



RASHTRIYA BAL SWASTHYA KARYAKRAM



PARTICIPANT'S MANUAL

For Mobile Health Teams

Ministry of Health & Family Welfare
Government of India
July 2014

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Government of India
Ministry of Health & Family Welfare
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From "Survival to Quality Survival", the National Rural Health Mission has made significant progress in reducing Child Mortality rate. Child Mortality rate still remains an unfinished task and requires focused attention. At the same time, the quality of child survival cannot lag behind. This entails early detection and management of conditions which were not comprehensively addressed in the past. Out of our country's annual birth cohort of 27 million, it is estimated that 1.7 million children are born with birth defects, accounting for 10% of the total newborn deaths and 4% of under-five mortality. Among the survivors, Developmental delays afflict 10% of our child hood population and thus require timely intervention to prevent or minimize developmental delay leading to disabilities. Additionally, common diseases and deficiencies plague a large proportion of our children affecting survival and quality of life.

The Comprehensive Health Care approach under Rashtriya Bal Swasthya Karyakram (RBSK) assures a package of health services for children from birth to 18 years for early detection and management of selected health conditions. This aims to improve survival outcomes by decreasing morbidity and improving the quality of life for our children. The programme will reach infants born at public health facilities and at home, covering a significant proportion of the annual birth cohort. In addition, children enrolled under Anganwadi centers and Government schools & Government aided schools are being reached systematically through Mobile Health Teams under RBSK.

Thus, early identification of various health conditions under RBSK, assured linkage to care, support and early treatment introduces equitable child health care approach which will, in the long run, reduce out of pocket expenditure, reduce the burden of disease, improve awareness and promote health & development among children.

Quality screening is of paramount importance and therefore, trained and functional Mobile Health Teams at the block level play an important role in the screening of children and their referral. The Resource Material along-with the Job Aids were developed and shared with the States/UTs, however, a need of a comprehensive manual for Mobile Health Teams was felt. Hence, the Participants Manual has been developed and contains all the information that is relevant for understanding and functioning of the Mobile Health Teams. This includes their roles, the screening and referral process, tools to be used, a brief about health conditions under RBSK, micro planning and reporting. It is imperative that all Mobile Health Team members and trainers of these teams become familiar with its contents.

I am certain that States/UTs will impart adequate importance to the RBSK programme and ensure the use of this Manual by the Mobile Health Teams for proper implementation of the programme as envisaged.


(Dr. Rakesh Kumar)

New Delhi
July 2014



Dr. Ajay Khara

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PREFACE

The Rashtriya Bal Swasthya Karyakram (RBSK) aims at early identification and early intervention for children from birth to 18 years for Defects at Birth, Deficiencies, Diseases, Developmental delays including disabilities - the 4 'D's. Universal screening of these 4 'D's would lead to early identification, timely management and ultimately a reduction in morbidity, mortality and lifelong disability in children. The Mobile Health Teams are critical to the success of this programme. These teams are being deputed by States/ UTs to carry out primary screening of children from birth to 18 years of age for health conditions under RBSK.

Operational Guidelines, Resource Material and Job Aids for RBSK have already been published by the Ministry. The Participant's Manual for Mobile Block Health Team members is an important reference material and guide for systematic screening and referrals. I am convinced that the manual will not only assist participants during the initial training but will also serve as a ready reckoner in their day-to-day activities, besides being useful for the trainers.

I am confident that the States/ UTs are implementing the programme in right earnest and will ensure the use of the manual by Mobile Health Teams in the interest of the health of children in the country.



Dr. Ajay Khara

New Delhi
July 2014

ABOUT THE DOCUMENT

The Participant's Manual has been developed for the Rashtriya Bal Swasthya Karyakram (RBSK) Mobile Health Teams. This manual is to be used by all the four members of the RBSK Mobile Health Team –Ayush doctors, ANMs and Pharmacists as a reading material to enable them for screening children irrespective of their professional background. The manual supplements the five day training for all RBSK Mobile Health Team members for common conceptual understanding of the screening process of selected health conditions under RBSK.

The manual will guide the Mobile Health Team to screen children using 'look, ask and perform' techniques, record observations, maintain records, use RBSK Job-Aids as reference and companion during screening and take necessary actions at the field level.

This manual will guide the Mobile Health Team how to:

- Screening children at different ages giving age-specific attention:
 - Check for a defect at birth in a child from the age of 6 weeks onwards
 - Check for deficiency and /or diseases at AWC and Schools
 - Assess children up to 6 years for development delays,
 - Behaviour disorders (Autism) in children above 15 months of age
 - Learning disorders (LD) in children between 6-9 years of age
 - Assess children between 10-18 years for adolescent health concerns
- Counsel the parent/guardian/caregiver and refer as required.
- Micro-Plan and Conduct screening sessions
- Maintain records and reports

Each part of the manual is related to the relevant section of the Screening tool cum referral card to be filled by the RBSK Mobile Health Team and is supported by relevant sections in the RBSK Job Aids. As ready reference, the RBSK Job Aids is to be carried to the field by each member of the RBSK Mobile Health Team.

The Participants' manual, supplemented with RBSK Job Aids, is designed to help block Mobile Health teams and staff at delivery points for effective implementation of screening in a programme of such magnitude.

States/UTs have to ensure adequate priority to effectively address Diseases, Deficiencies, Disabilities and Developmental disorders, 4 Ds' among children, through training of all Mobile Health Team members for screening and RBSK implementation.

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OBJECTIVES OF THE TRAINING:

The training aims to build the capacity of RBSK Mobile Health Teams in:

- a) Understanding the basics of 30 selected health conditions
- b) Using tools and job-aids appropriately and effectively
- c) Communicating effectively with the parents/caregiver/children and other stakeholders
- d) Delivering key messages to the community for reducing the magnitude of these conditions
- e) Micro-planning for screening at School and Anganwadi level
- f) Capturing of field data and preparing daily and monthly reports through RBSK software

INTRODUCTION TO RASHTRIYA BAL SWASTHYA KARYAKRAM (RBSK)

1.1 INTRODUCTION

Defects at Birth, Deficiencies, Diseases specific to childhood and Developmental delays including disabilities, “4Ds”, can either lead to untimely death of a child or a survival **with poor developmental outcomes**. Such long lasting adverse health outcomes can be addressed only through early screening and timely management.

Extending preventive and promotive health as an approach for selected health conditions along with provision of free curative management, will help the marginalized and underprivileged population by reducing their out of pocket expenditure thereby influencing public health expenditure. This, in the long run, will improve the quality of our National human resource pool.

Keeping this in view, the Ministry of Health and Family Welfare, introduced “Child Health Screening and Early Intervention Services” as **Rashtriya Bal Swasthya Karyakram (RBSK)** under the National Health Mission. The services under RBSK are to cover all the thirty selected health conditions through their screening, early detection & free management, for children from birth to 18 years of age.

Selected Health Conditions for Child Health Screening & Early Intervention Services under RBSK

Defects at Birth	Deficiencies
<ol style="list-style-type: none"> 1. Neural tube defect 2. Down's Syndrome 3. Cleft Lip & Palate / Cleft palate alone 4. Talipes (club foot) 5. Developmental dysplasia of the hip 6. Congenital cataract 7. Congenital deafness 8. Congenital heart diseases 9. Retinopathy of Prematurity (Not strictly a defect at birth, but presents itself early) 	<ol style="list-style-type: none"> 10. Anaemia especially Severe anaemia 11. Vitamin A deficiency (Bitot's spot) 12. Vitamin D Deficiency (Rickets) 13. Severe Acute Malnutrition 14. Goiter
Child hood Diseases	Developmental delays and Disabilities
<ol style="list-style-type: none"> 15. Skin conditions (Scabies, fungal infection and Eczema) 16. Otitis Media 17. Rheumatic heart disease 18. Reactive airway disease 19. Dental caries 20. Convulsive disorders 	<ol style="list-style-type: none"> 21. Vision Impairment 22. Hearing Impairment 23. Neuro-motor Impairment 24. Motor delay 25. Cognitive delay 26. Language delay 27. Behavior disorder (Autism) 28. Learning disorder 29. Attention deficit hyperactivity disorder
30. Others: Congenital Hypothyroidism, Sickle cell anemia, Beta thalassemia (Optional)	

1.2 TARGET AGE GROUP

RBSK aims to cover children from birth to 6 years of age and children from 6-18 year enrolled in classes 1st to 12th in Government and Government aided Schools. It is expected that these services will reach about 27 crore children in a phased manner. Children have been grouped into three broad categories, as different set of tools will be used for each category. Also different sets of health conditions have been accordingly prioritized.

Target group for Child Health Screening and Early Intervention Service under RBSK

CATEGORIES	AGE GROUP	SERVICE PROVIDERS
Children born at delivery points in public health facilities	Birth to 48 hours	Doctors, ANMs and staff Nurses
Children born at home or those discharged from Public health facilities	From 48 hours to 6 weeks during HBNC	ASHA workers
Preschool children in rural areas and urban slum	6 weeks to 6 years	Mobile health team
School children enrolled in class 1st and 12th in Government and Government aided schools	6 years to 18 years	Mobile health team

1.3 OPERATIONAL APPROACH OF RBSK

Different mechanisms have been developed to reach the target groups of children for health screening-

1. For new born:

- **Facility based** screening at public health facilities, by existing health manpower including ANMs, Staff Nurses and Medical Officers at designated delivery points.
- **Community based** screening at home after 48 hours of birth and till 6 weeks of age during home visitation by ASHAs, as a part of HBNC package.

2. For children 6 weeks to 6 years:

- **Anganwadi Center based** screening at least twice a year by the dedicated Mobile Health Teams under RBSK.

3. For children 6 years to 18 years:

- **Government and Government aided school based** screening at least once a year by dedicated Mobile Health Teams.

1.4 MOBILE HEALTH TEAM

The RBSK mobile health team consisting of four members will reach out to every child to facilitate primary screening from 6 weeks to 6 years at AWC and also reach out to children in the age group of 6 to 18 years in schools. The team comprises of:

Composition of Mobile Health Team

S No	MEMBER	NUMBER
1	Medical Officers (Ayush) - 1 Male And 1 Female With A Bachelors Degree From An Approved Institution	2
2	ANM/Staff Nurse	1
3	Pharmacist With Proficiency In Computer For Data Management	1

1.5 ROLES AND RESPONSIBILITIES OF MOBILE HEALTH TEAM

1. Prepare a calendar of visit schedule in consultation with other team members and by involving representatives from WCD and Education departments at the block level
2. Screen children at level of Anganwadi center and at Government & Government aided schools
3. Conduct anthropometry measurement of children, record findings in the screening tool cum referral card & enter observations in register for record and follow up.
4. Maintain inventory of drugs.
5. Maintain quality of referrals and emphasize importance of early screening and timely intervention to the parents/caregiver.
6. Generate monthly reports and update Mobile Health Team registers.

1.6 STEPS IN PLANNING AND CONDUCTING SCREENING AT ANGANWADI CENTERS AND SCHOOLS

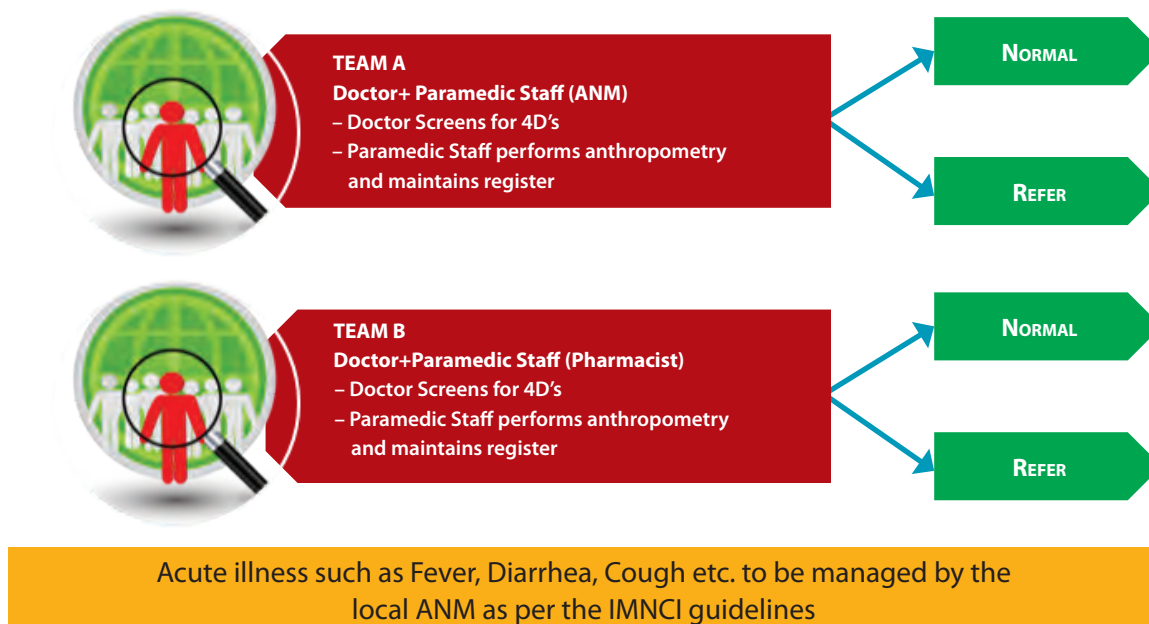
1. Involve nodal persons from the Education and WCD departments in planning.
2. Develop sub-block level plan for the villages assigned to the Mobile Health team under the supervision of the Block MO. Each team to prepare the micro plan based on:
 - a. Mapping of Institutions (School and Anganwadi) in the block and enrolment in them.
 - b. Prepare the day-wise and month-wise plan considering local, public holidays, examination period and vacations in the school.
 - c. On an average approximately 125 children should be screened in a day.
3. Communicate the schedule of visits to the school, Anganwadi Centers, local ASHAs and ANMs, relevant authorities, students, parents and PRIs well in advance, preferably a month.

- a. Ensure that Anganwadi Centers and school authorities arrange for prior communication to parents and motivate them to participate in the process.
 - b. Ensure site preparation, availability of drug kit and mobilization of children is done by AWW/ASHA/school authorities on the day of screening.
 - c. Ensure time and date of checkup is displayed on a board outside the Anganwadi center or School where the screening is planned.
4. Reach the site well before time as per daily action plan with all team members.
5. Screen children at level of Anganwadi center and at Government and Government aided school
 - a. Procure the list of beneficiaries between 0 to 3 years and 3 to 6 years age group from Anganwadi Workers and ASHAs for Anganwadi center checkup.
 - b. Carry instruments and equipment for screening as per the prescribed list. Each team member to carry a copy of the RBSK Job Aids.
6. Conduct anthropometric measurements of children, screen children for 4Ds, record findings in the Screening tool cum referral card and enter observations in register for record and follow up. Team is required to carry an adequate number of forms/cards for each visit.
7. Counsel care-givers, deliver key messages and refer children according to the findings.

RBSK Mobile Block Health Team Screening at Anganwadi Centre (AWC)
Screening for 4D's: Children up to 6 years – Preliminary Activities:



RBSK Mobile Block Health Team: 4 members Venue: AWC/School







APPROACH TO SCREENING OF CHILDREN

1. GENERAL APPROACH TO PHYSICAL EXAMINATION

- Consider the child's age and developmental level
- Take time to get "acquainted"
- Observe for "readiness" clues
- Make friends with the child
- Be confident but gentle
- Avoid dominating the child
- Explain what you are about to do and what you want the child to do in the language the child can understand
- Do not ask permission of a young child, as it may well be refused!
- A smiling, talking doctor appears less threatening
- Determine best screening place (table, parent's lap, examiner's lap)
- Use systematic approach; but be flexible to accommodate child's age specific behaviour
- Plan what screening you want to complete before the child starts crying
- Starting with mock examinations, e.g. auscultating a doll or the mother's hand, may allay a young child's fears
- When first examining a young child, start at a non-threatening area, such as hand or knee. Examine sensitive, painful or intrusive areas last (i.e. ears, nose and mouth)

Age Specific Approach: Adapting to the child's age

APPROACH FOR EXAMINING A CHILD IS GOVERNED BY HIS/HER AGE				
				Middle School Child 6 years-10 years Adolescent School Child 10-18 years
Infant : Neonate	Infant	Toddler	Preschool	School
Birth to 4 weeks	Birth to one year	1-3 years	3-6 years	6-18 years

2. AGE SPECIFIC APPROACH

APPROACH TO INFANTS: BIRTH-1 YEAR

Birth to 6 months:

- Young child can be made immobile and stabilized
- If baby is comfortable and stress free, screening can be conducted on table.
- Attract child's attention by talking to him/her, showing colourful and sound making toys
- Keep smiling as you talk to the child, as he/she likes smiling faces.
- Observe the child to identify any obvious birth defect, movement disorder while talking to the child. Then perform detailed head to toe examination. Keep the mother in close proximity with the child.

6 to 12 months:

- Consider examination in parent's lap to avoid separation or stranger anxiety (up to 4 years).
- "Warm up" slowly with play techniques.
- Object permanence (searching for objects when partially or totally hidden) and ability to anticipate develops, so provide comfort measures after unpleasant procedures.
- Increased mobility demands additional safety measures.

APPROACH TO TODDLERS: 1-3 YEARS

- Examine the child in parent's lap, or occasionally over the parent's shoulder as the child expects parental security.
- Play games.
- Do least intrusive things first.
- Save ears, nose, and throat for examination in the end.
- Avoid "no" responses or choices they cannot make.
- Offer simple acceptable choices.
- Let them touch equipment

APPROACH TO PRE-SCHOOL: 3-6 YEARS

- Pre-school children may initially be observed while they are playing.
- Keep parent close.
- Protect modesty.
- Put the stethoscope on the dolls or dummy animals or on the parents first to demonstrate that it does not cause any pain. The child may be afraid thinking equipment

is alive and may be thinking it has magical powers to hurt - let them first touch the equipment/stethoscope and familiarise with it.

- Use familiar, safe, non-frightening words and approaches.

APPROACH TO SCHOOL-AGE CHILD

- Respect modesty.
- Address questions more directly to child.
- Explain in concrete terms – medical diagrams or teaching dolls are helpful.
- Elicit their active participation.
- Answer questions honestly.

APPROACH TO ADOLESCENTS

- Confidentiality, privacy, protection of modesty are important.
- Girl child to be screened by a female doctor and boy by a male doctor.
- Offer to examine alone, in absence of parent/teacher.
- Address questions to patient.
- Common concerns in girls – body image distortion, loss of appetite & weight and lack of satisfaction.
- Common concerns in boys – irritability, social withdrawal and drop in school performance.

KEY POINTS FOR ASSESSMENT PROCEDURE

- Head to toe screening is most orderly
- Vary sequence according to child's response
- Make friends with the child
- Examine young children in parent's lap
- Preschool children may initially be examined while playing
- Do intrusive examinations in the last.
- Undressing: be sensitive to children's modesty.

3. COMMUNICATING WITH MOTHER OR CAREGIVER

Initiate the screening by establishing communication with the mother or caregiver as below:

- **Greet the mother/caregiver and give a friendly smile**
- **Ask the mother/caregiver whether the child has any problem.**

- It will open communication with the mother/caregiver.
- It will help find out whether child is suffering from any acute ailment.
- Before registering a child for RBSK screening ensure that any acute condition (diarrhea, respiratory infection or fever reported by the mother/caregiver) is managed.
- Refer the child to the local ANM of the health sub-center for examination and management of the child's acute condition as per existing IMNCI guidelines.
- **Good communication** helps reassure the mother/caregiver that the child will receive good care.
- **Listen carefully to what the mother/caregiver says.** This indicates that you are taking her concerns seriously.
 - **Use words the mother/caregiver understands.** If she does not understand the questions you ask her, she cannot give the information you need.
 - **Give the mother/caregiver time to answer the questions.** She may need time to understand and decide whether a symptom referred to is present in the child.
 - **Ask additional questions when you sense that the mother/caregiver is not sure about her answer.** When you ask about a symptom, the mother/caregiver may not be sure if it is present. Ask her additional questions to help her give clear answers.

TIPS FOR EFFECTIVE COMMUNICATION

- Sit at the mother's level, preferably on the ground.
- Handle the child appropriately and play with child
- Agree - Nod, say 'Hmmm' to the mother when she is saying something. It makes her feel she is understood.
- Do not appear to be in a hurry.
- Be polite, courteous and do not use make any derogatory remark or expressions.

MATERIAL REQUIRED FOR SCREENING WITH CHECKLIST

Screening kit and equipment's required by the Mobile Health Team for screening children are as under:-

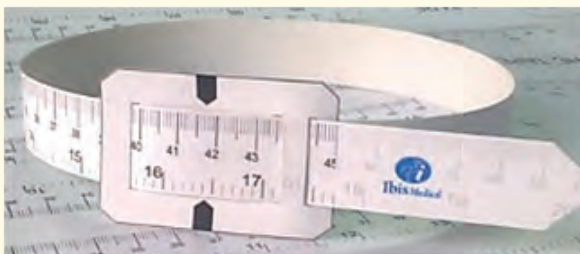


1. MATERIAL FOR ANTHROPOMETRY

Standard measurements to be taken are:



- Weight
- Height/Length: length in infants and standing height in older children
- Head Circumference especially in infants and toddlers
- Mid Upper Arm Circumference (MUAC) in children aged 6-60 months if indicated.

Material or equipment required for taking these measurements are as under:


1. *Tapes – Head circumference and Mid Upper Arm Circumference Tapes*

TAPES		
a.	Head circumference (HC) tape: for measuring the head circumference to assess development of the brain.	 
b.	Mid Upper Arm Circumference (MUAC) tape: for nutritional assessment and identification of Severe Acute Malnutrition (SAM).	

2. Weighing Machines

AGE APPROPRIATE WEIGHING MACHINE: TO MEASURE WEIGHT FOR NUTRITIONAL ASSESSMENT	
a. Weighing scales for young infants (lying down or sitting).	
b. Weighing scales for older infants, children and adolescents (standing).	

3. Measurement of Length/height – Infantometer and Stadiometer

EQUIPMENT FOR MEASUREMENT OF LENGTH/HEIGHT	
a. Infantometer for measuring length in young infants (lying down).	

contd.

EQUIPMENT FOR MEASUREMENT OF LENGTH/HEIGHT

- b. Stadiometer for measuring height in older infants, children and adolescents (standing)



2. MATERIAL FOR ASSESSING THE CHILD'S DEVELOPMENT

The following material will be required for assessing a child's development:

MATERIAL FOR ASSESSING CHILD'S DEVELOPMENT

1. Red Ring



Red Ring

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



2. Rattle



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)

MATERIAL FOR ASSESSING CHILD'S DEVELOPMENT

3. Bell

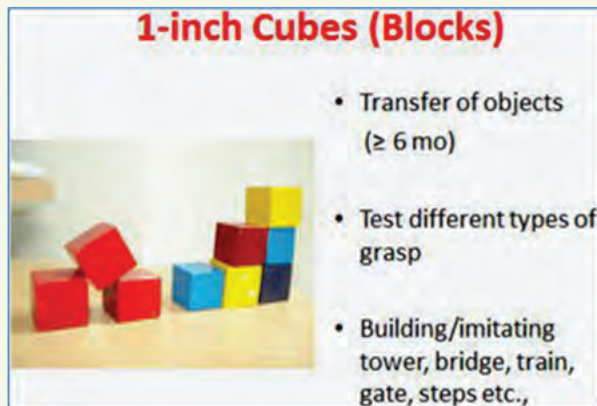
**Bell**

- 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

4. Raisins or small edible objects for pincer grasp

**Pincer grasp**

5. One-inch cubes or blocks

**1-inch Cubes (Blocks)**

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

6. Crayons

**Crayons**

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

MATERIAL FOR ASSESSING CHILD'S DEVELOPMENT

- Pictorial book with single photo only on each page

Pictorial Book



3. OTHER EQUIPMENT REQUIRED FOR SCREENING

Other equipment which is required for screening includes the following:

OTHER EQUIPMENT

- Torch:** for examination of eyes and ears



- B.P. Apparatus (Sphygmomanometer):** with proper reusable cuffs of at least 2 sizes –pediatric (13-20 cm) and small adult (26-35 cm) for measuring blood pressure.



OTHER EQUIPMENT

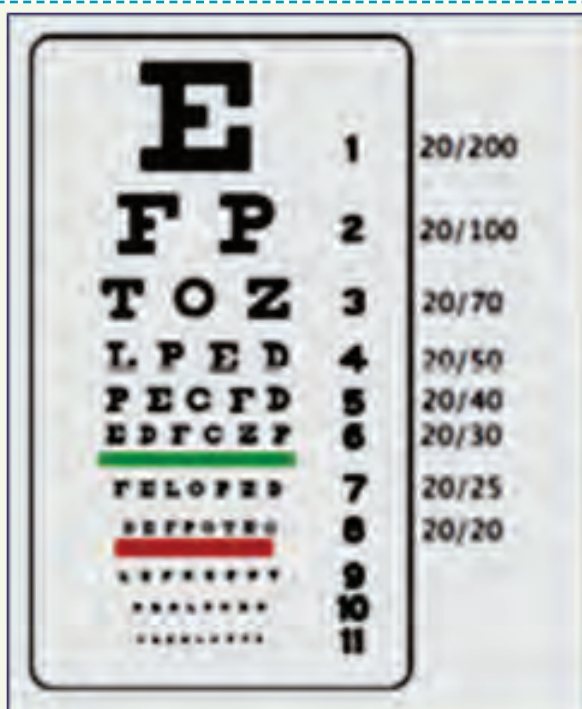
3. **Stethoscope:** for listening to heart sounds, respiratory sounds and measuring B.P.



4. **Magnifying lens:** for identifying skin lesions



5. **Snellen's chart:** is a tool for vision testing in children above the age of 6 years, that measures the Visual Acuity in children and adolescents



4. CHECKLIST OF MATERIAL /LOGISTICS REQUIRED FOR THE FIELD VISIT

Mobile Health Teams should use the following checklist to ensure that all necessary material is arranged before each visit and carried to the field.

CHECKLIST OF MATERIAL /LOGISTICS REQUIRED FOR THE FIELD VISIT BY MHT		
S. No.	Item	Quantity
Technical material		
1.	Printed copies of Job Aids (mandatory) and Participant Manual (desirable)	4 (+4) Each member should carry the Job Aids
2.	Formats for documentation: Screening Tool cum Referral Card (STRC), Mobile Health Team register	Adequate numbers - STRC and Register should be age appropriate - 0-6 years: Anganwadi - 6-18 years: School
Equipment & Tools		
3.	Head circumference tape	4
4.	MUAC tape	4
5.	Stethoscope	4
6.	Weighing scale (for adult & infant)	1 for adult & 1 for infant
7.	Infantometer	1
8.	Stadiometer	1
9.	Torch (appropriate size for eye examination)	4
10.	B.P. Apparatus with cuff of appropriate size	2
11.	Magnifying lens	1
12.	Snellen's chart	1
13.	Doll (newborn/ infant – 1 made of cloth and 1 of plastic)	2
14.	Red ring (diameter 2-3")	4
15.	Rattle	4
16.	Picture book (with 1 picture per page)	4
17.	Bell (Pooja bell)	4
18.	Crayons (wax)	4 packets
19.	1 inch cubes	10 pieces X 4
20.	Tea Cup	4
21.	Pencil	4
22.	Beads or Raisins (Kismis)	few
23.	Writing pad	2
24.	Laptop	1
25.	Vehicles for field visit to Anganwadi center /School	1

INTRODUCTION TO SCREENING TOOL CUM REFERRAL CARD

SCREEN, RECORD AND REFER:

Screen children, record their information and refer the child if necessary. **The Screening Tool cum Referral Card, which has been specially designed,** will be filled for each individual child and handed over to the parent/caregiver/teacher/child for their record and perusal during referral. Always carry adequate number of age appropriate “Screening Tool cum Referral Cards” and the appropriate registers for recording during the planned screening session.

1. PRE-REQUISITES BEFORE USING THE SCREENING TOOL CUM REFERRAL CARD:

- See that you have all the “Material for screening” and verify it using the check list in the previous chapter (Chapter 3)
- Familiarize yourself with the Tools (Pictorial tools, autism tools, vision tools, skin tools etc.) described in subsequent chapter (Chapter 5)
- Learn how to do the anthropometry (Chapter 7)
- Learn how to use developmental delay tool and familiarize with it (Chapter 5)
- Learn how to observe a child and record your findings through symmetry, posture and movement for Neuro-motor impairment (Chapter 5)
- Familiarize with Head to Toe examination (Chapter 9)
- Familiarize with the Screening Tool cum Referral card for both age groups: Birth to 6 years and 6 years to 18 years.

2. STEPS IN USING THE SCREENING TOOL CUM REFERRAL CARD

- First fill the Preliminary Particulars
- Next do the anthropometry
- Check for developmental delays through the age appropriate pictorial tool
- Check for neuro-motor impairment using the age appropriate pictorial tool
- Perform general examination and assess for Neuro-motor impairment, nutritional status and skin lesions
- Do a Head to toe examination including eyes, ears etc. to assess for defects at birth, deficiencies and diseases
- Fill in the age appropriate Screening Tool cum Referral card
- Finally refer, if necessary, to the appropriate facility.

3. PARTS OF THE SCREENING TOOL CUM REFERRAL CARD FOR CHILDREN 0-6 YEARS

The Screening Tool cum Referral Card for 0-6 years and for 6-18 years is described in this chapter. There are various sections in this Screening tool cum Referral card.

To begin with let us take:

SCREENING TOOL CUM REFERRAL CARD FOR CHILDREN 0-6 YEARS:

In this card the Sections are as follows:

1. SECTION A. PRELIMINARY PARTICULARS:

These include the name, age, sex of the child, parents name and contact number and unique ID number / MCTS number or AADHAAR number.

PRELIMINARY PARTICULARS				
District/Block :	Mobile Health Team ID		Name of AWC	AWC ID
Name of ASHA & Contact no:	ASHA ID	Name of Father/ Guardian:	Name of Mother:	Contact no.
Name of Child:	*Age of Child (in months / years)		Gender (M/F)	<input type="checkbox"/> M <input type="checkbox"/> F
MCTS No. (16 Digit)				AADHAAR No.
Unique ID (16 Digit)				

N.B.* Age less than 2 years: completed months only * Age more than 2 years: completed years & months

Learn how to fill up Preliminary Particulars:

Learn by actually filling the Preliminary Particulars (use dummy form).

SCREENING TOOL CUM REFERRAL CARD FOR CHILDREN 0-6 YEARS

PRELIMINARY PARTICULARS				
District/Block :	Mobile Health Team ID		Name of AWC	AWC ID
GAYA/AMAS	**BI-GA-AMA-2-14-12345		Bahera Khurd	4563
Name of ASHA & Contact no:	ASHA ID	Name of Father/ Guardian:	Name of Mother:	Contact no.
Sunita Devi , 07865467891	543	Ravi Shankar	Vimla Devi	8762134123
Name of Child:	*Age of Child (in months / years)		Gender (M/F)	<input type="checkbox"/> M <input checked="" type="checkbox"/> F
Kumari Bulbul	2 Y			
MCTS No. (16 Digit)				AADHAAR No.
Unique ID (16 Digit)				(fill if available)

N.B.* Age less than 2 years: completed months only * Age more than 2 years: completed years & months

**Mobile health team ID-State Bihar-District Gaya-Block Amas-Team Code 2-Year Code 2014-Serial Number 12345

Mobile Health Team Unique ID:

Every team will have a 1 digit team ID which will be decided at block head quarter and will be maintained as a unique ID of the team in combination with Block/District/State code.

Unique Child ID (UCID):

Each beneficiary will get a computer generated 15 digit UCID or the MCTS Identity Number (Child Number of the Mother and Child Tracking System). The health status and service access of every child can be tracked over the years through its UCID. The method of generating the 15 digit UCID is detailed below:

2 digit state code (as per the census code), 2 digit district code (as per the census code), 3 digit block code (as per the census code), 1 digit team code, 2 digit year code and 5 digit code (computer record number)

UNIQUE CHILD ID (UCID)		
Digits (Nos)	Item	Description /Remarks
01-02 (2)	State Code	As per Census codes
03-04 (2)	District Code	As per Census codes
05-07 (3)	Block PHC/CHC Code	As per Census codes given to Block HQ
08 (1)	Team Code	To be given by Block HQ.
09-10 (2)	Year Code	Last 2 digits for the year is to be given, for example, for the year 2009, "09" will be entered and so on
11-15 (5)	Serial no. to each child	From 1st April each year, the codes is to be given afresh starting from 00001.
Total: 15 digits		

Note: The UCID pattern is inbuilt in the RBSK MIS software.

MCTS Identity Number:

The MCTS Identity Number is allocated to the pregnant women and children which is generated as follows:

MCTS IDENTITY NUMBER		
Digits (Nos)	Item	Description /Remarks
01-02 (2)	State Code	As per Census codes
03-04 (2)	District Code	As per Census codes
05-07 (3)	Block PHC/CHC Code	As per Census codes given to Block HQ
08-09 (2)	Health Sub-Centre Code	To be serially given by Block HQ.
10-10 (1)	Pregnant Woman – Code 1 Child – Code 2	
11-12 (2)	Year Code	Last 2 digits for the year is to be given, for example, for the year 2009, "09" will be entered and so on
13-16 (4)	Serial no. to each mother / child from 1st December, 2009 starting from 5000	From 1st April each year, the codes is to be given afresh starting from 0001.
Total: 16 digits		

2. SECTION B. ANTHROPOMETRY:

Anthropometric measurements and recording in card:

Measure: This includes measurement of Weight, Height or length, Head Circumference till 3 years and Mid Upper Arm Circumference (MUAC). For this we require the instruments to take the measurements.

Record: For recording we need to use charts/tools: Weight for height charts, Head circumference charts and MUAC charts. These charts will help us know whether measurements of a child are normal or are of concern or require urgent referral (Normal, <-2SD, <-3SD or >+2SD, >+3SD).

Weight (in Kg):			Height/Length (in cm):			Head Circumference (in cm):			*MUAC (in cm) : only in 6-60 months and whose weight is < 2SD:		
Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	<-3SD <input type="checkbox"/>	Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	<-3SD <input type="checkbox"/>	Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	>+2SD <input type="checkbox"/>			
			Weight for length/height Classification			Head Circumference Classification			MUAC Classification		
			Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	<-3SD <input type="checkbox"/>	Normal <input type="checkbox"/>	Microcephaly <input type="checkbox"/>	Macrocephaly <input type="checkbox"/>	Red <input type="checkbox"/>	Yellow <input type="checkbox"/>	Green <input type="checkbox"/>

Example of filled Anthropometry section: Kumari Bulbul: 2 Y girl

Weight (in Kg): 7 kg			Height/Length (in cm): 75			Head Circumference (in cm): 44			*MUAC (in cm) : only in 6-60 months and whose weight is < 2SD: 10 cm		
Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	<-3SD <input checked="" type="checkbox"/>	Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	<-3SD <input checked="" type="checkbox"/>	Normal <input type="checkbox"/>	<-2SD <input checked="" type="checkbox"/>	>+2SD <input type="checkbox"/>			
			Weight for length/height Classification			Head Circumference Classification			MUAC Classification		
			Normal <input type="checkbox"/>	<-2SD <input type="checkbox"/>	<-3SD <input checked="" type="checkbox"/>	Normal <input type="checkbox"/>	Microcephaly <input checked="" type="checkbox"/>	Macrocephaly <input type="checkbox"/>	Red <input checked="" type="checkbox"/>	Yellow <input type="checkbox"/>	Green <input type="checkbox"/>

3. SECTION C. DEFECTS AT BIRTH, DEFICIENCIES, DISEASES:

Defects at birth, Deficiencies including Nutrition and **Diseases** (including skin, problems of eyes, ears etc.):

To complete this section (A, B and C) you need to learn:

- Name of the health conditions under A: Defects at birth, B: Deficiencies and C: Diseases under RBSK
- Age specific approach to a child
- Head to Toe approach: take help from the "Pictorial tool" depicting pictures of Defects, Deficiencies and Diseases
- Learn how to look, ask and perform to identify health conditions. Learn to use the "Dental tool" and "Skin tool"
- Knowledge about these conditions under the three "Ds"

SCREENING TOOL (FOR AGE: BIRTH TO 6 YRS.)					
A. Defects at Birth, If YES Refer					
A1	Head: Abnormally large or small in size/shape deformity. Size Check > 2SD < 2 D and mark	<input type="checkbox"/>	A10	Features Suggestive of Down's Syndrome (Refer Pictorial) (<i>Refer if more than one sign is present</i>)	<input type="checkbox"/>
A2	Eyes: Any visible abnormality i.e. white pupil, Squint (important esp. after 3 months), frequent jerky movements, tilting the head when focusing (important esp. after 6 months)	<input type="checkbox"/>	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	<input type="checkbox"/>
A3	Ear: Any abnormality of shape (do not refer if isolated finding)	<input type="checkbox"/>	A10 (b)	Nose: Depressed Bridge	<input type="checkbox"/>
A 4	Lips and Palate: Cleft (One side or both sides)	<input type="checkbox"/>	A10 (c)	Ears: Low set Ears (Imaginary line extended from inner to outer canthus and to the ear, passes above ear)	<input type="checkbox"/>
A 5	Difficulty in sucking and swallowing , including sweating on forehead while trying to suck/breast feed (sign is especially important if infants is less than 6 months)	<input type="checkbox"/>	A10 (d)	Palm: Single crease across center of palm (Simian crease)	<input type="checkbox"/>
A 6	Neck: Exceptionally short <i>* do not refer if isolated finding</i>	<input type="checkbox"/>	A10 (e)	Feet: Wide gap (cleft) between the great and first toe	<input type="checkbox"/>
A 7	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	<input type="checkbox"/>	A 11	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)	<input type="checkbox"/>
A 8	Limbs: Any deformity/club foot	<input type="checkbox"/>			
A 9	Spine: Neural tube defect	<input type="checkbox"/>			
B. Deficiencies, If YES Refer					
B1	SAM: Weight for Height/length: refer if the child is less than- 3 SD as per WHO chart, counsel if <-2 SD	<input type="checkbox"/>	B4	Vitamin A Deficiency: Ask for night blindness/look for Bitot's spot (white patches on sclera)	<input type="checkbox"/>
B2	SAM- Oedema: Bilateral pitting oedema	<input type="checkbox"/>	B5	Vitamin D Deficiency: Look for Wrist widening/bowing of legs/nodular swelling on the chest	<input type="checkbox"/>
B3	Severe anemia: Look for severe palmar pallor	<input type="checkbox"/>			

SCREENING TOOL (FOR AGE: BIRTH TO 6 YRS.)					
C. Disease , If YES Refer					
C1	Convulsive Disorder-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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
C2	Otitis Media: Did child have more than 3 episode of ear discharge in last 1 year/Look for active discharge from ear	<input type="checkbox"/>	C5	Reactive airway disease: More than 3 Episodes of increased shortness of breath and difficult breathing and wheezing in the past 6 months	<input type="checkbox"/>
C3	Dental Condition: Look for white/ brown areas, cavitations, swollen/ bleeding/red gums	<input type="checkbox"/>			

4. SECTION D. DEVELOPMENTAL DELAYS, NEURO-MOTOR IMPAIRMENT AND AUTISM:

DEVELOPMENTAL DELAY (D) FOR CHILDREN UP TO 6 YEARS (D1.1 – D8.5), NEURO-MOTOR IMPAIRMENT (D9.1) AND AUTISM (D10.1.1 – D10.2.3)

To complete this section you need to:

- Know how to use **Developmental Delay pictorial tools for the age of 2 months to 30 months**. Use **Developmental delay pictorial tools for quick identification of the developmental delays**. Use of these tools will help in identifying children with developmental delays in the areas of vision, hearing, speech and language, cognition, and motor development (refer to the next chapter and Job Aids for these tools).
- Know how to use, **Autism specific questionnaire from the age of 15 -24 months**. This questionnaire must be used till the age of 6 years. Questions are present in the **Screening tool cum Referral card for 0-6 years from D10.1.1 to D10.2.3**.
- Know how to diagnose Developmental deviation or **Neuro-motor impairment including cerebral palsy- use Neuro-motor pictorial tools** depicting developmental deviation as compared with normal development from birth to 30 months (refer to the next chapter and Job Aids for these tools).
- Developmental delay beyond 30 months but up to 6 years:** Use specific questions on Developmental delay in the **Screening tool cum Referral card for 0-6 years (D11.1-D11.11)**
- Vision**-Identification of vision related problems for 0-6 years. Use the **Vision tool** (pictorial) depicting vision related problems and the developmental tools (refer to the next chapter and Job Aids for these tools).
- Hearing and language**- for detailed assessment tool use the developmental tools (refer to the next chapter and Job Aids for these tools).
- Cognition** – use the developmental delay pictorial tool for identifying problems in cognition (refer to the next chapter and Job Aids for these tools).

