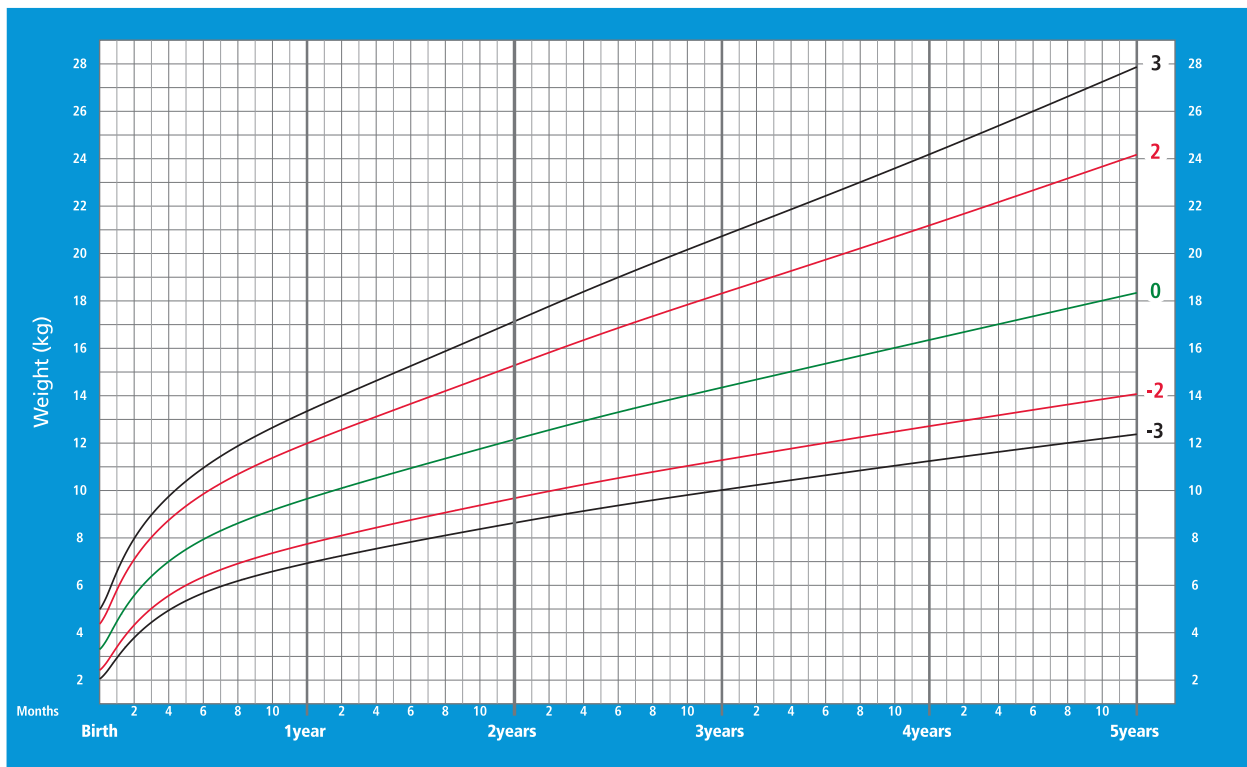
Birth to 5 years (z-scores)



WHO Child Growth Standards

Weight-for-age BOYS

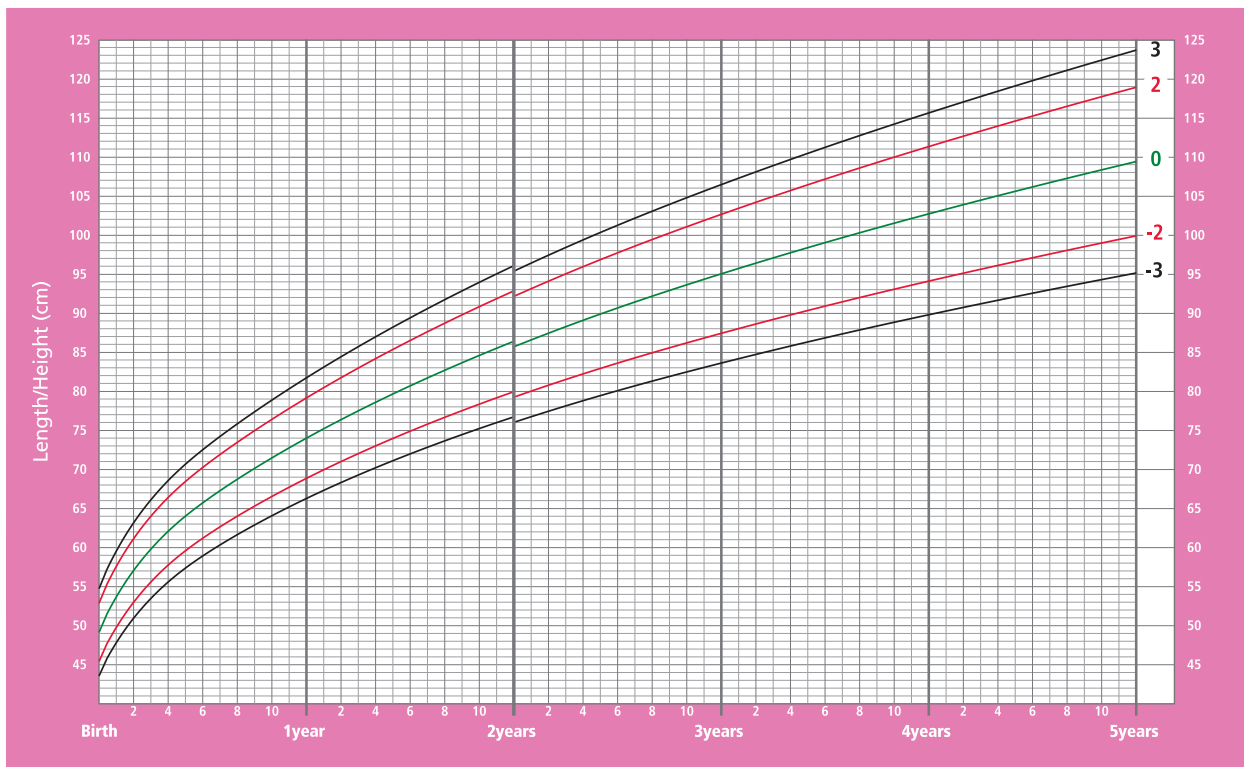
Birth to 5 years (z-scores)



WHO Child Growth Standards

Length/height-for-age GIRLS

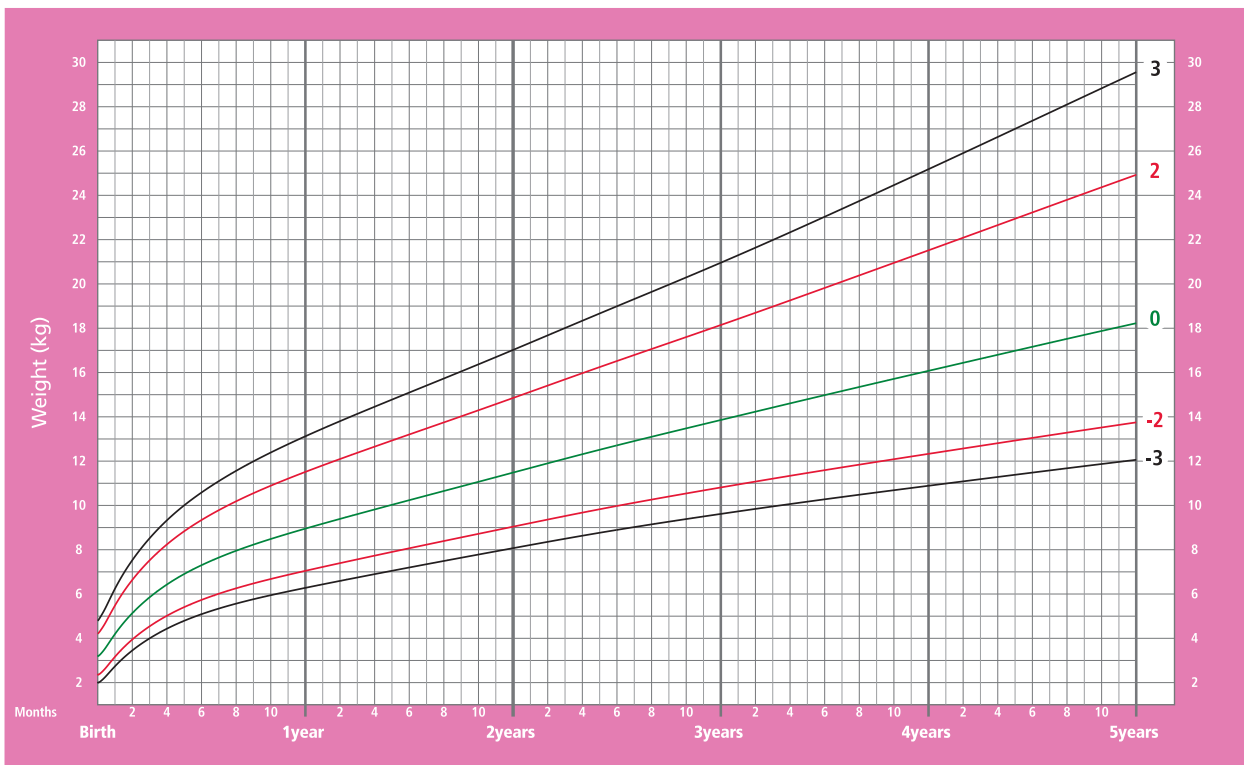
Birth to 5 years (z-scores)