- h) **Age specific questions related to developmental delays** - Once you are familiar with the tools, ask the age specific questions in the Screening Tool cum Referral Card, according to the child's age, to identify developmental delays. If developmental delay is present, identify the domain: Gross motor, Fine motor, Vision, Hearing, Speech and language, Cognition and Socialization.
- i) **If the child was born preterm** i.e. three weeks or more before the expected date of delivery, the corrected age should be used, rather than using the chronological age, till the child is 24 month old.
- j) **If a particular milestone** in a particular domain has not been achieved in the stipulated age period, it is marked as Developmental delay (in that domain), however one must screen the child for the preceding age group also.

SCREENING TOOL (FOR AGE: UP TO 12 MONTHS)					
D. Developmental Delays If NO Refer					
LOOK, ASK & PERFORM, AS PER AGE : up to 12 months					
Over 2 months but less than 4 months			Over 4 months but less than- 6 months		
D1.1	Does the child move both arms and both legs freely & equally when awake or when excited? (GM)	<input type="checkbox"/>	D 2.1	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)	<input type="checkbox"/>
D1.2	Does the child raise his or her head momentarily when lying face down? (GM)	<input type="checkbox"/>			
D1.3	Does the child keep his hands open and relaxed most of the time? (By 3 months) (FM)	<input type="checkbox"/>	D 2.2	Does the child reach 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)	<input type="checkbox"/>
D1.4	Does the child responds to your voice or startles with loud sounds or becomes alert to new sound by quietening or smiling? (H)	<input type="checkbox"/>			
D 1.5	Does the child coos or able to vocalize other than crying? Like "ooh", "ng" (S)	<input type="checkbox"/>	D 2.3	Does the child respond to mother's speech by looking directly at her face? (H)	<input type="checkbox"/>
D 1.6	Does the child make eye contact? (Focus their eyes on the eyes of a care giver) (V)	<input type="checkbox"/>	D 2.4	Does the child laugh aloud or make squealing sounds? (Sp)	<input type="checkbox"/>
D 1.7	Does the child give a social smile? (Reciprocal, responds to mother expression or smile i.e. smile back at you) (S)	<input type="checkbox"/>	D 2.5	Does the child follow an object with his or her eyes? (without any visible squint) (V)	<input type="checkbox"/>
D 1.8	Does the child suck and swallow well during feeding i.e. without any choking? (Sp)	<input type="checkbox"/>	D 2.6	Does the child sucks on hands? (C)	<input type="checkbox"/>

SCREENING TOOL (FOR AGE: UP TO 12 MONTHS)**GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social**

Over 6 months but less than 9 months			Over 9 months but less than 12 months		
D 3.1	Does the child roll over or turn over in either direction? (GM)	<input type="checkbox"/>	D 4.1	Does the child sit without any support? (GM)	<input type="checkbox"/>
D 3.2	Does the child grasp a small object by using his whole hand? (secures it in the center of palm) (FM)	<input type="checkbox"/>	D 4.2	Does the child transfer object from hand to hand? (FM)	<input type="checkbox"/>
D 3.3	Does the child locate source of sounds? I.e. turns his head or eyes if you whisper from behind? (H)	<input type="checkbox"/>	D 4.3	Does the child respond to his or her name? (H&C)	<input type="checkbox"/>
D 3.4	Does the child utter consonant sounds like "p""b""m"? (Sp)	<input type="checkbox"/>	D 4.4	Does the child babble example- "bababa....", "dadada....", "mama-ma..."? (Sp)	<input type="checkbox"/>
D 3.5	Does your baby watch TV or any toy without tilting his/her head? (V)	<input type="checkbox"/>	D 4.5	Does the child avoid bumping into objects while moving? (V)	<input type="checkbox"/>
D 3.6	Does the child raises hands to be picked up by parents? (S)	<input type="checkbox"/>	D 4.6	Does the child enjoy playing hide-and-seek (peek-a-boo)? (S)	<input type="checkbox"/>
D 3.7	Does the child look for a spoon or toy that has dropped? (C+V)	<input type="checkbox"/>			

SCREENING TOOL (FOR AGE: 1 TO 2.5 YEARS)**D. Developmental Delays If NO Refer****LOOK, ASK & PERFORM, AS PER AGE**

Over 12 months but less than 15 months			Over 15 months but less than 18 months		
D 5.1	Does the child crawl on hands and knees? (GM)	<input type="checkbox"/>	D 6.1	Does the child walk alone? (GM)	<input type="checkbox"/>
D 5.2	Does the child pickup small objects using thumb and index finger like peas, raisins (kismis) (FM)	<input type="checkbox"/>	D 6.2	Does the child play by putting small things or objects into a container? (Cup or Katori) (FM)	<input type="checkbox"/>
D 5.3	Does the child stops activity in response to "No" (H&C)	<input type="checkbox"/>	D 6.3	Does the child make gestures on verbal request like pointing to objects? (pointing the index finger when asked "Where is the ball" (FM)	<input type="checkbox"/>
D 5.4	Does the child say one meaningful word clearly like mama, dada? (Sp)	<input type="checkbox"/>			

SCREENING TOOL (FOR AGE: 1 TO 2.5 YEARS)					
D 5.5	Does the child imitate action like bye-bye/clap/kiss? (wave good bye or greet you) (S)	<input type="checkbox"/>	D 6.4	Does the child follow simple one step direction as for e.g. "sit down" (H&C)	<input type="checkbox"/>
D 5.6	Does the child cry when a stranger picks him up? Differentiates familiar faces from strangers (S&C)	<input type="checkbox"/>	D 6.5	Does the child say at least two words other than mama or dada like dog, cat, and ball even if it is not clear? (Sp)	<input type="checkbox"/>
D 5.7	Does the child search for completely hidden objects (C)	<input type="checkbox"/>	D 6.6	Does the child manipulate or explore a toy with his/her finger like poking or pulling the toy (C)	<input type="checkbox"/>
GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social					
Over 18 months but less than 24 months			Over 24 months but less than 30 months		
D 7.1	Does the child walk steadily even while pulling a toy? (GM)	<input type="checkbox"/>	D 8.1	Does the child climb upstairs and downstairs? (GM)	<input type="checkbox"/>
D 7.2	Does the child scribble spontaneously (FM)	<input type="checkbox"/>	D 8.2	Does the child feed self either with hand or spoon? (FM)	<input type="checkbox"/>
D 7.3	Does the child say at least five words consistently even if not clear? (Sp)	<input type="checkbox"/>	D 8.3	Does the child join 2 words together like mama-milk, car-go? (2 words phrases) (Sp)	<input type="checkbox"/>
D 7.4	Does the child imitate house hold tasks? (try to copy domestic chores like sweeping, washing clothes) (C)	<input type="checkbox"/>	D 8.4	Does the child play along with other children? (S)	<input type="checkbox"/>
D 7.5	Does the child point to 2 or more body parts? (e.g. show me your nose, child points to nose by using one finger)? (H&C)	<input type="checkbox"/>	D 8.5	Does the child enjoy simple pretend play like feeding a doll (C)	<input type="checkbox"/>
D9.1	Any Neuro-Motor abnormality (Correlate with pictures in Job Aids) Refer if YES				<input type="checkbox"/>

Neuro-motor Impairment

To complete the Neuro-motor abnormality: (D9.1)

- Learn the normal posture of a normal child at various age groups and abnormal postures at various ages ranging from birth to 30 months. Postures are observed while the child is supine i.e. lying on back, prone i.e. lying on stomach, sitting, crawling, standing, walking and running.
- This learning is assisted by following the Neuro-motor pictorial tools from birth to 30 months.
- Once you have learned to spot out normal sitting from abnormal sitting, normal standing or walking from abnormal ones which includes looking for symmetrical and asymmetrical postures, you will have to next learn normal and abnormal movements and finally normal

and abnormal tones (Hypotonia or hypertonia).

- d) Observe or look at the child's posture, movements and tone. Make sure that the child is not crying, is relaxed and try to keep the body including head in the midline during such observations.

AUTISM

To complete the **Autism specific questions: for children above the age of 15 months: (D10.1.1 to D10.2.3)**

- a. One must understand Autism
- b. Understand the age when such questions to be asked

D. AUTISM SPECIFIC QUESTIONNAIRE (ANSWER Y/N DISCRETELY)					
REFER AS PER INSTRUCTIONS					
15-18 months			18-24 months		
D 10.1.1	Does your child look in your eyes for more than a second or two (poor eye contact)? (If N Refer)	<input type="checkbox"/>	D 10.2.1	Does your child take an interest in other children or play with other children? (If N refer)	<input type="checkbox"/>
D 10.1.2	Does your child ever use his/her index finger to point to ask for something? (If N Refer)	<input type="checkbox"/>	D 10.2.2	Does your child make unusual finger movements/ repetitive hand and body movements like finger Wriggling/ flapping/ spinning/ jumping? (Repeated purposeless motor activity) (If Y refer)	<input type="checkbox"/>
D 10.1.3	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)	<input type="checkbox"/>	D 10.2.3	Does your child ever pretend play (talk on phone/take care of dolls)? (If N refer)	<input type="checkbox"/>

- c. Observe or look at a child for autistic movements

DEVELOPMENTAL DELAYS FOR 2.5-6 YEARS

To complete the developmental delay for 2.5 years to 6 years: (D11.1 to D 11.11):

- a. We do not need to use pictorial developmental tool.
- b. Learn how to ask the 11 questions

SCREENING TOOL (FOR AGE: 2.5-6 YEARS) IF YES REFER					
GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social					
D 11.1	Does your child have difficulty in seeing either during day/night ? (without spectacles) (V)	<input type="checkbox"/>	D 11.7	Does the child have difficulty in speaking (as compared to other children of his/her age)? (Sp)	<input type="checkbox"/>
D 11.2	Compared with other children of his/her age, did your child have any delay in walking? (GM)	<input type="checkbox"/>	D 11.8	Is your child's speech in any way different from other children of his/her age? (Sp)	<input type="checkbox"/>
D 11.3	Does your child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM)	<input type="checkbox"/>	D 11.9	Does your child have difficulty in hearing? (without hearing aid)? (H)	<input type="checkbox"/>
D 11.4	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)	<input type="checkbox"/>	D 11.10	Compared with other children of his/her age, does your child have difficulty in sustaining attention on activities at school, home or play? (C)	<input type="checkbox"/>
D 11.5	From birth till date, has your child ever lost consciousness? (Convulsive Disorder)	<input type="checkbox"/>	D 11.11	As compared with other children of his/her age, does your child have difficulty in learning new things? (C)	<input type="checkbox"/>
D 11.6	Compared to children of his age, does your child find it difficult to read or write or do simple calculations? (C)	<input type="checkbox"/>			

c. Learn how to record the findings correctly as shown below.

1. **Compared to children of his age, does your child find it difficult to read or write or do simple calculations?** (D11.6) This question when asked below the age of 6 years relates to **"C"** or **Cognition**, but after the age of 6 years (in a school going child) it is "LD" or learning disability. However, if the child has not been exposed to any kind of symbol identification or learning, this question is not relevant before the age of 6 years.
2. **Compared with other children of his/her age, does your child have difficulty in sustaining attention on activities at school, home or play?** (D11.10) This question when asked below the age of 6 years relates to **"C"** or **Cognition**, but after the age of 6 years (in a school going child) it is "ADHD" or Attention Deficit Hyperactivity Disorder.
3. **As compared with other children of his/her age, does your child have difficulty in learning new things?** (D11.11) This question is always about **"C"** or **Cognition** irrespective of the age.
4. **Compared with other children of his/her age, did your child have any delay in walking?** (11.2): Indicates **Motor** delay
5. **Does your child have stiffness or floppiness and/or reduced strength in his/her arms or legs?** (11.3): Indicates **Motor** delay
6. **Does your child have difficulty in seeing either during day/night (without spectacles)?** (11.1): Indicates **Vision impairment or Vitamin A deficiency**
7. **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? (11.4): Indicates **Convulsive disorders**
8. **From birth till date, has your child ever lost consciousness?** (11.5): Indicates **Convulsive disorders**
9. **Does the child have difficulty in speaking (as compared to other children of his/her age)?** (11.7): Indicates **Speech impairment**
10. **Is your child's speech in any way different from other children of his/her age?** (11.8): Indicates **Speech impairment**
11. **Does your child have difficulty in hearing?** (Without hearing aid)? (11.9): Indicates **Hearing impairment**

5. SECTION E. RECORD FINDINGS AND REFER

- One must know all the 30 health conditions
- Know the Code of each health condition
- Know the questions with their numbers for identifying a particular condition e.g. for Down's syndrome we have questions from A10 (a), A10 (b), A10 (c), A10 (d), A10 (e) and A11
- Tick the questions which have helped you to make this diagnosis and the Code of that condition
- Know where to refer
- We have PHC, CHC, Rural hospitals, Sub-Divisional Hospitals, District Hospitals and the DEIC. Know their functions, the exact name of the institution and the contact person.
- Refer Developmental delay and Birth defects to the DEIC with phone no. of DEIC manager

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)											
Defects at Birth		✓	Deficiencies		✓	Diseases		✓	Developmental delay including disability		✓
Code	Findings		Code	Findings		Code	Findings		Code	Findings	
1	Neural Tube Defect	<input type="checkbox"/>	10	Anaemia	<input type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>
2	Down's Syndrome	<input type="checkbox"/>	11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>	17	Rheumatic Heart Disease	<input checked="" type="checkbox"/>	23	Neuro-motor Impairment	<input type="checkbox"/>
4	Talipes (club foot)	<input type="checkbox"/>	13	Sam/Stunting	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input checked="" type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25	Cognitive Delay	<input type="checkbox"/>
6	Congenital Cataract	<input type="checkbox"/>				20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>	30 Others (Specify)						27	Behavioural Disorder (Autism)	<input type="checkbox"/>
8	Congenital Heart Disease	<input type="checkbox"/>							28	Learning Disorder	<input checked="" type="checkbox"/>
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>							29	Attention Deficit Hyperactivity Disorder	<input checked="" type="checkbox"/>

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC, SAM to NRC		PHC/CHC/DH		DEIC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility										
Name and Sign of Doctor, MHT					Date of Visit					
Data entered in Register - Yes /No					Data entered in register by Name and Sign					

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

h. Refer Diseases and Deficiencies to PHC, CHC etc.

4. PARTS OF THE SCREENING TOOL CUM REFERRAL CARD FOR CHILDREN 6-18 YEARS:

Now let us take:

Screening Tool cum Referral Card for Children 6-18 years

In this, the Sections are:

1. SECTION A. PRELIMINARY PARTICULARS:

These include the name, age, sex of the child, parents name and contact number and unique ID

PRELIMINARY PARTICULARS									
District/Block :		Mobile Health Team ID			Name of School		School ID/DISE code		
Name of Child:				*Age of Child (in months / years)		Gender (M/F) <input type="checkbox"/> M <input type="checkbox"/> F		Class / Section	
MCTS No. (16 Digit)								AADHAAR No.	
Unique ID (16 Digit)									
Name of Father/Guardian		Name of Mother		Contact Number		Name of Teacher		Contact number	

Learn how to fill up Preliminary Particulars:

Fill the Preliminary Particulars as described for children 0-6 years (refer to Section 4.3.1). Learn by actually filling the Preliminary Particulars (use dummy form).

Screening Tool cum Referral Card for Children 6-18 years

PRELIMINARY PARTICULARS				
District/Block : GAYA/AMAS	Mobile Health Team ID **BI-GA-AMA-2-14-12345		Name of School Bahera Khurd Primary School	School ID / DISE code (As available)
Name of Child Kumar Anand	*Age of Child (in months / years) 9 years, 3 months	Gender (M/F) <input checked="" type="checkbox"/> M <input type="checkbox"/> F		Class / Section 2A
MCTS No. (16 Digit)				AADHAAR No.
Unique ID (16 Digit)				(As available)
Name of Father/Guardian Mahesh Bhuiyan	Name of Mother Munni Devi	Contact Number 9876543210	Name of Teacher Shanti Devi	Contact number 8762135125

**Mobile health team ID-State Bihar-District Gaya-Block Amas-Team Code 2-Year Code 2014-Serial Number 12345

number e.g MCTS number or AADHAAR number.

Fill the 16 digit MCTS No /Unique ID as described for children 0-6 years (refer to Section 4.3.1).

SCHOOL ID / DISE CODE

Each elementary school (till VIII standard) maintains a District Information System for Education (DISE) code which is an 11 digit school identification code. Decoding of a school DISE code for the code 01020100101 is as follows:

DISE CODE				
01	02	01	001	01
State	District	Block	Village	School Sequence

Similarly, the Rashtriya Madhvik Shiksha Abhiyan (RMSA) maintain a RMSA code for Secondary and Higher Secondary schools which should be entered for these schools.

The anthropometric parameters of the child (weight, height/length, head circumference) will be filled in the Preliminary Particulars after anthropometry is done as described in the next section. Blood pressure and Visual acuity will also be recorded for children 6-18 years of age.

2. SECTION B. ANTHROPOMETRY SECTION

Anthropometry and other measurements:

Measure: this includes measurement of a) Weight, b) Height, c) Systolic and Diastolic Blood Pressure in mmHg and d) Visual Acuity of both eyes individually. For these measurements we need instruments to measure including B.P. apparatus and Snellen's Chart for testing the vision. Based on weight and height, BMI or Body Mass Index can be calculated i.e. Weight in kg divided by Height in metres square.

Record: for recording the help of charts or tools is required: Body Mass Index charts, and Systolic B.P. charts. These charts will help us know whether measurements of a child are normal or are of

Weight (in Kg):	Height/Length (in cm):		Body Mass Index: Calculate (Weight in kg/Height ² (in m ²))		BMI Classification - Tick as appropriate (N: No referral / U: Underweight / O: Obese)			
					N <input type="checkbox"/>	U <- 3SD <input type="checkbox"/>	O >+2SD <input type="checkbox"/>	
Blood Pressure (in mmHg) (Systolic / Diastolic)**	Normal	Prehypertension	Stage 1 HTN	Stage 2 HTN	*Acuity of Vision (Snellen's Chart)			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Left Eye	/ 6ft	Right Eye	/ 6 ft.

concern or whether urgent referral is required (<-3SD or >+3SD).

****Blood Pressure (in mmHg).** Use table in Job aids .For agiven age (i.e. completed yrs. at mid-year), use the closest height (in cm) in the table and look right below the height column for the SBP (Systolic Blood Pressure) & Classify: **Normal, Prehypertension, Stage 1 Hypertension (HTN) and Stage 2 HTN.** SBP>120 mm of Hg is also Prehypertension). Refer

*For vision : refer all children who have a vision less than 6/12 or 2-line difference between eyes even if both eyes are within passing range, i.e. one eye is at 6/9 and the other eye is at 6/6. For details of measurements (including B.P and Visual Acuity) refer to Anthropometry chapter.

Example of filled Anthropometry section:

Weight (in Kg):	Height/Length (in cm):		Body Mass Index: Calculate (Weight in kg/Height ² (in m ²))		BMI Classification - Tick as appropriate (N: No referral / U: Underweight / O: Obese)			
36	120		25		N <input type="checkbox"/>	U <- 3SD <input type="checkbox"/>	O >+2SD <input checked="" type="checkbox"/>	
Blood Pressure (in mmHg) (Systolic / Diastolic)**	Normal	Prehypertension	Stage 1 HTN	Stage 2 HTN	*Acuity of Vision (Snellen's Chart)			
110/80	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Left Eye	/ 6ft 6/6	Right Eye	/ 6 ft. 6/9

*Refer as more than one line

25 Kumar Anand: Male – 9 years and 3 months

3. SECTION C. DEFECTS AT BIRTH, DEFICIENCIES, DISEASES

Defects at birth, Deficiencies including Nutrition and **Diseases** (including skin, problems of eyes, ears etc.):

To complete this section (A, B and C) you need to learn:

- Name of the health conditions under A: Defects at birth, B: Deficiencies and C: Diseases under RBSK
- Age specific approach to a child
- Head to Toe approach: take help from the "Pictorial tool" depicting pictures of Defects, Deficiencies and Diseases
- Learn how to look, ask and perform to identify health conditions. Learn to use the "Dental tool" and "Skin tool"

A. Defects at Birth, If YES Refer			
A1	Any visible Defect at Birth in the Child viz Cleft Lip/Palate/Club foot/Down's syndrome/Cataract etc.		<input type="checkbox"/>
B. Deficiencies, If YES Refer			
B1	Severe anaemia – Look for severe palmar pallor	<input type="checkbox"/>	B3 Vitamin D Deficiency – Look for Wrist Widening/Bowing of legs <input type="checkbox"/>
B2	Vitamin A Deficiency – Ask for night blindness/look for Bitot's spot (white patches on sclera)	<input type="checkbox"/>	B4 Goitre - Any swelling in the neck region <input type="checkbox"/>
		B5	Oedema of both feet <input type="checkbox"/>
C. Diseases, If YES Refer			
C1	Convulsive Disorders – Did the child ever have had spells of unconsciousness and fits?	<input type="checkbox"/>	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. <input type="checkbox"/>
C2	Otitis Media - Did the child have more than 3 episodes of ear discharge in last 1 year? Look for Active discharge from ear.	<input type="checkbox"/>	
C3	Dental Condition - Look for white demineralized/ brown tooth, Discoloration, cavitation, Swollen/ bleeding/red gums, Visible Plaque/ stains	<input type="checkbox"/>	C5 Rheumatic Heart Disease – Auscultate for Murmur <input type="checkbox"/>
		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. <input type="checkbox"/>

e) Knowledge about these conditions under the three “Ds”

4. SECTION D. DEVELOPMENTAL DELAY INCLUDING DISABILITY

Developmental delay (D) for children 6 - 18 years (D1 – D9). To complete this section:

- You do not** need to use any pictorial developmental tool
- Learn how to ask the 9 questions
- Learn how to record the findings correctly
 - Compared to children of his/her age, does your child find it difficult to read or write or do simple calculations?** (D5) After the age of 6 years this question relates to “LD” or **Learning Disability**.
 - Compared with other children of his/her age, does your child have difficulty in sustaining attention on activities at school, home or play?** (D9) This question when asked after the age of 6 years indicates “ADHD” or **Attention Deficit Hyperactivity Disorder**.
 - As compared with other children of his/her age, does your child have difficulty in learning new things?** (D8) This question is always about “C” or **Cognition** irrespective of the age.

4. Compared with other children of his/her age, did your child have any delay in walking? (D2): Indicates **Motor** delay.
5. Does your child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (D3): Indicates **Motor** delay.
6. Does your child have difficulty in seeing either during day/night (without spectacles)? (D1): Indicates **Vision impairment** or **Vitamin A deficiency**.
7. 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? (D4): Indicates **Convulsions**.
8. Does the child have difficulty in speaking (as compared to other children of his/her age)? (D6): Indicates Speech impairment.

D. Developmental delay including disability, If YES Refer					
D1	Does the child have difficulty in seeing, either during day or night? (without spectacles) (V)	<input type="checkbox"/>	D5	Compared to his/her classmates, does the child find it difficult to read or write or to do simple calculations? (LD)	<input type="checkbox"/>
D2	Compared with other children of his/her age, did the child have any delay in walking? (GM)	<input type="checkbox"/>	D6	Does the child have any difficulty in speaking as compared to other children of his/her age? (Sp)	<input type="checkbox"/>
D3	Does the child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM, NMI)	<input type="checkbox"/>	D7	Does the child have difficulty in hearing? (without hearing aid) (H)	<input type="checkbox"/>
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)	<input type="checkbox"/>	D8	Compared with other children of his / her age, does the child have difficulty in learning new things? (C)	<input type="checkbox"/>
			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)	<input type="checkbox"/>

9. Does your child have difficulty in hearing? (Without hearing aid)? (D7): Indicates Hearing impairment.

5. SECTION E. ADOLESCENT SPECIFIC QUESTIONNAIRE

The next section (E1-E8) relates to adolescents. **To complete this section:**

- a. Fill the Adolescent Specific Questionnaire for all **children from 10 years to 18 years** of age.
- b. Remember to **maintain privacy**, both visual and for speech while asking these questions.
- c. Since these questions are of a sensitive nature, be familiar with the correct approach to

children of this age (refer to Section 2.3)

- d. Learn how to ask 8 questions and record findings correctly.
- e. Do you always find it difficult to handle things in your life that has resulted from changes occurring in your body? (E1) Indicates **Growing up concerns**. Refer to CHC/Adolescent Friendly Health Clinic (AFHC) if the answer to this question is 'Yes'.
- f. Are you able to say "NO" and leave the place when your friends pressurize you to smoke or drink with them? (E2) Indicates **Substance Abuse**. Refer to CHC/AFHC if the answer to this question is 'No'.
- g. Do you feel unduly tired early in the morning or you feel depressed most of the time? (E3) Indicates **Feel depressed**. Refer to CHC/AFHC if the answer to this question is 'Yes'.
- h. **In case of females**-Have your menstrual cycles started yet? (E4) Ask this question to females only. Indicates **Delay in menstruation cycles** if the answer to this question is 'No' at 16 years. Refer the child to CHC/AFHC if 'No' by 16 years.
- i. Do you have your periods every month (i.e. 28 ± 7 days)? (E5) Indicates **Irregular periods**. Refer to CHC/ AFHC if the answer to this question is 'No'.
- j. Do you experience any pain or burning sensation while urinating? (E6) Refer to CHC/ AFHC if the answer to this question is 'Yes'.
- k. Do you have any discharge/ foul smelling discharge from the genitor-urinary area? (E7) Refer to CHC/ AFHC if the answer to this question is 'Yes'.
- l. Do you feel extreme pain during menstruation so much, so that, it stops you from doing routine activities/ attend schools? (E8) Refer to CHC/ AFHC if the answer to this question is 'Yes'.

6. SECTION F. RECORD FINDINGS AND REFER

Record Findings:

- a. One must know all the 30 health conditions and 8 common Adolescent Health Concerns
- b. Know the Code of each health condition and adolescent health concerns
- c. Tick the questions which have helped you to make this diagnosis and the Code of that condition

REFER:

- a. Know where to refer
- b. We have PHC, CHC, Rural hospitals, Sub-Divisional Hospitals, District Hospitals, Adolescent Friendly Health Clinics and the DEIC. Learn their functions, the exact name of the institution and the contact person.
- c. Refer Developmental delay and Birth defects to the DEIC with phone no. of DEIC manager
- d. Refer Diseases and Deficiencies to PHC, CHC etc.

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE) 6 - 18 YEARS

Defects at Birth		✓	Deficiencies		✓	Diseases		✓	Developmental delay including disability		✓	Adolescent Health concerns		✓			
Code	Findings		Code	Findings		Code	Findings		Code	Findings		Code	Findings				
1	Neural Tube Defect	<input type="checkbox"/>	10	Anaemia	<input checked="" type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>	31	Growing up concerns	<input type="checkbox"/>			
2	Down's Syndrome	<input type="checkbox"/>	11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>	32	Substance abuse	<input type="checkbox"/>			
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>	17	Rheumatic Heart Disease	<input type="checkbox"/>	23	Neuro-motor Impairment	<input type="checkbox"/>	33	Feel depressed	<input type="checkbox"/>			
4	Talipes (club foot)	<input type="checkbox"/>	13	Severe Thinness / Obesity	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>	34	Delay in menstrual cycles	<input type="checkbox"/>			
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25	Cognitive Delay	<input type="checkbox"/>	35	Irregular periods	<input checked="" type="checkbox"/>			
6	Congenital Cataract	<input type="checkbox"/>	30 Others (Specify)						20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>	36	Pain or burning sensation while urinating	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>							27	Behavioural Disorder (Autism)	<input type="checkbox"/>	37	Discharge / foul smelling discharge from the genito-urinary area	<input type="checkbox"/>			
8	Congenital Heart Disease	<input type="checkbox"/>							28	Learning Disorder	<input type="checkbox"/>						
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>							29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>	38	Pain during menstruation	<input type="checkbox"/>			

Screening Tool

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Adolescent Health Concern		Others	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, Refer to	DH/DEIC		PHC/CHC,		PHC/CHC/DH		DEIC		CHC/AFHC		PHC/CHC/DH	
Referral	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Name of referral facility												
Name and Sign of Doctor, MHT					Sign of Teacher					Date of Visit		
Data entered in Register - Yes/No					Data entered in register by Name and Sign							

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

5. SCREENING TOOL CUM REFERRAL CARD FOR CHILDREN (0-6 YEARS):



Ministry of Health & Family Welfare

Government of India

Rashtriya Bal Swasthya Karyakram (RBSK)

Screening Tool and 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 Father/Guardian:	Name of Mother:	Contact no.
Name of Child:	*Age of Child (in months / years)		Gender (M/F)	<input type="checkbox"/> M <input type="checkbox"/> F
MCTS No. (16 Digit)			AADHAAR No.	
Unique ID (16 Digit)				
Weight (in Kg):	Height/Length (in cm):	Head Circumference (in cm):	*MUAC (in cm) : only in 6-60 months and whose weight is < 2SD:	
Normal <input type="checkbox"/> <-2SD <input type="checkbox"/> <-3SD <input type="checkbox"/>	Normal <input type="checkbox"/> <-2SD <input type="checkbox"/> <-3SD <input type="checkbox"/>	Normal <input type="checkbox"/> <-2SD <input type="checkbox"/> >+2SD <input type="checkbox"/>		
	Weight for length/height Classification	Head Circumference Classification	MUAC Classification	
	Normal <input type="checkbox"/> <-2SD <input type="checkbox"/> <-3SD <input type="checkbox"/>	Normal <input type="checkbox"/> Microcephaly <input type="checkbox"/> Macrocephaly <input type="checkbox"/>	Red <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/>	

N.B. * Age less than 2 years: completed months only * Age more than 2 years: completed years & months

SCREENING TOOL (FOR AGE: BIRTH TO 6 YRS.)

A. Defects at Birth, If YES Refer

A1	Head: Abnormally large or small in size/shape deformity. Size Check > 2SD < 2 D and mark	<input type="checkbox"/>	A10	Features Suggestive of Down's Syndrome (Refer Pictorial) *Refer if more than one sign is present	<input type="checkbox"/>
A2	Eyes: Any visible abnormality i.e. white pupil, Squint (important esp, after 3 months), frequent jerky movements, tilting the head when focusing (important esp. after 6 months)	<input type="checkbox"/>	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	<input type="checkbox"/>
A3	Ear: Any abnormality of shape * do not refer if isolated finding	<input type="checkbox"/>	A10 (b)	Nose: Depressed Bridge	<input type="checkbox"/>
A 4	Lips and Palate: Cleft (One side or both sides)	<input type="checkbox"/>	A10 (c)	Ears: Low set Ears (Imaginary line extended from inner to outer canthus and to the ear, passes above ear)	<input type="checkbox"/>

SCREENING TOOL (FOR AGE: BIRTH TO 6 YRS.)					
A 5	Difficulty in sucking and swallowing , including sweating on forehead while trying to suck/breast feed (sign is especially important if infants is less than 6 months)	<input type="checkbox"/>	A10 (d)	Palm: Single crease across center of palm (Simian crease)	<input type="checkbox"/>
A 6	Neck: Exceptionally short <i>* do not refer if isolated finding</i>	<input type="checkbox"/>	A10 (e)	Feet: Wide gap (cleft) between the great and first toe	<input type="checkbox"/>
A 7	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	<input type="checkbox"/>	A 11	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)	<input type="checkbox"/>
A 8	Limbs: Any deformity/club foot	<input type="checkbox"/>			
A 9	Spine: Neural tube defect	<input type="checkbox"/>			
B. Deficiencies, If YES Refer					
B1	SAM: Weight for Height/length: refer if the child is less than- 3 SD as per WHO chart, counsel if <-2 SD	<input type="checkbox"/>	B4	Vitamin A Deficiency: Ask for night blindness/look for Bitot's spot (white patches on sclera)	<input type="checkbox"/>
B2	SAM- Oedema: Bilateral pitting oedema	<input type="checkbox"/>	B5	Vitamin D Deficiency: Look for Wrist widening/bowing of legs/ nodular swelling on the chest	<input type="checkbox"/>
B3	Severe anemia: Look for severe palmar pallor	<input type="checkbox"/>			
SCREENING TOOL (FOR AGE: BIRTH TO 6 YRS.)					
C. Disease , If YES Refer					
C1	Convulsive Disorder- 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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
C2	Otitis Media: Did child have more than 3 episode of ear discharge in last 1 year/Look for active discharge from ear.	<input type="checkbox"/>	C5	Reactive airway disease: More than 3 Episodes of increased shortness of breath and difficult breathing and wheezing in the past 6 months.	<input type="checkbox"/>
C3	Dental Condition: Look for white/ brown areas, cavitations, swollen/ bleeding/red gums.	<input type="checkbox"/>			

SCREENING TOOL (FOR AGE: UP TO 12 MONTHS)					
D. Developmental Delays If NO Refer					
LOOK, ASK & PERFORM, AS PER AGE : up to 12 months					
Over 2 months but less than 4 months			Over 4 months but less than 6 months		
D1.1	Does the child move both arms and both legs freely & equally when awake or when excited? (GM)	<input type="checkbox"/>	D 2.1	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)	<input type="checkbox"/>
D1.2	Does the child raise his or her head momentarily when lying face down? (GM)	<input type="checkbox"/>			
D1.3	Does the child keep his hands open and relaxed most of the time? (By 3 months) (FM)	<input type="checkbox"/>	D 2.2	Does the child reach 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?	<input type="checkbox"/>
D1.4	Does the child responds to your voice or startles with loud sounds or becomes alert to new sound by quietening or smiling? (H)	<input type="checkbox"/>			
D 1.5	Does the child coos or able to vocalize other than crying? Like "ooh", "ng" (S)	<input type="checkbox"/>	D 2.3	Does the child respond to mother's speech by looking directly at her face? (H)	<input type="checkbox"/>
D 1.6	Does the child make eye contact? (Focus their eyes on the eyes of a care giver) (V)	<input type="checkbox"/>	D 2.4	Does the child laugh aloud or make squealing sounds? (Sp)	<input type="checkbox"/>
D 1.7	Does the child give a social smile? (Reciprocal, responds to mother expression or smile i.e. smile back at you) (S)	<input type="checkbox"/>	D 2.5	Does the child follow an object with his or her eyes? (without any visible squint) (V)	<input type="checkbox"/>
D 1.8	Does the child suck and swallow well during feeding i.e. without any choking? (Sp)	<input type="checkbox"/>	D 2.6	Does the child sucks on hands? (C)	<input type="checkbox"/>
GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social					
Over 6 months but less than 9 months			Over 9 months but less than 12 months		
D 3.1	Does the child roll over or turn over in either direction? (GM)	<input type="checkbox"/>	D 4.1	Does the child sit without any support? (GM)	<input type="checkbox"/>
D 3.2	Does the child grasp a small object by using his whole hand? (secures it in the center of palm) (FM)	<input type="checkbox"/>	D 4.2	Does the child transfer object from hand to hand? (FM)	<input type="checkbox"/>
D 3.3	Does the child locate source of sounds? i.e. turns his head or eyes if you whisper from behind? (H)	<input type="checkbox"/>	D 4.3	Does the child respond to his or her name? (H&C)	<input type="checkbox"/>

SCREENING TOOL (FOR AGE: UP TO 12 MONTHS)					
D 3.4	Does the child utter consonant sounds like "p""b""m"? (Sp)	<input type="checkbox"/>	D 4.4	Does the child babble example- "ba", "ba", "da", "ma", "ma"? (Sp)	<input type="checkbox"/>
D 3.5	Does your baby watch TV or any toy without tilting his/her head? (V)	<input type="checkbox"/>	D 4.5	Does the child avoid bumping into objects while moving? (V)	<input type="checkbox"/>
D 3.6	Does the child raises hands to be picked up by parents? (S)	<input type="checkbox"/>	D 4.6	Does the child enjoy playing hide-and-seek (peek-a-boo)? (S)	<input type="checkbox"/>
D 3.7	Does the child look for a spoon or toy that has dropped? (C+V)	<input type="checkbox"/>			

Developmental Delays If NO Refer					
LOOK, ASK & PERFORM, AS PER AGE : 1 Year to 2.5 years					
Over 12 months but less than 15 months			Over 15 months but less than 18 months		
D 5.1	Does the child crawl on hands and knees? (GM)	<input type="checkbox"/>	D 6.1	Does the child walk alone (GM)	<input type="checkbox"/>
D 5.2	Does the child pickup small objects using thumb and index finger like peas, raisins (kismis) (FM)	<input type="checkbox"/>	D 6.2	Does the child play by putting small things or objects into a container? (Cup or Katori) (FM)	<input type="checkbox"/>
D 5.3	Does the child stops activity in response to "No" (H&C)	<input type="checkbox"/>	D 6.3	Does the child make gestures on verbal request like pointing to objects? (pointing the index finger when asked "Where is the ball" (FM)	<input type="checkbox"/>
D 5.4	Does the child say one meaningful word clearly like mama, dada? (Sp)	<input type="checkbox"/>	D 6.4	Does the child follow simple one step direction as for e.g. "sit down" (H&C)	<input type="checkbox"/>
D 5.5	Does the child imitate action like bye-bye/clap/kiss? (wave good bye or greet you) (S)	<input type="checkbox"/>	D 6.5	Does the child say at least two words other than mama or dada like dog, cat, and ball even if it is not clear? (Sp)	<input type="checkbox"/>
D 5.6	Does the child cry when a stranger picks him up? Differentiates familiar faces from strangers (S&C)	<input type="checkbox"/>	D 6.6	Does the child manipulate or explore a toy with his/her finger like poking or pulling the toy (C)	<input type="checkbox"/>
D 5.7	Does the child search for completely hidden objects (C)	<input type="checkbox"/>			
GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social					
Over 18 months but less than 24 months			Over 24 months but less than 30 months		
D 7.1	Does the child walk steadily even while pulling a toy? (GM)	<input type="checkbox"/>	D 8.1	Does the child climb up-stairs and downstairs? (GM)	<input type="checkbox"/>

D 7.2	Does the child scribble spontaneously (FM)	<input type="checkbox"/>	D 8.2	Does the child feed self either with hand or spoon? (FM)	<input type="checkbox"/>
D 7.3	Does the child say at least five words consistently even if not clear? (Sp)	<input type="checkbox"/>	D 8.3	Does the child join 2 words together like mama-milk, car-go? (2 words phrases) (Sp)	<input type="checkbox"/>
D 7.4	Does the child imitate household tasks? (try to copy domestic chores like sweeping, washing clothes) (C)	<input type="checkbox"/>	D 8.4	Does the child play along with other children? (S)	<input type="checkbox"/>
D 7.5	Does the child point to 2 or more body parts? (e.g. show me your nose, child points to nose by using one finger)? (H&C)	<input type="checkbox"/>	D 8.5	Does the child enjoy simple pretend play like feeding a doll (C)	<input type="checkbox"/>
D9.1	Any Neuro-Motor abnormality (Correlate with pictures in Job Aids) Refer if YES				<input type="checkbox"/>

E. AUTISM SPECIFIC QUESTIONNAIRE (ANSWER Y/N DISCRETELY)

REFER AS PER INSTRUCTIONS

15-18 months			18-24 months		
D 10.1.1	Does your child look in your eyes for more than a second or two (poor eye contact)? (If N Refer)	<input type="checkbox"/>	D 10.2.1	Does your child take an interest in other children or play with other children? (If N refer)	<input type="checkbox"/>
D 10.1.2	Does your child ever use his/her index finger to point to ask for something? (If N Refer)	<input type="checkbox"/>	D 10.2.2	Does your child make unusual finger movements/ repetitive hand and body movements like finger Wiggling/ flapping/ spinning/ jumping? (Repeated purposeless motor activity) (If Y refer)	<input type="checkbox"/>
D 10.1.3	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)	<input type="checkbox"/>	D 10.2.3	Does your child ever pretend play (talk on phone/take care of dolls)? (If N refer)	<input type="checkbox"/>

SCREENING TOOL (FOR AGE: 2.5-6 YEARS) IF YES REFER

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

D 11.1	Does your child have difficulty in seeing either during day/night? (without spectacles) (V)	<input type="checkbox"/>	D 11.7	Does the child have difficulty in speaking (as compared to other children of his/her age)? (Sp)	<input type="checkbox"/>
D 11.2	Compared with other children of his/her age, did your child have any delay in walking? (GM)	<input type="checkbox"/>	D 11.8	Is your child's speech in any way different from other children of his/her age? (Sp)	<input type="checkbox"/>

SCREENING TOOL (FOR AGE: 2.5-6 YEARS) IF YES REFER

D 11.3	Does your child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM)	<input type="checkbox"/>	D 11.9	Does your child have difficulty in hearing? (without hearing aid?) (H)	<input type="checkbox"/>
D 11.4	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)	<input type="checkbox"/>	D 11.10	Compared with other children of his/her age, does your child have difficulty in sustaining attention on activities at school, home or play? (C)	<input type="checkbox"/>
D 11.5	From birth till date, has your child ever lost consciousness? (Convulsive Disorder)	<input type="checkbox"/>	D 11.11	As compared with other children of his/her age, does your child have difficulty in learning new things? (C)	<input type="checkbox"/>
D 11.6	Compared to children of his age, does your child find it difficult to read or write or do simple calculations? (C)	<input type="checkbox"/>			

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

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

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC, SAM to NRC		PHC/CHC/DH		DEIC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility										
Name and Sign of Doctor, MHT					Date of Visit					
Data entered in Register - Yes /No					Data entered in register by Name and Sign					

*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.