WHO Child Growth Standards

Weight-for-age GIRLS





Birth to 5 years (z-scores)



WHO Child Growth Standards

Standing height measurement procedure

- Place the measuring board on a hard, flat surface against a wall, table, tree or staircase. Make sure the measuring board is stable. Many walls and floors are not at perfect right angles; if necessary, place small rocks underneath the height board to stabilize it during the measurement.
- Ask the parent or the child to take off the child's shoes and to unbraid or push aside any hair that would interfere with the height measurement. Ask the parent to bring the child to the measuring board and to kneel in front of the child so that the child look forward at the parent.
- Place the questionnaire and pen on the ground (Arrow1) and kneel on the right side of the child (Arrow2).
- Place the child's knees and feet in the correct position

Step 1		Step 2	
			
Check that the Stadiometer on Flat horizontal surface		Counsel the Mother & Child giving complete information for what is to be done. Greet the child.	
Step 3			
Remove from Head to Toe.			
<div>1. Hair Band, Hair Clip, Head Caps, Scarfs and Ornaments</div> <div>2. Set Curly Hairs in Special cases.</div> <div>3. Shoes/Footwear</div>			
Step 4			
Ensure		Don't	
			
Back of head touching to vertical surface of stadiometer		Confirm the Frankfurt Horizontal plane and make sure that head touches the stadiometer	

Step 5



Ensure for **Shoulder Blades** Touching Stadiometer



Reconfirm that **SHOULDER** touches the stadiometer after confirming the Frankfurt plane

Step 6



Ensure **Buttocks** touching stadiometer



Reconfirm that buttocks touching the stadiometer after confirming the Frankfurt plane.

Step 7



Ensure **Calves** touching the stadiometer

Step 8



Heels touching the vertical base of Flat base board



Reconfirm that **heels** touches the stadiometer after confirming the Frankfurt Horizontal plane

Step 9



Frankfurt's Horizontal plane - Eye **outer canthus** to upper border of **ear**. (Imaginary line)



Confirm the **Frankfurt plane** and make sure that **head touches** the stadiometer

Step 10



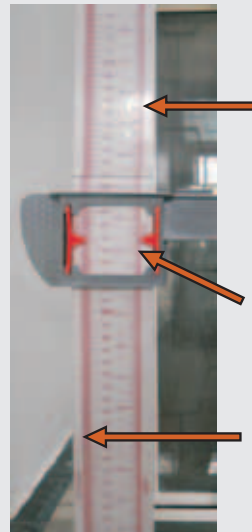
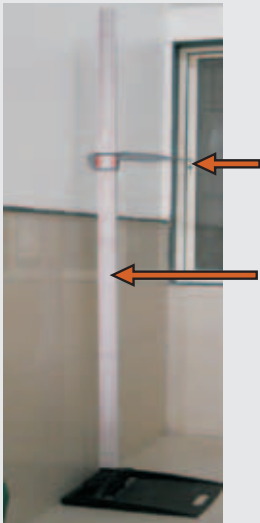
Angle of 45 degree

Position of feet

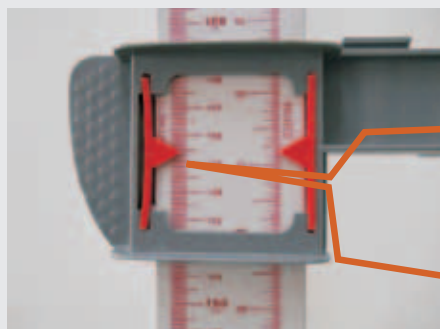


Correct procedure of both Partners in Measurement

Scale of Measurement

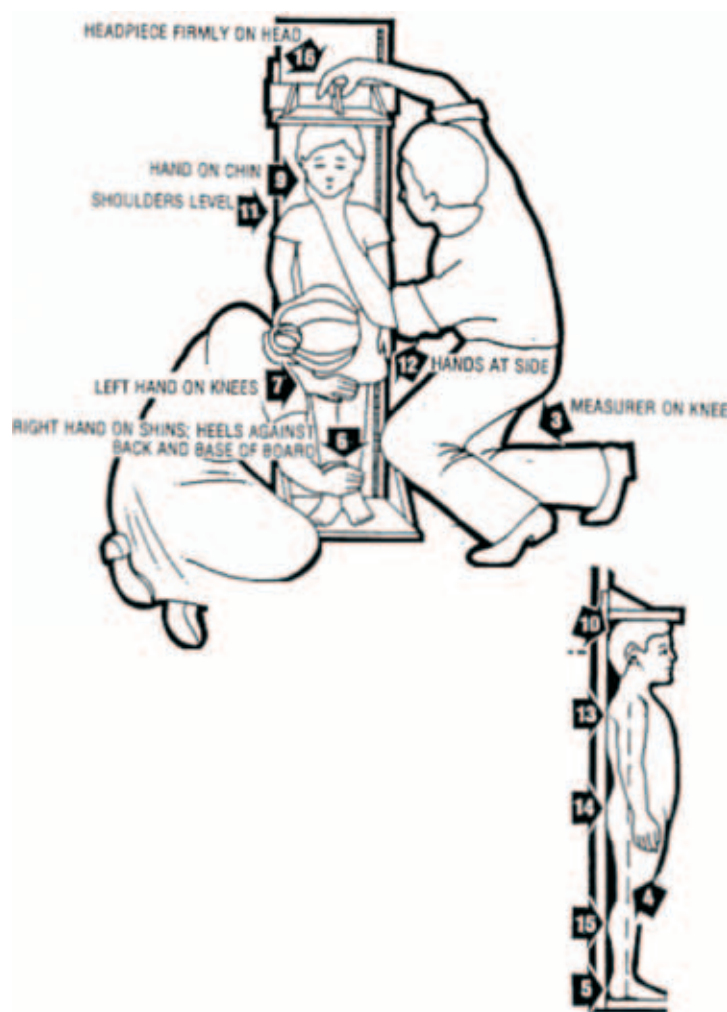


Movable Window on both sides of vertical scale



- Ask the child to look straight ahead. Make sure the child's line of sight is parallel to the ground (Arrow8). Note that with most pre-school-age children who are not heavy or obese, the back of the head will touch the back of the height scale(Arrow10). Make sure the child's shoulders are level (Arrow11), the hands are at the child's side(Arrow12), and the child's buttocks touch the back of the measuring scale. Note that with most preschool-age children who are not heavy or obese, the back of the head, the shoulder blades, the buttocks, the calves and heels will touch the back of the measuring board (Arrows10, 13, 14, 15 & 5).
- Check the position of the child (Arrows1-15). Repeat any steps as necessary.
- When the child's position is correct, lower the head piece on top of the child's head (Arrow16) making sure to push through the child's hair.
- Read and call out the measurement to the nearest 0.1 cm. Remove the head piece from the child's head, your left hand from the child's chin, and allow the child to return to the parent.
- Immediately record the measurement on the questionnaire. Check the recorded measurement on the questionnaire for accuracy and legibility. Correct any errors.

Illustration child Height Measurement



Taking weight older children

With the subject standing straight in the middle of the scale platform with hands hanging laterally feet slightly apart (on the footprints, if marked), and to remain still. It has to be recorded to the nearest 1/10 kg.



When the number 0.0 appears, the scale is ready.

Take care that the subject is standing properly on the scale and looking at the horizon.

Handle the scale carefully: Do not drop or bump the scale.



Using BMI in Children

Unlike for adults, the BMI values vary with the age and sex of the child. The BMI in children is called: BMI-for-age. In children, instead of looking at the actual BMI value itself, we focus on the specific variation of BMI according to age and gender. Gol is following the WHO BMI for age standards, 2007 release. Refer to the Z score simplified field tables for Girls and Boys.

Why is the BMI-for-age important?

The Hungama survey and also the NFHS 3 indicate that a large proportion of school age children are under nourished.

Recent studies have also shown that cardiac disease risk factors are associated with the BMI for age. 60% of children aged 5-10 years with a BMI-for-age greater than the 95%, had at least one obesity-related condition such as high blood pressure, high cholesterol had 2 or more such abnormalities. The BMI for age is now recommended method for screening overweight and underweight in all children.

Why do we use BMI?

- BMI provides a good indicator for levels of body fat, and it is known that having a BMI that is either too low or too high is associated with an increased risk of ill health during childhood as well as later in life.
- BMI is relatively quick and easy to calculate and as a result, is used for population surveys and by health professionals when assessing individual patients.
- BMI is therefore the most frequently used measure for assessing whether adults or children are obese, overweight, underweight, or a healthy weight.

Assessing the BMI of children is more complicated than for adults because a child's BMI changes as they mature. Also, these patterns of growth differ between boys and girls. Therefore, to work out whether a child's BMI is too high or too low, both the age and sex of the child need to be taken into account.

- Because children's BMI changes considerably between birth and adulthood, fixed thresholds such as those used for adults should not be applied to children as they would provide misleading findings.

How is child BMI classified?

• Instead of using fixed BMI values to classify individuals (as used for adults) children's BMI is classified using thresholds that vary to take into account the child's age and sex.

• These thresholds are usually derived from a reference population, known as a child growth reference. They are calculated by weighing and measuring a large sample of children and they illustrate how BMI varies in children of different ages and sex. As well as showing the pattern of growth, these data also provide an average BMI for a boy or girl at a particular age, and the distribution of measurements above and below this value. This means that individual children can be compared to the reference population and the degree of variation from the expected value can be calculated.

What BMI cut offs are used?

WHO suggest a set of thresholds based on single standard deviation spacing.

- Thinness: $< 2SD$
- Overweight: between $+1SD$ and $< +2SD$
- Obese: $> +2SD$

de Onis M, Onyango AW, Borghi E, Siyam A, Nishida C, Siekmann J. Development of a WHO growth reference for school aged children and adolescents. Bulletin of the World Health Organization, 2007;85(9): 649 732.

Refer any child whose BMI for age and sex is $> < 3 SD$.

WHO Simplified field tables– BMI for age 6 to 18 years (z-scores)

Refer any child whose BMI for age and sex is $> < 3$ SD.

BMI-for-age GIRLS 5 to 19 years (z-scores)							Age in		BMI-for-age BOYS 5 to 19 years (z-scores)						
-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
11.8	12.7	13.9	15.2	16.9	18.9	21.3	5:01	61	12.1	13	14.1	15.3	16.6	18.3	20.2
11.8	12.7	13.9	15.2	16.9	18.9	21.4	5:02	62	12.1	13	14.1	15.3	16.6	18.3	20.2
11.8	12.7	13.9	15.2	16.9	18.9	21.5	5:03	63	12.1	13	14.1	15.3	16.7	18.3	20.2
11.8	12.7	13.9	15.2	16.9	18.9	21.5	5:04	64	12.1	13	14.1	15.3	16.7	18.3	20.3
11.7	12.7	13.9	15.2	16.9	19	21.6	5:05	65	12.1	13	14.1	15.3	16.7	18.3	20.3
11.7	12.7	13.9	15.2	16.9	19	21.7	5:06	66	12.1	13	14.1	15.3	16.7	18.4	20.4
11.7	12.7	13.9	15.2	16.9	19	21.7	5:07	67	12.1	13	14.1	15.3	16.7	18.4	20.4
11.7	12.7	13.9	15.3	17	19.1	21.8	5:08	68	12.1	13	14.1	15.3	16.7	18.4	20.5
11.7	12.7	13.9	15.3	17	19.1	21.9	5:09	69	12.1	13	14.1	15.3	16.7	18.4	20.5
11.7	12.7	13.9	15.3	17	19.1	22	5:10	70	12.1	13	14.1	15.3	16.7	18.5	20.6
11.7	12.7	13.9	15.3	17	19.2	22.1	5:11	71	12.1	13	14.1	15.3	16.7	18.5	20.6
11.7	12.7	13.9	15.3	17	19.2	22.1	6:00	72	12.1	13	14.1	15.3	16.8	18.5	20.7
11.7	12.7	13.9	15.3	17	19.3	22.2	6:01	73	12.1	13	14.1	15.3	16.8	18.6	20.8
11.7	12.7	13.9	15.3	17	19.3	22.3	6:02	74	12.2	13.1	14.1	15.3	16.8	18.6	20.8
11.7	12.7	13.9	15.3	17.1	19.3	22.4	6:03	75	12.2	13.1	14.1	15.3	16.8	18.6	20.9
11.7	12.7	13.9	15.3	17.1	19.4	22.5	6:04	76	12.2	13.1	14.1	15.4	16.8	18.7	21
11.7	12.7	13.9	15.3	17.1	19.4	22.6	6:05	77	12.2	13.1	14.1	15.4	16.9	18.7	21
11.7	12.7	13.9	15.3	17.1	19.5	22.7	6:06	78	12.2	13.1	14.1	15.4	16.9	18.7	21.1
11.7	12.7	13.9	15.3	17.2	19.5	22.8	6:07	79	12.2	13.1	14.1	15.4	16.9	18.8	21.2
11.7	12.7	13.9	15.3	17.2	19.6	22.9	6:08	80	12.2	13.1	14.2	15.4	16.9	18.8	21.3
11.7	12.7	13.9	15.4	17.2	19.6	23	6:09	81	12.2	13.1	14.2	15.4	17	18.9	21.3
11.7	12.7	13.9	15.4	17.2	19.7	23.1	6:10	82	12.2	13.1	14.2	15.4	17	18.9	21.4
11.7	12.7	13.9	15.4	17.3	19.7	23.2	6:11	83	12.2	13.1	14.2	15.5	17	19	21.5
11.8	12.7	13.9	15.4	17.3	19.8	23.3	7:00	84	12.3	13.1	14.2	15.5	17	19	21.6
11.8	12.7	13.9	15.4	17.3	19.8	23.4	7:01	85	12.3	13.2	14.2	15.5	17.1	19.1	21.7
11.8	12.8	14	15.4	17.4	19.9	23.5	7:02	86	12.3	13.2	14.2	15.5	17.1	19.1	21.8
11.8	12.8	14	15.5	17.4	20	23.6	7:03	87	12.3	13.2	14.3	15.5	17.1	19.2	21.9
11.8	12.8	14	15.5	17.4	20	23.7	7:04	88	12.3	13.2	14.3	15.6	17.2	19.2	22
11.8	12.8	14	15.5	17.5	20.1	23.9	7:05	89	12.3	13.2	14.3	15.6	17.2	19.3	22
11.8	12.8	14	15.5	17.5	20.1	24	7:06	90	12.3	13.2	14.3	15.6	17.2	19.3	22.1
11.8	12.8	14	15.5	17.5	20.2	24.1	7:07	91	12.3	13.2	14.3	15.6	17.3	19.4	22.2
11.8	12.8	14	15.6	17.6	20.3	24.2	7:08	92	12.3	13.2	14.3	15.6	17.3	19.4	22.4
11.8	12.8	14.1	15.6	17.6	20.3	24.4	7:09	93	12.4	13.3	14.3	15.7	17.3	19.5	22.5
11.9	12.9	14.1	15.6	17.6	20.4	24.5	7:10	94	12.4	13.3	14.4	15.7	17.4	19.6	22.6
11.9	12.9	14.1	15.7	17.7	20.5	24.6	7:11	95	12.4	13.3	14.4	15.7	17.4	19.6	22.7
11.9	12.9	14.1	15.7	17.7	20.6	24.8	8:00	96	12.4	13.3	14.4	15.7	17.4	19.7	22.8
11.9	12.9	14.1	15.7	17.8	20.6	24.9	8:01	97	12.4	13.3	14.4	15.8	17.5	19.7	22.9
11.9	12.9	14.2	15.7	17.8	20.7	25.1	8:02	98	12.4	13.3	14.4	15.8	17.5	19.8	23
11.9	12.9	14.2	15.8	17.9	20.8	25.2	8:03	99	12.4	13.3	14.4	15.8	17.5	19.9	23.1
11.9	13	14.2	15.8	17.9	20.9	25.3	8:04	100	12.4	13.4	14.5	15.8	17.6	19.9	23.3
12	13	14.2	15.8	18	20.9	25.5	8:05	101	12.5	13.4	14.5	15.9	17.6	20	23.4
12	13	14.3	15.9	18	21	25.6	8:06	102	12.5	13.4	14.5	15.9	17.7	20.1	23.5
12	13	14.3	15.9	18.1	21.1	25.8	8:07	103	12.5	13.4	14.5	15.9	17.7	20.1	23.6
12	13	14.3	15.9	18.1	21.2	25.9	8:08	104	12.5	13.4	14.5	15.9	17.7	20.2	23.8
12	13.1	14.3	16	18.2	21.3	26.1	8:09	105	12.5	13.4	14.6	16	17.8	20.3	23.9
12.1	13.1	14.4	16	18.2	21.3	26.2	8:10	106	12.5	13.5	14.6	16	17.8	20.3	24
12.1	13.1	14.4	16.1	18.3	21.4	26.4	8:11	107	12.5	13.5	14.6	16	17.9	20.4	24.2
12.1	13.1	14.4	16.1	18.3	21.5	26.5	9:00	108	12.6	13.5	14.6	16	17.9	20.5	24.3
12.1	13.2	14.5	16.1	18.4	21.6	26.7	9:01	109	12.6	13.5	14.6	16.1	18	20.5	24.4
12.1	13.2	14.5	16.2	18.4	21.7	26.8	9:02	110	12.6	13.5	14.7	16.1	18	20.6	24.6
12.2	13.2	14.5	16.2	18.5	21.8	27	9:03	111	12.6	13.5	14.7	16.1	18	20.7	24.7
12.2	13.2	14.6	16.3	18.6	21.9	27.2	9:04	112	12.6	13.6	14.7	16.2	18.1	20.8	24.9
12.2	13.3	14.6	16.3	18.6	21.9	27.3	9:05	113	12.6	13.6	14.7	16.2	18.1	20.8	25