6. SCREENING TOOL CUM REFERRAL CARD FOR CHILDREN (6-18 YEARS):



Ministry of Health & Family Welfare

Government of India

Rashtriya Bal Swasthya Karyakram (RBSK)

Screening Tool and 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:			*Age of Child (in months / years)		Gender (M/F) <input type="checkbox"/> M <input type="checkbox"/> F		Class / Section		
MCTS No. (16 Digit)								AADHAAR No.	
Unique ID (16 Digit)									
Name of Father/Guardian		Name of Mother		Contact Number		Name of Teacher		Contact number	
Weight (in Kg):		Height/Length (in cm):		Body Mass Index: Calculate (Weight in kg/Height ² (in m ²))		BMI Classification - Tick as appropriate (N: No referral / U: Underweight / O: Obese)			
						N <input type="checkbox"/> U < -3SD <input type="checkbox"/> O > +2SD <input type="checkbox"/>			
Blood Pressure (in mmHg) (Systolic / Diastolic)**		Normal <input type="checkbox"/> Prehypertension <input type="checkbox"/>		Stage 1 HTN <input type="checkbox"/> Stage 2 HTN <input type="checkbox"/>		*Acuity of Vision (Snellen's Chart)			
						Left Eye <input type="checkbox"/> / 6ft Right Eye <input type="checkbox"/> / 6 ft.			

**Blood Pressure (in mmHg). Use table in Job aids

For a given age (i.e. completed yrs. at mid-year), use the closest height (in cm) in the table and look right below the height column for the SBP (Systolic Blood Pressure) & Classify: Normal, Prehypertension, Stage 1 Hypertension (HTN) and Stage 2 HTN. (SBP>120 mm of Hg is also Prehypertension)

A. Defects at Birth, If YES Refer			
A1	Any visible Defect at Birth in the Child viz Cleft Lip/Palate/Club foot/Down's syndrome/Cataract etc.	<input type="checkbox"/>	
B. Deficiencies, If YES Refer			
B1	Severe anaemia – Look for severe palmar pallor	<input type="checkbox"/>	B3 Vitamin D Deficiency – Look for Wrist Widening/Bowing of legs <input type="checkbox"/>
B2	Vitamin A Deficiency – Ask for night blindness/look for Bitot's spot (white patches on sclera)	<input type="checkbox"/>	B4 Goitre - Any swelling in the neck region <input type="checkbox"/>
			B5 Oedema of both feet <input type="checkbox"/>
C. Diseases, If YES Refer			
C1	Convulsive Disorders – Did the child ever have had spells of unconsciousness and fits?	<input type="checkbox"/>	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. <input type="checkbox"/>
C2	Otitis Media - Did the child have more than 3 episodes of ear discharge in last 1 year?	<input type="checkbox"/>	
C3	Dental Condition - Look for white demineralized/ brown tooth, Discoloration, cavitation, Swollen/ bleeding/red gums, Visible Plaque/ stains	<input type="checkbox"/>	C5 Rheumatic Heart Disease – Auscultate for Murmur <input type="checkbox"/>
			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. <input type="checkbox"/>

D. Developmental delay including disability, If YES Refer					
D1	Does the child have difficulty in seeing, either during day or night? (without spectacles) (V)	<input type="checkbox"/>	D5	Compared to his/her classmates, does the child find it difficult to read or write or to do simple calculations? (LD)	<input type="checkbox"/>
D2	Compared with other children of his/her age, did the child have any delay in walking? (GM)	<input type="checkbox"/>			
D3	Does the child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM, NMI)	<input type="checkbox"/>	D6	Does the child have any difficulty in speaking as compared to other children of his/her age? (Sp)	<input type="checkbox"/>
			D7	Does the child have difficulty in hearing? (without hearing aid) (H)	<input type="checkbox"/>
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)	<input type="checkbox"/>	D8	Compared with other children of his / her age, does the child have difficulty in learning new things? (C)	<input type="checkbox"/>
			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)	<input type="checkbox"/>

E. Adolescent Specific Questionnaire (10-18 years) Refer as per Instructions					
NOTE: Following questions to be asked only after audio visual privacy is ensured					
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)	<input type="checkbox"/>	E5	Do you have your periods every months (i.e. 28 ± 7 days)? (If N, Refer)	<input type="checkbox"/>
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)	<input type="checkbox"/>	E6	Do you experience any pain or burning sensation while urinating? (If Y, Refer)	<input type="checkbox"/>
E3	Do you feel unduly tired early in the morning or you feel depressed most of the time? (If Y, Refer)	<input type="checkbox"/>	E7	Do you have any discharge/ foul smelling discharge from the genitor-urinary area? (If Y, Refer)	<input type="checkbox"/>
E4	In case of females- Have your menstrual cycles started yet? (If not started by 16 years, Refer)	<input type="checkbox"/>	E8	Do you feel extreme pain during menstruation so much so that it stops you from doing routine activities/ attend schools? (If Y, Refer)	<input type="checkbox"/>

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

Defects at Birth		✓	Deficiencies		✓	Diseases		✓	Developmental delay including disability		✓	Adolescent Health concerns		✓
Code	Findings		Code	Findings		Code	Findings		Code	Findings		Code	Findings	
1	Neural Tube Defect	<input type="checkbox"/>	10	Anaemia	<input type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>	31	Growing up concerns	<input type="checkbox"/>
2	Down's Syndrome	<input type="checkbox"/>	11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>	32	Substance abuse	<input type="checkbox"/>
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>	17	Rheumatic Heart Disease	<input type="checkbox"/>	23	Neuro-motor Impairment	<input type="checkbox"/>	33	Feel depressed	<input type="checkbox"/>
4	Talipes (club foot)	<input type="checkbox"/>	13b	Severe Thinness/	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>	34	Delay in menstrual cycles	<input type="checkbox"/>
			13c	Obesity	<input type="checkbox"/>									
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25b	Mental Retardation	<input type="checkbox"/>	35	Irregular periods	<input type="checkbox"/>
6	Congenital Cataract	<input type="checkbox"/>				20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>	36	Pain or burning sensation while urinating	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>	30 Others (Specify)						27	Behavioural Disorder (Autism)	<input type="checkbox"/>	37	Discharge / foul smelling discharge from the genito-urinary area	<input type="checkbox"/>
8	Congenital Heart Disease	<input type="checkbox"/>							28	Learning Disorder	<input type="checkbox"/>			
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>							29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>	38	Pain during menstruation	<input type="checkbox"/>

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Adolescent Health Concern		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC,		PHC/CHC/DH		DEIC		CHC/AFHC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility												
Name and Sign of Doctor, MHT					Sign of Teacher					Date of Visit		
Data entered in Register - Yes/No					Data entered in register by Name and Sign							

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

"The only way of finding the limits of the possible is by going beyond them into the impossible."

Arthur C. Clarke

"संभावनाओं की सीमाओं का पता लगाने का एकमात्र रास्ता है कि उनसे आगे बढ़कर असंभव तक पहुंचा जाए."

आर्थर सी. क्लार्क

TOOLS FOR IDENTIFYING THE HEALTH CONDITIONS UNDER RBSK:

1. **SCREENING TOOL CUM REFERRAL CARD FOR 0-6 YEARS:** Before trying to fill in the "Screening tool cum Referral card" one must complete the entire clinical examination including anthropometry and then decide whether to refer or not, where to refer?, and for what health conditions among the 30 included in the RBSK or any condition which is not included as "others".
 2. **SCREENING TOOL CUM REFERRAL CARD FOR 6-18 YEARS:** Before using this tool one must complete the entire clinical examination including anthropometry. **Developmental delay questions for 6-9 years including learning disability and ADHD. Adolescent specific questionnaire for 10-18 years**
 3. **PICTORIAL TOOL FOR IDENTIFYING THE DEFECTS AT BIRTH, DEFICIENCIES AND CHILDHOOD DISEASES**
 4. **PICTORIAL TOOL FOR THE AGE OF 2 MONTHS TO 30 MONTHS.** Pictorial tool for quick identification of the developmental delays. Use of this tool will help in identifying children with developmental delays in the areas of vision, hearing, speech & language, cognition, motor and autism.
 5. **DEVELOPMENTAL DEVIATION OR NEURO-MOTOR IMPAIRMENT INCLUDING CEREBRAL PALSY** – A pictorial tool depicting developmental deviation as compared with normal development from birth to 30 months.
 6. **AUTISM SPECIFIC QUESTIONNAIRE FROM THE AGE OF 15 -24 MONTHS** but must be used till the age of 6 years. Questions are present in the **Screening tool cum Referral card for 0-6 years**
 7. **DEVELOPMENTAL DELAY BEYOND 30 MONTHS BUT UP TO 9 YEARS** including learning disability and ADHD: Use Developmental delay specific Questions in the **Screening tool cum Referral card for 6-18 years**
 8. **VISION TOOL:** Identification of vision related problems for 0-6 years. **A pictorial tool depicting vision related problems**
 9. **HEARING AND LANGUAGE** for detailed assessment tool developed by CDC-LEST.
 10. **COGNITIVE TOOL-SIMPLE PICTORIAL TOOL** for identifying problems in cognition.
- These will help in identification of the impairment/disorder in respective domains.

Vision Impairment	Motor Delay
Hearing Impairment	Language Delay
Neuro-Motor Impairment	Cognitive Delay
Behavior Disorder (Autism)	Learning disability & Attention Deficit Hyperactivity Disorder

Tool 1. Screening tool cum Referral card for 0-6 years: (Described in the earlier chapter)

Tool 2. Screening tool cum Referral card for 6-18 years: (Described in the earlier chapter)

Tool 3. Pictorial Tool 1: for identifying the birth defects, deficiencies and childhood diseases.

To understand the pictorial tool, one has to learn to distinguish between normal and abnormal by observing the child only. Next step should be to determine where the abnormality is? And finally what actually could be the condition and the underlying reasons.

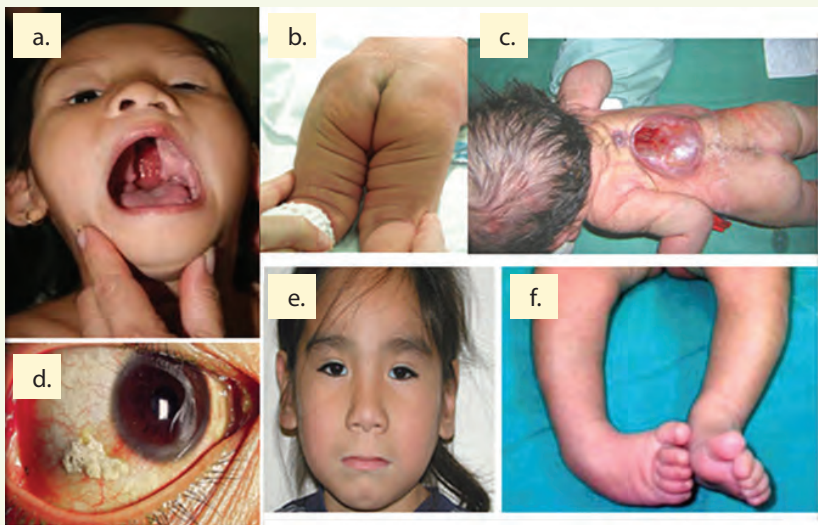
Exercise: How to improve initial observations and not actually make a diagnosis?

Try to identify whether it is normal or abnormal and if so, where is the abnormality:

LOOK – Observe the pictures given below, identify the conditions and note the variation from normal. Write your observations in the space given next to the picture.

– Identify these conditions. Normal/Abnormal? Where is the abnormality?

Exercise: To learn how to use Tool no 3 i.e. Pictorial tool: Look closely and improve your observation skills. Record your assessment in the chart below.

	
a. A child with his mouth open	
b. Back of the child with legs being seen till the Knee joints	
c. Back of an new-born	
d. Eyes of the child	
e. Face of the child	
f. Legs of the child	

LOOK – Observe the pictures given below **Record your assessment in the chart below**



a. Face of an infant	
b. Legs of a child while standing	
c. Palm of an adolescent child	
d. Teeth of a child	
e. Neck of a girl	
f. Ears of a child	

LOOK – Observe the pictures given below **Record your assessment in the chart below**




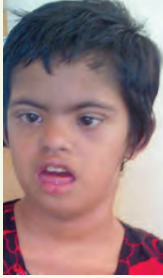

a.

How old is the child & what is he doing?











b.

10 month old child-comment upon his face and posture.

 <p>c.</p>	<p>Feet of the child</p>
 <p>d.</p>	<p>Comment on the looks of the child</p>
 <p>e.</p>	<p>Comment on the eyes.</p>

 <p>a.</p>	 <p>b.</p>
 <p>c.</p>	 <p>d.</p>
<p>a. 4 month on his stomach</p>	
<p>b. 3 year old on his stomach</p>	
<p>c. 3 month old on the back</p>	
<p>d. 3 year old on the back</p>	

	Comment on the palms and feet	
	Age of the child and the activity	
Tick whether Normal / abnormal		
		
At birth	At birth	At birth
Normal / abnormal	Normal / abnormal	Normal / abnormal
		
Normal / abnormal	Normal / abnormal	2 month
Normal / abnormal	Normal / abnormal	Normal / abnormal

		
Newborn	Newborn	Newborn
Normal / abnormal	Normal / abnormal	Normal / abnormal
		
		9 month old
Normal / abnormal	Normal / abnormal	Normal / abnormal

TOOL 3: PICTORIAL TOOL

Down's syndrome



Facial Features



Increased gap between the first toe and great toe



One single crease that goes straight across the palm

Cleft Lip and Palate



2a Cleft Lip



2b Cleft Palate



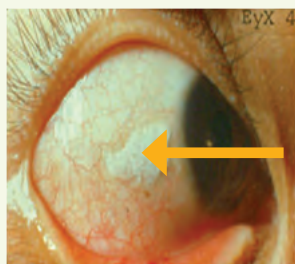
3 Neural Tube Defect



4 Club Foot



5a No pallor, 5b severe pallor



6-Bitot's Spot



7 Wrist Swelling

8 - Otitis Media (Middle ear Infection)

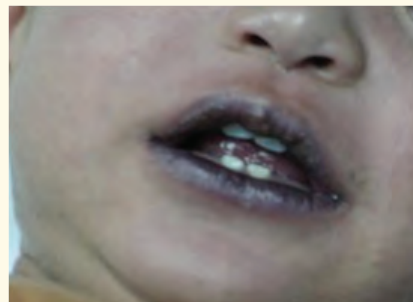
9 - Cyanosis-Congenital Heart Disease

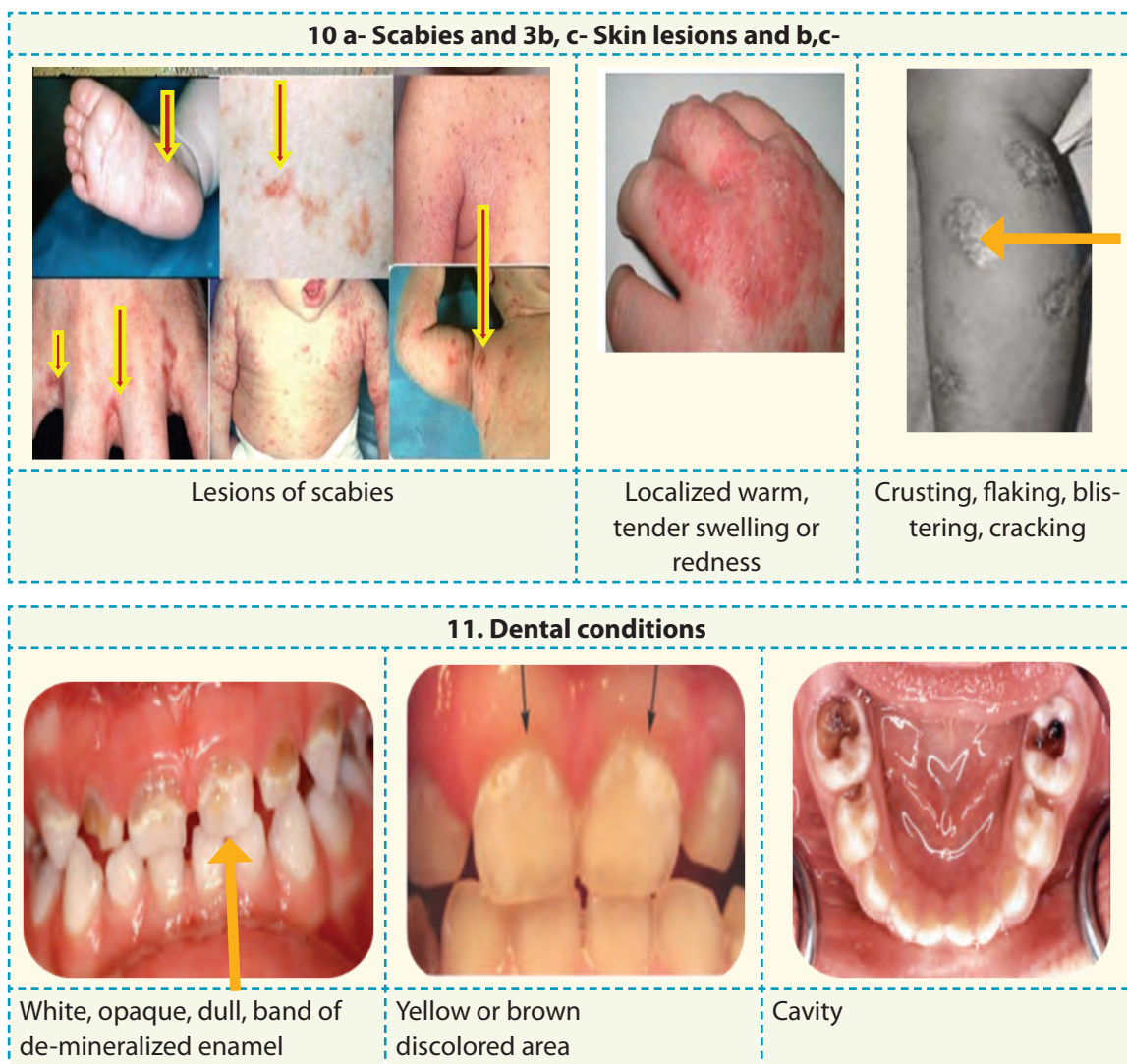


Schematic Diagram of discharging



Picture of a watery discharge from ear





TOOL 4. Early Detection of Developmental Delay-Pictorial tool for the age of 2 months to 30 months: Pictorial tool for quick identification of the developmental delays. Use of this tool will help in quickly identifying children with developmental delays in the areas of vision, hearing, speech & language, cognition, motor.

TOOLS FOR DEVELOPMENTAL DELAYS

- I. **Up to 30 months:** Use questions D 1.1 – D 8.5 of the Screening Tool cum Referral Card (0 – 6 years) for identifying developmental delays.
- II. **From 30 months to 6 years:** Use questions D 11.1 – D 11.11 of the Screening Tool cum Referral Card (0 – 6 years) for identifying developmental delays.
- III. **Tool 4: Laminated pictorial tools** for quick identification of the developmental delays.

TOOL 5: Developmental deviation or Neuro-motor impairment including cerebral palsy- A pictorial tool depicting developmental deviation as compared with normal development from birth to 30 months

TOOL 6.: Autism specific questionnaire from the age of 15 -24 months but must be used till the age of 6 years. Questions are present in the Screening tool cum Referral card for 0-6 years.

GROSS MOTOR	VISION
<ol style="list-style-type: none"> 1. Head holding 2. Rolling over 3. Sit alone 4. Crawl 5. Stand alone 6. Walk alone 7. Walk steadily while by pulling a toy 8. Climb upstairs and downstairs 	<ol style="list-style-type: none"> 1. Responds to light & face 2. Eye contact 3. No cross eye 4. Follows object 5. Watches TV without tilting the head 6. Avoid bumping into objects while moving
FINE MOTOR	
<ol style="list-style-type: none"> 1. Keeps hands open and relaxed 2. Reaches and tries to grasp a toy 3. Hold a toy using the whole palm 4. Transfer object from hand to hand 5. Picks up small objects 6. Putting objects in a container 7. Scribble 	
HEARING	COGNITION & SOCIALIZATION
<ol style="list-style-type: none"> 1. Startles to loud noise 2. Vocalizes by Coos 3. Responds by directly looking at human face 4. Laughs aloud 5. Turns head to sound 6. Responds to name 7. Babbling : "ba-ba-ba", "da-da", "ma-ma" 8. Says one meaningful word - mama, dada 9. Follows simple direction , "give me the ball" 10. Joint two words 11. Speak sentences 12. Understands "No" 	<ol style="list-style-type: none"> 1. Social smile 2. Sucking on hands (oral exploration) 3. Looks for a toy that has dropped 4. Stretches arms to be picked up 5. Enjoys playing hide & seek 6. Searches for completely hidden objects 7. Simple pretend play 8. Drinks from a cup 9. Toilet trained by night



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

Domain	Gross Motor				Fine Motor		Hearing	Speech	Vision	Cognition & Socialization				
Age 2 months (For infants over 2 months but less than 4 months)		Moves both arms and both legs, freely and equally when awake		Raises the head occasionally when awake		Keeps his hands open and relaxed		Responds to sound		Vocalizes by cooing especially after feeding		Eye contact		Social Smile
		Holds Head Straight while sitting or when held on shoulder		Reaches and tries to grasp an object		Grasp of the object is in the ulnar side of palm		When spoken to, responds by looking directly at speaker's face		Laugh aloud		Follows an object		Sucks on hands
Age 4 months (For infants over 4 months but less than 6 months of age)														


TOOL 4. PICTORIAL TOOL FOR THE AGE OF 2 MONTHS TO 30 MONTHS

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

Domain	Gross Motor	Fine Motor	Hearing	Speech	Vision	Cognition & Socialization
6 months (For infants over 6 months but less than 9 months of age)						
	Roll over or turn over in either direction	Grasps a small object by using his whole hand	Locates source of sound	Child utters consonant sounds like "p" "b" "m"	Child watches TV without tilting his/her head	Child stretches his arms to be picked up by the parents Child looks for a spoon or toy that has dropped
9 months (For children over 9 months and less than 12 months of age)						
	Child can sit without any support	Transfer object from hand to hand	Respond to his/ her name	Babbling example- "ba", "ba", "da", "da", "ma", "ma"	Avoid bumping into objects while moving	Child enjoys playing hide-and-seek (peek-a-boo)

TOOL 4. PICTORIAL TOOL FOR THE AGE OF 2 MONTHS TO 30 MONTHS

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

Domain	Gross Motor	Fine Motor	Hearing	Speech	Cognition & Socialization
12 months (For children over 12 months but less than 15 months of age)					<div>  <p>Imitate action like bye-clap/kiss</p> </div> <div>  <p>Child cries when a stranger picks him up</p> </div> <div>  <p>Child searches for completely hidden objects</p> </div>
		Reciprocal crawling on hands and knees	Child stops activity in response to "NO"	Child says one meaningful word clearly like mama, dada	
		Child picks up small object using thumb and index finger			
15 months (For children over 15 months but less than 18 months of age)					<div>  <p>Child manipulates or explores a toy with his fingers like poking or pulling the toy</p> </div> <div>  <p>Child explores</p> </div>
	Child walks alone	Child put small things into a container	Follow simple one step direction, "Sit Down", "Give me the ball"	Child says at least two words other than mama or dada like dog, cat	
		Points to objects			

Tools










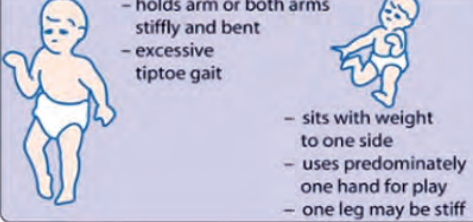
TOOL 4. PICTORIAL TOOL FOR THE AGE OF 2 MONTHS TO 30 MONTHS

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

Domain	Gross Motor	Fine Motor	Speech	Cognition & Socialization
18 months (For children over 18 months but less than 24 months of age)	 <p>Walks steadily even while pulling a toy</p>	 <p>Scribble spontaneously</p>	 <p>Points to one or more body parts</p>	 <p>Imitates house hold tasks</p>
24 months (For children over 24 months and less than 30 months of age)	 <p>Child climbs upstairs and downstairs</p>	 <p>Child feeds self either with hand or spoon or drink from a cup</p>	 <p>Joins 2 words together like mama-milk, car-go</p>	 <p>Simple pretend play eg feeding the doll</p>
				 <p>Parallel play: Playing along with other children</p>

TOOL 5.DEVELOPMENTAL DEVIATION OR NEURO-MOTOR IMPAIRMENT INCLUDING CEREBRAL PALSY

Neuromotor impairment tools depicting developmental deviation as compared with normal Development.

Normal motor development	Median age	Limit age	Abnormal motor development
 <ul style="list-style-type: none"> - pushes up on arms - holds head up 	1½ months	3 months	 <ul style="list-style-type: none"> - unable to lift head or push up on arms - stiff extended legs - pushing back with head - constantly fisted hand and stiff leg on one side - difficulty moving out of this position
 <ul style="list-style-type: none"> - sits with support - holds head up - rounded back 	3 months	6 months	 <ul style="list-style-type: none"> - unable to lift head - floppy trunk - stiff arms, extended legs - arms flexed and held back - stiff, crossed legs
 <ul style="list-style-type: none"> - sits without support - arms free to reach and grasp 	6 months	9 months	 <ul style="list-style-type: none"> - rounded back - poor use of arms for play - stiff legs, pointed toes - poor head control - difficulty getting arms forward - arches back - stiff legs - poor ability to lift head and back - will not take weight on legs
 <ul style="list-style-type: none"> - pulls to stand 	9 months	13 months	 <ul style="list-style-type: none"> - not interested in weight bearing - difficulty in pulling to stand - stiff legs, pointed toes - cannot crawl on hands and knees - may use only one side of body to move
 <ul style="list-style-type: none"> - independent standing or walking 	12 months	18 months	 <ul style="list-style-type: none"> - holds arm or both arms stiffly and bent - excessive tiptoe gait - sits with weight to one side - uses predominately one hand for play - one leg may be stiff

Normal motor milestones and patterns of abnormal motor development. Cerebral Palsy (hemiplegia or quadriplegia) is the commonest cause of developmental problems. (Adapted from Pathways Awareness Foundation, 123 North Wacker Drive, Chicago, IL.

See also <http://www.pathwaysawareness.org>. Accessed May 2011.)

TYPICAL AND ATYPICAL DEVELOPMENT AT VARIOUS AGES

A. BIRTH -2 MONTHS

Typical development



Supine – Symmetrical flexed posture



Prone – symmetrical flexed posture, clears nose



Sitting - Head and trunk flexed

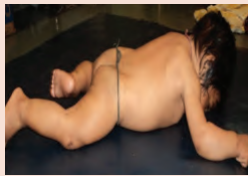


Stands with Positive support reflex

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



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



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)



Significant head lag when pulled to sit

B. 3 - 4 MONTHS



Head lag falling to the side or front



Difficult to cuddle, seems stiff when mother carries the child



Head falling to the back

Roll over like a log of wood before three months



Hands held habitually in a fisted position after 4 months



- 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

TOOL 6: VISION TOOL

1. Use Questions A2, A10 (a) and B4 of the Screening Tool cum Referral Card (0 – 6 years) for identifying abnormalities related to the eyes and vision.
2. Vision tool for identification of vision related problems for 0-6 years.

RBSK: INDICATIONS FOR REFERRAL TO DEIC: THESE PHOTOS ARE APPLICABLE FOR ALL AGE GROUPS

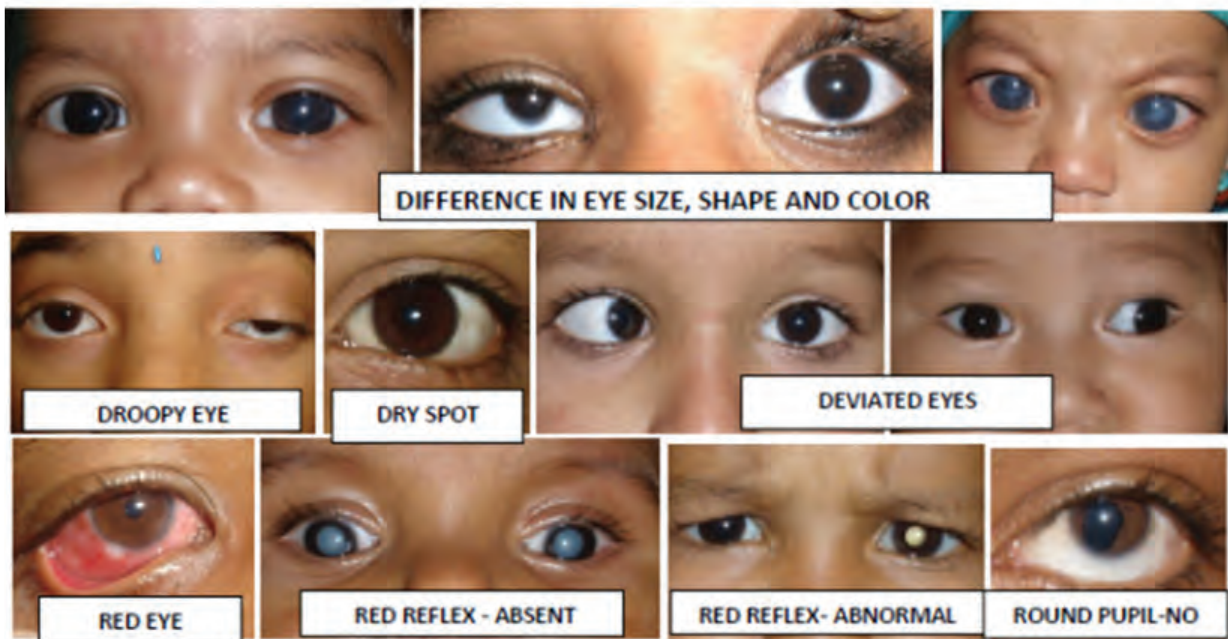


Photo Courtesy: Clinical color Atlas and Manual of Pediatric ophthalmology, Strabismus & Neuro-ophthalmology, Karthikeyan A.S, Jaypee publishers, July 2013.

TOOL 7: D. AUTISM SCREENING TOOL FOR CHILDREN > 15 MONTH

From 15 months: Use Questions D10.1.1 – D10.2.3 of the Screening Tool cum Referral Card (0 – 6 years) for asking specific questions.

What will you look for?

Playing with unusual objects



Flapping hands



Loves spinning wheels of cars



Poor response



Early behaviors in Autism

How will you track early?

Absence of:

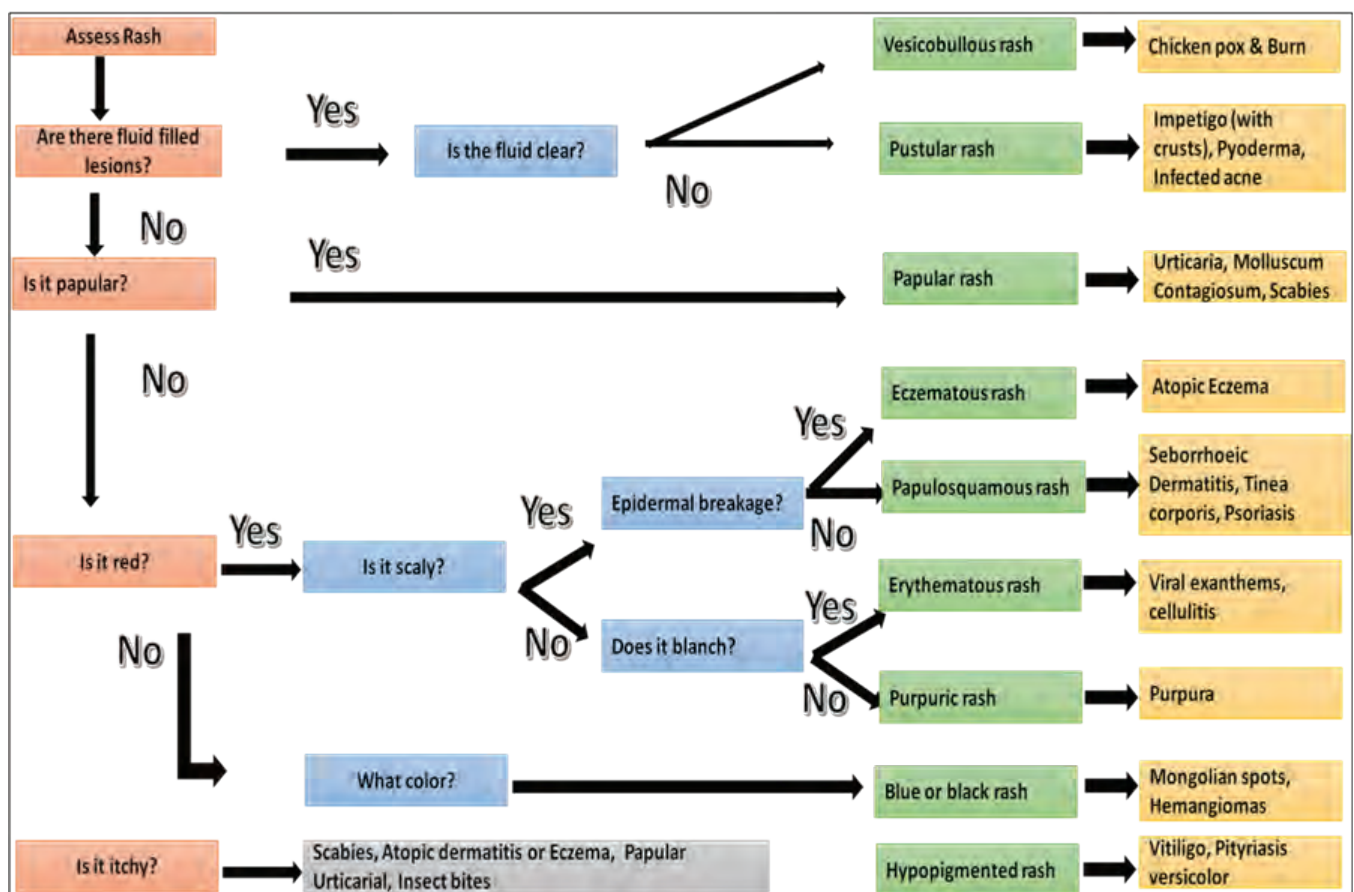
- Babbling by 12 months
- Gesturing (e.g., pointing, waving bye-bye) by 12 months
- Single words by 16 months
- Two-word spontaneous (not just echolalic) phrases by 24 months
- Loss of any language or social skills at any age

IDENTIFY AUTISM BY:

1. Impaired social abilities and interaction
2. Impaired communication: Verbal and Non-verbal
3. Abnormal repetitive behavioral pattern

TOOL 8: SKIN TOOL FOR ALL AGES

1. Use Question C4 of the Screening Tool cum Referral Card for identifying skin conditions.
2. Skin tool for identification of skin conditions for all ages.



TOOL 9: DENTAL TOOL

1. Use Question C3 of the Screening Tool cum Referral Card for identifying dental conditions
2. Dental tool for identification of dental conditions for all ages .
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.



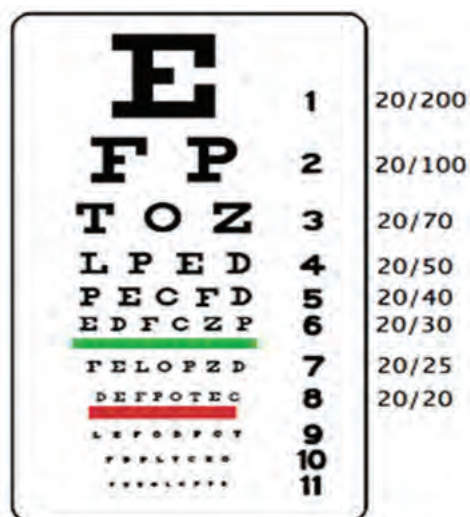
1. Check for

- White,
- Opaque, dull, white band of de-mineralized enamel especially upper front teeth



<p>2. Check for</p> <ul style="list-style-type: none"> Yellow or brown discolored area, break in continuity of tooth 		
<p>3. Look for Breakdown of teeth</p>		
<p>4. Look in Gums for :</p> <ul style="list-style-type: none"> Red gums Swollen gums Bleeding gums Plaque / calculus 	Advanced Decay	
		

TOOL 10: SNELLEN'S CHART FOR CHILDREN ABOVE THE AGE OF 6 YEARS.



	In feet	In meters
1	20/200	6/60
2	20/100	6/30
3	20/70	6/21
	20/60	6/18
4	20/50	6/15
5	20/40	6/12
6	20/30	6/9
7	20/25	6/7.6
8	20/20	6/6

Convert Feet into	Meters (from feet)	Acuity in feet From 20 ft. distance	Acuity in meters from 6 ft.
10 feet	3 meters	20/10	6/3
20 feet	6 meters	20/20	6/6
30 feet	9 meters	20/ 30	6/ 9
40 feet	12 meters	20/ 40	6/12
50 feet	15 meters	20/50	6/15
60 feet	18 meters	20/ 60	6/18
70 feet	21 meters	20/70	6/ 21
80 feet	24 meters	20/80	6/24
90 feet	27 meters	20/90	6/27
100 feet	30 meters	20 /100	6/ 30
200 feet	60 meters	20/ 200	6/ 60

TOOL 11: ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) TOOL

- Question D9 in Screening Tool cum Referral Card (6 – 18 years)

TOOL 12: MENTAL RETARDATION (MR) TOOL AND COGNITION DELAY

Use Questions D5 and D8 of the Screening Tool cum Referral Card (6 – 18 years) for identifying Mental Retardation and Cognition Delay

TOOL 13: ADOLESCENT HEALTH CONCERN TOOL

- Questions E1 – E8 of the Adolescent Specific Questionnaire (Section E) in Screening Tool cum Referral Card (6 – 18 years)

TOOL 14: TABLES FOR REFERENCES AND CLASSIFICATION: REFERRAL OR NO REFERRAL

Measurement & Definition	Rationale for use: Remarks	Available in the manual
Head circumference : Measurement of the head around its widest area. With a non-stretchable tape. Place it at the most prominent point at the back of child's skull and then should pass just above the eye brows.	Abnormal head growth may Indicate a medical or developmental Problem and often needs further evaluation. Microcephaly is defined as a head circumference 2 standard deviations (SDs) below the mean for age and sex. Conversely, Macrocephaly is defined as a head circumference greater than 2 SDs above the mean	Head circumference : H.C. : a) H. C. Charts from birth to 5 years: Male (WHO) b) H.C. Charts from birth to 5 years Female (WHO)

Measurement & Definition	Rationale for use: Remarks	Available in the manual
Weight for Age : (W F A) Low W F A : Under weight < -2SD of the WHO chart: Moderately underweight (MUW) < - 3 SD of the WHO chart: Severely underweight (SUW)	Evidence shows that the mortality risk is higher in moderately underweight and among severely underweight children the risk is even still greater. *Does not distinguish between acute and chronic under nutrition	Weight for Age : a) Charts from birth to 5 years: Male (WHO) b) Charts from birth to 5 years Female (WHO)
Height for age : (H F A) Low H F A : Stunting < -2SD of the WHO chart: Stunting: Chronic malnutrition	Stunting, or low height for age, is caused by long-term insufficient nutrient intake and frequent infections. Stunting generally occurs before age two years and starts at the age of three month and effects are largely irreversible. These include delayed motor development, impaired cognitive function and poor school performance. Nearly one third of children under five in the developing world are stunted.	Height for age: 0-2, 2-5 yrs. A1) Charts from 0 to 2 years: Male (WHO) A2) Charts from 2 to 5 years: Male (WHO) B1) Charts from 0 to 2 years Female (WHO) B2) Charts from 2 to 5 years Female (WHO)
Visible severe wasting for identifying severe acute malnutrition in children	Severe acute malnutrition can also be diagnosed by assessing children for visible severe wasting, defined as the presence of muscle wasting in the gluteal region, loss of subcutaneous fat, or prominence of bony structures, particularly over the thorax	
Weight for height from 6 month to 5 years : Low weight for height = Wasting < -2SD of the WHO chart: Moderate acute malnutrition < - 3 SD of the WHO chart: Severe acute malnutrition Derived from measuring weight and height for age	Wasting in children up to 5 years is a reflection of acute under nutrition as a consequence of either insufficient food intake or a high incidence of infectious diseases or malabsorption. Complicated severe acute malnutrition is a life-threatening condition requiring urgent, specialized treatment. Early intervention may save the life	Weight for height from 6 month to 5 years. a) Charts from birth to 5 years Male (WHO) b) Charts from birth to 5 years Female (WHO)
Body Mass Index : BMI For Under nutrition : <i>For thin school age children and adolescence (5-19 Yrs.)</i> Degrees of thinness categorized on the basis of Body Mass Index : BMI < -2 (SD) BMI for age: Thinness. < -3 (SD) of the WHO BMI for age : Severe thinness:	Thinness indicates in most cases a recent and severe process of weight loss, which is often associated with acute starvation and/or severe disease. Adolescent thinness indicates short term changes and could be due to dieting and eating disorder. In emergency situations, immediate action is required to identify those at greatest risk of death from starvation. Also thin or undernourished adolescents identified could be given nutritional guidance.	Body Mass Index : BMI a) Charts from 6 to 18 years Male (WHO) b) Charts from 6-18 years Female (WHO)

Measurement & Definition	Rationale for use: Remarks	Available in the manual
Body Mass Index : BMI For Over nutrition : *BMI for age : > +2 standard deviations (SD) of the WHO 2007 Reference median : Obesity * BMI \geq 30.0 = obesity	Childhood obesity is associated with a higher probability of obesity in adulthood, which can lead to a variety of disabilities and diseases, such as diabetes and cardiovascular diseases.	Body Mass Index : BMI a) Charts from 6 to 18 years Male (WHO) b) Charts from 6-18 years Female (WHO)
Blood pressure : Based on age and height , watch for blood pressure and classify into : a) Pre hypertension b) Stage 1 HTN c) Stage 2 HTN	HTN= Hypertension Blood pressure measurement is essential after the age of three years. Under RBSK we would be measuring for all school children. BP would be measured in the right arm of relaxed and seated child.	Blood pressure a) Charts for boys based on age and height b) Chart for Girls based on age and height

HEAD CIRCUMFERENCE-FOR-AGE: BIRTH TO 5 YEARS (Z-SCORES) (SD= STANDARD DEVIATION)

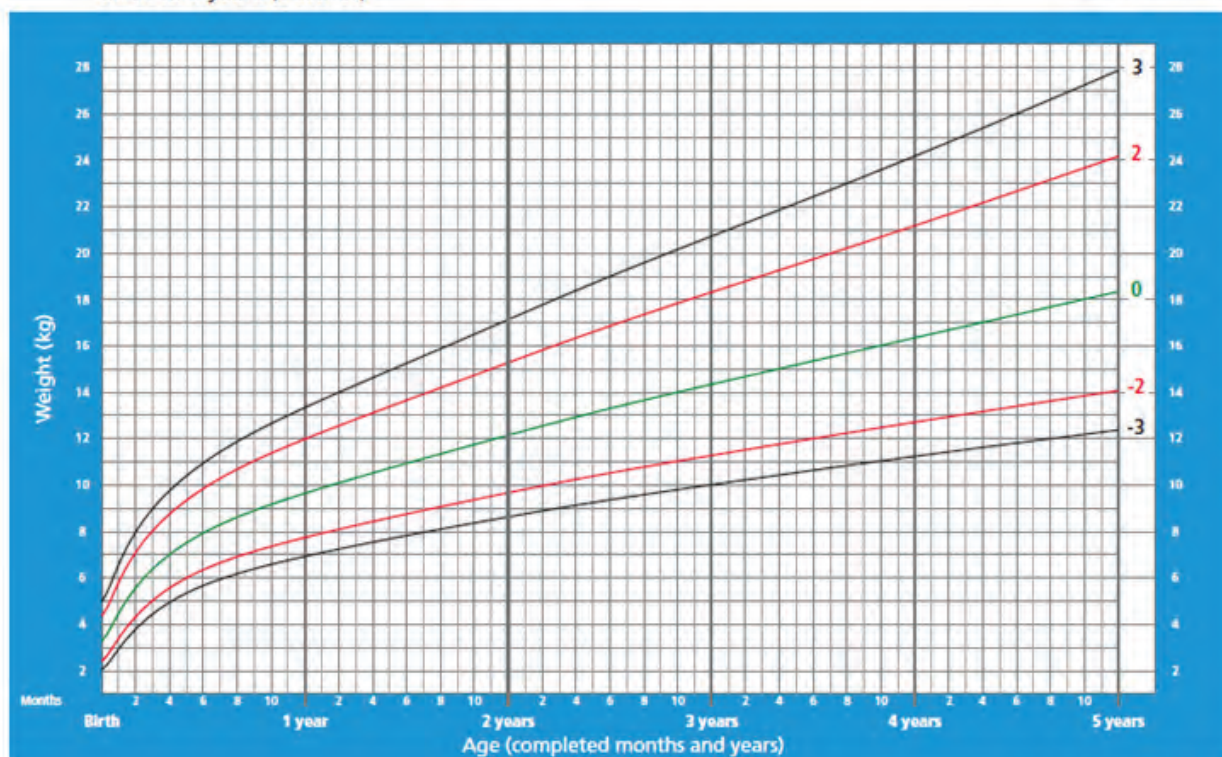
Head circumference-for-age BOYS Birth to 2 years (z-scores)						Head circumference-for-age GIRLS Birth to 2 years (z-scores)					
Months	-3 SD	-2 SD	Median	2 SD	3 SD	3 SD	2 SD	Median	-2 SD	-3 SD	Months
0	30.7	31.9	34.5	37.0	38.3	37.4	36.2	33.9	31.5	30.3	0
1	33.8	34.9	37.3	39.6	40.8	40.1	38.9	36.5	34.2	33.0	1
2	35.6	36.8	39.1	41.5	42.6	41.9	40.7	38.3	35.8	34.6	2
3	37.0	38.1	40.5	42.9	44.1	43.3	42.0	39.5	37.1	35.8	3
4	38.0	39.2	41.6	44.0	45.2	44.4	43.1	40.6	38.1	36.8	4
5	38.9	40.1	42.6	45.0	46.2	45.3	44.0	41.5	38.9	37.6	5
6	39.7	40.9	43.3	45.8	47.0	46.1	44.8	42.2	39.6	38.3	6
7	40.3	41.5	44.0	46.4	47.7	46.8	45.5	42.8	40.2	38.9	7
8	40.8	42.0	44.5	47.0	48.3	47.4	46.0	43.4	40.7	39.4	8
9	41.2	42.5	45.0	47.5	48.8	47.8	46.5	43.8	41.2	39.8	9
10	41.6	42.9	45.4	47.9	49.2	48.3	46.9	44.2	41.5	40.2	10
11	41.9	43.2	45.8	48.3	49.6	48.6	47.3	44.6	41.9	40.5	11
12	42.2	43.5	46.1	48.6	49.9	49.0	47.6	44.9	42.2	40.8	12
13	42.5	43.8	46.3	48.9	50.2	49.3	47.9	45.2	42.4	41.1	13
14	42.7	44.0	46.6	49.2	50.5	49.5	48.2	45.4	42.7	41.3	14
15	42.9	44.2	46.8	49.4	50.7	49.8	48.4	45.7	42.9	41.5	15

WEIGHT FOR AGE (BIRTH TO 5 YEARS) FOR BOYS AND GIRLS

Months	-3 SD	-2 SD	Median	2 SD	3 SD	3 SD	2 SD	Median	-2 SD	-3 SD	Months
0	30.7	31.9	34.5	37.0	38.3	37.4	36.2	33.9	31.5	30.3	0
1	33.8	34.9	37.3	39.6	40.8	40.1	38.9	36.5	34.2	33.0	1
2	35.6	36.8	39.1	41.5	42.6	41.9	40.7	38.3	35.8	34.6	2
3	37.0	38.1	40.5	42.9	44.1	43.3	42.0	39.5	37.1	35.8	3
4	38.0	39.2	41.6	44.0	45.2	44.4	43.1	40.6	38.1	36.8	4
5	38.9	40.1	42.6	45.0	46.2	45.3	44.0	41.5	38.9	37.6	5
6	39.7	40.9	43.3	45.8	47.0	46.1	44.8	42.2	39.6	38.3	6
7	40.3	41.5	44.0	46.4	47.7	46.8	45.5	42.8	40.2	38.9	7
8	40.8	42.0	44.5	47.0	48.3	47.4	46.0	43.4	40.7	39.4	8
9	41.2	42.5	45.0	47.5	48.8	47.8	46.5	43.8	41.2	39.8	9
10	41.6	42.9	45.4	47.9	49.2	48.3	46.9	44.2	41.5	40.2	10
11	41.9	43.2	45.8	48.3	49.6	48.6	47.3	44.6	41.9	40.5	11
12	42.2	43.5	46.1	48.6	49.9	49.0	47.6	44.9	42.2	40.8	12
13	42.5	43.8	46.3	48.9	50.2	49.3	47.9	45.2	42.4	41.1	13
14	42.7	44.0	46.6	49.2	50.5	49.5	48.2	45.4	42.7	41.3	14
15	42.9	44.2	46.8	49.4	50.7	49.8	48.4	45.7	42.9	41.5	15
16	43.1	44.4	47.0	49.6	51.0	50.0	48.6	45.9	43.1	41.7	16
17	43.2	44.6	47.2	49.8	51.2	50.2	48.8	46.1	43.3	41.9	17
18	43.4	44.7	47.4	50.0	51.4	50.4	49.0	46.2	43.5	42.1	18
19	43.5	44.9	47.5	50.2	51.5	50.6	49.2	46.4	43.6	42.3	19
20	43.7	45.0	47.7	50.4	51.7	50.7	49.4	46.6	43.8	42.4	20
21	43.8	45.2	47.8	50.5	51.9	50.9	49.5	46.7	44.0	42.6	21
22	43.9	45.3	48.0	50.7	52.0	51.1	49.7	46.9	44.1	42.7	22
23	44.1	45.4	48.1	50.8	52.2	51.2	49.8	47.0	44.3	42.9	23
24	44.2	45.5	48.3	51.0	52.3	51.4	50.0	47.2	44.4	43.0	24
25	44.3	45.6	48.4	51.1	52.5	51.5	50.1	47.3	44.5	43.1	25
26	44.4	45.8	48.5	51.2	52.6	51.7	50.3	47.5	44.7	43.3	26
27	44.5	45.9	48.6	51.4	52.7	51.8	50.4	47.6	44.8	43.4	27
28	44.6	46.0	48.7	51.5	52.9	51.9	50.5	47.7	44.9	43.5	28
29	44.7	46.1	48.8	51.6	53.0	52.0	50.6	47.8	45.0	43.6	29

Weight-for-age BOYS

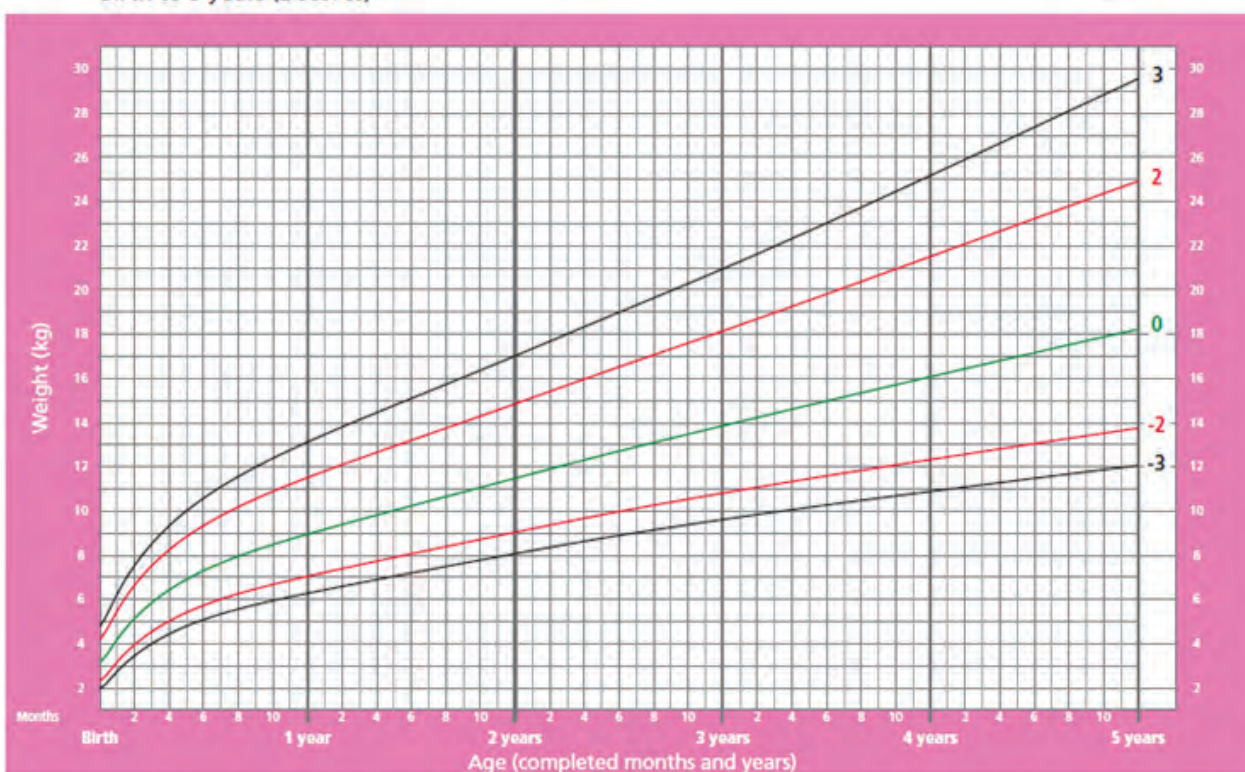
Birth to 5 years (z-scores)



WHO Child Growth Standards

Weight-for-age GIRLS

Birth to 5 years (z-scores)



WHO Child Growth Standards

WEIGHT FOR HEIGHT 6 MONTHS TO 60 MONTHS (BOYS/GIRLS)

IDENTIFYING SAM CHILDREN (NOTE GENDER DIFFERENCES)

Reference Chart for Weight for Height (45 cms – 86 cms)

Boys Weight (Kg)					Girls Weight (Kg)			
Length (cm)	-3 SD	-2 SD	Median	LENGTH (cm)	Median	-2 SD	- 3 SD	Length (cm)
45	1.9	2.0	2.4	45	2.5	2.1	1.9	45
46	2.0	2.2	2.6	46	2.6	2.2	2.0	46
47	2.1	2.3	2.8	47	2.8	2.4	2.2	47
48	2.3	2.5	2.9	48	3.0	2.5	2.3	48
49	2.4	2.6	3.1	49	3.2	2.6	2.4	49
50	2.6	2.8	3.3	50	3.4	2.8	2.6	50
51	2.7	3.0	3.5	51	3.6	3.0	2.8	51
52	2.9	3.2	3.8	52	3.8	3.2	2.9	52
53	3.1	3.4	4.0	53	4.0	3.4	3.1	53
54	3.3	3.6	4.3	54	4.3	3.6	3.3	54
55	3.6	3.8	4.5	55	4.5	3.8	3.5	55
56	3.8	4.1	4.8	56	4.8	4.0	3.7	56
57	4.0	4.3	5.1	57	5.1	4.3	3.9	57
58	4.3	4.6	5.4	58	5.4	4.5	4.1	58
59	4.5	4.8	5.7	59	5.6	4.7	4.3	59
60	4.7	5.1	6.0	60	5.9	4.9	4.5	60
61	4.9	5.3	6.3	61	6.1	5.1	4.7	61
62	5.1	5.6	6.5	62	6.4	5.3	4.9	62
63	5.3	5.8	6.8	63	6.6	5.5	5.1	63
64	5.5	6.0	7.0	64	6.9	5.7	5.3	64
65	5.7	6.2	7.3	65	7.1	5.9	5.5	65
66	5.9	6.4	7.5	66	7.3	6.1	5.6	66
67	6.1	6.6	7.7	67	7.5	6.3	5.8	67
68	6.3	6.8	8.0	68	7.7	6.5	6.0	68
69	6.5	7.0	8.2	69	8.0	6.7	6.1	69
70	6.6	7.2	8.4	70	8.2	6.9	6.3	70
71	6.8	7.4	8.6	71	8.4	7.0	6.5	71
72	7.0	7.6	8.9	72	8.6	7.2	6.6	72
73	7.2	7.7	9.1	73	8.8	7.4	6.8	73
74	7.3	7.9	9.3	74	9.0	7.5	6.9	74
75	7.5	8.1	9.5	75	9.1	7.7	7.1	75
76	7.6	8.3	9.7	76	9.3	7.8	7.2	76
77	7.8	8.4	9.9	77	9.5	8.0	7.4	77
78	7.9	8.6	10.1	78	9.7	8.2	7.5	78
79	8.1	8.7	10.3	79	9.9	8.3	7.7	79
80	8.2	8.9	10.4	80	10.1	8.5	7.8	80
81	8.4	9.1	10.6	81	10.3	8.7	8.0	81
82	8.5	9.2	10.8	82	10.5	8.8	8.1	82
83	8.7	9.4	11.0	83	10.7	9.0	8.3	83
84	8.9	9.6	11.3	84	11.0	9.2	8.5	84
85	9.1	9.8	11.5	85	11.2	9.4	8.7	85
86	9.3	10.0	11.7	86	11.5	9.7	8.9	86

BMI (BODY MASS INDEX) TOOL

SIMPLIFIED FIELD TABLES

BMI-FOR-AGE GIRLS

6 to 18 years (z-scores)



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

Year: Month	Months	-3 SD	-2 SD	Median	2 SD	3 SD
6: 0	72	11.7	12.7	15.3	19.2	22.1
6: 1	73	11.7	12.7	15.3	19.3	22.2
6: 2	74	11.7	12.7	15.3	19.3	22.3
6: 3	75	11.7	12.7	15.3	19.3	22.4
6: 4	76	11.7	12.7	15.3	19.4	22.5
6: 5	77	11.7	12.7	15.3	19.4	22.6
6: 6	78	11.7	12.7	15.3	19.5	22.7
6: 7	79	11.7	12.7	15.3	19.5	22.8
6: 8	80	11.7	12.7	15.3	19.6	22.9
6: 9	81	11.7	12.7	15.4	19.6	23.0
6: 10	82	11.7	12.7	15.4	19.7	23.1
6: 11	83	11.7	12.7	15.4	19.7	23.2
7: 0	84	11.8	12.7	15.4	19.8	23.3

SIMPLIFIED FIELD TABLES

BMI-FOR-AGE BOYS

6 to 18 years (z-scores)

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

Year: Month	Months	-3 SD	-2 SD	Median	2 SD	3 SD
6: 0	72	12.1	13.0	15.3	18.5	20.7
6: 1	73	12.1	13.0	15.3	18.6	20.8
6: 2	74	12.2	13.1	15.3	18.6	20.8
6: 3	75	12.2	13.1	15.3	18.6	20.9
6: 4	76	12.2	13.1	15.4	18.7	21.0
6: 5	77	12.2	13.1	15.4	18.7	21.0
6: 6	78	12.2	13.1	15.4	18.7	21.1
6: 7	79	12.2	13.1	15.4	18.8	21.2
6: 8	80	12.2	13.1	15.4	18.8	21.3
6: 9	81	12.2	13.1	15.4	18.9	21.3
6: 10	82	12.2	13.1	15.4	18.9	21.4
6: 11	83	12.2	13.1	15.5	19.0	21.5
7: 0	84	12.3	13.1	15.5	19.0	21.6

BLOOD PRESSURE TOOL

Boys SBP by Age and Height
(Normal SBP is less than the prehypertensive result.)

Age	BP Classification	Systolic BP (mmHg)						
	Height (cm)	92	94	96	99	102	104	106
3	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
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
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
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
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
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
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
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
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
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
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
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
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
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

Girls SBP by Age and Height
(Normal SBP is less than the prehypertensive result.)

Age	BP Classification	Systolic BP (mmHg)						
	Height (cm)	91	92	95	98	100	103	105
3	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
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
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
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
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
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
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
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
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
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
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
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
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
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

1. METHODOLOGY OF SCREENING

The RBSK '**LOOK**' (Pictorial Tools), '**ASK**' (Questionnaire in Screening Tool cum Referral Card) and '**PERFORM**' (Clinical examination)' methodology of screening:

METHODOLOGY ADOPTED FOR SCREENING UNDER RBSK

- **1 LOOK** – Observing the child is to be used by RBSK Mobile Health Team for easy identification of health conditions. Towards this, the Pictorial Job Aid - A simple photograph based tool is developed to identify a newborn/child with selected health conditions. This job aids and the companion participant manual to be used at field.
- **2. ASK** – Two age appropriate questionnaire tools and referral cards for 0-6 and 6-18 years age group is developed. This specially designed age appropriate - and disease specific symptom based questionnaire tool is to be used for systemic identification of deficiencies, diseases, developmental delays including disability. These are for easy identification of the selected health conditions.
- **3. PERFORM** – Clinical examination/Simple tests are to evaluate the condition is expected for identification of deficiencies and diseases e.g. swelling in the neck for goiter, prick test etc.

Screening of the child is done systematically. While screening the child, follow the sequence of examination outlined below:

2. ANTHROPOMETRY

First do the anthropometry of the child. Anthropometric measurements must be done gently so that the child does not begin to cry:

1. Weigh the child using age appropriate weighing scales
2. Measure the length / height of the child
3. Measure the head circumference for children upto 3 years
4. Measure the Mid Upper Arm Circumference (MUAC) only if the child is moderately or severely underweight for children from 6 months to 60 months.

Refer to Anthropometry Chapter for further details.

3. GENERAL EXAMINATION

1. LOOK FOR NEUROMOTOR IMPAIRMENT:

For children from birth upto the age of 30 months observe for:-

a. Symmetry:

- Observe if the child is bilaterally symmetrical

b. Posture:

- Observe child while lying on back (supine position), lying on the abdomen (in the prone position), sitting and standing
- Observe for normal / abnormal posture
- Look for hypotonia (decreased muscle tone) / hypertonia (increased tone in the muscles)

c. Movement:

- Observe whether the child is using both hands and both legs
- Observe if the child has a preference for one hand before the age of three years

Based on symmetry, posture and movement, decide whether neuro-motor impairment is present or not.

2. CHECK THE NUTRITIONAL STATUS:

For all children from birth to 18 years, check the nutritional status:-

- For children less than 6 years, use weight for height
 - Check for Severe Acute Malnutrition (SAM)
 - Check for oedema (swelling in feet)
- For children 6 to 18 years of age use Body Mass Index (BMI)
 - Check if severely underweight
 - Check for obesity.

3. EXAMINE THE SKIN:

- Observe the colour of the skin
- Look for skin rashes
- Look for infections
- Look for any oozing lesions

4. HEAD-TO-TOE EXAMINATION

Now examine the child from Head-to-toe for Birth Defects, Deficiencies and Diseases, (3Ds) in the following order:

- | | | |
|---------------------|-------------------|----------------|
| 1. Head | 7. Teeth and gums | 13. Palms |
| 2. Eyes | 8. Neck | 14. Nails |
| 3. Nose | 9. Heart | 15. Hip joints |
| 4. Ears | 10. Lungs | 16. Legs |
| 5. Lips | 11. Spine | 17. Feet |
| 6. Mouth and throat | 12. Wrists | |

5. DEVELOPMENTAL DELAYS

Now look for Developmental Delays (the 4th D) in the domains of gross motor development, fine motor development, vision, speech and language, hearing and social behavior. You must be familiar with normal development in each domain to be able to identify abnormal development.

1. GROSS MOTOR DEVELOPMENT


Gross motor development takes place in the following sequence, in the direction of the arrow:



Gross Motor Development

- Acquisition of tone and head control
- Primitive reflexes disappear
- Sitting
- Loco-motor Patterns
- Standing, walking, running
- Hopping, jumping, peddling

Age limits of normal gross motor development are as outlined below. If development does not take place within the stipulated age limit, the development is abnormal.

GROSS MOTOR	MAXIMUM AGE LIMITS (BEYOND THIS RED FLAG)	
Moves both arms & both legs freely and equally when awake	2 months	
Head control	4 months	
Roll over	6 months	
Sits unsupported	9 months	
Reciprocal Crawling	12 months	
Stands independently	15 months	
Walks alone	15 months	
Walks independently while pulling a toy	18 months	
Walks upstairs and downstairs	24 months	

2. FINE MOTOR DEVELOPMENT

Vision and fine motor development take place in the following sequence:



Vision and fine motor development

- Visual alertness, fixing and following
- Grasp reflex, hand regard
- Voluntary grasping, pincer, points
- Handles objects with both hands transfers from hand to hand
- Writing, cutting, dressing

The age limits of normal fine motor development are as described below:

FINE MOTOR	MAXIMUM AGE LIMITS (BEYOND THIS RED FLAG)
Keeps his hand open	2 months
Reaches for objects with ulnar	4 months
Grasps for objects with whole	6 months
Transfers objects	9 months
Pincer grip	12 months
Putting small things into a cup	15 months
Points to objects	15 months
Scribble	18 months
Feed self with hand / spoon	24 months



3. VISION

Normal vision development takes place as shown below:

VISION	MAXIMUM AGE LIMITS (BEYOND THIS RED FLAG)
Response to light/face	At birth
Eye contact	2 months
Deviated eye	3 months
Fixes and follows visually	4 months
Watches TV without tilting head	6 months
Avoid bumping into objects while moving	9 months



4. SPEECH AND LANGUAGE


Normal hearing, speech and language development takes place as depicted:



Hearing, speech and language development


- Second recognition, vocalization
- Babbling
- Single words, understands simple requests
- Joining words, phrases
- Simple and complex conversation

Age limits of normal speech and language development are as shown:

SPEECH AND LANGUAGE	MAXIMUM AGE LIMITS (BEYOND THIS RED FLAG)	
Coos or vocalize or gurgling	2 months	
Laughs aloud/squealing sound	4 months	
Utters "p", "b", "m"	6 months	
Polysyllabic babble "baba",	9 months	
Saying 1 meaningful word of a familiar object	12 months	
Say at least 2 words other than "baba", "mama"	15 months	
Saying 5 words with meaning	18 months	
Join 2 words like "mama milk"	2 years	
3-word sentences	3 years	


5. HEARING

Normal development of hearing takes place as shown:

HEARING	MAXIMUM AGE LIMITS (BEYOND THIS RED FLAG)	
Become alert to sound	2 months	
Respond to mother's speech	4 months	
Locates source of sound	6 months	
Respond to name	9 months	
Responds to "No"	12 months	
Follow simple one step direction, like "sit down",	15 months	
"give me the ball"		

6. SOCIAL BEHAVIOR

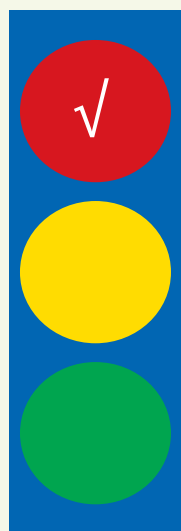
Normal social, emotional behavior development pattern is shown below:



Social, emotional, behavior development

- Smiling, socially responsive
- Separation anxiety
- Self-help skills, feeding, dressing, toileting
- Peer group relationships
- Symbolic play
- Social/communication behaviour

The age limits of normal social behavior is described below:

SOCIAL BEHAVIOR	MAXIMUM AGE LIMITS (BEYOND THIS RED FLAG)	
Smiles	2 months	
Raises arms to be picked up by parents	6 months	
Enjoy peek-a-boo	9 months	
Searches for completely hidden objects	12 months	
Fear of Strangers months (cries when stranger picks up)	12 months	
Responds to "No"	12 months	
Imitate actions like "bye-bye"	12 months	
Imitate household tasks	18 months	
Points to objects	15 months	
Child plays with toys by exploring a toy with his fingers	15 months	
Points to 1 or more body parts	18 months	
Symbolic/pretend Play	24 months	
Parallel Play	24 months	
Interactive / cross play	36 months	
Feeds Self/spoon	24 months	

IDENTIFYING DEVELOPMENTAL DELAYS:

USE THE DEVELOPMENTAL DELAY TOOLS TO IDENTIFY DEVELOPMENTAL DELAYS AS DESCRIBED BELOW:

1. Use the Developmental Delay tools upto 30 months to identify developmental delays in the domains of gross motor functions, fine motor functions, hearing, speech, vision, cognition and socialization (refer to Chapters on Tools and Developmental Delays – Chapter 5 and 8).
2. Use the eleven questions (D11.1 – D11.11) for children 2.5 years (30 months) to 6 years in the Screening Tool cum Referral Form for identifying developmental delays (refer to Screening Tool cum Referral Card 0 - 6 months – Chapter 4).
3. Use the Autism Specific Questionnaire (questions D10.1.1 – D10.2.3) in the Screening Tool cum Referral Form for identifying Autism in children aged 15 months to 24 months (refer to Screening Tool cum Referral Card 0 - 6 months – Chapter 4).
4. Use the nine questions (D1 – D9) in the Screening Tool cum Referral Form for identifying developmental delays in children 6 – 18 years (refer to Screening Tool cum Referral Card 6 - 18 years – Chapter 4).

ANTHROPOMETRY

Anthropometry is the Greek word which comprises of two words Anthropos (means man) Metron (means measurement).

After registering the child, anthropometry is done i.e. weight, height/length, mid upper arm circumference and head circumference are measured. Anthropometric procedures and Standardized Reference Charts are included in the RBSK Job Aids. Carry the RBSK Job Aids as ready reference while visiting the field to assist you in recording your measurements.

1. IDENTIFYING SEVERE ACUTE MALNUTRITION (SAM) OR MODERATELY ACUTE MALNUTRITION (MAM)

Anthropometry is a commonly used, inexpensive and a non-invasive method of assessing a child's nutritional status. Children who are severely wasted are at nine times higher risk of dying, than well-nourished children.

1. **Severe Acute Malnutrition (SAM):** SAM is defined by very low weight for height (below -3 SD i.e. standard deviation of the median, WHO growth standards), a mid-upper arm circumference (MUAC) of less than 115mm, or by the presence of bilateral oedema.

DIAGNOSTIC CRITERIA FOR SAM IN CHILDREN AGED 6–60 MONTHS		
Indicator	Measure	Cut-off
Severe wasting (2)	Weight-for-height (1)	$< -3SD$
Severe wasting (2)	MUAC	$< 115\text{mm}$
Bilateral oedema (3)	Clinical sign	Oedema

*1: Based on WHO Standards www.who.int/childgrowth/standards

**2, 3: Independent indicators of SAM that require urgent action

Standard Deviation (SD): Is a measure of the extent to which values deviate from center or is the average distance from center. To explain concept of Standard Deviation: If 7 participants stand in a line according to their height, with the smallest placed as the first and tallest as being the last, the fourth person stands in the center. From the center, three people standing in decreasing order of height and three others in increasing order. The person in the center then represents the mean or central figure. On each side as you move away from the center each person represents one standard deviation i.e. distance from the center or mean.

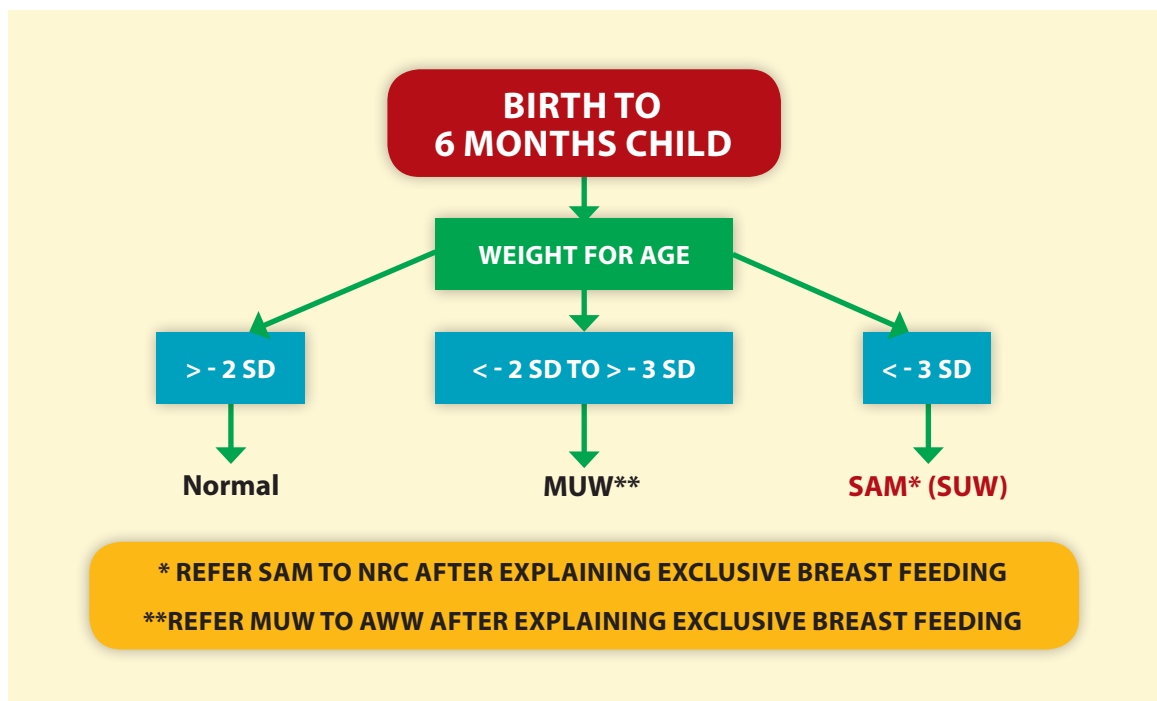
2. **Moderate Acute Malnutrition (MAM):** MAM is defined as: Weight-for-Height $< -2SD$ but > -3 SD. If the child is less than 6 months old, refer the child to the Anganwadi Centre after explaining breast feeding. If the child is 6 – 60 months old, give nutritional advice and counsel the mother or caretaker.