BMI-for-age GIRLS 5 to 19 years (z-scores)							Age in		BMI-for-age BOYS 5 to 19 years (z-scores)						
-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12.2	13.3	14.6	16.3	18.7	22	27.5	9:06	114	12.7	13.6	14.8	16.2	18.2	20.9	25.1
12.3	13.3	14.7	16.4	18.7	22.1	27.6	9:07	115	12.7	13.6	14.8	16.3	18.2	21	25.3
12.3	13.4	14.7	16.4	18.8	22.2	27.8	9:08	116	12.7	13.6	14.8	16.3	18.3	21.1	25.5
12.3	13.4	14.7	16.5	18.8	22.3	27.9	9:09	117	12.7	13.7	14.8	16.3	18.3	21.2	25.6
12.3	13.4	14.8	16.5	18.9	22.4	28.1	9:10	118	12.7	13.7	14.9	16.4	18.4	21.2	25.8
12.4	13.4	14.8	16.6	19	22.5	28.2	9:11	119	12.8	13.7	14.9	16.4	18.4	21.3	25.9
12.4	13.5	14.8	16.6	19	22.6	28.4	10:00	120	12.8	13.7	14.9	16.4	18.5	21.4	26.1
12.4	13.5	14.9	16.7	19.1	22.7	28.5	10:01	121	12.8	13.8	15	16.5	18.5	21.5	26.2
12.4	13.5	14.9	16.7	19.2	22.8	28.7	10:02	122	12.8	13.8	15	16.5	18.6	21.6	26.4
12.5	13.6	15	16.8	19.2	22.8	28.8	10:03	123	12.8	13.8	15	16.6	18.6	21.7	26.6
12.5	13.6	15	16.8	19.3	22.9	29	10:04	124	12.9	13.8	15	16.6	18.7	21.7	26.7
12.5	13.6	15	16.9	19.4	23	29.1	10:05	125	12.9	13.9	15.1	16.6	18.8	21.8	26.9
12.5	13.7	15.1	16.9	19.4	23.1	29.3	10:06	126	12.9	13.9	15.1	16.7	18.8	21.9	27
12.6	13.7	15.1	17	19.5	23.2	29.4	10:07	127	12.9	13.9	15.1	16.7	18.9	22	27.2
12.6	13.7	15.2	17	19.6	23.3	29.6	10:08	128	13	13.9	15.2	16.8	18.9	22.1	27.4
12.6	13.8	15.2	17.1	19.6	23.4	29.7	10:09	129	13	14	15.2	16.8	19	22.2	27.5
12.7	13.8	15.3	17.1	19.7	23.5	29.9	10:10	130	13	14	15.2	16.9	19	22.3	27.7
12.7	13.8	15.3	17.2	19.8	23.6	30	10:11	131	13	14	15.3	16.9	19.1	22.4	27.9
12.7	13.9	15.3	17.2	19.9	23.7	30.2	11:00	132	13.1	14.1	15.3	16.9	19.2	22.5	28
12.8	13.9	15.4	17.3	19.9	23.8	30.3	11:01	133	13.1	14.1	15.3	17	19.2	22.5	28.2
12.8	14	15.4	17.4	20	23.9	30.5	11:02	134	13.1	14.1	15.4	17	19.3	22.6	28.4
12.8	14	15.5	17.4	20.1	24	30.6	11:03	135	13.1	14.1	15.4	17.1	19.3	22.7	28.5
12.9	14	15.5	17.5	20.2	24.1	30.8	11:04	136	13.2	14.2	15.5	17.1	19.4	22.8	28.7
12.9	14.1	15.6	17.5	20.2	24.2	30.9	11:05	137	13.2	14.2	15.5	17.2	19.5	22.9	28.8
12.9	14.1	15.6	17.6	20.3	24.3	31.1	11:06	138	13.2	14.2	15.5	17.2	19.5	23	29
13	14.2	15.7	17.7	20.4	24.4	31.2	11:07	139	13.2	14.3	15.6	17.3	19.6	23.1	29.2
13	14.2	15.7	17.7	20.5	24.5	31.4	11:08	140	13.3	14.3	15.6	17.3	19.7	23.2	29.3
13	14.3	15.8	17.8	20.6	24.7	31.5	11:09	141	13.3	14.3	15.7	17.4	19.7	23.3	29.5
13.1	14.3	15.8	17.9	20.6	24.8	31.6	11:10	142	13.3	14.4	15.7	17.4	19.8	23.4	29.6
13.1	14.3	15.9	17.9	20.7	24.9	31.8	11:11	143	13.4	14.4	15.7	17.5	19.9	23.5	29.8
13.2	14.4	16	18	20.8	25	31.9	12:00	144	13.4	14.5	15.8	17.5	19.9	23.6	30
13.2	14.4	16	18.1	20.9	25.1	32	12:01	145	13.4	14.5	15.8	17.6	20	23.7	30.1
13.2	14.5	16.1	18.1	21	25.2	32.2	12:02	146	13.5	14.5	15.9	17.6	20.1	23.8	30.3
13.3	14.5	16.1	18.2	21.1	25.3	32.3	12:03	147	13.5	14.6	15.9	17.7	20.2	23.9	30.4
13.3	14.6	16.2	18.3	21.1	25.4	32.4	12:04	148	13.5	14.6	16	17.8	20.2	24	30.6
13.3	14.6	16.2	18.3	21.2	25.5	32.6	12:05	149	13.6	14.6	16	17.8	20.3	24.1	30.7
13.4	14.7	16.3	18.4	21.3	25.6	32.7	12:06	150	13.6	14.7	16.1	17.9	20.4	24.2	30.9
13.4	14.7	16.3	18.5	21.4	25.7	32.8	12:07	151	13.6	14.7	16.1	17.9	20.4	24.3	31
13.5	14.8	16.4	18.5	21.5	25.8	33	12:08	152	13.7	14.8	16.2	18	20.5	24.4	31.1
13.5	14.8	16.4	18.6	21.6	25.9	33.1	12:09	153	13.7	14.8	16.2	18	20.6	24.5	31.3
13.5	14.8	16.5	18.7	21.6	26	33.2	12:10	154	13.7	14.8	16.3	18.1	20.7	24.6	31.4
13.6	14.9	16.6	18.7	21.7	26.1	33.3	12:11	155	13.8	14.9	16.3	18.2	20.8	24.7	31.6
13.6	14.9	16.6	18.8	21.8	26.2	33.4	13:00	156	13.8	14.9	16.4	18.2	20.8	24.8	31.7
13.6	15	16.7	18.9	21.9	26.3	33.6	13:01	157	13.8	15	16.4	18.3	20.9	24.9	31.8
13.7	15	16.7	18.9	22	26.4	33.7	13:02	158	13.9	15	16.5	18.4	21	25	31.9
13.7	15.1	16.8	19	22	26.5	33.8	13:03	159	13.9	15.1	16.5	18.4	21.1	25.1	32.1
13.8	15.1	16.8	19.1	22.1	26.6	33.9	13:04	160	14	15.1	16.6	18.5	21.1	25.2	32.2
13.8	15.2	16.9	19.1	22.2	26.7	34	13:05	161	14	15.2	16.6	18.6	21.2	25.2	32.3
13.8	15.2	16.9	19.2	22.3	26.8	34.1	13:06	162	14	15.2	16.7	18.6	21.3	25.3	32.4
13.9	15.2	17	19.3	22.4	26.9	34.2	13:07	163	14.1	15.2	16.7	18.7	21.4	25.4	32.6
13.9	15.3	17	19.3	22.4	27	34.3	13:08	164	14.1	15.3	16.8	18.7	21.5	25.5	32.7
13.9	15.3	17.1	19.4	22.5	27.1	34.4	13:09	165	14.1	15.3	16.8	18.8	21.5	25.6	32.8
14	15.4	17.1	19.4	22.6	27.1	34.5	13:10	166	14.2	15.4	16.9	18.9	21.6	25.7	32.9
14	15.4	17.2	19.5	22.7	27.2	34.6	13:11	167	14.2	15.4	17	18.9	21.7	25.8	33
14	15.4	17.2	19.6	22.7	27.3	34.7	14:00	168	14.3	15.5	17	19	21.8	25.9	33.1
14.1	15.5	17.3	19.6	22.8	27.4	34.7	14:01	169	14.3	15.5	17.1	19.1	21.8	26	33.2
14.1	15.5	17.3	19.7	22.9	27.5	34.8	14:02	170	14.3	15.6	17.1	19.1	21.9	26.1	33.3
14.1	15.6	17.4	19.7	22.9	27.6	34.9	14:03	171	14.4	15.6	17.2	19.2	22	26.2	33.4
14.1	15.6	17.4	19.8	23	27.7	35	14:04	172	14.4	15.7	17.2	19.3	22.1	26.3	33.5