3. **Using anthropometric tools for screening Severe Acute Malnutrition (SAM) or Moderate Acute Malnutrition (MAM)** The anthropometric measurements required to be taken to identify SAM and MAM, differ in the age groups birth to 6 months and 6 months to 60 months. Follow the steps given below to identify SAM / MAM in these age groups and use the anthropometric tools in sequence described.

A. FROM BIRTH TO 6 MONTHS:

Step 1: Take weight for age for all children less than 6 months of age. If severely underweight (SUW: less than - 3 SD), consider it SAM. Refer to NRC after explaining exclusive breast feeding. If moderately underweight (MUW: weight less than - 2 SD but more than - 3 SD), refer the child to the Anganwadi Centre (AWW) after explaining exclusive breast feeding.

Steps for identifying SAM / MAM from birth to 6 months:



B. FROM 6-60 MONTHS

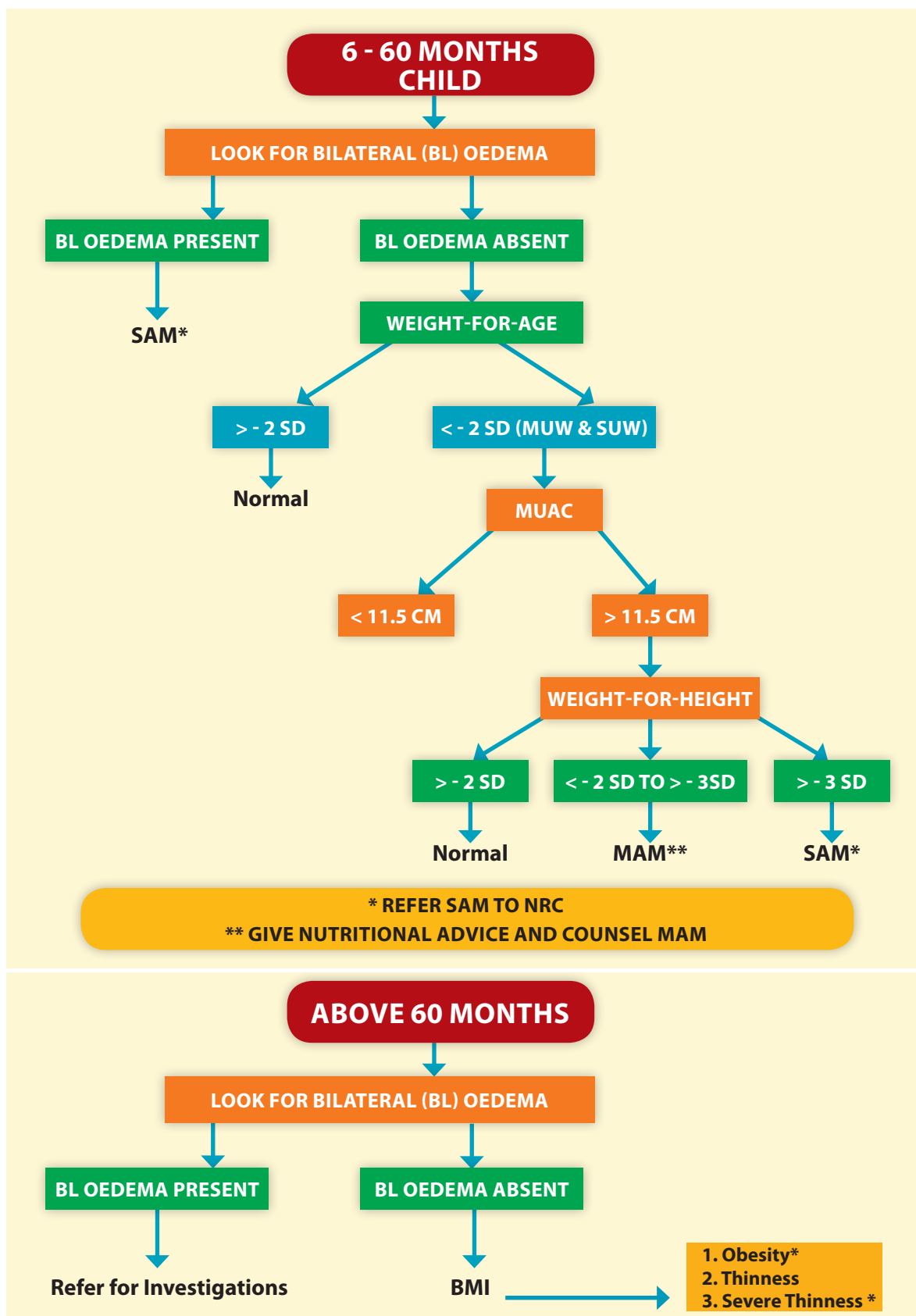
Step 1: All children from 6-60 months of age, should be examined for bilateral swelling in the legs/ oedema. Consider as SAM and refer to NRC if bilateral oedema is present.

Step 2: Take weight for age for all children from 6-60 months of age after you have excluded bilateral swelling. Using WHO Reference Charts (weight-for-age), identify severely underweight (SUW: less than - 3 SD) and moderately underweight (MUW: less than - 2 SD).

Step 3: Among SUW and MUW children, use the MUAC tape to identify SAM. Refer to NRC if MUAC is less than 11.5 cm indicating SAM.

Step 4: Among SUW and MUW children with normal MUAC or with MUAC more than 11.5 cm, identify SAM by using Weight-for-Height. Refer to NRC if weight for height is less than - 3 SD indicating SAM.

Steps for identifying SAM / MAM from 6 - 60 months:








2. MEASUREMENT OF WEIGHT

Weight is taken for all children irrespective of age.

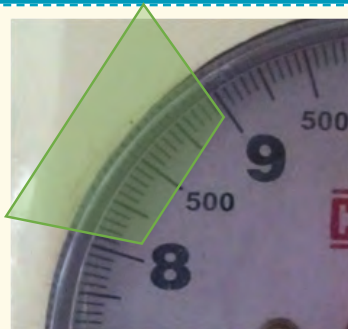
- Use the weighing balance which allows the child to lie down or sit for taking the weight in younger children.
- Use the weighing scales which are used for adults for older children who can stand without support.

Take the weight of the child as described below.

TAKING WEIGHT IN YOUNGER CHILDREN	
<ul style="list-style-type: none"> • Counsel the mother • Explain the procedure • Undress the child or remove the extra clothing 	
<ul style="list-style-type: none"> • Keep the weighing machine on flat, hard, horizontal surface 	
<ul style="list-style-type: none"> • Apply thin cloth or a sheet of newspaper on the scale pan to avoid hypothermia and then calibrate the scale to zero. Discard the newspaper after every use. 	
<ul style="list-style-type: none"> • Do not use plastic sheet that will stick to infant's body. 	
<ul style="list-style-type: none"> • Calibrate the scale to zero by rotating the knob • To check if the calibration of the scale is correct press the pan 2-3 times and confirm that it comes back to zero. 	

TAKING WEIGHT IN YOUNGER CHILDREN

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



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



- Place the child on machine horizontally or the child can sit in center so that s/he remains stable and calm.



- Take help of mother to calm the child



- Ask mother to hold the child and make sure that no extra pressure is added by mother.



- Take reading only when child is still



TAKING WEIGHT IN OLDER CHILDREN

- Child stands straight in the middle of the weighing scale platform with his hands hanging laterally, feet slightly apart and remains still.



- Adjust the zero/when the number 0.0 appears, the scale is ready to use
- Take care that the child stands properly on the scale, looking forward.
- Weight has to be recorded to the nearest 1/10 kg.



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

USE OF WEIGHT FOR AGE CHART:

To determine weight-for-age and identify severely underweight and moderately underweight.

Weight-for-age (z-scores)

GIRLS							Year:	Months	BOYS						
-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD	Month		-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
2.0	2.4	2.8	3.2	3.7	4.2	4.8	0:0	0	2.1	2.5	2.9	3.3	3.9	4.4	5.0
2.7	3.2	3.6	4.2	4.8	5.5	6.2	0:1	1	2.9	3.4	3.9	4.5	5.1	5.8	6.6
3.4	3.9	4.5	5.1	5.8	6.6	7.5	0:2	2	3.8	4.3	4.9	5.6	6.3	7.1	8.0
4.0	4.5	5.2	5.8	6.6	7.5	8.5	0:3	3	4.4	5.0	5.7	6.4	7.2	8.0	9.0
4.4	5.0	5.7	6.4	7.3	8.2	9.3	0:4	4	4.9	5.6	6.2	7.0	7.8	8.7	9.7
4.8	5.4	6.1	6.9	7.8	8.8	10.0	0:5	5	5.3	6.0	6.7	7.5	8.4	9.3	10.4
5.1	5.7	6.5	7.3	8.2	9.3	10.6	0:6	6	5.7	6.4	7.1	7.9	8.8	9.8	10.9
5.3	6.0	6.8	7.6	8.6	9.8	11.1	0:7	7	5.9	6.7	7.4	8.3	9.2	10.3	11.4
5.6	6.3	7.0	7.9	9.0	10.2	11.6	0:8	8	6.2	6.9	7.7	8.6	9.6	10.7	11.9
5.8	6.5	7.3	8.2	9.3	10.5	12.0	0:9	9	6.4	7.1	8.0	8.9	9.9	11.0	12.3
5.9	6.7	7.5	8.5	9.6	10.9	12.4	0:10	10	6.6	7.4	8.2	9.2	10.2	11.4	12.7
6.1	6.9	7.7	8.7	9.9	11.2	12.8	0:11	11	6.8	7.6	8.4	9.4	10.5	11.7	13.0
6.3	7.0	7.9	8.9	10.1	11.5	13.1	1:0	12	6.9	7.7	8.6	9.6	10.8	12.0	13.3
6.4	7.2	8.1	9.2	10.4	11.8	13.5	1:1	13	7.1	7.9	8.8	9.9	11.0	12.3	13.7
6.6	7.4	8.3	9.4	10.6	12.1	13.8	1:2	14	7.2	8.1	9.0	10.1	11.3	12.6	14.0
6.7	7.6	8.5	9.6	10.9	12.4	14.1	1:3	15	7.4	8.3	9.2	10.3	11.5	12.8	14.3
6.9	7.7	8.7	9.8	11.1	12.6	14.5	1:4	16	7.5	8.4	9.4	10.5	11.7	13.1	14.6
7.0	7.9	8.9	10.0	11.4	12.9	14.8	1:5	17	7.7	8.6	9.6	10.7	12.0	13.4	14.9
7.2	8.1	9.1	10.2	11.6	13.2	15.1	1:6	18	7.8	8.8	9.8	10.9	12.2	13.7	15.3
7.3	8.2	9.2	10.4	11.8	13.5	15.4	1:7	19	8.0	8.9	10.0	11.1	12.5	13.9	15.6
7.5	8.4	9.4	10.6	12.1	13.7	15.7	1:8	20	8.1	9.1	10.1	11.3	12.7	14.2	15.9
7.6	8.6	9.6	10.9	12.3	14.0	16.0	1:9	21	8.2	9.2	10.3	11.5	12.9	14.5	16.2
7.8	8.7	9.8	11.1	12.5	14.3	16.4	1:10	22	8.4	9.4	10.5	11.8	13.2	14.7	16.5
7.9	8.9	10.0	11.3	12.8	14.6	16.7	1:11	23	8.5	9.5	10.7	12.0	13.4	15.0	16.8
8.1	9.0	10.2	11.5	13.0	14.8	17.0	2:0	24	8.6	9.7	10.8	12.2	13.6	15.3	17.1
8.2	9.2	10.3	11.7	13.3	15.1	17.3	2:1	25	8.8	9.8	11.0	12.4	13.9	15.5	17.5
8.4	9.4	10.5	11.9	13.5	15.4	17.7	2:2	26	8.9	10.0	11.2	12.5	14.1	15.8	17.8
8.5	9.5	10.7	12.1	13.7	15.7	18.0	2:3	27	9.0	10.1	11.3	12.7	14.3	16.1	18.1
8.6	9.7	10.9	12.3	14.0	16.0	18.3	2:4	28	9.1	10.2	11.5	12.9	14.5	16.3	18.4
8.8	9.8	11.1	12.5	14.2	16.2	18.7	2:5	29	9.2	10.4	11.7	13.1	14.8	16.6	18.7
8.9	10.0	11.2	12.7	14.4	16.5	19.0	2:6	30	9.4	10.5	11.8	13.3	15.0	16.9	19.0
9.0	10.1	11.4	12.9	14.7	16.8	19.3	2:7	31	9.5	10.7	12.0	13.5	15.2	17.1	19.3
9.1	10.3	11.6	13.1	14.9	17.1	19.6	2:8	32	9.6	10.8	12.1	13.7	15.4	17.4	19.6
9.3	10.4	11.7	13.3	15.1	17.3	20.0	2:9	33	9.7	10.9	12.3	13.8	15.6	17.6	19.9
9.4	10.5	11.9	13.5	15.4	17.6	20.3	2:10	34	9.8	11.0	12.4	14.0	15.8	17.8	20.2
9.5	10.7	12.0	13.7	15.6	17.9	20.6	2:11	35	9.9	11.2	12.6	14.2	16.0	18.1	20.4
9.6	10.8	12.2	13.9	15.8	18.1	20.9	3:0	36	10.0	11.3	12.7	14.3	16.2	18.3	20.7
9.7	10.9	12.4	14.0	16.0	18.4	21.3	3:1	37	10.1	11.4	12.9	14.5	16.4	18.6	21.0
9.8	11.1	12.5	14.2	16.3	18.7	21.6	3:2	38	10.2	11.5	13.0	14.7	16.6	18.8	21.3

GIRLS							Year:	Months	BOYS						
							Month								
9.9	11.2	12.7	14.4	16.5	19.0	22.0	3:3	39	10.3	11.6	13.1	14.8	16.8	19.0	21.6
10.1	11.3	12.8	14.6	16.7	19.2	22.3	3:4	40	10.4	11.8	13.3	15.0	17.0	19.3	21.9
10.2	11.5	13.0	14.8	16.9	19.5	22.7	3:5	41	10.5	11.9	13.4	15.2	17.2	19.5	22.1
10.3	11.6	13.1	15.0	17.2	19.8	23.0	3:6	42	10.6	12.0	13.6	15.3	17.4	19.7	22.4
10.4	11.7	13.3	15.2	17.4	20.1	23.4	3:7	43	10.7	12.1	13.7	15.5	17.6	20.0	22.7
10.5	11.8	13.4	15.3	17.6	20.4	23.7	3:8	44	10.8	12.2	13.8	15.7	17.8	20.2	23.0
10.6	12.0	13.6	15.5	17.8	20.7	24.1	3:9	45	10.9	12.4	14.0	15.8	18.0	20.5	23.3
10.7	12.1	13.7	15.7	18.1	20.9	24.5	3:10	46	11.0	12.5	14.1	16.0	18.2	20.7	23.6
10.8	12.2	13.9	15.9	18.3	21.2	24.8	3:11	47	11.1	12.6	14.3	16.2	18.4	20.9	23.9
10.9	12.3	14.0	16.1	18.5	21.5	25.2	4:0	48	11.2	12.7	14.4	16.3	18.6	21.2	24.2
11.0	12.4	14.2	16.3	18.8	21.8	25.5	4:1	49	11.3	12.8	14.5	16.5	18.8	21.4	24.5
11.1	12.6	14.3	16.4	19.0	22.1	25.9	4:2	50	11.4	12.9	14.7	16.7	19.0	21.7	24.8
11.2	12.7	14.5	16.6	19.2	22.4	26.3	4:3	51	11.5	13.1	14.8	16.8	19.2	21.9	25.1
11.3	12.8	14.6	16.8	19.4	22.6	26.6	4:4	52	11.6	13.2	15.0	17.0	19.4	22.2	25.4
11.4	12.9	14.8	17.0	19.7	22.9	27.0	4:5	53	11.7	13.3	15.1	17.2	19.6	22.4	25.7
11.5	13.0	14.9	17.2	19.9	23.2	27.4	4:6	54	11.8	13.4	15.2	17.3	19.8	22.7	26.0
11.6	13.2	15.1	17.3	20.1	23.5	27.7	4:7	55	11.9	13.5	15.4	17.5	20.0	22.9	26.3
11.7	13.3	15.2	17.5	20.3	23.8	28.1	4:8	56	12.0	13.6	15.5	17.7	20.2	23.2	26.6
11.8	13.4	15.3	17.7	20.6	24.1	28.5	4:9	57	12.1	13.7	15.6	17.8	20.4	23.4	26.9
11.9	13.5	15.5	17.9	20.8	24.4	28.8	4:10	58	12.2	13.8	15.8	18.0	20.6	23.7	27.2
12.0	13.6	15.6	18.0	21.0	24.6	29.2	4:11	59	12.3	14.0	15.9	18.2	20.8	23.9	27.6
12.1	13.7	15.8	18.2	21.2	24.9	29.5	5:0	60	12.4	14.1	16.0	18.3	21.0	24.2	27.9
12.4	14.0	15.9	18.3	21.2	24.8	29.5	5:1	61	12.7	14.4	16.3	18.5	21.1	24.2	27.8
12.5	14.1	16.0	18.4	21.4	25.1	29.8	5:2	62	12.8	14.5	16.4	18.7	21.3	24.4	28.1
12.6	14.2	16.2	18.6	21.6	25.4	30.2	5:3	63	13.0	14.6	16.6	18.9	21.5	24.7	28.4
12.7	14.3	16.3	18.8	21.8	25.6	30.5	5:4	64	13.1	14.8	16.7	19.0	21.7	24.9	28.8
12.8	14.4	16.5	19.0	22.0	25.9	30.9	5:5	65	13.2	14.9	16.9	19.2	22.0	25.2	29.1
12.9	14.6	16.6	19.1	22.2	26.2	31.3	5:6	66	13.3	15.0	17.0	19.4	22.2	25.5	29.4
13.0	14.7	16.8	19.3	22.5	26.5	31.6	5:7	67	13.4	15.2	17.2	19.6	22.4	25.7	29.8
13.1	14.8	16.9	19.5	22.7	26.7	32.0	5:8	68	13.6	15.3	17.4	19.8	22.6	26.0	30.1
13.2	14.9	17.0	19.6	22.9	27.0	32.3	5:9	69	13.7	15.4	17.5	19.9	22.8	26.3	30.4
13.3	15.0	17.2	19.8	23.1	27.3	32.7	5:10	70	13.8	15.6	17.7	20.1	23.1	26.6	30.8
13.4	15.2	17.3	20.0	23.3	27.6	33.1	5:11	71	13.9	15.7	17.8	20.3	23.3	26.8	31.2
13.5	15.3	17.5	20.2	23.5	27.8	33.4	6:0	72	14.1	15.9	18.0	20.5	23.5	27.1	31.5
13.6	15.4	17.6	20.3	23.8	28.1	33.8	6:1	73	14.2	16.0	18.2	20.7	23.7	27.4	31.9
13.7	15.5	17.8	20.5	24.0	28.4	34.2	6:2	74	14.3	16.2	18.3	20.9	24.0	27.7	32.2
13.8	15.6	17.9	20.7	24.2	28.7	34.6	6:3	75	14.5	16.3	18.5	21.1	24.2	28.0	32.6
13.9	15.8	18.0	20.9	24.4	29.0	35.0	6:4	76	14.6	16.5	18.7	21.3	24.4	28.3	33.0
14.0	15.9	18.2	21.0	24.6	29.3	35.4	6:5	77	14.7	16.6	18.8	21.5	24.7	28.6	33.3
14.1	16.0	18.3	21.2	24.9	29.6	35.8	6:6	78	14.9	16.8	19.0	21.7	24.9	28.9	33.7
14.2	16.1	18.5	21.4	25.1	29.9	36.2	6:7	79	15.0	16.9	19.2	21.9	25.2	29.2	34.1
14.3	16.3	18.6	21.6	25.3	30.2	36.6	6:8	80	15.1	17.1	19.3	22.1	25.4	29.5	34.5
14.4	16.4	18.8	21.8	25.6	30.5	37.0	6:9	81	15.3	17.2	19.5	22.3	25.6	29.8	34.9
14.5	16.5	18.9	22.0	25.8	30.8	37.4	6:10	82	15.4	17.4	19.7	22.5	25.9	30.1	35.3
14.6	16.6	19.1	22.2	26.1	31.1	37.8	6:11	83	15.5	17.5	19.9	22.7	26.1	30.4	35.7

2007 WHO Reference

After taking the weight of the child, use the weight-for-age reference charts for classifying the weight as normal, ranging from > -2 SD to $< +2$ SD; moderately underweight, ranging from < -2 SD to > -3 SD or severely underweight, that is, < -3 SD. Use the WHO Weight-for-Age Reference charts given on the previous page for classification. How to use these charts to identify whether the child is severely or moderately underweight is described below:

USING AND INTERPRETING THE WEIGHT-FOR-AGE CHARTS

1. Look at the left hand axis to locate the line that shows the young infants weight in kg
2. Look at the bottom axis of the chart that shows the young infants age in months
3. Find the point on the chart where the line for the young infants weight meets the line for the infants age
4. Decide: if the point is below -3 SD, it is severely underweight (SUW)
5. Decide: if the point is below -2 SD but above -3 SD, it is moderately underweight (MUW)

REFRESH: HOW DO YOU MEASURE CHILD GROWTH?

Measuring and monitoring child growth means comparing certain indicators of the child across the averages of many other children. There are five recommended indicators for growth monitoring children below the age of 5 years.

1. **WEIGHT-FOR-AGE**
2. **LENGTH/HEIGHT-FOR-AGE**
3. **WEIGHT-FOR-LENGTH/HEIGHT**
4. **HEAD CIRCUMFERENCE**
5. **MID UPPER ARM CIRCUMFERENCE**

Now let us explore each of these indicators a bit more.

WEIGHT FOR AGE (WFA)

LOW WFA = UNDERWEIGHT

The relative change of weight for age is more rapid than height and is much more sensitive to any deterioration or improvement in the health of the child. Significant changes can be observed over period of few days making the measurements easy, so a high level of accuracy is possible. It is for these reasons that weight for age is the measurement employed in growth monitoring, particularly in infants and young children.

HEIGHT FOR AGE

LOW HFA = STUNTING

Stunting refers to a child that is short for his/her age and is also known as chronic malnutrition. The levels are very high in many developing countries and it is a result of long-term poor nutrition. Infant and young child feeding practices that have a great impact of stunting levels.

WEIGHT FOR LENGTH/HEIGHT

LOW WFH/L = WASTING or THINNESS

By relating the weight of the child to its height or length, the child's degree of thinness can be obtained. Wasting is a measurement of acute malnutrition.

WHAT IS THE DIFFERENCE BETWEEN LENGTH AND HEIGHT?

- There is an important difference between height and length for you to remember.
- They are measured differently for certain age groups.
- **LENGTH** is measured when the child is lying down. Length is measured for children below 2 years of age, or if the child is not able to stand.
- **HEIGHT** is measured when the child is standing upright. Children 2 years and older are measured in height.

What happens if you do not use the recommend method for the child's age?

If you measure a child other than with the method recommended, you must make corrections to the measurement. The height of a child is 0.7 cm shorter than length.

- **If you measure a child below 2 years in standing position (height), instead of the recommended length, you must add 0.7 cm to give you his/her correct length.**
- **If you measure a child 2 years and above while they are lying down (length), instead of height, you must subtract 0.7 cm to give you his/her correct height.**

3. MEASUREMENT OF LENGTH / HEIGHT

Infants and children under 24 months of age should have their lengths measured lying down (supine). Children over 24 months of age should have their heights measured while standing. For simplicity, however, infants and children under 87 cm can be measured lying down (or supine) and those above 87 cm standing.

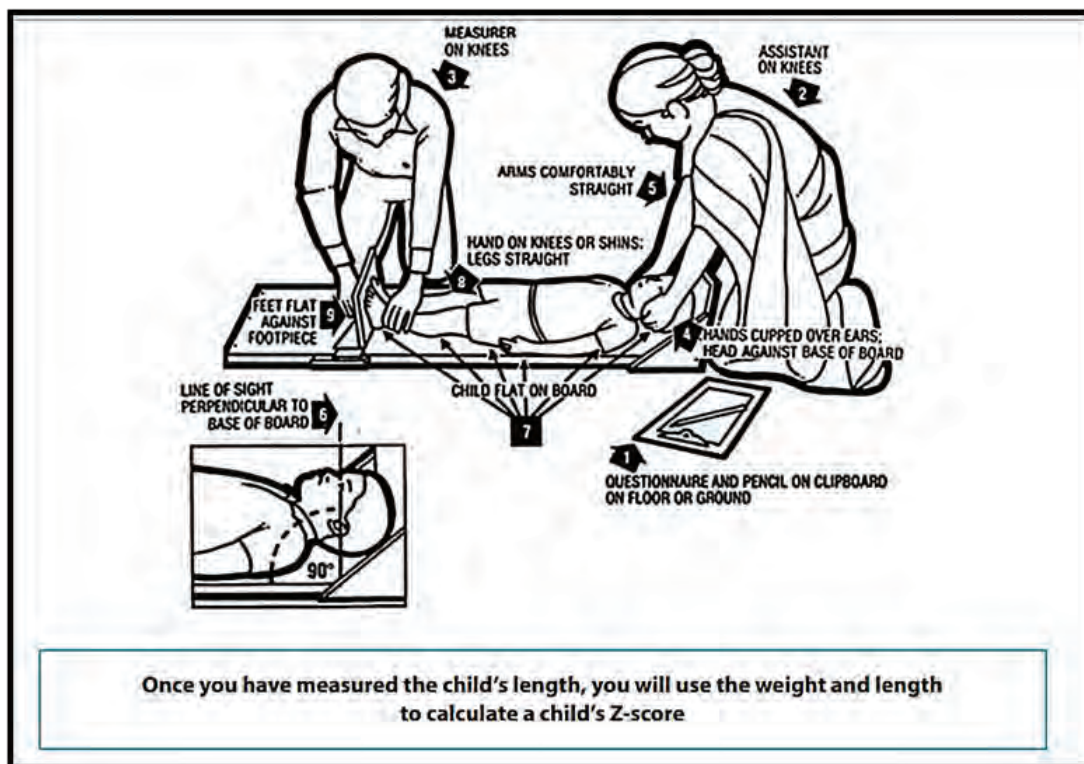
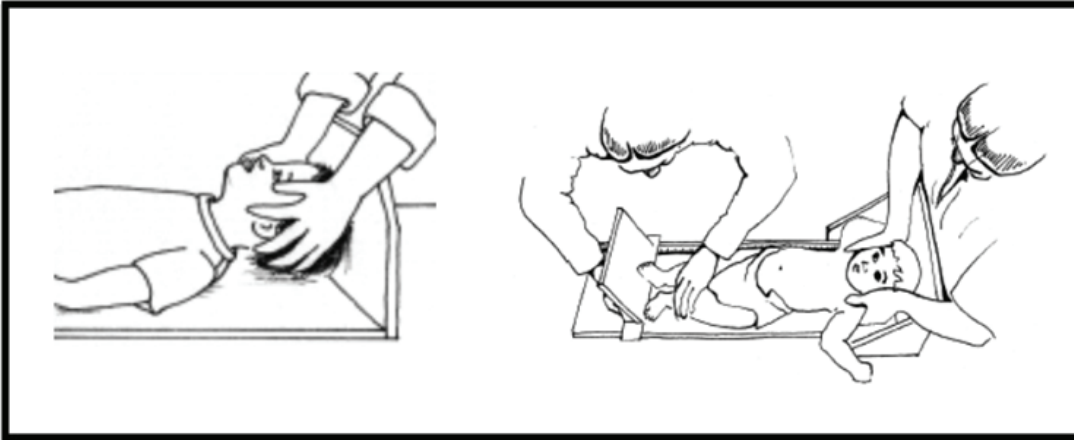
TAKING LENGTH IN YOUNGER CHILDREN

- Place the Infantometer 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 to the child (at the child's feet) so that you can move the foot piece with your right hand (Arrow 3 in Illustration on next page).
- With the help of the parent, gently lower the child on to the measuring board making sure the child is supported at the trunk of the body and head.



How Will You Measure A Child's Length?

Remember that length is used for children under 2 years, or those too weak to stand. One assistant should hold the child's head over the ears and with straight arms. The measurer hold one hand on the child's knees keeping the legs straight and the other on the foot-place to read the length. The child should lie flat on the board.



- Cup your hands over the child's ears (Arrow 4). With your arms straight (Arrow 5), place the child's head against the base of the board. The child should be looking straight up (Arrow 6) 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 in the center of the board (Arrow 7). 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 (Arrows 1-8). 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 (Arrow 9).
- 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.

TAKING HEIGHT IN OLDER CHILDREN

- Check that the stadiometer is on a flat horizontal surface



- Counsel the mother and child. Giving complete information for what is to be done. Greet the child.
- Remove from Head to Toe: Hair band, hair clips, head caps, scarfs and ornaments
- Set curly hair in special cases
- Shoes/footwear



- Remove from Head to Toe:
- Hair band, hair clips, head caps, scarfs and ornaments
- Set curly hair in special cases
- Shoes/footwear

- Ensure back of head touches vertical surface of stadiometer

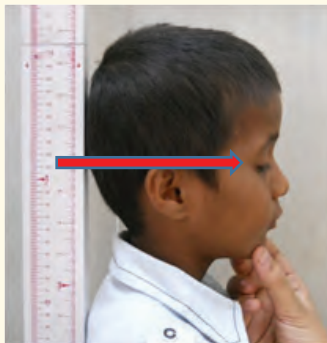


Correct



Incorrect

- Confirm the Frankfurt horizontal plane where the imaginary line from the eye outer canthus to the upper border of the ear is horizontal and make sure that head touches the stadiometer.



Correct



Incorrect

- Ensure shoulder blades touch the stadiometer.



Correct



Incorrect

- Ensure shoulder buttocks touch the stadiometer.



Correct



Incorrect

- Ensure calves touch the stadiometer.
- In young children with standing difficulty, slightly press the tummy for full height.



Correct



Incorrect

- Ensure heels touch the vertical base of the flat base board.



Correct



Incorrect

- Feet should be at an angle of 45 degree.



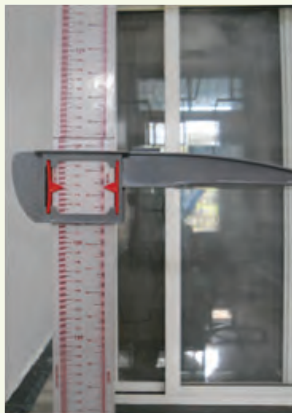
Angle of 45 degrees

- Lower the head piece on top of the child's head, pushing through the child's hair.



Correct procedure of both partners in measurement

- Read the measurement to the nearest 0.1 cm.



- Remove the head piece and allow the child to return to the parent.
- Immediately record the measurement on the Screening Tool cum Referral Card.

Calculate the weight for length/height for children 6 – 60 months of age who are MUW or SUW and whose MUAC is above 11.5 cm. Classify Weight for as Normal (> -2 SD to $< +2$ SD), < -2 SD or < -3 SD using WHO Reference Tables (see Tables on next page). **Use the weight-for-length/height reference table to classify child as Severe Acute Malnutrition (SAM) if below -3SD.**

Refer all children with weight for length/height of - 3 SD or below.
Identifying SAM children (Note gender differences)
Weight for Length (below 87 cm)

BOYS WEIGHT (KG)				GIRLS WEIGHT (KG)			
Length (cm)	-3 SD	-2 SD	Median	Median	-2 SD	-3 SD	Length (cm)
45	1.9	2.0	2.4	2.5	2.1	1.9	45
46	2.0	2.2	2.6	2.6	2.2	2.0	46
47	2.1	2.3	2.8	2.8	2.4	2.2	47
48	2.3	2.5	2.9	3.0	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	3.0	3.5	3.6	3.0	2.8	51
52	2.9	3.2	3.8	3.8	3.2	2.9	52
53	3.1	3.4	4.0	4.0	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	4.0	3.7	56
57	4.0	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	6.0	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	6.0	7.0	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	8.0	7.7	6.5	6.0	68
69	6.5	7.0	8.2	8.0	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	7.0	6.5	71
72	7.0	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	9.0	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	8.0	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	8.0	81
82	8.5	9.2	10.8	10.5	8.8	8.1	82
83	8.7	9.4	11.0	10.7	9.0	8.3	83
84	8.9	9.6	11.3	11.0	9.2	8.5	84
85	9.1	9.8	11.5	11.2	9.4	8.7	85
86	9.3	10.0	11.7	11.5	9.7	8.9	86

Identifying SAM children
(Note gender differences)
Weight for Height (87 cm and above)

BOYS WEIGHT (KG)				GIRLS WEIGHT (KG)			
Length (cm)	-3 SD	-2 SD	Median	Median	-2 SD	-3 SD	Length (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

4. MEASUREMENT OF HEAD CIRCUMFERENCE

- Head circumference is to be measured for children from birth to 5 years of age.
- Head circumference is the 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. It is also referred to as the Occipital-frontal circumference [OFC].
- This measurement is mainly done 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 SD) is called **macrocephaly** and any reduction in head circumference (smaller than -2 SD) is **microcephaly**. In both conditions 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 super-ciliary 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.



After taking the measurement in cm, classify the SD according to the WHO head circumference reference charts for girls or boys (Refer to Head Circumference Charts on next page).

- **Refer the child if the head circumference is + 2SD and above or – 2 SD and below.**

WHO HEAD CIRCUMFERENCE REFERENCE CHARTS

HEAD CIRCUMFERENCE-FOR-AGE BOYS BIRTH TO 3 YEARS (Z-SCORES)						HEAD CIRCUMFERENCE-FOR-AGE GIRLS BIRTH TO 3 YEARS (Z-SCORES)					
Months	-3 SD	-2 SD	Median	2 SD	3 SD	-3 SD	-2 SD	Median	2 SD	3 SD	Months
0	30.7	31.9	34.5	37.0	38.3	30.3	31.5	33.9	36.2	37.4	0
1	33.8	34.9	37.3	39.6	40.8	33.0	34.2	36.5	38.9	40.1	1
2	35.6	36.8	39.1	41.5	42.6	34.6	35.8	38.3	40.7	41.9	2
3	37.0	38.1	40.5	42.9	44.1	35.8	37.1	39.5	42.0	43.3	3
4	38.0	39.2	41.6	44.0	45.2	36.8	38.1	40.6	43.1	44.4	4
5	38.9	40.1	42.6	45.0	46.2	37.6	38.9	41.5	44.0	45.3	5
6	39.7	40.9	43.3	45.8	47.0	38.3	39.6	42.2	44.8	46.1	6
7	40.3	41.5	44.0	46.4	47.7	38.9	40.2	42.8	45.5	46.8	7
8	40.8	42.0	44.5	47.0	48.3	39.4	40.7	43.4	46.0	47.4	8
9	41.2	42.5	45.0	47.5	48.8	39.8	41.2	43.8	46.5	47.8	9
10	41.6	42.9	45.4	47.9	49.2	40.2	41.5	44.2	46.9	48.3	10
11	41.9	43.2	45.8	48.3	49.6	40.5	41.9	44.6	47.3	48.6	11
12	42.2	43.5	46.1	48.6	49.9	40.8	42.2	44.9	47.6	49.0	12
13	42.5	43.8	46.3	48.9	50.2	41.1	42.4	45.2	47.9	49.3	13
14	42.7	44.0	46.6	49.2	50.5	41.3	42.7	45.4	48.2	49.5	14
15	42.9	44.2	46.8	49.4	50.7	41.5	42.9	45.7	48.4	49.8	15
16	43.1	44.4	47.0	49.6	51.0	41.7	43.1	45.9	48.6	50.0	16
17	43.2	44.6	47.2	49.8	51.2	41.9	43.3	46.1	48.8	50.2	17
18	43.4	44.7	47.4	50.0	51.4	42.1	43.5	46.2	49.0	50.4	18
19	43.5	44.9	47.5	50.2	51.5	42.3	43.6	46.4	49.2	50.6	19
20	43.7	45.0	47.7	50.4	51.7	42.4	43.8	46.6	49.4	50.7	20
21	43.8	45.2	47.8	50.5	51.9	42.6	44.0	46.7	49.5	50.9	21
22	43.9	45.3	48.0	50.7	52.0	42.7	44.1	46.9	49.7	51.1	22
23	44.1	45.4	48.1	50.8	52.2	42.9	44.3	47.0	49.8	51.2	23
24	44.2	45.5	48.3	51.0	52.3	43.0	44.4	47.2	50.0	51.4	24
25	44.3	45.6	48.4	51.1	52.5	43.1	44.5	47.3	50.1	51.5	25
26	44.4	45.8	48.5	51.2	52.6	43.3	44.7	47.5	50.3	51.7	26
27	44.5	45.9	48.6	51.4	52.7	43.4	44.8	47.6	50.4	51.8	27
28	44.6	46.0	48.7	51.5	52.9	43.5	44.9	47.7	50.5	51.9	28
29	44.7	46.1	48.8	51.6	53.0	43.6	45.0	47.8	50.6	52.0	29
30	44.8	46.1	48.9	51.7	53.1	43.7	45.1	47.9	50.7	52.2	30
31	44.8	46.2	49	51.8	53.2	43.8	45.2	48	50.9	52.3	31
32	44.9	46.3	49.1	51.9	53.3	43.9	45.3	48.1	51	52.4	32
33	45	46.4	49.2	52	53.4	44	45.4	48.2	51.1	52.5	33
34	45.1	46.5	49.3	52.1	53.5	44.1	45.5	48.3	51.2	52.6	34
35	45.1	46.6	49.4	52.2	53.6	44.2	45.6	48.4	51.2	52.7	35
36	45.2	46.6	49.5	52.3	53.7	44.3	45.7	48.5	51.3	52.7	36

WHO HEAD CIRCUMFERENCE REFERENCE CHARTS

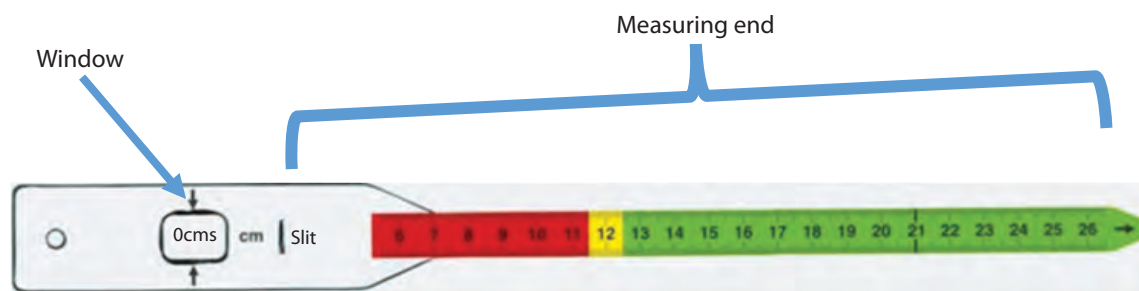
HEAD CIRCUMFERENCE-FOR-AGE BOYS BIRTH TO 3 YEARS (Z-SCORES)						HEAD CIRCUMFERENCE-FOR-AGE GIRLS BIRTH TO 3 YEARS (Z-SCORES)					
Months	-3 SD	-2 SD	Median	2 SD	3 SD	-3 SD	-2 SD	Median	2 SD	3 SD	Months
37	45.3	46.7	49.5	52.4	38.3	30.3	31.5	33.9	36.2	37.4	37
38	45.3	46.8	49.6	52.5	40.8	33.0	34.2	36.5	38.9	40.1	38
39	45.4	46.8	49.7	52.5	42.6	34.6	35.8	38.3	40.7	41.9	39
40	45.4	46.9	49.7	52.6	44.1	35.8	37.1	39.5	42.0	43.3	40
41	45.5	46.9	49.8	52.7	45.2	36.8	38.1	40.6	43.1	44.4	41
42	45.5	47	49.9	52.8	46.2	37.6	38.9	41.5	44.0	45.3	42
43	45.6	47	49.9	52.8	47.0	38.3	39.6	42.2	44.8	46.1	43
44	45.6	47.1	50	52.9	47.7	38.9	40.2	42.8	45.5	46.8	44
45	45.7	47.1	50.1	53	48.3	39.4	40.7	43.4	46.0	47.4	45
46	45.7	47.2	50.1	53	48.8	39.8	41.2	43.8	46.5	47.8	46
47	45.8	47.2	50.2	53.1	49.2	40.2	41.5	44.2	46.9	48.3	47
48	45.8	47.3	50.2	53.1	49.6	40.5	41.9	44.6	47.3	48.6	48
49	45.9	47.3	50.3	53.2	49.9	40.8	42.2	44.9	47.6	49.0	49
50	45.9	47.4	50.3	53.2	50.2	41.1	42.4	45.2	47.9	49.3	50
51	45.9	47.4	50.4	53.3	50.5	41.3	42.7	45.4	48.2	49.5	51
52	46	47.5	50.4	53.4	50.7	41.5	42.9	45.7	48.4	49.8	52
53	46	47.5	50.4	53.4	51.0	41.7	43.1	45.9	48.6	50.0	53
54	46.1	47.5	50.5	53.5	51.2	41.9	43.3	46.1	48.8	50.2	54
55	46.1	47.6	50.5	53.5	51.4	42.1	43.5	46.2	49.0	50.4	55
56	46.1	47.6	50.6	53.5	51.5	42.3	43.6	46.4	49.2	50.6	56
57	46.2	47.6	50.6	53.6	51.7	42.4	43.8	46.6	49.4	50.7	57
58	46.2	47.7	50.7	53.6	51.9	42.6	44.0	46.7	49.5	50.9	58
59	46.2	47.7	50.7	53.7	52.0	42.7	44.1	46.9	49.7	51.1	59
60	46.3	47.7	50.7	53.7	52.2	42.9	44.3	47.0	49.8	51.2	60

Measurements

5. MEASUREMENT OF MID UPPER ARM CIRCUMFERENCE (MUAC)

- MUAC will be done for children 6-60 months of age whose weight-for-age is below - 2 SD.
- MUAC is the measurement taken the left upper arm while the arm is hanging down the side of the body and relaxed.
- The MUAC measurement requires little equipment and is easy to perform even on the most debilitated individuals.

PARTS OF MUAC TAPE



TAKING MUAC IN CHILDREN 6-60 MONTHS OF AGE

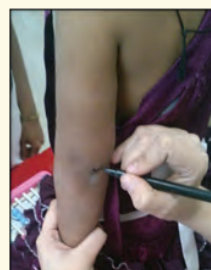
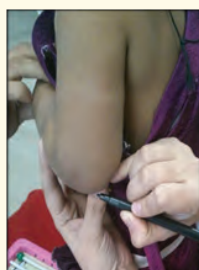
- Calm the child and give details of the procedure to the parents
- Undress the child
- Procedure should be done standing behind the child.






- Flex the elbow of the left hand
- Locate the acromian process of scapula
- Mark the acromian process with a pen



- Locate the olecranon process of ulna (tip of elbow)
- Mark the tip of elbow



<ul style="list-style-type: none"> Measure the distance between both the points Mark the mid-point Measure MUAC at the level of the mid-point 	
<ul style="list-style-type: none"> Make bangle of the tape by inserting measuring end in the slit Measure the MUAC at the arrows of the window 	
<ul style="list-style-type: none"> Draw inferences based on measurement and colour of tape in the window MUAC of < 11.5 cm indicates SAM 	 <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div> Normal: Green or >12.5 cm </div> <div> MAM: Yellow or 11.5 - 12.5 cm </div> <div> SAM: < 11.5 cm </div> </div>

Remember - In children with aged 6-60 months with weight-for-age < - 2 SD:

- If MUAC is < 11.5 cm, refer to NRC for SAM.**
- If MUAC is 11.5 cm or more, use weight-for-height/length to determine the nutritional status of the child (i.e. Normal/MAM/SAM).

6. MEASUREMENT OF BODY MASS INDEX (BMI)

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. The Government of India is following the WHO BMI for age standards, 2007 release. Refer to the Z score simplified field tables for Girls and Boys.

How to calculate BMI

BMI is defined as body weight in kilograms divided by height in meters squared

$$\text{BMI} = \text{weight (in kg)} / [\text{height (in m)}]^2$$

Why do we use BMI?

BMI is relatively quick and easy to calculate and provides a good indicator for levels of body fat. BMI is the most frequently used measure for assessing whether adults or children are obese, overweight, underweight, or a healthy weight. BMI is to be used in children 6-18 years of age.

What BMI cut offs are used?

WHO suggests the following cut offs:

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

Refer any child whose BMI for age and sex is > 2 SD or < - 3 SD. Refer to the WHO BMI Reference Field Tables on the next page.

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 6 TO 18 YEARS (Z-SCORES)						BMI-FOR-AGE BOYS 6 TO 18 YEARS (Z-SCORES)					
-3 SD	-2 SD	Median	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	Median	2 SD	3 SD
11.7	12.7	15.3	19.2	22.1	6:0	72	12.1	13.0	15.3	18.5	20.7
11.7	12.7	15.3	19.3	22.2	6:1	73	12.1	13.0	15.3	18.6	20.8
11.7	12.7	15.3	19.3	22.3	6:2	74	12.2	13.1	15.3	18.6	20.8
11.7	12.7	15.3	19.3	22.4	6:3	75	12.2	13.1	15.3	18.6	20.9
11.7	12.7	15.3	19.4	22.5	6:4	76	12.2	13.1	15.4	18.7	21.0
11.7	12.7	15.3	19.4	22.6	6:5	77	12.2	13.1	15.4	18.7	21.0
11.7	12.7	15.3	19.5	22.7	6:6	78	12.2	13.1	15.4	18.7	21.1
11.7	12.7	15.3	19.5	22.8	6:7	79	12.2	13.1	15.4	18.8	21.2
11.7	12.7	15.3	19.6	22.9	6:8	80	12.2	13.1	15.4	18.8	21.3
11.7	12.7	15.4	19.6	23.0	6:9	81	12.2	13.1	15.4	18.9	21.3
11.7	12.7	15.4	19.7	23.1	6:10	82	12.2	13.1	15.4	18.9	21.4
11.7	12.7	15.4	19.7	23.2	6:11	83	12.2	13.1	15.5	19.0	21.5
11.8	12.7	15.4	19.8	23.3	7:0	84	12.3	13.1	15.5	19.0	21.6
11.8	12.7	15.4	19.8	23.4	7:1	85	12.3	13.2	15.5	19.1	21.7
11.8	12.8	15.4	19.9	23.5	7:2	86	12.3	13.2	15.5	19.1	21.8
11.8	12.8	15.5	20.0	23.6	7:3	87	12.3	13.2	15.5	19.2	21.9
11.8	12.8	15.5	20.0	23.7	7:4	88	12.3	13.2	15.6	19.2	22.0
11.8	12.8	15.5	20.1	23.9	7:5	89	12.3	13.2	15.6	19.3	22.0
11.8	12.8	15.5	20.1	24.0	7:6	90	12.3	13.2	15.6	19.3	22.1
11.8	12.8	15.5	20.2	24.1	7:7	91	12.3	13.2	15.6	19.4	22.2
11.8	12.8	15.6	20.3	24.2	7:8	92	12.3	13.2	15.6	19.4	22.4
11.8	12.8	15.6	20.3	24.4	7:9	93	12.4	13.3	15.7	19.5	22.5
11.9	12.9	15.6	20.4	24.5	7:10	94	12.4	13.3	15.7	19.6	22.6
11.9	12.9	15.7	20.5	24.6	7:11	95	12.4	13.3	15.7	19.6	22.7
11.9	12.9	15.7	20.6	24.8	8:0	96	12.4	13.3	15.7	19.7	22.8
11.9	12.9	15.7	20.6	24.9	8:1	97	12.4	13.3	15.8	19.7	22.9
11.9	12.9	15.7	20.7	25.1	8:2	98	12.4	13.3	15.8	19.8	23.0
11.9	12.9	15.8	20.8	25.2	8:3	99	12.4	13.3	15.8	19.9	23.1
11.9	13.0	15.8	20.9	25.3	8:4	100	12.4	13.4	15.8	19.9	23.3
12.0	13.0	15.8	20.9	25.5	8:5	101	12.5	13.4	15.9	20.0	23.4
12.0	13.0	15.9	21.0	25.6	8:6	102	12.5	13.4	15.9	20.1	23.5
12.0	13.0	15.9	21.1	25.8	8:7	103	12.5	13.4	15.9	20.1	23.6
12.0	13.0	15.9	21.2	25.9	8:8	104	12.5	13.4	15.9	20.2	23.8

Measurements

BMI-FOR-AGE GIRLS 6 TO 18 YEARS (Z-SCORES)						BMI-FOR-AGE BOYS 6 TO 18 YEARS (Z-SCORES)					
-3 SD	-2 SD	Median	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	Median	2 SD	3 SD
12.0	13.1	16.0	21.3	26.1	8:9	105	12.5	13.4	16.0	20.3	23.9
12.1	13.1	16.0	21.3	26.2	8:10	106	12.5	13.5	16.0	20.3	24.0
12.1	13.1	16.1	21.4	26.4	8:11	107	12.5	13.5	16.0	20.4	24.2
12.1	13.1	16.1	21.5	26.5	9:0	108	12.6	13.5	16.0	20.5	24.3
12.1	13.2	16.1	21.6	26.7	9:1	109	12.6	13.5	16.1	20.5	24.4
12.1	13.2	16.2	21.7	26.8	9:2	110	12.6	13.5	16.1	20.6	24.6
12.2	13.2	16.2	21.8	27.0	9:3	111	12.6	13.5	16.1	20.7	24.7
12.2	13.2	16.3	21.9	27.2	9:4	112	12.6	13.6	16.2	20.8	24.9
12.2	13.3	16.3	21.9	27.3	9:5	113	12.6	13.6	16.2	20.8	25.0
12.2	13.3	16.3	22.0	27.5	9:6	114	12.7	13.6	16.2	20.9	25.1
12.3	13.3	16.4	22.1	27.6	9:7	115	12.7	13.6	16.3	21.0	25.3
12.3	13.4	16.4	22.2	27.8	9:8	116	12.7	13.6	16.3	21.1	25.5
12.3	13.4	16.5	22.3	27.9	9:9	117	12.7	13.7	16.3	21.2	25.6
12.3	13.4	16.5	22.4	28.1	9:10	118	12.7	13.7	16.4	21.2	25.8
12.4	13.4	16.6	22.5	28.2	9:11	119	12.8	13.7	16.4	21.3	25.9
12.4	13.5	16.6	22.6	28.4	10:0	120	12.8	13.7	16.4	21.4	26.1
12.4	13.5	16.7	22.7	28.5	10:1	121	12.8	13.8	16.5	21.5	26.2
12.4	13.5	16.7	22.8	28.7	10:2	122	12.8	13.8	16.5	21.6	26.4
12.5	13.6	16.8	22.8	28.8	10:3	123	12.8	13.8	16.6	21.7	26.6
12.5	13.6	16.8	22.9	29.0	10:4	124	12.9	13.8	16.6	21.7	26.7
12.5	13.6	16.9	23.0	29.1	10:5	125	12.9	13.9	16.6	21.8	26.9
12.5	13.7	16.9	23.1	29.3	10:6	126	12.9	13.9	16.7	21.9	27.0
12.6	13.7	17.0	23.2	29.4	10:7	127	12.9	13.9	16.7	22.0	27.2
12.6	13.7	17.0	23.3	29.6	10:8	128	13.0	13.9	16.8	22.1	27.4
12.6	13.8	17.1	23.4	29.7	10:9	129	13.0	14.0	16.8	22.2	27.5
12.7	13.8	17.1	23.5	29.9	10:10	130	13.0	14.0	16.9	22.3	27.7
12.7	13.8	17.2	23.6	30.0	10:11	131	13.0	14.0	16.9	22.4	27.9
12.7	13.9	17.2	23.7	30.2	11:0	132	13.1	14.1	16.9	22.5	28.0
12.8	13.9	17.3	23.8	30.3	11:1	133	13.1	14.1	17.0	22.5	28.2
12.8	14.0	17.4	23.9	30.5	11:2	134	13.1	14.1	17.0	22.6	28.4
12.8	14.0	17.4	24.0	30.6	11:3	135	13.1	14.1	17.1	22.7	28.5
12.9	14.0	17.5	24.1	30.8	11:4	136	13.2	14.2	17.1	22.8	28.7
12.9	14.1	17.5	24.2	30.9	11:5	137	13.2	14.2	17.2	22.9	28.8
12.9	14.1	17.6	24.3	31.1	11:6	138	13.2	14.2	17.2	23.0	29.0
13.0	14.2	17.7	24.4	31.2	11:7	139	13.2	14.3	17.3	23.1	29.2
13.0	14.2	17.7	24.5	31.4	11:8	140	13.3	14.3	17.3	23.2	29.3

BMI-FOR-AGE GIRLS 6 TO 18 YEARS (Z-SCORES)						BMI-FOR-AGE BOYS 6 TO 18 YEARS (Z-SCORES)					
-3 SD	-2 SD	Median	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	Median	2 SD	3 SD
13.0	14.3	17.8	24.7	31.5	11:9	141	13.3	14.3	17.4	23.3	29.5
13.1	14.3	17.9	24.8	31.6	11:10	142	13.3	14.4	17.4	23.4	29.6
13.1	14.3	17.9	24.9	31.8	11:11	143	13.4	14.4	17.5	23.5	29.8
13.2	14.4	18.0	25.0	31.9	12:0	144	13.4	14.5	17.5	23.6	30.0
13.2	14.4	18.1	25.1	32.0	12:1	145	13.4	14.5	17.6	23.7	30.1
13.2	14.5	18.1	25.2	32.2	12:2	146	13.5	14.5	17.6	23.8	30.3
13.3	14.5	18.2	25.3	32.3	12:3	147	13.5	14.6	17.7	23.9	30.4
13.3	14.6	18.3	25.4	32.4	12:4	148	13.5	14.6	17.8	24.0	30.6
13.3	14.6	18.3	25.5	32.6	12:5	149	13.6	14.6	17.8	24.1	30.7
13.4	14.7	18.4	25.6	32.7	12:6	150	13.6	14.7	17.9	24.2	30.9
13.4	14.7	18.5	25.7	32.8	12:7	151	13.6	14.7	17.9	24.3	31.0
13.5	14.8	18.5	25.8	33.0	12:8	152	13.7	14.8	18.0	24.4	31.1
13.5	14.8	18.6	25.9	33.1	12:9	153	13.7	14.8	18.0	24.5	31.3
13.5	14.8	18.7	26.0	33.2	12:10	154	13.7	14.8	18.1	24.6	31.4
13.6	14.9	18.7	26.1	33.3	12:11	155	13.8	14.9	18.2	24.7	31.6
13.6	14.9	18.8	26.2	33.4	13:0	156	13.8	14.9	18.2	24.8	31.7
13.6	15.0	18.9	26.3	33.6	13:1	157	13.8	15.0	18.3	24.9	31.8
13.7	15.0	18.9	26.4	33.7	13:2	158	13.9	15.0	18.4	25.0	31.9
13.7	15.1	19.0	26.5	33.8	13:3	159	13.9	15.1	18.4	25.1	32.1
13.8	15.1	19.1	26.6	33.9	13:4	160	14.0	15.1	18.5	25.2	32.2
13.8	15.2	19.1	26.7	34.0	13:5	161	14.0	15.2	18.6	25.2	32.3
13.8	15.2	19.2	26.8	34.1	13:6	162	14.0	15.2	18.6	25.3	32.4
13.9	15.2	19.3	26.9	34.2	13:7	163	14.1	15.2	18.7	25.4	32.6
13.9	15.3	19.3	27.0	34.3	13:8	164	14.1	15.3	18.7	25.5	32.7
13.9	15.3	19.4	27.1	34.4	13:9	165	14.1	15.3	18.8	25.6	32.8
14.0	15.4	19.4	27.1	34.5	13:10	166	14.2	15.4	18.9	25.7	32.9
14.0	15.4	19.5	27.2	34.6	13:11	167	14.2	15.4	18.9	25.8	33.0
14.0	15.4	19.6	27.3	34.7	14:0	168	14.3	15.5	19.0	25.9	33.1
14.1	15.5	19.6	27.4	34.7	14:1	169	14.3	15.5	19.1	26.0	33.2
14.1	15.5	19.7	27.5	34.8	14:2	170	14.3	15.6	19.1	26.1	33.3
14.1	15.6	19.7	27.6	34.9	14:3	171	14.4	15.6	19.2	26.2	33.4
14.1	15.6	19.8	27.7	35.0	14:4	172	14.4	15.7	19.3	26.3	33.5
14.2	15.6	19.9	27.7	35.1	14:5	173	14.5	15.7	19.3	26.4	33.5
14.2	15.7	19.9	27.8	35.1	14:6	174	14.5	15.7	19.4	26.5	33.6
14.2	15.7	20.0	27.9	35.2	14:7	175	14.5	15.8	19.5	26.5	33.7
14.3	15.7	20.0	28.0	35.3	14:8	176	14.6	15.8	19.5	26.6	33.8

BMI-FOR-AGE GIRLS 6 TO 18 YEARS (Z-SCORES)						BMI-FOR-AGE BOYS 6 TO 18 YEARS (Z-SCORES)					
-3 SD	-2 SD	Median	2 SD	3 SD	Year: Month	Months	-3 SD	-2 SD	Median	2 SD	3 SD
14.3	15.8	20.1	28.0	35.4	14:9	177	14.6	15.9	19.6	26.7	33.9
14.3	15.8	20.1	28.1	35.4	14:10	178	14.6	15.9	19.6	26.8	33.9
14.3	15.8	20.2	28.2	35.5	14:11	179	14.7	16.0	19.7	26.9	34.0
14.4	15.9	20.2	28.2	35.5	15:0	180	14.7	16.0	19.8	27.0	34.1
14.4	15.9	20.3	28.3	35.6	15:1	181	14.7	16.1	19.8	27.1	34.1
14.4	15.9	20.3	28.4	35.7	15:2	182	14.8	16.1	19.9	27.1	34.2
14.4	16.0	20.4	28.4	35.7	15:3	183	14.8	16.1	20.0	27.2	34.3
14.5	16.0	20.4	28.5	35.8	15:4	184	14.8	16.2	20.0	27.3	34.3
14.5	16.0	20.4	28.5	35.8	15:5	185	14.9	16.2	20.1	27.4	34.4
14.5	16.0	20.5	28.6	35.8	15:6	186	14.9	16.3	20.1	27.4	34.5
14.5	16.1	20.5	28.6	35.9	15:7	187	15.0	16.3	20.2	27.5	34.5
14.5	16.1	20.6	28.7	35.9	15:8	188	15.0	16.3	20.3	27.6	34.6
14.5	16.1	20.6	28.7	36.0	15:9	189	15.0	16.4	20.3	27.7	34.6
14.6	16.1	20.6	28.8	36.0	15:10	190	15.0	16.4	20.4	27.7	34.7
14.6	16.2	20.7	28.8	36.0	15:11	191	15.1	16.5	20.4	27.8	34.7
14.6	16.2	20.7	28.9	36.1	16:0	192	15.1	16.5	20.5	27.9	34.8
14.6	16.2	20.7	28.9	36.1	16:1	193	15.1	16.5	20.6	27.9	34.8
14.6	16.2	20.8	29.0	36.1	16:2	194	15.2	16.6	20.6	28.0	34.8
14.6	16.2	20.8	29.0	36.1	16:3	195	15.2	16.6	20.7	28.1	34.9
14.6	16.2	20.8	29.0	36.2	16:4	196	15.2	16.7	20.7	28.1	34.9
14.6	16.3	20.9	29.1	36.2	16:5	197	15.3	16.7	20.8	28.2	35.0
14.7	16.3	20.9	29.1	36.2	16:6	198	15.3	16.7	20.8	28.3	35.0
14.7	16.3	20.9	29.1	36.2	16:7	199	15.3	16.8	20.9	28.3	35.0
14.7	16.3	20.9	29.2	36.2	16:8	200	15.3	16.8	20.9	28.4	35.1
14.7	16.3	21.0	29.2	36.3	16:9	201	15.4	16.8	21.0	28.5	35.1
14.7	16.3	21.0	29.2	36.3	16:10	202	15.4	16.9	21.0	28.5	35.1
14.7	16.3	21.0	29.3	36.3	16:11	203	15.4	16.9	21.1	28.6	35.2
14.7	16.4	21.0	29.3	36.3	17:0	204	15.4	16.9	21.1	28.6	35.2
14.7	16.4	21.1	29.3	36.3	17:1	205	15.5	17.0	21.2	28.7	35.2
14.7	16.4	21.1	29.3	36.3	17:2	206	15.5	17.0	21.2	28.7	35.2
14.7	16.4	21.1	29.4	36.3	17:3	207	15.5	17.0	21.3	28.8	35.3
14.7	16.4	21.1	29.4	36.3	17:4	208	15.5	17.1	21.3	28.9	35.3
14.7	16.4	21.1	29.4	36.3	17:5	209	15.6	17.1	21.4	28.9	35.3
14.7	16.4	21.2	29.4	36.3	17:6	210	15.6	17.1	21.4	29.0	35.3
14.7	16.4	21.2	29.4	36.3	17:7	210	15.6	17.1	21.5	29.0	35.4
14.7	16.4	21.2	29.5	36.3	17:8	212	15.6	17.2	21.5	29.1	35.4
14.7	16.4	21.2	29.5	36.3	17:9	213	15.6	17.2	21.6	29.1	35.4
14.7	16.4	21.2	29.5	36.3	17:10	214	15.7	17.2	21.6	29.2	35.4
14.7	16.4	21.2	29.5	36.3	17:11	215	15.7	17.3	21.7	29.2	35.4
14.7	16.4	21.3	29.5	36.3	18:0	216	15.7	17.3	21.7	29.2	35.4

7. MEASUREMENT OF BLOOD PRESSURE:

Blood pressure (BP), is the pressure exerted by circulating blood upon the walls of blood vessels. During each heartbeat, blood pressure varies between a maximum (systolic) and a minimum (diastolic) pressure.

Blood Pressure should be measured for children 6-18 years only using a cuff of appropriate size. The 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.

BLOOD PRESSURE MEASUREMENT IN CHILDREN

- Begin routine blood pressure (BP) measurement at 6 years of age.
- Use the correct cuff size which 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.

BLOOD PRESSURE MEASUREMENT TECHNIQUE:

1. Close the valve
2. Inflate the cuff by keeping the valve closed and feel the radial pulse till it disappears
3. Read the blood pressure values while listening for Korotkoff Sounds
4. Deflate the cuff by opening the valve.

PRE-REQUISITES - BEFORE TAKING THE B.P. IN CHILDREN, VERIFY THAT:

1. You have the right cuff size
5. You have taken the height in cm
6. You have recorded the age

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 the same visit before interpreting the result.

Since diastolic Hypertension (HTN) rarely occurs without systolic HTN in children, the SBP percentile tables can be used for HTN screening.

DIRECTIONS FOR USE OF TABLES

Refer to the BP Reference Tables. First look at the row which refers to the child's age in years.

Once the age has been identified the next step is to identify the column for reading the BP interpretation using the child's height in cm. Heights in the table are given for age at midyear. Use the closest height to interpret the BP.

INTERPRET THE BP AS FOLLOWS:

1. **Normal BP:** SBP < 90th percentile.
2. **Prehypertension:** SBP \geq 90th percentile to <95th percentile or BP >120/80 mmHg to <95th percentile.

Prehypertension: SBP \geq value from table (90th percentile) to < Stage 1 HTN value; or SBP >120 mmHg to < Stage 1 HTN value.

Action: Record findings and refer the child for a recheck-up 6 months later. Advise to restrict salt intake to less than a spoon per day and to exercise to reduce the weight.

1. **Stage 1 HTN:** SBP \geq 95th percentile to < 99th percentile + 5 mm of Hg. Stage 1 HTN: SBP \geq value from the table (95th percentile) to \leq Stage 2 HTN.

Action: Refer the child to get the BP examined at the CHC after 1-2 weeks.

2. **Stage 2 HTN:** SBP >99th percentile plus 5 mmHg.

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

Action: Refer the child to get the evaluation and management done immediately at the CHC/ DH.

BLOOD PRESSURE LEVELS FOR BOYS BY AGE AND HEIGHT PERCENTILE

Age (Yrs.)	BP Percentile	Systolic BP (mmHg)								
		Percentile of Height								
6 years			5th	10th	25th	50th	75th	90th	95th	height
	Blood pressure	Height(cm)	110	112	115	119	122	126	127	Cm
	90th	BP mm Hg	105	106	108	110	111	113	113	Pre-hyper tension
	95th	BP mm Hg	109	110	112	114	115	117	117	Stage 1 HTN
	99th	BP mm Hg	116	117	119	121	123	124	125	
	Stage 2 HTN	Add + 5	121	122	124	126	128	129	130	Stage 2 HTN
7 years			5th	10th	25th	50th	75th	90th	95th	height
		Height(cm)	116	118	121	125	129	132	134	Cm
	90th	BP mm Hg	106	107	109	111	113	114	115	Pre-hyper tension
	95th	BP mm Hg	110	111	113	115	117	118	119	Stage 1 HTN
	99th	BP mm Hg	117	118	120	122	124	125	126	
	Stage 2 HTN	Add + 5	122	123	125	127	129	130	131	Stage 2 HTN
8 years			5th	10th	25th	50th	75th	90th	95th	height
		Height(cm)	121	123	127	131	135	139	141	Cm
	90th	BP mm Hg	107	109	110	112	114	115	116	Pre-hyper tension
	95th	BP mm Hg	111	112	114	116	118	119	120	Stage 1 HTN
	99th	BP mm Hg	119	120	122	123	125	127	127	
	Stage 2 HTN	Add + 5	124	125	127	128	130	132	132	Stage 2 HTN
9 years			5th	10th	25th	50th	75th	90th	95th	height
		Height(cm)	126	128	132	136	141	145	147	Cm
	90th	BP mm Hg	109	110	112	114	115	117	118	Pre-hyper tension
	95th	BP mm Hg	113	114	116	118	119	121	121	Stage 1 HTN
	99th	BP mm Hg	120	121	123	125	127	128	129	
	Stage 2 HTN	Add + 5	125	126	128	130	132	133	134	Stage 2 HTN

BLOOD PRESSURE LEVELS FOR BOYS BY AGE AND HEIGHT PERCENTILE

			5th	10th	25th	50th	75th	90th	95th	height
10 years		Height(cm)	130	133	137	141	146	150	153	Cm
	90th	BP mm Hg	111	112	114	115	117	119	119	Pre-hyper tension
	95th	BP mm Hg	115	116	117	119	121	122	123	Stage 1 HTN
	99th	BP mm Hg	122	123	125	127	128	130	130	
	Stage 2 HTN	Add + 5	127	128	130	132	133	135	135	Stage 2 HTN
11 years		Height(cm)	135	137	142	146	151	156	159	Cm
	90th	BP mm Hg	113	114	115	117	119	120	120	Pre-hyper tension
	95th	BP mm Hg	117	118	119	121	123	124	125	Stage 1 HTN
	99th	BP mm Hg	124	125	127	129	130	132	132	
	Stage 2 HTN	Add + 5	129	130	132	134	135	137	137	Stage 2 HTN
12 years		Height(cm)	140	143	148	153	158	163	166	Cm
	90th	BP mm Hg	115	116	118	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	119	120	122	123	125	127	127	Stage 1 HTN
	99th	BP mm Hg	126	127	129	131	133	134	135	
	Stage 2 HTN	Add + 5	131	132	134	136	138	139	140	Stage 2 HTN
13 years		Height(cm)	147	150	155	160	166	171	173	Cm
	90th	BP mm Hg	117	118	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	121	122	124	126	128	129	130	Stage 1 HTN
	99th	BP mm Hg	128	130	131	133	135	136	137	
	Stage 2 HTN	Add + 5	133	135	136	138	140	141	142	Stage 2 HTN
14 years		Height(cm)	154	157	162	167	173	177	180	Cm
	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	124	125	127	128	130	132	132	Stage 1 HTN
	99th	BP mm Hg	131	132	134	136	138	139	140	
	Stage 2 HTN	Add + 5	136	137	139	141	143	144	145	Stage 2 HTN
15 years		Height(cm)	159	162	167	172	177	182	184	Cm
	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	126	127	129	131	133	134	135	Stage 1 HTN
	99th	BP mm Hg	134	135	136	138	140	142	142	
	Stage 2 HTN	Add + 5	139	140	141	143	145	147	147	Stage 2 HTN
16 years		Height(cm)	162	165	170	175	180	184	186	Cm
	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	129	130	132	134	135	137	137	Stage 1 HTN
	99th	BP mm Hg	136	137	139	141	143	144	145	
	Stage 2 HTN	Add + 5	141	142	144	146	148	149	150	Stage 2 HTN
17 years		Height(cm)	164	166	171	176	181	185	187	Height cm
	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	131	132	134	136	138	139	140	Stage 1 HTN
	99th	BP mm Hg	139	140	141	143	145	146	147	
	Stage 2 HTN	Add + 5	144	145	146	148	150	151	152	Stage 2 HTN

BLOOD PRESSURE LEVELS FOR GIRLS BY AGE AND HEIGHT PERCENTILE										
Age (Yrs.)	BP Percentile	Systolic BP (mmHg)								
		Percentile of Height								
6 years		Height(cm)	5th	10th	25th	50th	75th	90th	95th	Height Cm
	Blood pressure	Height(cm)	110	112	115	118	122	126	128	Cm
	90th	BP mm Hg	104	105	106	108	109	110	111	Pre-hyper tension
	95th	BP mm Hg	108	109	110	111	113	114	115	Stage 1 HTN
	99th	BP mm Hg	115	116	117	119	120	121	122	
7 years	Stage 2 HTN	Add + 5	120	121	122	124	125	126	127	Stage 2 HTN
		Height(cm)	5th	10th	25th	50th	75th	90th	95th	Height Cm
		Height(cm)	116	118	121	125	129	132	135	Cm
	90th	BP mm Hg	106	107	108	109	111	112	113	Pre-hyper tension
	95th	BP mm Hg	110	111	112	113	115	116	116	Stage 1 HTN
8 years	99th	BP mm Hg	117	118	119	120	122	123	124	
	Stage 2 HTN	Add + 5	122	123	124	125	127	128	129	Stage 2 HTN
		Height(cm)	5th	10th	25th	50th	75th	90th	95th	height Cm
		Height(cm)	121	123	127	131	135	139	141	Cm
	90th	BP mm Hg	108	109	110	111	113	114	114	Pre-hyper tension
9 years	95th	BP mm Hg	112	112	114	115	116	118	118	Stage 1 HTN
	99th	BP mm Hg	119	120	121	122	123	125	125	
	Stage 2 HTN	Add + 5	124	125	126	127	128	130	130	Stage 2 HTN
		Height(cm)	5th	10th	25th	50th	75th	90th	95th	height Cm
		Height(cm)	125	128	131	136	140	144	147	Cm
10 years	90th	BP mm Hg	110	110	112	113	114	116	116	Pre-hyper tension
	95th	BP mm Hg	114	114	115	117	118	119	120	Stage 1 HTN
	99th	BP mm Hg	121	121	123	124	125	127	127	
	Stage 2 HTN	Add + 5	126	126	128	129	130	132	132	Stage 2 HTN
		Height(cm)	5th	10th	25th	50th	75th	90th	95th	height Cm
11 years		Height(cm)	130	132	136	141	146	150	153	Cm
	90th	BP mm Hg	112	112	114	115	116	118	118	Pre-hyper tension
	95th	BP mm Hg	116	116	117	119	120	121	122	Stage 1 HTN
	99th	BP mm Hg	123	123	125	126	127	129	129	
	Stage 2 HTN	Add + 5	128	128	130	131	132	134	134	Stage 2 HTN
12 years		Height(cm)	5th	10th	25th	50th	75th	90th	95th	height Cm
		Height(cm)	136	138	143	148	153	157	160	Cm
	90th	BP mm Hg	114	114	116	117	118	119	120	Pre-hyper tension
	95th	BP mm Hg	118	118	119	121	122	123	124	Stage 1 HTN
	99th	BP mm Hg	125	125	126	128	129	130	131	
13 years	Stage 2 HTN	Add + 5	130	130	131	133	134	135	136	Stage 2 HTN
		Height(cm)	5th	10th	25th	50th	75th	90th	95th	height Cm
		Height(cm)	143	146	150	155	160	164	166	Cm
	90th	BP mm Hg	116	116	117	119	120	121	122	Pre-hyper tension
	95th	BP mm Hg	119	120	121	123	124	125	126	Stage 1 HTN
	99th	BP mm Hg	127	127	128	130	131	132	133	
	Stage 2 HTN	Add + 5	132	132	133	135	136	137	138	Stage 2 HTN
		Height(cm)	5th	10th	25th	50th	75th	90th	95th	height Cm
		Height(cm)	148	151	155	159	164	168	170	Cm
	90th	BP mm Hg	117	118	119	121	122	123	124	Pre-hyper tension
	95th	BP mm Hg	121	122	123	124	126	127	128	Stage 1 HTN
	99th	BP mm Hg	128	129	130	132	133	134	135	
	Stage 2 HTN	Add + 5	133	134	135	137	138	139	140	Stage 2 HTN

BLOOD PRESSURE LEVELS FOR GIRLS BY AGE AND HEIGHT PERCENTILE										
14 years		5th	10th	25th	50th	75th	90th	95th	height	
		Height(cm)	154	157	162	167	173	177	180	Cm
	90th	BP mm Hg	119	120	121	122	124	125	125	Pre-hyper tension
	95th	BP mm Hg	123	123	125	126	127	129	129	Stage 1 HTN
	99th	BP mm Hg	130	131	132	133	135	136	136	
15 years	Stage 2 HTN	Add + 5	135	136	137	138	140	141	141	Stage 2 HTN
		5th	10th	25th	50th	75th	90th	95th	height	
		Height(cm)	152	154	158	162	167	171	173	Cm
	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	124	125	126	127	129	130	131	Stage 1 HTN
16 years	99th	BP mm Hg	131	132	133	134	136	137	138	
	Stage 2 HTN	Add + 5	136	137	138	139	141	142	143	Stage 2 HTN
		5th	10th	25th	50th	75th	90th	95th	height	
		Height(cm)	152	154	158	163	167	171	173	Cm
	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
17 years	95th	BP mm Hg	125	126	127	128	130	131	132	Stage 1 HTN
	99th	BP mm Hg	132	133	134	135	137	138	139	
	Stage 2 HTN	Add + 5	137	138	139	140	142	143	144	Stage 2 HTN
		5th	10th	25th	50th	75th	90th	95th	height	
		Height(cm)	152	155	159	163	167	171	174	cm
17 years	90th	BP mm Hg	120	120	120	120	120	120	120	Pre-hyper tension
	95th	BP mm Hg	125	126	127	129	130	131	132	Stage 1 HTN
	99th	BP mm Hg	133	133	134	136	137	138	139	
	Stage 2 HTN	Add + 5	138	138	139	141	142	143	144	Stage 2 HTN

(Source: National Heart, Lung and Blood Institute, National Institute of Health, USA)

8. VISION TESTING (MEASUREMENT OF VISUAL ACUITY):

Vision testing is done for children 6-18 years of age by testing the Visual Acuity for both the right and left eye with the help of Snellen's chart.

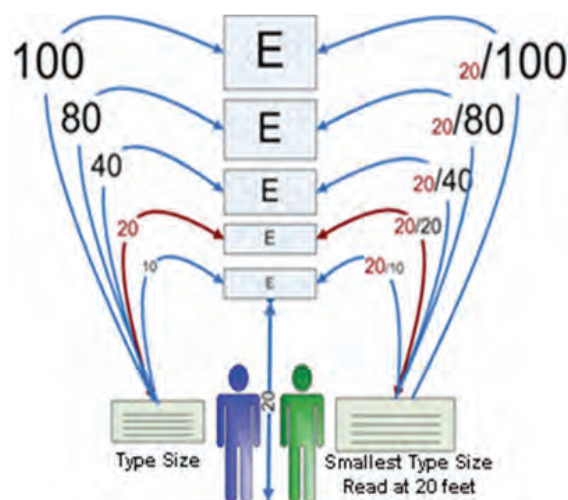
A Snellen chart is a tool for measuring visual acuity, the ability to resolve fine details at a distance. The chart consists of rows of individual black characters printed on a white background. The first row is often a single large letter, with letters becoming more numerous and successively smaller 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 or 6 meters 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, you may ask the child to skip to smaller lines.

E	1	In Feet	In Meter
F P	2	20/200	6/60
T O Z	3	20/100	6/30
L P E D	4	20/70	6/21
P E C F D	5	20/50	6/15
E D F C Z P	6	20/40	6/12
F E L O P Z D	7	20/30	6/9
D E F F O T E C	8	20/25	6/7.6
L E F O D P O T	9	20/20	6/6
F A P L Y C S O	10		
C A A A L L E F T A	11		

The above Snellen's chart is illustrative only and not suitable for vision testing



Visual acuity test results

INSTRUCTIONS:

1. Ask the child to stand at a distance of 6 meters or 20 feet from the chart and read down to the smallest row of numbers that s/he can see.
2. Test one eye at a time, first without glasses and then with.
3. Keep the other eye covered using an eye patch.
4. To make a simple eye patch, just fold a piece of tissue and tape it over the eye.
5. 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 that can be read correctly.
6. First test the right eye, then the left eye.
7. Record the visual acuity without (unaided visual acuity) and with glasses (aided visual acuity)
8. Refer: if vision is less than **20/40** or **6/12**

WHAT DO THESE FRACTIONS MEAN?