BMI-for-age GIRLS 5 to 19 years (z-scores)							Age in		BMI-for-age BOYS 5 to 19 years (z-scores)						
-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
14.2	15.6	17.5	19.9	23.1	27.7	35.1	14:05	173	14.5	15.7	17.3	19.3	22.2	26.4	33.5
14.2	15.7	17.5	19.9	23.1	27.8	35.1	14:06	174	14.5	15.7	17.3	19.4	22.2	26.5	33.6
14.2	15.7	17.6	20	23.2	27.9	35.2	14:07	175	14.5	15.8	17.4	19.5	22.3	26.5	33.7
14.3	15.7	17.6	20	23.3	28	35.3	14:08	176	14.6	15.8	17.4	19.5	22.4	26.6	33.8
14.3	15.8	17.6	20.1	23.3	28	35.4	14:09	177	14.6	15.9	17.5	19.6	22.5	26.7	33.9
14.3	15.8	17.7	20.1	23.4	28.1	35.4	14:10	178	14.6	15.9	17.5	19.6	22.5	26.8	33.9
14.3	15.8	17.7	20.2	23.5	28.2	35.5	14:11	179	14.7	16	17.6	19.7	22.6	26.9	34
14.4	15.9	17.8	20.2	23.5	28.2	35.5	15:00	180	14.7	16	17.6	19.8	22.7	27	34.1
14.4	15.9	17.8	20.3	23.6	28.3	35.6	15:01	181	14.7	16.1	17.7	19.8	22.8	27.1	34.1
14.4	15.9	17.8	20.3	23.6	28.4	35.7	15:02	182	14.8	16.1	17.8	19.9	22.8	27.1	34.2
14.4	16	17.9	20.4	23.7	28.4	35.7	15:03	183	14.8	16.1	17.8	20	22.9	27.2	34.3
14.5	16	17.9	20.4	23.7	28.5	35.8	15:04	184	14.8	16.2	17.9	20	23	27.3	34.3
14.5	16	17.9	20.4	23.8	28.5	35.8	15:05	185	14.9	16.2	17.9	20.1	23	27.4	34.4
14.5	16	18	20.5	23.8	28.6	35.8	15:06	186	14.9	16.3	18	20.1	23.1	27.4	34.5
14.5	16.1	18	20.5	23.9	28.6	35.9	15:07	187	15	16.3	18	20.2	23.2	27.5	34.5
14.5	16.1	18	20.6	23.9	28.7	35.9	15:08	188	15	16.3	18.1	20.3	23.3	27.6	34.6
14.5	16.1	18.1	20.6	24	28.7	36	15:09	189	15	16.4	18.1	20.3	23.3	27.7	34.6
14.6	16.1	18.1	20.6	24	28.8	36	15:10	190	15	16.4	18.2	20.4	23.4	27.7	34.7
14.6	16.2	18.1	20.7	24.1	28.8	36	15:11	191	15.1	16.5	18.2	20.4	23.5	27.8	34.7
14.6	16.2	18.2	20.7	24.1	28.9	36.1	16:00	192	15.1	16.5	18.2	20.5	23.5	27.9	34.8
14.6	16.2	18.2	20.7	24.1	28.9	36.1	16:01	193	15.1	16.5	18.3	20.6	23.6	27.9	34.8
14.6	16.2	18.2	20.8	24.2	29	36.1	16:02	194	15.2	16.6	18.3	20.6	23.7	28	34.8
14.6	16.2	18.2	20.8	24.2	29	36.1	16:03	195	15.2	16.6	18.4	20.7	23.7	28.1	34.9
14.6	16.2	18.3	20.8	24.3	29	36.2	16:04	196	15.2	16.7	18.4	20.7	23.8	28.1	34.9
14.6	16.3	18.3	20.9	24.3	29.1	36.2	16:05	197	15.3	16.7	18.5	20.8	23.8	28.2	35
14.7	16.3	18.3	20.9	24.3	29.1	36.2	16:06	198	15.3	16.7	18.5	20.8	23.9	28.3	35
14.7	16.3	18.3	20.9	24.4	29.1	36.2	16:07	199	15.3	16.8	18.6	20.9	24	28.3	35
14.7	16.3	18.3	20.9	24.4	29.2	36.2	16:08	200	15.3	16.8	18.6	20.9	24	28.4	35.1
14.7	16.3	18.4	21	24.4	29.2	36.3	16:09	201	15.4	16.8	18.7	21	24.1	28.5	35.1
14.7	16.3	18.4	21	24.4	29.2	36.3	16:10	202	15.4	16.9	18.7	21	24.2	28.5	35.1
14.7	16.3	18.4	21	24.5	29.3	36.3	16:11	203	15.4	16.9	18.7	21.1	24.2	28.6	35.2
14.7	16.4	18.4	21	24.5	29.3	36.3	17:00	204	15.4	16.9	18.8	21.1	24.3	28.6	35.2
14.7	16.4	18.4	21.1	24.5	29.3	36.3	17:01	205	15.5	17	18.8	21.2	24.3	28.7	35.2
14.7	16.4	18.4	21.1	24.6	29.3	36.3	17:02	206	15.5	17	18.9	21.2	24.4	28.7	35.2
14.7	16.4	18.5	21.1	24.6	29.4	36.3	17:03	207	15.5	17	18.9	21.3	24.4	28.8	35.3
14.7	16.4	18.5	21.1	24.6	29.4	36.3	17:04	208	15.5	17.1	18.9	21.3	24.5	28.9	35.3
14.7	16.4	18.5	21.1	24.6	29.4	36.3	17:05	209	15.6	17.1	19	21.4	24.5	28.9	35.3
14.7	16.4	18.5	21.2	24.6	29.4	36.3	17:06	210	15.6	17.1	19	21.4	24.6	29	35.3
14.7	16.4	18.5	21.2	24.7	29.4	36.3	17:07	211	15.6	17.1	19.1	21.5	24.7	29	35.4
14.7	16.4	18.5	21.2	24.7	29.5	36.3	17:08	212	15.6	17.2	19.1	21.5	24.7	29.1	35.4
14.7	16.4	18.5	21.2	24.7	29.5	36.3	17:09	213	15.6	17.2	19.1	21.6	24.8	29.1	35.4
14.7	16.4	18.5	21.2	24.7	29.5	36.3	17:10	214	15.7	17.2	19.2	21.6	24.8	29.2	35.4
14.7	16.4	18.6	21.2	24.8	29.5	36.3	17:11	215	15.7	17.3	19.2	21.7	24.9	29.2	35.4
14.7	16.4	18.6	21.3	24.8	29.5	36.3	18:00	216	15.7	17.3	19.2	21.7	24.9	29.2	35.4
14.7	16.5	18.6	21.3	24.8	29.5	36.3	18:01	217	15.7	17.3	19.3	21.8	25	29.3	35.4
14.7	16.5	18.6	21.3	24.8	29.6	36.3	18:02	218	15.7	17.3	19.3	21.8	25	29.3	35.5
14.7	16.5	18.6	21.3	24.8	29.6	36.3	18:03	219	15.7	17.4	19.3	21.8	25.1	29.4	35.5
14.7	16.5	18.6	21.3	24.8	29.6	36.3	18:04	220	15.8	17.4	19.4	21.9	25.1	29.4	35.5
14.7	16.5	18.6	21.3	24.9	29.6	36.2	18:05	221	15.8	17.4	19.4	21.9	25.1	29.5	35.5
14.7	16.5	18.6	21.3	24.9	29.6	36.2	18:06	222	15.8	17.4	19.4	22	25.2	29.5	35.5
14.7	16.5	18.6	21.4	24.9	29.6	36.2	18:07	223	15.8	17.5	19.5	22	25.2	29.5	35.5
14.7	16.5	18.6	21.4	24.9	29.6	36.2	18:08	224	15.8	17.5	19.5	22	25.3	29.6	35.5
14.7	16.5	18.7	21.4	24.9	29.6	36.2	18:09	225	15.8	17.5	19.5	22.1	25.3	29.6	35.5
14.7	16.5	18.7	21.4	24.9	29.6	36.2	18:10	226	15.8	17.5	19.6	22.1	25.4	29.6	35.5
14.7	16.5	18.7	21.4	25	29.7	36.2	18:11	227	15.8	17.5	19.6	22.2	25.4	29.7	35.5
14.7	16.5	18.7	21.4	25	29.7	36.2	19:00	228	15.9	17.6	19.6	22.2	25.4	29.7	35.5

Blood pressure measurement in children

Begin routine blood pressure (BP) measurement at 3 years of age.

Correct cuff size depends on arm size. Practically speaking, correct cuff size equals largest cuff that will fit on the upper arm with room below for the stethoscope head.

BP should be measured in the right arm of a relaxed, seated child.

BP measurement by auscultation is the Gold Standard.

If BP is high by automated device, repeat by auscultation.

BP Classification/Interpretation

BP is classified by systolic BP (SBP) and diastolic BP (DBP) percentiles for age/sex/height. If SBP or DBP >90th percentile, repeat twice at same office visit before interpreting result.

Normal BP: SBP and DBP <90th percentile

➡ Recheck in 1 year.

Prehypertension: SBP or DBP > 90th percentile to <95th percentile or BP >120/80 mmHg to <95th percentile

➡ Recheck in 6 months.

➡ Begin weight management (as appropriate).

Stage 1 Hypertension (HTN): SBP and/or DBP >95th percentile to < 99th percentile plus 5 mmHg

➡ Recheck in 1 to 2 weeks.

➡ If BP remains at this level on recheck, begin evaluation and treatment including weight management if appropriate.

Stage 2 HTN: SBP and/or DBP >99th percentile plus 5 mmHg

➡ Begin evaluation and treatment within 1 week, immediately if symptomatic.

Systolic BP Percentile Tables

Since diastolic HTN rarely occurs without systolic HTN in children, the SBP percentile tables can be used for HTN screening. If a child's SBP on screening is classified as prehypertension or HTN, then both SBP and DBP percentiles should be determined using the tables in the complete report: The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents. Pediatrics 2004 Aug;114(Suppl 2):555-76; or http://www.nhlbi.nih.gov/health/prof/heart/hbp/hbp_ped.htm.

Directions for Use of Tables

1. Heights in the table are given for age at midyear. Use closest height to interpret BP.
2. Prehypertension SBP \geq value from table (90th percentile) to < Stage 1 HTN value; or SBP >120 mmHg to < Stage 1 HTN value.

Stage 1 HTN SBP \geq value from the table (95th percentile) to \leq Stage 2 HTN.

Stage 2 HTN plus 5 mmHg). SBP >value from table (99th percentile

For more information go to: www.nhlbi.nih.gov.

Girls SBP by Age and Height (Normal SBP is less than the prehypertensive result)								
Age	BP Classification	Systolic BP (mmHg)						
3	Height (cm)	91	92	95	98	100	103	105
	Prehypertension	100	100	102	103	104	106	106
	Stage 1 HTN	104	104	105	107	108	109	110
	Stage 2 HTN	116	116	118	119	120	121	122
4	Height (cm)	97	99	101	104	108	110	112
	Prehypertension	101	102	103	104	106	107	108
	Stage 1 HTN	105	106	107	108	110	111	112
	Stage 2 HTN	117	118	119	120	122	123	124
5	Height (cm)	104	105	108	111	115	118	120
	Prehypertension	103	103	105	106	107	109	109
	Stage 1 HTN	107	107	108	110	111	112	113
	Stage 2 HTN	119	119	121	122	123	125	125
6	Height (cm)	110	112	115	118	122	126	128
	Prehypertension	104	105	106	108	109	110	111
	Stage 1 HTN	108	109	110	111	113	114	115
	Stage 2 HTN	120	121	122	124	125	126	127
7	Height (cm)	116	118	121	125	129	132	135
	Prehypertension	106	107	108	109	111	112	113
	Stage 1 HTN	110	111	112	113	115	116	116
	Stage 2 HTN	122	123	124	125	127	128	129
8	Height (cm)	121	123	127	131	135	139	141
	Prehypertension	108	109	110	111	113	114	114
	Stage 1 HTN	112	112	114	115	116	118	118
	Stage 2 HTN	124	125	126	127	128	130	130
9	Height (cm)	125	128	131	136	140	144	147
	Prehypertension	110	110	112	113	114	116	116
	Stage 1 HTN	114	114	115	117	118	119	120
	Stage 2 HTN	126	126	128	129	130	132	132
10	Height (cm)	130	132	136	141	146	150	153
	Prehypertension	112	112	114	115	116	118	118
	Stage 1 HTN	116	116	117	119	120	121	122
	Stage 2 HTN	128	128	130	131	132	134	134
11	Height (cm)	136	138	143	148	153	157	160
	Prehypertension	114	114	116	117	118	119	120
	Stage 1 HTN	118	118	119	121	122	123	124
	Stage 2 HTN	130	130	131	133	134	135	136
12	Height (cm)	143	146	150	155	160	164	166
	Prehypertension	116	116	117	119	120	120	120
	Stage 1 HTN	119	120	121	123	124	125	126
	Stage 2 HTN	132	132	133	135	136	137	138
13	Height (cm)	148	151	155	159	164	168	170
	Prehypertension	117	118	119	120	120	120	120
	Stage 1 HTN	121	122	123	124	126	127	128
	Stage 2 HTN	133	134	135	137	138	139	140
14	Height (cm)	151	153	157	161	166	170	172
	Prehypertension	119	120	120	120	120	120	120
	Stage 1 HTN	123	123	125	126	127	129	129
	Stage 2 HTN	135	136	137	138	140	141	141
15	Height (cm)	152	154	158	162	167	171	173
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	124	125	126	127	129	130	131
	Stage 2 HTN	136	137	138	139	141	142	143
16	Height (cm)	152	154	158	163	167	171	173
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	125	126	127	128	130	131	132
	Stage 2 HTN	137	138	139	140	142	143	144
17	Height (cm)	152	155	159	163	167	171	174
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	125	126	127	129	130	131	132
	Stage 2 HTN	138	138	139	141	142	143	144

Boys SBP by Age and Height (Normal SBP is less than the prehypertensive result)								
Age	BP Classification	Systolic BP (mmHg)						
3	Height (cm)	92	94	96	99	102	104	106
	Prehypertension	100	101	103	105	107	108	109
	Stage 1 HTN	104	105	107	109	110	112	113
	Stage 2 HTN	116	117	119	121	123	124	125
4	Height (cm)	99	100	103	106	109	112	113
	Prehypertension	102	103	105	107	109	110	111
	Stage 1 HTN	106	107	109	111	112	114	115
	Stage 2 HTN	118	119	121	123	125	126	127
5	Height (cm)	104	106	109	112	116	119	120
	Prehypertension	104	105	106	108	110	111	112
	Stage 1 HTN	108	109	110	112	114	115	116
	Stage 2 HTN	120	121	123	125	126	128	128
6	Height (cm)	110	112	115	119	122	126	127
	Prehypertension	105	106	108	110	111	113	113
	Stage 1 HTN	109	110	112	114	115	117	117
	Stage 2 HTN	121	122	124	126	128	129	130
7	Height (cm)	116	118	121	125	129	132	134
	Prehypertension	106	107	109	111	113	114	115
	Stage 1 HTN	110	111	113	115	117	118	119
	Stage 2 HTN	122	123	125	127	129	130	131
8	Height (cm)	121	123	127	131	135	139	141
	Prehypertension	107	109	110	112	114	115	116
	Stage 1 HTN	111	112	114	116	118	119	120
	Stage 2 HTN	124	125	127	128	130	132	132
9	Height (cm)	126	128	132	136	141	145	147
	Prehypertension	109	110	112	114	115	117	118
	Stage 1 HTN	113	114	116	118	119	121	121
	Stage 2 HTN	125	126	128	130	132	133	134
10	Height (cm)	130	133	137	141	146	150	153
	Prehypertension	111	112	114	115	117	119	119
	Stage 1 HTN	115	116	117	119	121	122	123
	Stage 2 HTN	127	128	130	132	133	135	135
11	Height (cm)	135	137	142	146	151	156	159
	Prehypertension	113	114	115	117	119	120	120
	Stage 1 HTN	117	118	119	121	123	124	125
	Stage 2 HTN	129	130	132	134	135	137	137
12	Height (cm)	140	143	148	153	158	163	166
	Prehypertension	115	116	118	120	120	120	120
	Stage 1 HTN	119	120	122	123	125	127	127
	Stage 2 HTN	131	132	134	136	138	139	140
13	Height (cm)	147	150	155	160	166	171	173
	Prehypertension	117	118	120	120	120	120	120
	Stage 1 HTN	121	122	124	126	128	129	130
	Stage 2 HTN	133	135	136	138	140	141	142
14	Height (cm)	154	157	162	167	173	177	180
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	124	125	127	128	130	132	132
	Stage 2 HTN	136	137	139	141	143	144	145
15	Height (cm)	159	162	167	172	177	182	184
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	126	127	129	131	133	134	135
	Stage 2 HTN	139	140	141	143	145	147	147
16	Height (cm)	162	165	170	175	180	184	186
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	129	130	132	134	135	137	137
	Stage 2 HTN	141	142	144	146	148	149	150
17	Height (cm)	164	166	171	176	181	185	187
	Prehypertension	120	120	120	120	120	120	120
	Stage 1 HTN	131	132	134	136	138	139	140
	Stage 2 HTN	144	145	146	148	150	151	152

Instruction to fill checklist- children, 2 to 30 months

Testing Considerations

Preconditions

- The Checklist should be administered in a setting familiar and comfortable to the respondents.
- Ideally, the place should be well lit, ventilated and quiet, with comfortable sitting for the respondents and examiner. If conducted outdoors, any flat work surface will suffice.

Standard Procedures

- Various methods should be employed by the examiner to determine if the child exhibits specified behaviour including observation, direct elicitation of the behaviour from the child, and interview of the parents(s) or caregiver(s).
- While interviewing the parents(s) or caregiver(s), the examiner may ask them about activities they do at home to stimulate the development of their child and may record responses on a separate sheet.
- Small groups of 2-3 may be made for similarly aged children, 2.6 years and above, if the examiner feels this will illicit better response to queries and request. This is especially important if they have not had any day care or pre-school experience.

Administration Time

- Each form of RBSK Checklist should not take more than 45 minutes to administer.

Fundamentals in Administration

- All efforts should be made for rapport-building is very important, especially when the child is not familiar with the examiner.
- Examiner should spend a few minutes interacting with the child by playing or chatting with him to make him comfortable.
- The items involving interviewing the parents / caregiver should be administered first with the child nearby to facilitate the process of familiarisation.
- Emphasize must be given by neither the examiner there are neither right nor wrong answers nor good or bad scores to the checklist to assure greater accuracy while answering.
- This will further decrease the incidence of parents/ caregivers/ child giving an answer based on what the others in the group have said.
- The examiner must encourage the parents/ caregivers to become partners in decision making in the process of assessment and management

For infants over 2 months but less than 4 month

a. Does the child move both arms and both legs freely & equally when awake or when excited? (GM)

Position of the child

Place the child on the bed or observe on mother's lap. The child should be awake and fed. The child should be minimally dressed [in diaper (chaddi) and a vest]. The ambient room temperature should be comfortable in comparison to outside temperature.