FEET	METERS (M) APPX.	ACUITY IN FEET	ACUITY IN METERS
10	3	20/10	6/3
20	6	20/20	6/6
30	9	20/30	6/9
40	12	20/40	6/12
50	15	20/50	6/15
60	18	20/60	6/18
70	21	20/70	6/21
80	24	20/80	6/24
90	27	20/90	6/27
100	30	20/100	6/30
200	60	20/200	6/60

6/6 (20/20) visual acuity is 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.

GENERAL EXAMINATION OF A CHILD UPTO 30 MONTHS

The general examination of a child upto 30 months is as given below:

- The general morphological appearance of the child must be seen for any abnormality
- Look for the symmetry, posture and movements to rule out any abnormality or problem in coordination of movements for Neuro-motor impairment.
- Nutrition of the child by looking at his/her appearance, look at the skin for any skin lesions.

1. NEURO-MOTOR IMPAIRMENT

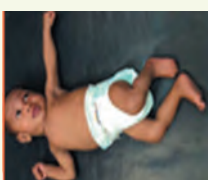
Look for 1) **Symmetry** 2) **Posture** 3) **Movement**

Observe the child comprehensively especially focusing on his/her entire body for any asymmetry or abnormal posture - in lying down position or while sitting, standing, walking or running. In case any visible **persistent** asymmetry or abnormal posture/movement with respect to age is present, it should be recorded as a Neuro-motor impairment.

ABNORMAL POSTURE IN LYING DOWN WITH ASYMMETRY



Sword fighting (fencing) position



Flexed legs with extended arms



Frog like position



Tight fist with extended limbs

ABNORMAL SITTING POSTURE



Sitting with curved back at 8 months.



Widely spread legs with extended legs



"W" sitting



Cannot sit because of rigidity and knees gets flexed on attempt to sit.



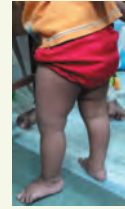
ABNORMAL STANDING POSTURE



Unable to bear weight when made to stand



Hyperextended legs



Rotation of left leg while right is pointing straight



Unable to bear weight when made to stand



Walking on toes



Inwardly rotated right leg with toe walking



ABNORMALITY IN SYMMETRY, POSTURE AND MOVEMENT ESPECIALLY IN CHILDREN LESS THAN 2 YEARS INDICATES NEURO-MOTOR IMPAIRMENT.

Use the age-specific Neuro-motor impairment tools for assessment of Neuro-motor impairment:

- Look for symmetry, posture and movements in supine, prone, sitting and standing positions to assess for neuro-motor impairment as shown:

BIRTH -2 MONTHS

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

ATYPICAL DEVELOPMENT (BIRTH -2 MONTHS)			
			
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

FROM 3 MONTHS TO 4 MONTHS

TYPICAL DEVELOPMENT (3 MONTHS -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	Can sustain standing posture	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 (3 MONTHS -4 MONTHS)



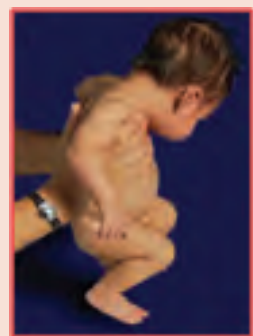
Supine – Asymmetrical posture. Persistent fencing posture



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 fisted position after 4 months



ATYPICAL DEVELOPMENT (3 MONTHS -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)

Rigidity and toe pointing

Child is jittery (startles easily)

Infrequent or limited variety of movements

Favors one side of the body more than other

Feeding problems

BY 6 MONTHS

TYPICAL DEVELOPMENT BY 6 MONTHS



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: corkscrew pattern on both sides

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

Can sustain standing posture Keeps hips just behind shoulders

BY 6 MONTHS

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

AT 9 MONTHS

TYPICAL DEVELOPMENT AT 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)

AT 9 MONTHS

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)



Bunny 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

AT 12 MONTHS

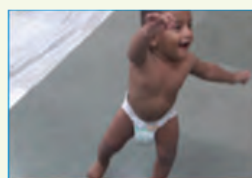
TYPICAL DEVELOPMENT AT 12 MONTHS



Crawls well



Pulls to stand holding something



Attempts to walk



ATYPICAL DEVELOPMENT AT 12 MONTHS



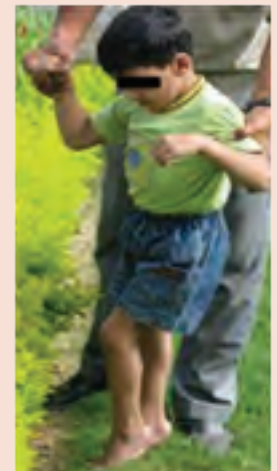
Difficulty crawling
uses only one side of
the body to move



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



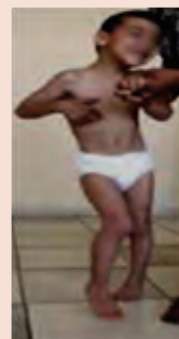
Sits with weight to
one side
Strongly flexed or
stiffly extended arms
Needs to use hand to
maintain sitting



Unable to hold
head straight



Stiff legs and
Toe walking



Hemiplegic gait and
hyperextension of knee
joint and Tip toe.

Stiff leg, pointed toes

“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.

If screening for neuro-motor impairment is positive, fill the appropriate section (section D9.1) of the Screening Tool cum Referral Card as under and refer the child:

D9.1	Any Neuro-motor abnormality (Refer to picture in Job Aid)	If Y, Refer
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2. NUTRITION:

Anthropometry is to be done for nutritional assessment: Birth weight, length/height, head circumference and MUAC.

Assess whether the baby's growth parameters are within age specific reference range as described in the Reference Charts and in the table below for assessing the nutritional status of the child.

- Skin appearances indicate changes in nutrition. The skin first goes darker, it then dries and the dry skin cracks and starts to peel off. The size of the sheets and way of peeling depends upon the part of the body and the stretching and contraction with changes in edema volume. Thin, pale atrophic skin is left behind.



- Weight-for-length/height for children up to 6 years

< -3SD(Refer)

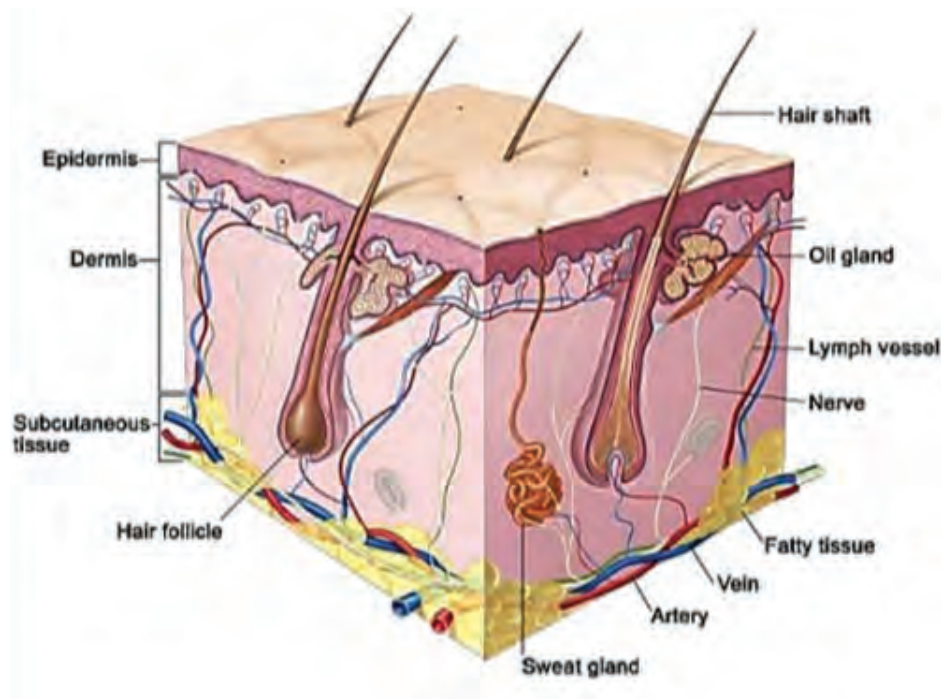
- Bilateral pitting edema



d. Mid upper arm Circumference : MUAC	Refer if <11.5cm
e. Children above the age of 6 years: use BMI reference charts (Simplified field tables for Girls and Boys). Unlike for adults, the BMI values vary with the age and sex of the child. The BMI in children is called: BMI-for-age. Refer to the Z score to assess the nutritional status	Refer if >+3SD (obesity) or <-3SD (underweight)
f. Head circumference/Frontal Occipital Circumference (FOC): Brain growth/nutrition	Refer to Anthropometry section Refer If >+2SD or <- 2SD

3. SKIN

Anatomy



SKIN TERMINOLOGY

- Macule:** spot. A flat lesion you cannot feel, as it is not raised from the skin surface but if pressure is applied using a thumb, the red colour disappears. Flat, not raised, less than 1 cm in diameter and blanches on pressure e.g. measles rash.
- Petechiae:** like Macule. Coloured but not raised, less than 1 cm and does not blanch on pressure (haemorrhage).
- 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:** Completely flat or a plateau > 10 mm
- 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:** A pus containing vesicle < 1cm
- j. **Abscess:** A pus containing vesicle > 1cm

SKIN EXAMINATION INCLUDES

- Looking at the color:
 - Jaundice,
 - Pallor,
 - Cyanosis (bluish discoloration)
- Looking for Swelling – Edema:
 - Peri-orbital (around eyes): due to excessive crying, allergies, kidney disease
 - Dependent (around feet/ankles/sacral region): indicates Severe acute malnutrition, cardiac and kidney diseases
- Identifying Skin infections using the skin tool:
 - Infectious lesion: viral, bacterial, fungal (erythema, macule, papule, vesicle, pustule)
 - Pruritus (itching): dry skin, allergy, eczema, contact dermatitis and scabies.

APPROACH TO IDENTIFYING SKIN LESIONS/INFECTIONS:

ASK the following questions:

1. Has the rash got fluid-filled (vesiculo-bullous) lesions? If the answer is '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.

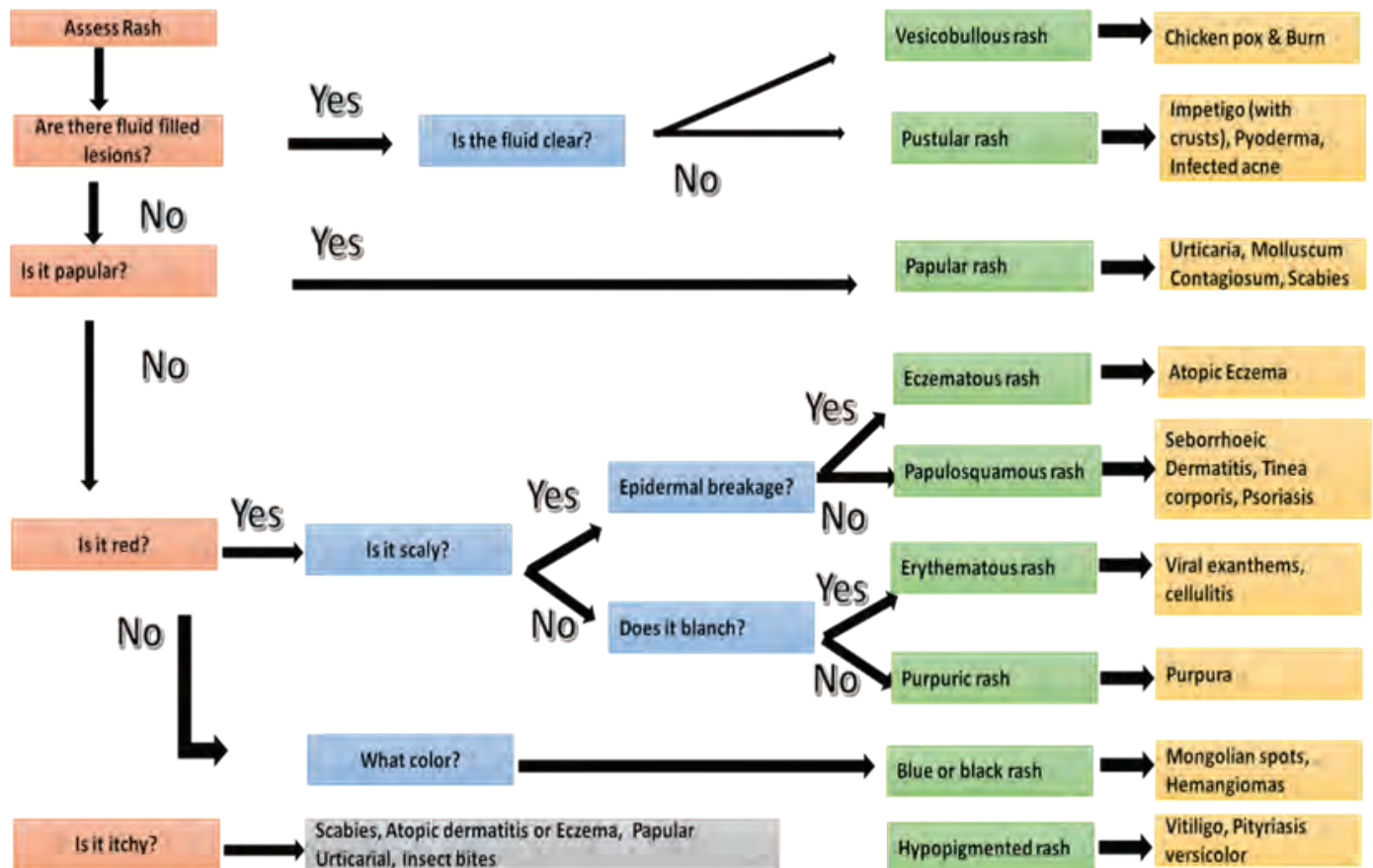
Impetigo - this usually takes the form of itchy lesions with macules, vesicles, bullae, pustules and gold coloured crusts caused by *Staphylococcus aureus* or group A beta-haemolytic streptococci.
2. Is the Rash papular (raised)? If the answer is 'Yes':

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
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)
4. Is it red but not scaly and blanches on pressure and less than 1 cm. (Macule and papules)?
Consider: 1) Viral infection e.g. Measles, Rubella 2) Bacterial infection: cellulitis
5. Is it red but not scaly and does not blanch on pressure?
Consider: Purpura
6. Is it Itchy
Consider: Scabies

IDENTIFYING SKIN LESIONS:



PATCH

Patch: is a spot of size more than 1 cm, but is not raised. It is a flat lesion that can be seen but cannot be felt. It can be of various colors.

It is defined based on:

1. Its color
2. Location in the body
 - a) On the cheeks/behind the knees and the elbows with itching: Eczema
 - b) Greyish patch with silvery scales on the front of the knee and behind the elbow: Psoriasis
 - c) Red patches in the groin area: Diaper dermatitis or Candida infection
 - d) White irregular patch on the face or the body with no itching: Fungal infection or Tinea versicolor
 - e) White patch in the mouth: Thrush or Candida of the mouth
3. Whether accompanied with scales (flakes)
4. Whether it is painful
5. Break in the skin
6. Accompanied with itching.

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

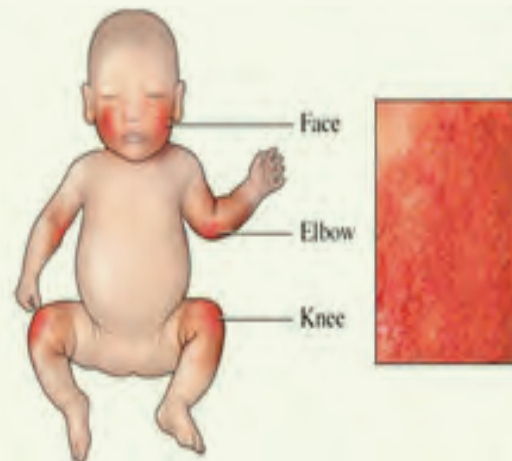
Reddish	A reddish, hot, painful patch that spreads rapidly	Erysipelas (Cellulitis or very serious bacterial infections)
	A reddish area between the baby's legs	Diaper rash from urine or heat
	Beef-red patches with white milky curds in the skin folds	Moniliasis (Yeast infection)
Reddish or gray	Raised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

RED PATCH

Eczema or Atopic dermatitis: areas commonly involved is the face, front of elbow and back of knee. (in psoriasis it is the back of elbow and front of knee)

Red, dry, itchy, scaly and cracked skin.
(In infants and toddlers, the rash usually appears on the face, elbows or knees)

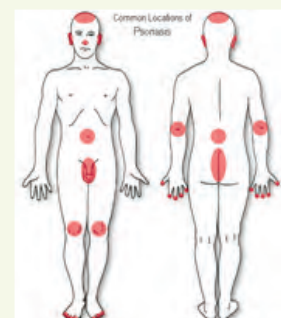
Reddish or blistering patches on the cheeks or behind the knees and elbows of young children with itching.



Psoriasis:



Commonly at back of the elbow and front of knee, also scalp, lower back and nails.

Raised reddish or gray patches with silvery scales esp. on elbows and knees



Reddish, hot, painful patch that spreads rapidly Cellulitis



RED PATCH	
Reddish area between the baby's legs or the groin area - Diaper dermatitis due to wet surface esp. Urine	
Beef Red Patches with white milky curds in the skin folds - Candida infection of the diaper area.	

WHITE PATCH:

1. White Patch in the mouth of an infant: Candida infection of mouth
2. Round or irregular white patches especially on the face or body of children: Tinea versicolor or Fungal infection
3. White patches on face, hands, feet 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	Pinta (infection)
	That begins without other signs	Vitiligo (loss of color, nothing more)

WHITE PATCH

Tinea Versicolor:

Round or irregular white patches esp. on the face or body especially of children. Common in hot, humid climates or in those who sweat heavily, so it may recur each summer



Oral thrush or Candida infection

White Patch in the mouth of an infant: Curd like



Vitiligo

White patches on face, hands, feet or lips without any other signs



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

RASHES

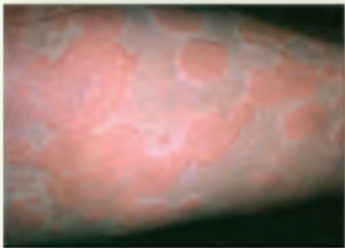
A rash is a change of the skin which affects its color, appearance or texture. A rash may be localized in one part of the body, or affect all the skin. Rashes may cause the skin to change color, itch, become warm, raised, dry, cracked or blistered, swell and may be painful. The causes, and therefore treatments for rashes, vary widely. Diagnosis must take into account such things as the appearance of the rash, other symptoms particularly itching. Rashes may be a sign of skin infection, though at times, they could also be present normally.

EXAMPLES OF RASHES:

<p>Coloured but not raised and less than 1 cm blanches on pressure: Macule (Measles)</p>   	<p>Coloured but not raised and less than 1 cm: does not blanch on pressure Petechiae (hemorrhage)</p>  <p>Petechiae, hemorrhage</p>	<p>Coloured but not raised and More than 1 cm Patch (Vitiligo, Mongolian spot)</p>  <p>Mongolian spot</p>  <p>Vitiligo</p>
<p>Raised, elevated and firm: But less than 1 cm: Papule (wart, urticarial, scabies, Molluscum-Contagiosum, insect bite)</p>   <p>wart</p>	<p>Raised and elevated, 1-2 cm: Nodule (Erythema nodosum)</p>  <p>Erythema nodosum</p>	<p>Raised and elevated, More than 2 cm :Tumor. Hemangioma (Tumor)</p> 

	 <p>Erythema nodosum</p>	 <p>Molluscum contagiosum Umbilicated surface depressed central portion</p>
	 <p>Linear red papules & Pustules: Scabies</p>	
 <p>Scabies</p>	 <p>Scabies symmetric, linear red papules</p>	
<p>Elevated and Contains fluid – clear fluid but less than 1 cm. Vesicle (Chicken pox)</p>	<p>Elevated and Contains fluid – clear fluid but greater than 1 cm. Bulla (burn blister)</p>	<p>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</p>
 <p>Chicken pox</p>	 <p>Bulla</p>	 <p>Pustule</p>

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

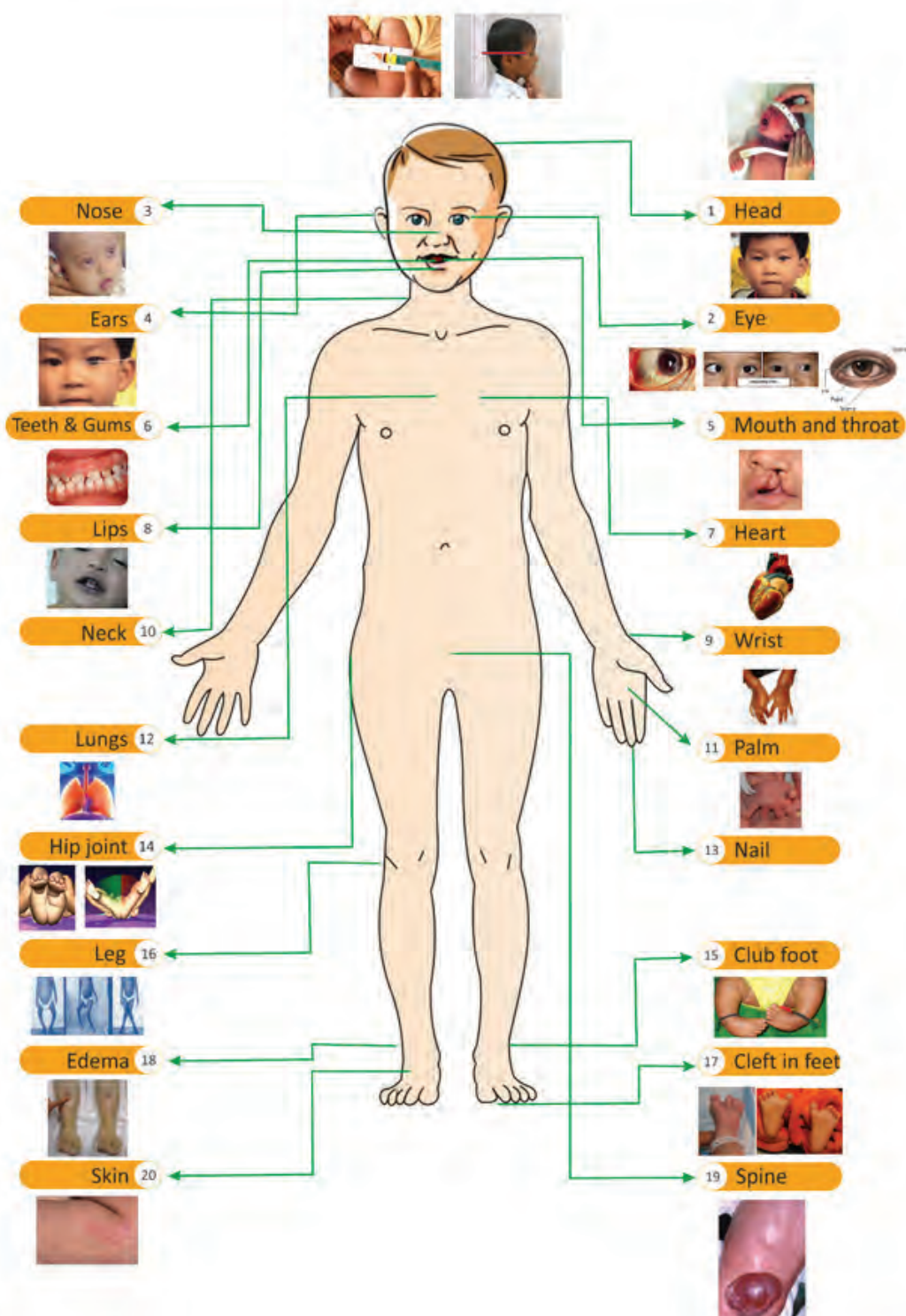


Colour of the scales – golden
yellow (Impetigo (With Crusts))

If skin assessment shows a skin condition, fill the appropriate section (section C4) of the Screening Tool cum Referral Card as under and refer the child:

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.	If Yes, Refer Y
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Examination of a child : Head to Toe



The Mobile Health Team will screen for 30 selected health conditions under the 4Ds, through Head to Toe examination of the child from birth to 6 years of age as depicted under: Follow the sequence of examination described so as to screen the child in a systematic manner for the 3 'Ds', that is, Defects at Birth, Deficiencies and Diseases. The following sequence of examination, with the Screening Tool cum Referral Card as a tool, will ensure that the child is screened properly by the Mobile Health Team and that no key clinical feature is missed out.

1. HEAD

Measure the Head Circumference (HC) as described in Chapter 7: **Refer the child if HC is $> + 2$ Standard Deviation (SD) of normal reference (Macrocephaly - see Head Circumference Reference Chart) or $< - 2$ SD of normal reference (Microcephaly).**

Look for any swelling.

2. FACE

While examining the face, it can be useful to first gain an overall impression of the facial appearance.

EXAMINATION OF FACE

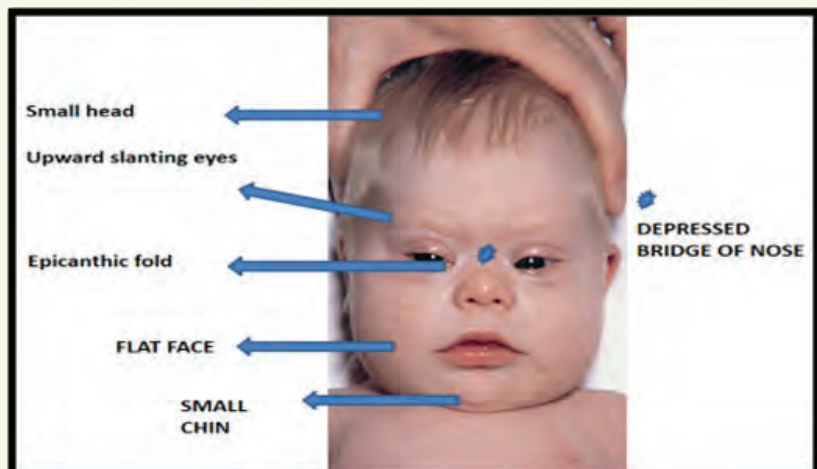
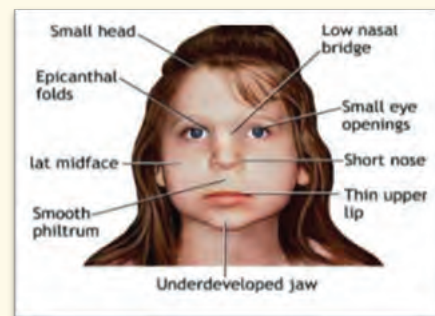
Sometimes, an overall impression can be diagnostic (e.g. in Down's syndrome).

In assessing the face, it is important to view the face from the front and from the side view.

The depth or height of structures such as the nasal bridge, the position of the chin and the development of the mid-face are best assessed by the side view.



Down's Syndrome



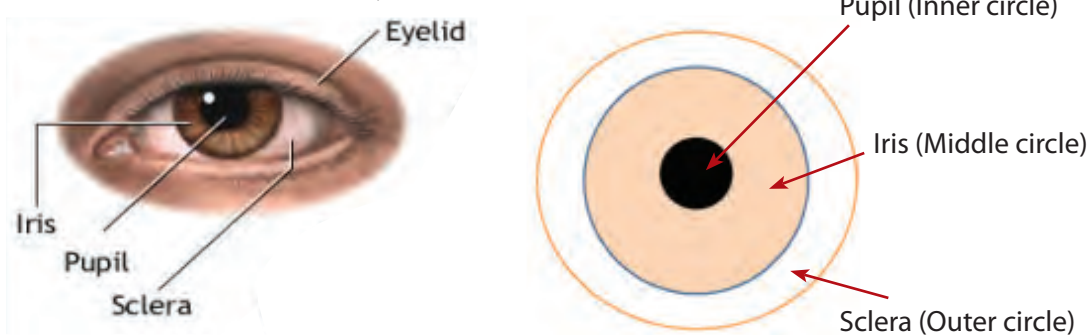
If Down's Syndrome is present, record in Screening Tool cum Referral Card in A10 {including A10(a) to A10(e)} and refer the child:

A10	Features Suggestive of Down's Syndrome * Refer if more than one sign is present	If Yes, refer Y/N
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3. EYES

Eye examination includes examination of the following:

- **Eyelids** – look for:
 - **Ptosis** - Eyelids can be drooping
 - **Lid lag** while opening of the eyes
 - Swelling around the eye, **Dacryocystitis**, an inflammation of the **lacrimal or tear sac**, frequently caused by nasolacrimal duct obstruction or infection.
- **Eye spacing**: whether normal or wide set (in Down's syndrome) or close set
- **Crossed eye**: deviated eye or squint
- **Palpebral fissure** – look for slant (up/down)
- **Epicanthic folds** - a fold of skin which arcs from below the eye into the upper lid
- **Lacrimal sac** – look for inflammation of the tear sac
- **Dancing eyes** – look for jerky movements
- **Conjunctiva** – check conjunctiva for pallor (anaemia) and redness (conjunctivitis)
- **Examine the 3 circles** of the eye as follows:



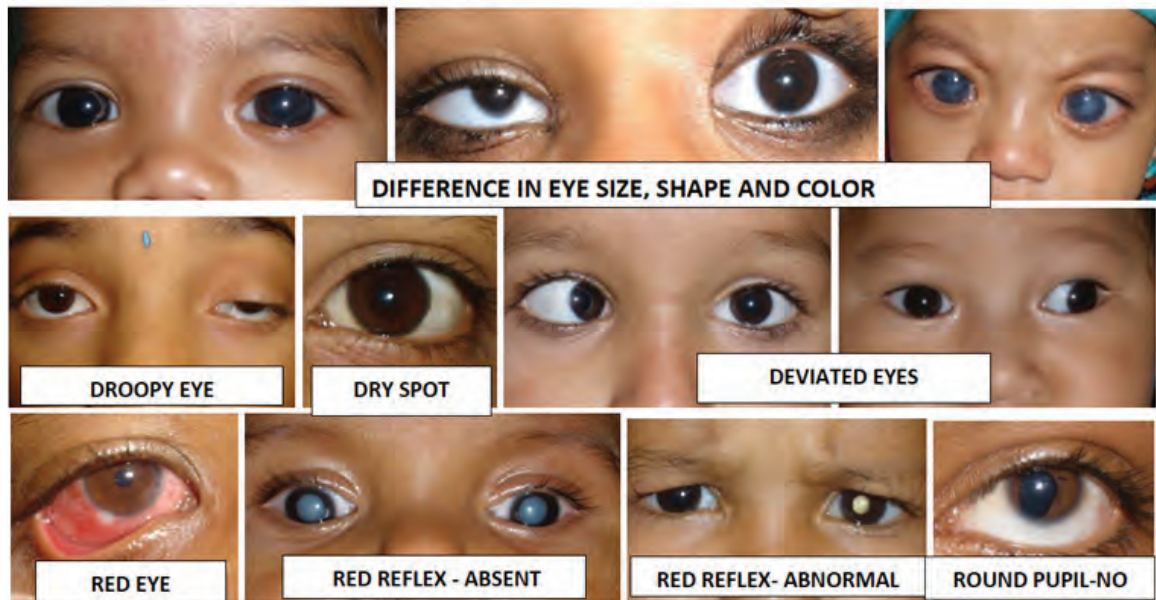
The 3 circles of the eye

- **Iris** – look at the color and shape :
 - Round or not
- **Pupil** – look at the size and shape:
 - Round or not.
 - Refer if white reflex is observed in torch light (cataract)
 - **Retina**: Red Glow or Red reflex on ophthalmoscope or camera indicates a clear inner chamber of the eye

- **Sclera** – Look for Bitot's spots

Use the **Vision Tool** to identify eye and vision related problems.

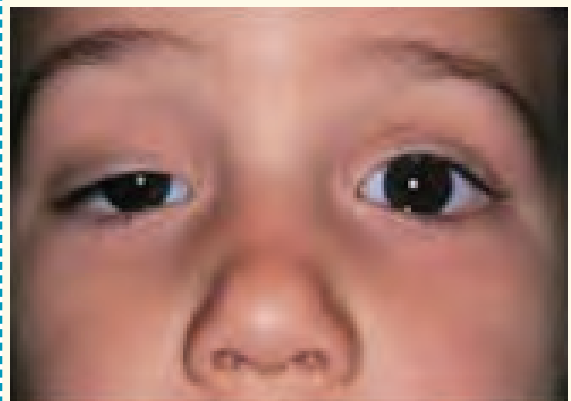
RBSK: INDICATIONS FOR REFERRAL TO DEIC: **THESE PHOTOS ARE APPLICABLE FOR ALL AGE GROUPS**



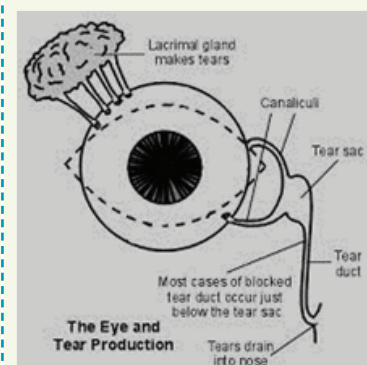
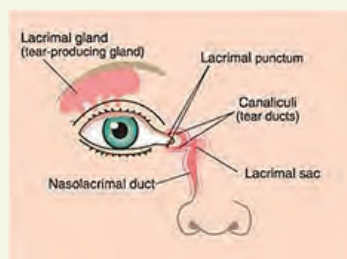
Further details of eye examination with illustrations is described below.

EXAMINATION OF EYES

Eyelids are falling or drooping : Ptosis



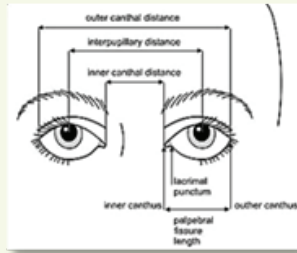
Lacrimal sac: The tear sac is swollen and red as the nasolacrimal duct is blocked just below the tear sac or lacrimal sac: Dacrocystitis



EYE SPACING

Wide set: **Hyper-telorism:**
Increased inter-pupillary distance

Close set: **Hypo-telorism:**
decreased inter-pupillary distance.



SLANT OF EYE



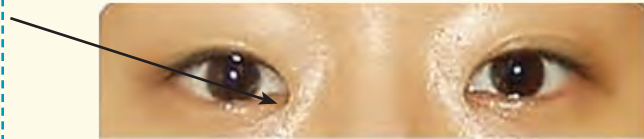
Normal slant



Up/down ward slant (Palpebral fissure)

EPICANTHIC FOLDS

A fold of skin which arcs from below the eye into the upper lid



SQUINT (CROSSED EYE)

Above 3 months.

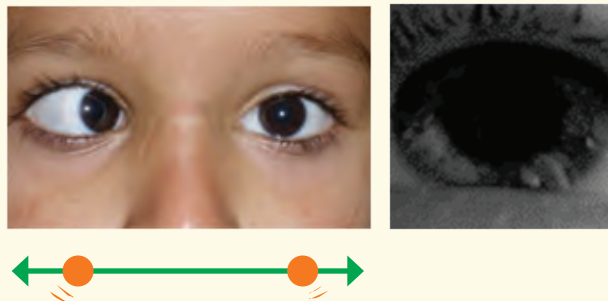
Notice the difference of the reflection of the light from the Cornea of left and right eye. Left side pupil is in the center and the right side pupil is away from the center



Squint

DANCING EYE

Involuntary, rapid, rhythmic movement of the eyeball, which may be horizontal, vertical, rotatory or mixed - Dancing eye (**Nystagmus** "nystazein = to nod"). Nystagmus can be sensory and develop as a result of poor vision, or it can be motor and develop as a result of a neurological problem.

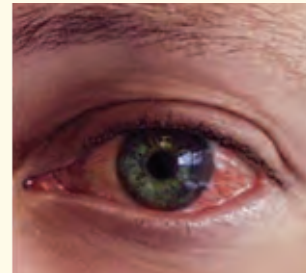


EXAMINE CONJUNCTIVA FOR

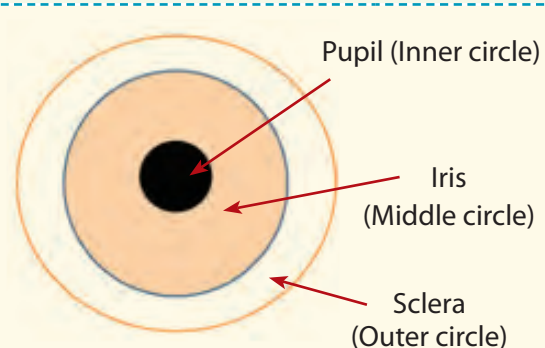
Normal conjunctiva



Severe anemia



red eye due to conjunctivitis

EXAMINE THE THREE CIRCLES OF THE EYE:

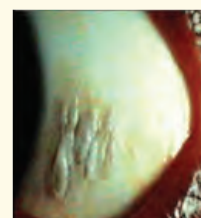
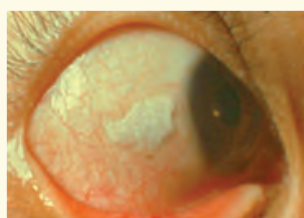
The three circles



Examination by torch

OUTER CIRCLE

Triangular shaped white foamy lesions: Bitot's spot in Vitamin A deficiency

**MIDDLE CIRCLE****Congenital glaucoma**

- Large corneas that may appear cloudy.
- The pupil — the black center of the eye that normally changes diameter in response to light — is dilated.
- The iris (the colored portion of the eye) may show signs of atrophy.
- There may also be excessive watering and light sensitivity.



Large cornea in congenital glaucoma compared with normal eye and normal cornea.

Round shape of Pupil and Iris is distorted: **Coloboma**



Coloboma: shape of Pupil and Iris is distorted

INNER CIRCLE

On torch examination
- white eye indicates
Congenital Cataract



Congenital Cataract

RED REFLEX

Red reflex either by Ophthalmoscope or Camera: Red reflex is actually seeing the curtain of Eye (Retina) which is red.

A red glow means the media through which the light has traveled is clear i.e. cornea, lens etc. are not opaque



A white glow in a child's eye could be a sign of eye cancer. See **RED** or see an eye doctor!