Observation by the assessor

The child will kick vigorously both legs alternately horizontally and vertically and will throw both arms in different directions. Both his and her hips will be abducted and externally rotated. He or she will bring both arms towards his or her chest or bring both hands into his or her mouth. The child will move both arms in abduction and external rotation and supination of forearms. His or her shoulders will be in protraction and hips well flexed. While throwing his or her limbs, his or her shoulders and trunk will remain stable in midline.

If

- a) The child do not move arms and legs at all
- b) The child only moves arm and leg of the same side and do not move the arm and leg of the other side of the body as vigorously as the other side
- c) The child moves his or her arms only in internal rotation and adduction with fisted hands and always crosses his or her legs with internal rotation and plantar flexion
- d) The child cannot move his or arms against gravity or too weak to move
- e) The child has wide range flinging movements

REFER

b. Does the child raise his or her head momentarily when lying face down?

Position of the child

Put the child in prone (lying on stomach) on the bed. The child should be fed at least half an hour before and remains awake.

Observation by the assessor

At two months, the child will only lift his or her head 450 (2-3 inches from the surface) for a brief period of time. He or she will bring arms in front of his or head and bear weight on elbows and forearms. If the child is around four months of age, he or she will be able to hold head and upper trunk for longer time bearing weight on forearms.

If

- a) The child cannot lift head at all and unable to clear his or her nose due to very low tone
- b) The child retracts his or her head along with shoulders due to hypertonia
- c) The becomes very stiff and flexed as a whole and is very uncomfortable due to hypertonia

REFER

c. Does the child keep his hands open and relaxed most of the time? (By 3 months) (FM)

Position

Make the child lie down on his or her back (supine). He or she should be awake and playful

Observation by the assessor

The child will keep his or her hands open most of the time. He or she may voluntarily close and open his or her hands while playing with her fingers or pull mother's saree or in an effort to hold a small toy or rattle.

If

- a) The child's hands remain fisted as a part of generalised hypertonicity of the whole body
- b) The child's hands remain open and flail as a part of generalised hypotonicity of the whole body
- c) The child's one hand is tightly fisted with the stiffness of the arm.

REFER

d. Does the child respond to your voice or startles with loud sounds or becomes alert to new sound by quieting or smiling? (H)

Position

Put the child in supine. The room should be quiet and free from visual distractions like door or window curtains fluttering or movement of the people in front of the child. Shake a rattle three times very gently on one side of his or her head and then on the other beyond the child's visual range.

Observation by the assessor

The child may react in any of the following ways:

- a) Frown
- b) Stops moving for a while
- c) Wide opening of eyeballs
- d) Turns eyes towards the source of sound
- e) Turns head towards the source of sound

If

- a) The child does not react at all
- b) The response is persistently elicited on one side and not on the other

REFER

e. Does the child coo or able to vocalize other than crying like “ooh”, “ng”? (S)

Position

The child is on mother's lap or in a supine position. The child should be awake and well fed.

Observation by the assessor

The child will produce some throaty sounds spontaneously while moving his or her limbs. He or she makes such sounds either occasionally or in a cluster. Sometimes the child may not produce such sounds during the time of observation. Ask the mother and make a note. Generally children produce more such sounds when he or she is talked to by moving your face nearer to his or her face such as “Hello baby! How are you?” If necessary, you take his or her limbs in your hands and rub them on your face while talking and smiling.

If

- a) The child does not make eye contact with you
- b) The child arches back or unable to maintain symmetry of head and trunk (ATNR)

REFER

f. Does the child make eye contact? (Focus their eyes on the eyes of a care giver) (V)

Position

On mother's lap or on the bed in supine posture. The child should be awake and well fed. This test has to be done in a quiet room.

Observation by the assessor

Lean over child's face. Keep a distance of 10-12 inches from the child's face. The child will immediately focus on your eyes. The duration of eye contact increases as the child grows older.

Do not talk to him or her while you look for an eye contact. If he or she has any visual deficit, the child may use auditory stimuli to concentrate on your voice or mother's touch and smell.

If

- a) The child does not look at you at all or **inconsistently** make eye contact
- b) The child is **posturally not stable** in a supine posture due to **abnormal tone** so that eye contact cannot be elicited

REFER

g. Does the child give a social smile? (Reciprocally responds to mother's expression or smile i.e. smile back at you) (S)

Position

On mother's lap or on the bed in supine posture. The child should be awake and well fed. This test has to be done in a quiet room.

Observation by the assessor

Lean over child's face. Keep a distance of 10-12 inches from the child's face. If you smile at the child, he or she will spontaneously smiles back at you. You may also hear some pleasurable sounds as he or she smiles at you and engage in an interaction with you. Duration of interaction increases with age.

If

- a) The child does **not make** an **eye contact** with you
- b) The child is unable to keep his or her head due to **abnormal tone** or unable to maintain posture
- c) The child is **cranky** most of the time and may be **difficult to console** when starts crying

REFER

h. Does the child suck and swallow well during feeding i.e. without any choking? (Sp)

Ask the mother whether the child has any difficulty while breastfeeding such as latching to the nipple, sucking or swallowing. Suck – swallow occurs always in coordination with breathing. Normal tone and posture are prerequisite for feeding.

If

- a) If the child have a suck-rest-suck pattern
- b) The child becomes breathless or chokes very often while being fed.
- c) The child throws head backwards or is difficult to position due to abnormal tone/posture

REFER

For infants over 4 months but less than 6 months of age

- a. **Does the child hold head up in sitting position without bobbing** i.e. hold her head straight? (while sitting with support head is held steadily) *Refer if head flops back or falls on any one side when child is pulled to a sitting position (GM)*

Position of the infant

Hold the child in a sitting position with legs stretched forward.

Observation by the assessor

The child should be able to hold his or her head up straight in midline for longer time. During this age the child needs to be held around his or her upper or middle of trunk as the child does not achieve enough stability of the trunk to support his or her head upright. The child will turn his or her head and look around.

If

- a) The child unable to lift his or head up
- b) The child unable to maintain head upright even if he or she lifts head (wobble)
- c) The child cannot be made to a sitting position due to abnormal tone
- d) Sudden dropping of head or sudden back thrust that topples his or her balance

REFER

b. Does the child reach out for an object persistently? (Should use either hands but refer if preference for one hand only) Observe that the grasp of the object is in the ulnar side of palm and there is lack of thumb involvement (FM & C)

Position of the infant

Child is in supine position. The child should be in an alert state.

Observation by the assessor

Show a small rattle or a bright coloured toy just at an arm's length in front of his or her eyes. The child will extend his or her elbow to reach for the toy. At two months of age, a child may neither be able to extend his or her elbow fully against gravity nor sustain his or her arm in an extended position to actually hold the toy. As the child reaches four months, he or she develops requisite muscular control and coordination to hold a toy held at a distance. The child holds the toy with the outer part of the palm (ulnar border of the palm) and retains for a while with the help of the little finger. His or her wrist also goes into ulnar deviation with the wrist in slight flexion.

If

- a) The child is unable to protract his or her shoulders and arms against gravity due to low postural tone
- b) The child does not regard the toy held above either due to visual problem or due to lack of understanding and motivation.
- c) The child only reaches with one arm and the other arm remains stiff with forearm pronated hand fisted
- d) The child is unable to reach with arms due strong retraction of shoulders due to hypertone

REFER

c. Does the child respond to mother's speech by looking directly at her face? (H)

Position of the infant

Child is in supine position. The child should be in an alert state.

Observation by the assessor

Observe the child's natural interaction with the mother. Explain the mother that you want to observe the child's response as she talks to her or him. The child will **look at her** and will vocalize

with sounds like **aaaa, eeee, uuuu**. There will be an exchange of smile. More the mother talks to her or him with different intonation of voice more the child reacts by vocalizing with **higher pitch and increase in body and limb movements**.

If

- a) The child does not regard her mother's face either due lack of hearing or due to lack of understanding
- b) The child does not vocalize or there is no body movements due to excitement that mother's presence bring in the child

REFER

d. Does the child laugh aloud or make squealing sounds? (Sp)

Position

On mother's lap or in supine lying position.

Observation by the assessor

The child laughs aloud as you talk and shake your head. You can also tickle him or her as you sportingly talk to. You will hear him or her giggling in such interactions.

If

The child does not regard an adult's interaction due to lack of understanding

REFER

e. Does the child follow an object with his or her eyes? (Without any visible squint) (V & C)
Position

On mother's lap or in supine lying position.

Observation by the assessor

Hold a bright red coloured toy (non-sound making) at a distance of 10-12 inches from the child's eyes to attract his or her visual attention for a while and then slowly move toy to the left and then to the right. The child will look at the toy in front and as the toy is moved slowly to the sides, the child's eyes will keep moving fixing the gaze on the toy. The child's head will also move his or head to keep a track on the moving toy.

If

- a) The child does not look at the toy due to visual deficit
- b) The child does not track the toy as it moved
- c) The child quickly shifts his or her gaze from the toy due to lack of understanding and motivation

REFER

f. Does the child suck on hands? (C)

Position of the child

On mother's lap or in supine lying position.

Observation by the assessor

The child will bring his or her hands into his or her mouth and suck. By sucking, the child discovers his or her hands and forms a body image of midline symmetry

If

- a) The child does only bring one hand into his or her mouth and other arm remains by the side or stiffly flexed at elbow with flexed wrist and hand fisted
- b) The child is in an extended posture due to increased tone (ATNR posture or opisthotonic posture)
- c) The child has cognitive deficits

REFER

For infants over 6 months but less than 9 months of age

a. Does the child roll over or turn over in either direction? (GM)

Position

Leave the child on the mat on the floor

Observation by the assessor

The child will spontaneously turn into both sides by turning his or head first and then shoulder, trunk and pelvis follow. In order to roll over, the child may require a toy to be attracted to or requires a call by his or her mother. The child will roll over into both sides. Rotation of proximal parts of the head and shoulder, upper trunk followed by lower trunk and pelvis, occur. This is type of mobility the child uses to move about the floor.

If

- a. The child does not roll over due to stiff extended posture (ATNR or an opisthotonic posture)
- b. The child rolls over only from one side of the body and rolls over into one side only
- c. The child has wide range, flinging movements – unable to maintain symmetry and stability
- d. The child lacks motivation to move

REFER

b. Does the child grasp a small object by using his whole hand? (Secures it in the centre of the palm) (FM)

Position

In lying or in a sitting position on mother's lap

Observation by the assessor

Keep a block or a small toy on the palm of your hand. The child will pick the object from your hand by either hand. He or she will keep the block in the palm of his or her hand by flexing all the fingers.

If

- a. The keeps his or her hand all the time fisted as a part of generalised hypertonia
- b. The hands are loosely open and does not close due to generalised hypotonia
- c. The child is unable to keep the object due to generalised fluctuating tone
- d. The child has grasp only in one hand and the other hand remain fisted (hemiparesis)

REFER

c. Does the child locate source of sound? i.e. turns his head or eyes if you whisper from behind? (H)

Position

In lying or in a sitting position on mother's lap. The testing room should be absolutely free of any noise.

Observation by the assessor

Stand behind the child and call the child in a whispering voice. Do it from both sides. The child will immediately turn his or her head to locate the source of sound. If he or she lacks head control, her facial expression will change such as frowning, wide opening of eyeballs, sudden movement of body and limbs, smile or cry.

Repeat three times in a row on each side.

If

- a. The child does not react at all
- b. The child reacts repeatedly on one side only
- c. The child changes his or her facial expression but does not turn head due to lack of head control
- d. The child does not turn his or her head even if he or she hears the sound

REFER

d. Does the child utter consonant sounds like “p” “b” “m”?

(Sp)

Position

In lying or in mother's lap.

Observation by the assessor

The child will utter sounds such as “p” “b” “m” while moving about the floor in play.

If

The child does not produce any sounds

REFER

e. Does your baby tilt his or her head when watching TV? (V)

This question is to be asked to the mother and she needs to be explained that the question is related to visual abnormality. Ask the mother that does her child habitually tilt his or her head while watching TV.

f. Does the child stretch his arms to be picked up by the parents or raises hands to be picked up? (S)

Position

Ask the mother to put the child in supine position. Tell her to hold her hands close to the child and insist him or her to be picked up in the lap.

Observation by the assessor

The child will raise his or her arms as if he or she is ready to be picked up.

If

- a. The child does not show any interest
- b. The child also shows delay in other areas of development

REFER

g. Does the child look for a spoon or toy that has dropped? (C)

Position

The child is seated on mother's lap.

Observation by the assessor

While showing a soft toy to the child, suddenly drop the toy on the floor. The child will immediately lean forward to look for the toy which has suddenly disappeared from in front of his or her eyes.

If

The child does not mind or care to look for the dropped toy

The child also has delay in other areas of development

REFER

For children over 9 months and less than 12 months of age

a. Does the child sit without any support, not even of arms? Can play with toy while sitting. (GM)

Position

The child is made to sit on the bed with legs extended forward. Give him or her few

Toys to play with

Observation by the assessor

She will sit with her or his head and trunk extended and maintains balance while playing

With toys in both hands.

If

a. The child cannot maintain sitting position without arm support

b. The child also has delay in other areas of development

REFER

b. Does the child transfer object from hand to hand? (FM)

Position

The child is made to sit on the bed with legs extended forward. Give him or her few

Toys to play with

Observation by the assessor

The child will transfer a toy from one hand to the other in a sitting position

c. Does the child respond to his or her name? (H & C)

Position

In any position

Observation by the assessor

If you call the child by name he or she should immediately turn his or her head to you. The child can relate him or her with his or her name.

d. Does the child babble? Example- "baba", "da"da", "mama"? (S)

Position

Any position

Observation by the assessor

Observe while interacting with the child. Ask the mother if she or he babbles while playing during interaction with the child.

e. Does the child avoid bumping into objects while moving? (V)

Ask the mother whether the child bumps against the doorways or against furniture while walking or crawling.

f. Does the child enjoy playing hide-and-seek (peek-a-boo)? (S)

Position

Child is in sitting position.

Observation by the assessor

Cover the child's face with a towel or a handkerchief. The child will remove the cover. Similarly the mother can cover her face with the saree and the child removes by his or her hand. The child enjoys this play and also learns to wait for his or her turn to come.

For children over 12 months but less than 15 months of age

a. Does the child crawl on hands and knees? (Reciprocal crawling on hands and knees) (GM)

Leave the child on the mat. Child will start crawling on his or her arms and knees on the floor.

b. Does the child pickup small object using thumb and index finger like peas, raisins (kismis)? (FM)

Position

Make the child sit on the mat. Keep some raisins or small beads in front of the child.

Observation by the assessor

The child will pick up a raisin with his or her index and thumb fingers.

c. Does the child stops activity in response to "NO"? (H & C)

Ask the mother whether her child stops doing an activity if she says, "Do not do it." This is to find out whether the child understands the meaning of "No".

d. Does the child say one meaningful word clearly like mama, dada? (Sp)

Ask the mother whether the child says at least one meaningful word i.e. names correctly like "papa" only to his or her father.

e. Does the child imitate action like bye-bye/clap/kiss? (wave good bye or greet you) (S)

Ask the mother whether her child imitate the actions like, "Namaste", "bye-bye" as demonstrated to him or her.

f. Does the child cry when a stranger picks him up? Differentiates familiar faces from strangers. (S & C)

Ask the mother whether the child understands and shows his or her anxiety when a stranger approaches him or her or to pick him or her up.

g. Does the child search for completely hidden objects? (C)

Observation by the assessor

Show the child a toy and then cover it with a handkerchief in front of him or her. The child will remove the cover to find the toy.

For children over 15 months but less than 18 months of age

a. Does the child walk alone? (GM)

Observe the child walking. The child walks with his or her feet flat on the ground.

b. Does the child play by putting small things or objects into a container? (Cup or katori) (FM & C)

Give the child a bowl. Keep two or three blocks in front of him or her. Show him or her how to put blocks in the cup. Tell him or her to put the blocks in the cup. The child will pick up one block into the cup.

c. Does the child make gesture on verbal request like pointing to objects? (Pointing with Index finger when asked "Where is the bottle") (FM)

Ask the mother whether her child is able to point to an object when named.

d. Does the child follow simple one step direction as for e.g. "Sit down" ? (H & C)

The child will understand and follow simple one step instructions.

e. Does the child say at least two words other than mama or dada such as dog, cat, ball etc even if it is not clear? (Sp)

The assessor will either ask the question to the mother or observe while conversing with the child.

f. Does the child appear to have jerky eye movements or is overly sensitive to light? (V)

The assessor should observe.

Does the child manipulate or explore a toy with his /her fingers like poking or pulling the toy? (C)

Give the child a toy car and observe whether the child holds it in various ways and observe it through handling e.g., turns the toy upside down, moving its wheels by her or his hand, rolls it on the floor.

For children over 18 months but less than 24 months of age

a. Does the child walk steadily even while pulling a toy? (GM)

Give the child a wheeled toy and see if the can pull it by a string while walking.

b. Does the child scribble spontaneously? (FM)

Give the child a drawing book and a crayon. He or she will hold the crayon with his or her thumb, index and middle fingers and scribble.

c. Does the child say at least five words consistently even if not clear? (Sp)

Observe parent-child conversation.

d. Does the child imitate house-hold tasks? (Try to imitate domestic chores like sweeping, washing clothes) (C)

Ask the mother whether the child imitates her actions such as sweeping, washing clothes.

e. Does the child point to one or more body parts? (like show me your nose, the child points to the nose by using one finger) (H & C)

Ask the mother whether the child finger points to a body part named by her.

For children over 24 months and less than 30 months of age

a. Does the child climb upstairs and downstairs? (GM)

Take the child to the steps and observe whether the child walk up and downstairs with alternate foot.

b. Does the child feed self either with hand or spoon? (FM)

Observe the child feed self either with hand or with a spoon.

f. Does the child join 2 words together like “mama-milk”, “car-go”? (2 word phrases)(Sp)

Assess through observation.

g. Does the child play along with other children? (S)

Ask the mother to get this information.

h. Does the child enjoy simple pretend play like feeding a doll? (C)

Observe the child while playing with a doll

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