Normal red reflex with ordinary Camera

KEY POINTS IN EYE EXAMINATION

General examination – size shape placement

The eye lid - droopy
Widely set eyes
Up/down slant (Palpebral fissure)
Inflammation of the lacrimal sac
Squint
Dancing eyes

Conjunctiva

Pallor or redness

Outer circle:

Vitamin A deficiency

Middle Circle:

Large cornea (Glaucoma)
Gap in the iris (Coloboma)

Inner circle:

Pupil - white (Cataract)
Red reflex

Record Findings in the Screening Tool cum Referral Card the relevant sections viz. A2, A10(a), B4 for 0-6 years and A1, B2 for 6-18 years, as under:

FOR 0 – 6 YEARS:		
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)	If Yes, refer Y/N
A10(a)	Eye : upward slant of eyes (imaginary line extended from the inner canthus, goes below the outer canthus), and or epicanthic fold	If Yes, refer Y/N
B4	Vitamin A Deficiency – Ask for night blindness/look for Bitot’s spot (white patches on sclera)	If Yes, refer Y/N

FOR 6 – 18 YEARS:

A2	Look for any visible Defect at Birth viz. Cleft Lip/Club Foot/Down’s Syndrome/Cataract	If Yes, refer Y/N
B2	Vitamin A Deficiency – Ask for night blindness/look for Bitot’s spot (white patches on sclera)	If Yes, refer Y/N

Fill Y if the response is ‘Yes’ and refer the child or N if the response is ‘No’.

4. NOSE

Assessment of the nose is done as follows:

- Look for structure variations
- Observe flattened nose or naso-labial folds which indicate congenital anomalies.

EXAMINATION OF NOSE	
<p>Divide the nose into 3 sections from the lateral view from superior to inferior into the nasal root, bridge and tip:</p> <ul style="list-style-type: none"> Root Ridge Bridge Tip Columella Nostrils <p>Examine these structures.</p>	
<p>Nasal Ridge: The midline prominence of the nose, extending from the nasal root to the tip (also called the dorsum of the nose).</p>	
<p>Nasal root: The most depressed, superior part of the nose along the nasal ridge</p>	

Nasal Bridge: A saddle-shaped area that includes the nasal root and the lateral aspects of the nose. If you wear spectacles then the portion which sits over your nose is the nasal bridge.



Nasal bridge can be depressed/prominent/broad



Depressed bridge of nose

Tip of nose:

- Columella (the vertical ridge separating the nostrils)-whether straight or bent.
- Nostrils - patency, position (anteverted nostrils often reflect a short nose)

If the bridge of nose is depressed, record in Screening Tool cum Referral Card in A10(b) as shown:

Fill Y if the response is 'Yes' and refer the child or N if the response is 'No'.

A10(b)	Nose : Depressed Bridge	If Yes, refer Y/N
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5. EARS

The ears should be assessed for:

- Ear position relative to the face, from the lateral view
- Ear shape and structure
- Pus discharge from the ear: more than 3 episodes of ear discharge in last one year

While examining the ears, look for the following conditions:

- Abnormal folds or location of the pinna
- Low-set ears
- No opening to the ear canal

- No pinna
- No pinna and ear canal (anotia)
- Cysts in the pinna or skin tags.
- Pus discharge from the ear

If any ear abnormality is observed, the child must be referred. However, an isolated abnormality in shape need not be referred.

EXAMINATION OF EARS

Assess ear position relative to the face, from the lateral view

Position of ear

If an imaginary line is drawn from the inner canthus to outer canthus and then to the ear then the line should be passing at 1/3rd and 2/3rd junction of the Ear.

Top of the ears should be level with outer canthus of eye



If the line passes above the ear this condition is called **Low set Ears**



Normal ear

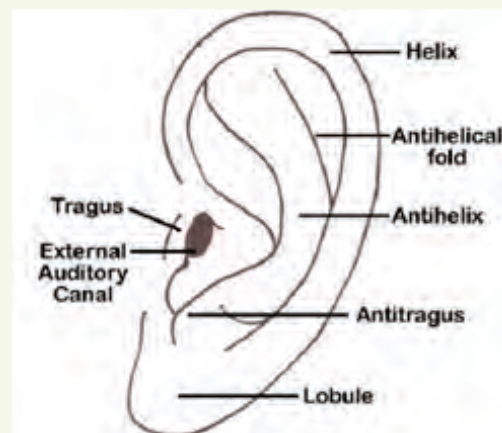


Abnormal angled ear



Low seated ear

EAR SHAPE AND STRUCTURE



Normal Shape, structure and parts of ear

ABNORMAL SHAPE STRUCTURE AND PARTS OF EAR

Abnormalities of external ear development is referred to as **Microtia**

Abnormalities can be:

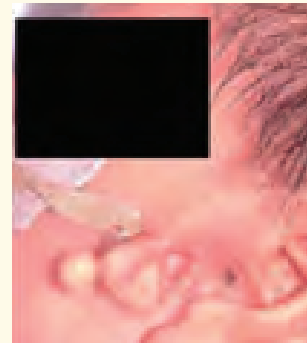
Mild deviations

- ear size, shape, and location of the pinna and ear canal

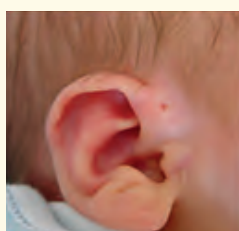
Major malformations

- Involving the external ear with only small nubbins of cartilage and an absent auditory meatus.

Complete absence of the pinna and ear canal is **Anotia**



Ear tag



Preauricular Ear Pit



Hypoplastic and low set ear



Microtia variations

Pus discharge from the ear

Look for any ear discharge: More than 3 episodes of ear discharge in last one year indicates Otitis Media



- Record any abnormality of Ear in the Screening Tool cum Referral Card in A3 as under and refer if it is not an isolated finding:

A3	Ear - Any abnormality of shape	* do not refer if isolated finding	If Yes, refer Y/N
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- Pus discharge from the ear: If more than 3 episodes of ear discharge in last one year are reported fill C2 as below and refer:

C2	Otitis Media – Did child have more than 3 episodes of ear discharge in last 1 year/Look for active discharge from ear	If Yes, refer Y/N
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Fill Y if the response is 'Yes' and refer the child or N if the response is 'No'.

6. ORAL (MOUTH) REGION

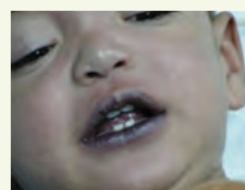
Assessment of the oral region includes

- Mouth size and shape
- The ridge between nostrils and lips (Philtrum)
- Lips
 - Shape and thickness
 - Color (central cyanosis)
 - Cleft
- Jaw position (protruded jaw/small jaw)
- Oral cavity
 - Teeth
 - Frenulum/tongue size and morphology
 - Oral thrush
 - Uvula for symmetrical movement or bifid uvula
- Gum thickness
- Uvula for symmetrical movement or bifid uvula
- Palate shape, cleft

EXAMINATION OF ORAL CAVITY

Inspect lips for color especially central cyanosis or any cleft on lip and/or palate

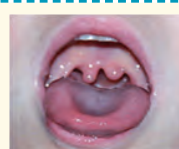
Bluishness (Central cyanosis) if observed around the mouth including the lips is sign of heart disease in children.



If Central cyanosis is observed: Fill A11 (Congenital Heart Disease) in Screening Tool cum Referral Card as 'Y' (Yes) and Refer the child

Check for Cleft in

- Lip
- Palate



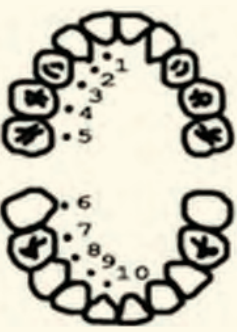

Examine palate and uvula: An absent or bifid (notched) uvula indicates sub-mucosal or soft palate cleft.

Cleft on lip and cleft palate: If present fill A4 in Screening Tool cum Referral Card (0-6 years) as 'Y' (Yes) and Refer the child

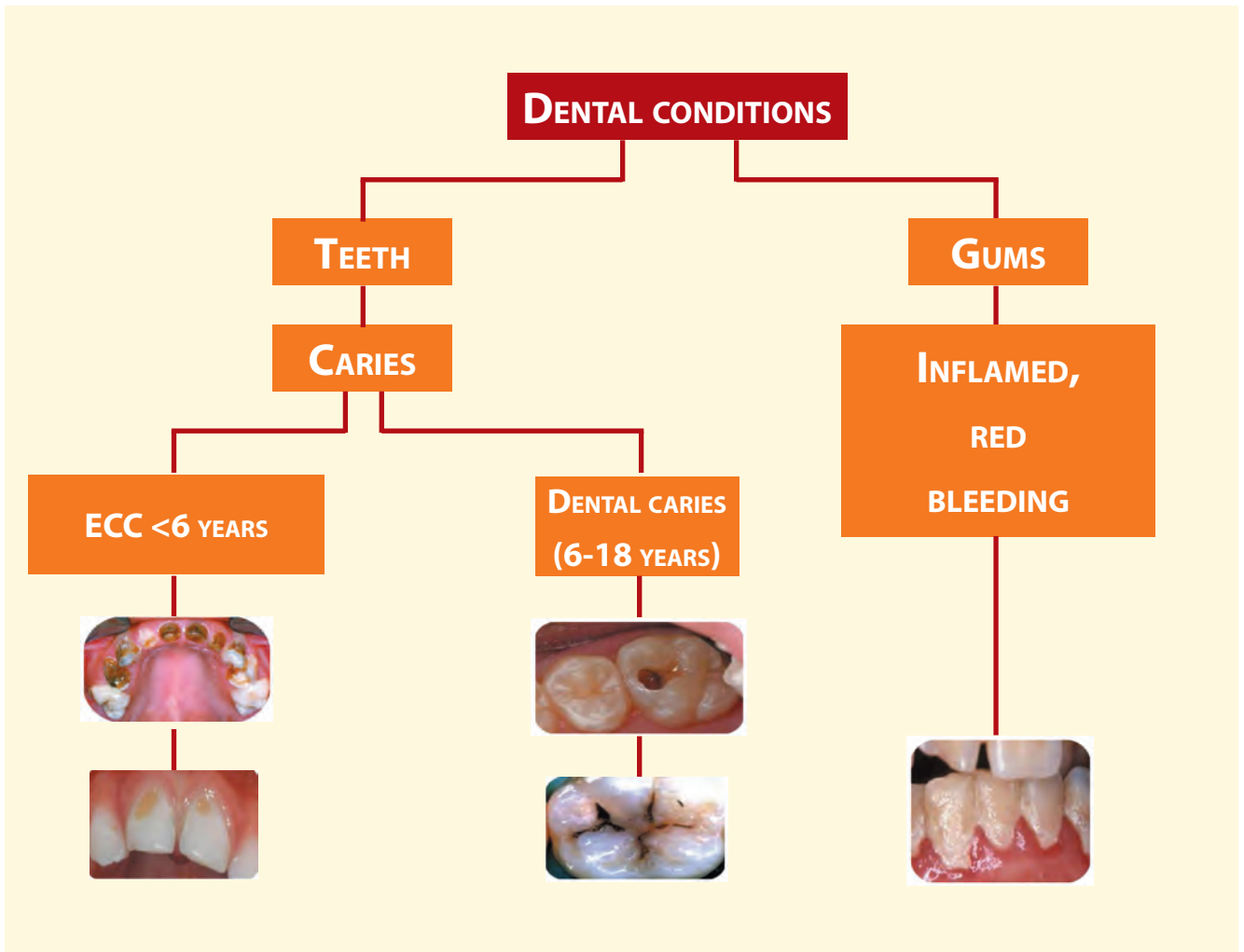
EXAMINATION OF THE TEETH

Assessment of the teeth:

- Count teeth
- Inspect for caries, malocclusion (misalignment of teeth) and loose teeth
- Examine the gums
- Observe breath for foul odour

COUNT TEETH			
Primary (baby) teeth: Check for Normal Healthy Teeth: 20 primary ("baby") teeth - Incisors, Canines, and Molar teeth Among primary teeth, 10 usually are found in the maxilla (upper jaw) and the other 10 in the mandible (lower jaw) and start from the age of 6 months.		Upper Teeth <ol style="list-style-type: none"> 1. Central Incisor 2. Lateral Incisor 3. Canine 4. First Molar 5. Second Molar 	Lower Teeth <ol style="list-style-type: none"> 6. Second Molar 7. First Molar 8. Canine 9. Lateral Incisor 10. Central Incisor
Permanent (adult) teeth: Check for Normal Healthy Teeth: 28 to 32 permanent teeth - Incisors, Canines, Premolars and Molar teeth Among permanent teeth, 16 are found in the upper jaw and the other 16 in the lower jaw and start from the age of 6 years until 14 years, the last four being third molars or "wisdom teeth" which erupt at 17-21 years, which may or may not grow.		Upper Teeth <ol style="list-style-type: none"> 1. Central Incisor 2. Lateral Incisor 3. Canine 4. First Premolar 5. Second Premolar 6. First Molar 7. Second Molar 8. Third Molar (wisdom tooth) 	Lower Teeth <ol style="list-style-type: none"> 9. Third Molar (wisdom tooth) 10. Second Molar 11. First Molar 12. Second Premolar 13. First Premolar 14. Canine 15. Lateral Incisor 16. Central Incisor

Look for dental conditions by examination of teeth and gums as shown in the flow chart. Caries in children 6 years of age or younger is known as **Early Childhood Caries (ECC)**.



USE THE DENTAL TOOL FOR IDENTIFICATION OF DENTAL CONDITIONS

Check for Normal Healthy Teeth: 20 primary



("baby") teeth and 28 to 32 permanent teeth. Incisor, canine, premolar (only in permanent teeth) and molar teeth.

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



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



3. Look for Breakdown of teeth

Advanced Decay



4. Look in for Gums:

- Red gums
- Swollen gums
- Bleeding gums
- Plaque/calculus



Fill C3 in Screening Tool cum Referral Card for dental conditions as shown:

C3	Dental Condition – Look for white/brown areas, cavitations, swollen/bleeding/red gums	If Yes, refer Y/N
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Fill Y if dental conditions are present and refer the child or N if the response is 'No'.

7. NECK

Examination of the neck includes examination for:

- Short neck
- Thyroid swelling
- Torticollis, that is, stiff or wry neck
- Webbing of the neck
- Head control in infant

EXAMINATION OF NECK

Look for Short neck

Thyroid:

- Not normally palpable in young child.
- If a swelling is seen in the midlines, ask the child to swallow. Thyroid ascends with swallowing.



Wry neck:

- "Torticollis" with resistance to lateral head turn occurs as result of injury to Sternocleidomastoid muscle and is seen more often in the newborn.



Webbing of neck



- **Head control in infant:** Look for head lag - significant lag after 6 months may indicate cerebral palsy.

If Short neck is observed fill A6 in Screening Tool cum Referral Card (0-6 years) as shown and refer only if other abnormalities are present in the child:

A6	Neck – exceptionally short	<i>*do not refer if isolated finding</i>	If Yes, refer Y/N
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8. THORAX AND LUNGS

Assessment of thorax and lungs includes:

- Observe shape, symmetry and posture
- Look for beading or rachitic rosary at costochondral junctions
 - Observe respiration:

- Prolonged expiratory phase
- Respiratory rate.
- Observe for signs of respiratory distress - nasal flaring, sub-costal retraction.
- Auscultate for adventitious sounds – crepts and ronchi.

EXAMINATION OF THORAX AND LUNGS

2 Observe shape, symmetry and posture:

Chest deformities can be within normal limits, but significance varies with etiology.

Different shapes: to be referred only if there are other symptoms of respiratory distress.

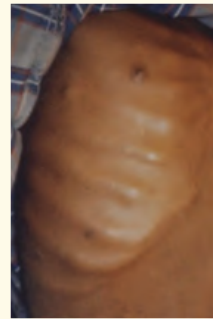
Pigeon chest:
Concavity of sternum



Funnel chest:
Protrusive sternum



- **Beading or rachitic rosary:**
Protrusive deformities along ribs at the costochondral junction indicate vitamin D deficiency

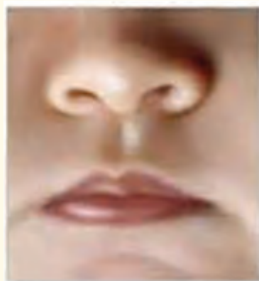


- **Observe respiration for prolonged expiratory phase.**
- **Count the respiratory rate:** A respiratory rate more than the cut offs given below indicates **respiratory distress:**
 - Birth to 2 months: 60 per minute
 - 2 months to one year: 50 per minute
 - 1 to 5 years: 40 per minute

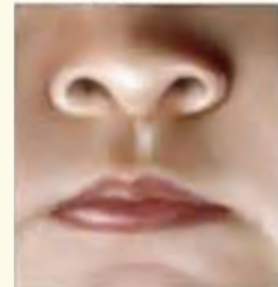
- **Other signs of respiratory distress:**
Chest retraction and nasal flaring indicate respiratory distress



Chest retraction

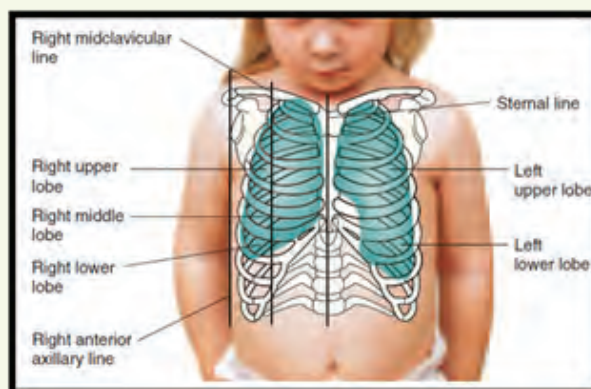


Normal nostrils



Flared nostrils

- Auscultate for adventitious sounds: put your stethoscope on the chest and listen for crackles (crepitations/crepts), rhonchi, wheeze





If signs of Vitamin D deficiency/nodular swellings on the chest are observed, fill B5 in Screening Tool cum Referral Card (0-6 years) as shown and refer the child:

B5	Vitamin D Deficiency - Look for Wrist Widening/Bowing of legs/nodular swelling on the chest	If Yes, refer Y/N
-----------	---	--------------------------

9. CARDIOVASCULAR SYSTEM:

Assessment of the Cardiovascular system is as given below:

- Palpate the peripheral pulses
- Observe for pallor and cyanosis
- Measure the Blood Pressure (refer to Chapter 7 for details)
- Auscultate for any murmur

EXAMINATION OF CARDIOVASCULAR SYSTEM		
Palpate the peripheral pulses		Femoral pulse is absent or diminished in aortic stenosis.
Skin		
Examine for	Cyanosis - Nails	Cyanosis - Lips
<div>1. Pallor</div> <div>2. Cyanosis (blue coloration) in</div> <div><div>Lips</div><div>Nail beds</div><div>Ear lobes</div></div>		
Auscultate for murmurs with stethoscope		

Fill the relevant section of the Screening Tool cum Referral Card as shown below and refer the child if any positive finding is present:

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 oedema)	If Yes, refer Y/N
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10. HANDS

- Examine the palms for:
 - Pallor
 - Single palmar crease
- Examine the wrists for widening.

EXAMINATION OF HANDS

Examine palms for:

Pallor

- If severe pallor is present fill B3 in Screening Tool cum Referral Card (0-6 years) and B1 (6-18 years) as 'Y' (Yes) and Refer the child



Some pallor



Severe pallor

Single palmar crease: across center of palm (Simian Crease)

- If single palmar crease is present fill A10(d) in Screening Tool cum Referral Card (0-6 years) and A1 (6-18 years) as 'Y' (Yes)



Examine wrist joint for any swelling

- If wrist widening is present fill B5 in Screening Tool cum Referral Card (0-6 years) and B3 (6-18 years) as 'Y' (Yes) and Refer the child



11. HIP

Rule out Developmental Dysplasia of the Hip (DDH):

- Check hip abduction and symmetry
- Look for asymmetrical thigh and gluteal folds.
- Observe apparent shortening of leg or limping

EXAMINATION OF HIP

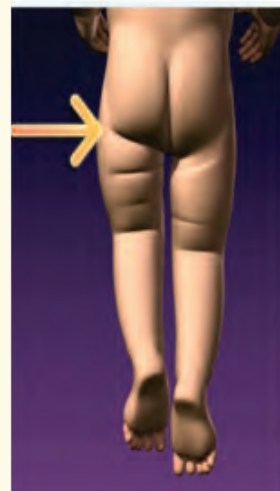
- Asymmetrical thigh creases**

Increased skin folds on thigh and also on the buttock.

Asymmetrical buttock crease



On thigh



On the buttock

- Observe limping:** after the child begins to walk

If signs of DDH are observed, fill A7 in Screening Tool cum Referral Card as shown and refer the child:

A7	HIP: DDH: In case of female child born through a breech delivery or child walking with a limp or asymmetrical thigh and gluteal skin folds.	If Yes, refer Y/N
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12. LEGS AND FEET

- Examine legs for:
 - Bow legs
 - Knock knees
- Examine feet for:
 - Feet turning in
 - Feet turning out
 - Cleft in feet
 - Oedema feet

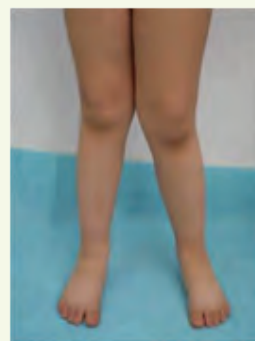
EXAMINATION OF LEGS AND FEET

Examine legs for:

- **Bow-legs**
Genu varum -- knees are 2 inches apart
- **Knock-knee**
Genu valgum -- ankles are 3 inches apart)



Bow legs



Knock knees

Examine feet for:

- **Feet turning in:** Varus
- **Feet turning out:** Valgus



- **Cleft in feet:** Sandal shaped deformity



- **Oedema feet / Pedal oedema**



Fill A8, A10(e), B2 and B5 of the Screening Tool cum Referral Form (0-6 years) as follows and refer

if any of the above are present:

A8	Limbs - Any deformity/ club foot.	If Yes, refer Y/N
A10(e)	Feet – wide gap (cleft) between the great and first toe	If Yes, refer Y/N
B2	SAM-Oedema: Bilateral pitting oedema	If Yes, refer Y/N
B5	Vitamin D Deficiency – Look for Wrist Widening/ Bowing of lgs/ nodular swelling on the chest	If Yes, refer Y/N

Fill B3 for Vitamin deficiency and B5 for bilateral oedema in children 6-18 years.

13. SPINE

EXAMINATION OF SPINE	
Examine the spine for neural tube defects.	

If Neural tube defect is observed fill A9 in Screening Tool cum Referral Card (0-6 years) as shown and refer:

A9	Spine – Neural tube defect	If Yes, refer Y/N
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A. DEFECTS AT BIRTH

A “Birth defect” is a health problem or physical change, which is present in a baby at the time he/she is born. Birth defects are structural or functional abnormalities present at birth that can cause physical or mental disability, and are sometimes fatal. A child born with cleft lip or palate, has a structural defect, but because of this, if the child has a feeding or speech problem, it is a functional defect and if not corrected this can lead to disability.

Birth defects are also called “congenital anomalies” or “congenital abnormalities.” The word “congenital” means “present at birth.” The words “anomalies” and “abnormalities” mean that there is a problem present, in a baby.

Birth defects can be mild, where the baby looks and acts like any other normal baby, or birth defects may be very severe. Some birth defects affect single organ while others affect multiple organs of the body. A few birth defects are visually easy to identify like cleft palate some others like congenital heart disease cannot be identified, without the knowledge of signs and symptoms.

Birth defects are a concern as some of them cause life-long disability and illness, and with some, survival is not possible. Some birth defects that result in mental retardation, may become completely irreversible if timely medical intervention is not done. Early detection through screening of every child and management can help a child lead a near normal life. Many physical defects, if detected early, can be treated with surgery, including cleft lip, cleft palate, neural tube defects, club foot, hip dysplasia and certain heart defects.

Under RBSK, the covered Defects at Birth include:

1. Neural tube defect
2. Down’s Syndrome
3. Cleft Lip & Palate
4. Talipes (club foot)
5. Developmental dysplasia of the hip
6. Congenital cataract
7. Congenital deafness*
8. Congenital heart diseases
9. Retinopathy of Prematurity*¹

^{*1} At District Hospital Level

1. NEURAL TUBE DEFECTS

Neural tube defects (NTDs) are birth defects of the brain and spinal cord. NTDs occur when the neural tube, the structure that develops into the brain and spinal cord, fails to close completely. NTDs may occur in the first few weeks, after conception.

CLINICAL FEATURES

Types of NTDs:

The two most common neural tube defects are:

1. **Spina Bifida** where the tube does not close completely during the first month of pregnancy. There is, usually, nerve damage that causes at least, some paralysis of legs.
2. **Anencephaly** where much of the brain does not develop. Babies with anencephaly are either stillborn or die shortly after birth.

Signs and Symptoms:

Look

- Where is the swelling? Back or head?
- How does it look like? Refer to the pictures.
- Is there any discharge from the back?
- Can the child move both the lower legs?
- Is there constant leakage of stools through the anal opening?



Perform

- Examine of trunk, along with spontaneous movement of the legs
- To differentiate with reflexive and purposeful limb movement:
- Take a pin, for a mild painful stimuli, prick in foot and look for a withdrawal movement

ACTION

- Handle the infant with sterile, non-latex gloves and with sterile clothing and sheets.
- Cover the defect with non-adhesive dressing wet with sterile Ringer's lactate solution or saline.
- Refer to district hospital /nearest referral point with facility for tertiary care.

KEY MESSAGES FOR COMMUNITY








- Expectant mothers and their families must be counseled, on the importance of folic acid.
- Advise women to take a dose of 5 mg folic acid daily, after marriage, and to continue until they are 12 weeks pregnant (First Trimester). Please remember, Folic Acid should be taken regularly as it is, usually, not stored in our body.
- Pregnant women, already, having diabetes or those who are under anti-convulsant treatment must be advised to take 5 mg of folic acid and supplement with folic acid rich food like green leafy vegetables.
- Inform, an expecting mother, that alcohol and smoking in any amount, at any time of pregnancy, is harmful.






2. DOWN'S SYNDROME

Down's syndrome is a genetic condition which leads to problems in the way the body and brain develop. The commonest form of Down syndrome is Trisomy 21 (presence of all or part of a third copy of chromosome 21). Down's syndrome is the most common single cause of human birth defects affecting about **1 in every 800 babies**.

Physical and mental development is often slower than normal in these children. Children with Down's syndrome may have associated congenital heart defects, thyroid problems, mental retardation, visual impairment (including crossed eyes, near or far-sightedness, cataract) and hearing impairment.

CLINICAL FEATURES

Signs and Symptoms:			
Look	1. The head may be smaller than normal and abnormally shaped.		
	2. Upward slanting eyes and inner corner of the eyes may be rounded instead of pointed.		
	3. Small ears		
	4. Flattened nose		
	5. Small mouth		
	6. Excess skin at the nape of the neck		
	7. Single crease in the palm of the hand (Simian Crease)		
	8. Wide, short hands with short fingers		
	9. Cleft in feet (Sandal shaped deformity)		

Ask	<p>At birth-delivery point up to 2 months</p> <ul style="list-style-type: none"> Is this your first child? If No, does any other elder sibling of this child have any known birth defect? <p>Age 2 months to 2 yrs</p> <ul style="list-style-type: none"> Compared with other children, did (name) have any serious delay in sitting, standing, walking? Can he/she name at least one object (animal, toy, cup, and spoon)? Does (name) speak at all (can he/she make himself/herself understood in words; can he/she say any recognizable words)? <p>Ages 3–9 Years: Is (Name)'s speech in any way different from normal?</p>
Per-form	<p>Check the muscle tone:</p> <p>Look at the posture i.e. way the child is lying and moving his/her limbs</p> <ul style="list-style-type: none"> A Down's syndrome child will have both the legs extended and falling passively when laid on his/her back like a frog and the hands also helplessly on the bed with very little spontaneous movements of the limbs. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Tone in normal child</p> </div> <div style="text-align: center;">  <p>Down's Syndrome with "Frog" like posture</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;">    </div> <p style="text-align: center;">Down's syndrome with decreased muscle tone</p>

ACTION

- Counsel parents and family that Early Intervention Services enhances the development of their full potential.
- Children with Down's syndrome need to be closely screened for certain medical conditions.
- Refer the child to the district hospital / DEIC for management.
- Refer the child to the district hospital/DEIC for confirmation and management.

KEY MESSAGES FOR COMMUNITY

- Regular and good quality Antenatal Care is very important, in a woman, who has a previous h/o delivering baby with Down's syndrome.
- With early intervention, Down's syndrome children can lead a near independent life.
- Speech can be improved with the help of parental encouragement and speech pathologist.
- Repeated thyroid tests should be done to start, timely treatment as this would prevent mental retardation.
- These children love music, are very affectionate towards their parents and are simple human beings.

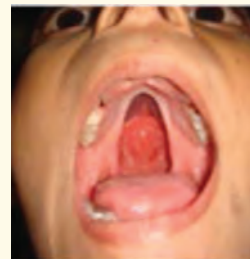
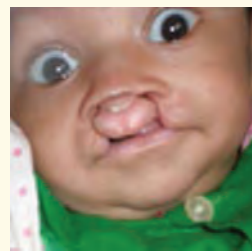
3. CLEFT LIP AND CLEFT PALATE

Cleft lip and cleft palate are congenital anomalies of the mouth and lip that occur during pregnancy. In a cleft lip, the two sides of the lip do not fuse together as they should during fetal development. With cleft palate, the roof of the mouth fails to form completely, during pregnancy. A child may be born with a cleft lip, a cleft palate or both.

Cleft lip can be mild or severe with a single cleft or double cleft. Cleft palate can range from a tiny little hole in back of the roof of the mouth to a major cavity that runs all the way from the front to the back of the mouth.

SIGNS AND SYMPTOMS

Signs and Symptoms	
Look	<p>At birth- Delivery Point</p> <ul style="list-style-type: none"> • Cleft lip is obviously visible • Gently open child's mouth and look <p>2 months -2 years (by mobile health team)</p> <ul style="list-style-type: none"> • Cleft lip is obviously visible • Request the Mother to take the child in lap in a sitting position. • Ask the mother to gently open child's mouth, neck to be extended and child must be made to look towards the sky/ roof/toy. <p>In small children after cleaning the finger or wearing gloves, you can try to palpate carefully for any cleft in the palate;</p> <p>Also examine the uvula: An absent or bifid (notched) uvula indicates sub-mucosal or soft palate cleft.</p>
Ask	<ul style="list-style-type: none"> • Does the child have regurgitation of food and liquids through the nose? • Is the baby having difficulty in sucking? • Does the child have nasal tone of voice? • Does the child have frequent respiratory tract infection?
Perform	Counsel the parents before referring the case



ACTION

- Counsel the parents how to feed the child.
 - Breastfeeding an infant with cleft palate may not be successful resulting in child malnutrition; it may require a changed feeding position so that **mother's breast tissue fills the gap in the cleft in lip or gum.**


- **Breastfeeding** an infant with a cleft palate is quite challenging unless the infant's cleft palate is very far in the back of the mouth and very small. Nursing at the breast is **best limited to 10 minute sessions**.
- For most mothers of infants with cleft palate, breast pumping should begin in the birth hospital using a high quality breast pump and continue after each infant feeding. A long thin spoon to be used to feed the infants if direct sucking is not possible
- Refer the child to the district hospital / DEIC for management.
- Surgeries typically are performed in the following order:
 - **Cleft lip repair — between 1 and 4 months of age**
 - **Cleft palate repair — between 5 and 15 months of age**
 - **Follow-up surgeries — between age 2 and late teen years**

KEY MESSAGES FOR COMMUNITY

- Cleft in lip and/or palate is treatable. The goal of treatment for cleft lip and cleft palate is to ensure the child's ability to eat, speak, hear and breathe and to achieve a normal facial appearance.
- **If not treated, the child may suffer from**
 - Poor speech
 - Impaired hearing and frequent ear infection
 - Regurgitation of food and liquids, through the nose
 - Frequent upper respiratory tract infections
 - Dental and orthodontic problems
 - Psychological and social problem
 - Failure to grow

4. CLUB FOOT (TALIPES)

Clubfoot is a congenital deformity that twists the foot, ankle and toes, if not treated at an early stage, this deformity can lead to life time disability. With no proper treatment, child born with clubfoot cannot walk, run or play. Clubfoot is one of the most common congenital physical disabilities worldwide, known to occur in 1-3 of every 1,000 births worldwide with evidence of higher rates in our country.

Signs and Symptoms		
Look	<ul style="list-style-type: none"> • Abnormal shape of the foot • Inward turning of the front of the foot • Downward-pointing toes 	

Signs and Symptoms**Look**

- Resting of the foot on its outer border
- Rigidity and other changes in the movements of the foot
- Toes cannot touch shin of same leg due to tightened Achilles tendon



Untreated neglected foot

Ask

If child is more than two years ask mother if child can walk, run or play like other children of his/her age.

Perform

Counsel and Refer the child

ACTION

- Counsel the parents as described below.
- Refer the child to the district hospital / DEIC for management.

KEY MESSAGES FOR COMMUNITY

- If the condition is mild and foot is mobile at ankle, the mother can be reassured that doctors will teach her exercises to help correct child's foot.
- Explain to the parents that this condition if intervened early can be treated using a series of plaster casts over 4 - 6 weeks to correct the deformity, followed by use of Braces.
- Majority of the children require a small surgery (to detach the tendon at the back of the heel) prior to the final cast being applied, under local anesthesia.

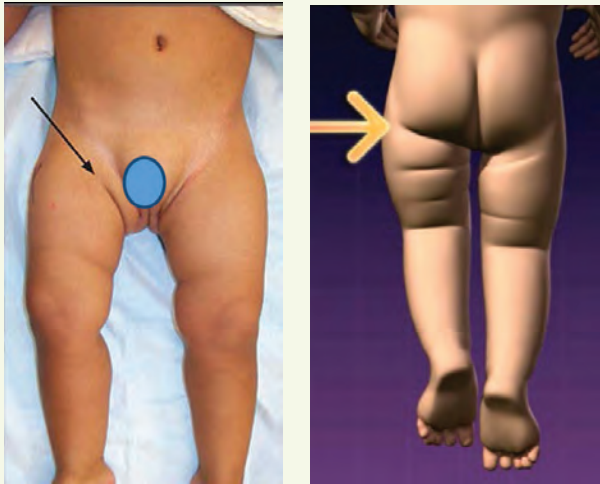
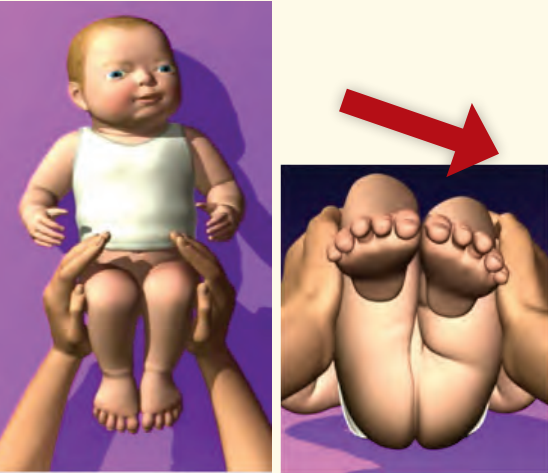
Before**After****5. DEVELOPMENTAL DYSPLASIA OF HIP**

Developmental Dysplasia of the Hip (DDH) is a condition that affects the neonatal and infant hip joint. DDH is a term used to describe a spectrum of abnormalities affecting the relationship of the femoral head (top part of thigh bone) to the acetabulum (socket).

Hip dysplasia refers to an abnormality in the size, shape, orientation, or organization of the femoral head, acetabulum, or both. In many circumstances, symptoms of DDH may be present

at birth, however at times it may resolve within the first weeks of life. Alternatively, the hip may be stable at birth and develop an abnormality later hence the use of the term Developmental Dysplasia of the Hip (DDH), rather than Congenital Dysplasia of the Hip (CDH), as this condition was previously known. The identification of risk factors, including breech presentation and family history, should heighten the suspicion of developmental dysplasia of the hip.

CLINICAL FEATURES

Signs and Symptoms	
Ask	<ul style="list-style-type: none"> Ask at 6 weeks or 3 month for Risk factors for DDH <ol style="list-style-type: none"> Ask for H/O breech delivery or family history of childhood limping among parents or sibling. Any shortening of leg Walking like a duck or limping in a child.
Look and Perform	<p>Step 1: Examine for asymmetrical thigh and gluteal (buttocks) skin folds in lying and standing positions.</p>  <p>Step 2: Measuring the length of leg at level of knee joint in lying down, with hip joint and knee joint flexed.</p> <p>- With infant on his back on a firm flat surface, pelvis stabilized and hips flexed to 90° with knees in flexion, the vertical level of knees is assessed.</p> 

Step 3: Examine the child in standing position for spinal curves. (Late Sign)

Picture of a baby with sway-back - note the curve in the lower back (yellow line)



Step 4: Making the child walk for toe walking, limping or duck like walking. (Late Sign)

ACTION

- Refer all following children to CHC/District hospital / DEIC for examination to confirm DDH:
 - a. Children who are born as breech (buttock end low) presentation and are female.
 - b. Children with family history of congenital hip disorders.
 - c. Children with asymmetrical thigh and gluteal (buttocks) skin folds or shortening of the leg at the level of knee joint or restricted movement of the hip joint or increased spinal curve while standing or limping or duck like walking

KEY MESSAGES FOR COMMUNITY

- Swaddling infants with the hips and knees in an extended position increases the risk of hip Dysplasia and dislocation.
- Explain that the correct position is to carry the child as shown in the picture





6. CONGENITAL CATARACT

A congenital cataract is a clouding of the lens of the eye that is present at birth. The lens of the eye is normally clear. It focuses light that comes into the eye onto the retina. It is also known as 'infantile cataract' if it develops in the first six months after birth. It can affect one eye, which is known as 'unilateral cataract' or both eyes, which is known as 'bilateral cataract'.

Most children with cataract in only one eye usually have good vision in the other. In case of children, permanent loss of vision (amblyopia) may occur, if prompt treatment is not provided.

CLINICAL FEATURES

Signs and Symptoms	
Look	<p>Grey or white cloudiness of the pupil (which is normally black)</p> 
Ask	<p>Is the child able to see (if cataract is in both eyes, the child would not be able to see)?</p>
Perform	<p>Examination by a Torch may reveal white pupil</p> 
<p>Refer the child if "Red eye" glow of the pupil is missing in photos, or is different between the two eyes</p>	

KEY MESSAGES FOR COMMUNITY

- Early management is required to prevent permanent blindness in the child.
- Removing a congenital cataract is usually a safe, effective procedure.
- The child will need follow-up for vision rehabilitation after surgery.

ACTION

- Refer to District Hospital.

7. CONGENITAL HEART DISEASE

A congenital heart defect refers to a problem in the development of the heart that usually presents at birth but might manifest later in life also. These problems can be mild, that is, a small hole between the chambers of the heart never requiring surgery to more severe requiring major heart surgeries. The heart has four chambers separated by a wall or a septum. On one side of the septum is oxygen poor blood and on the other side is the oxygen rich blood. Congenital heart disease can have either a hole connecting the two chambers or an abnormal connection in the heart so that the oxygen poor blood and oxygen rich blood mix together. In some cases the problem may be of poor contraction of the heart.

Every year 2 lakh children are born with congenital heart defects. At least 60,000 of these need treatment in the 1st year of life. Only 5000 get treatment because of lack of awareness amongst public in general and GP's leading to delayed diagnosis. Poor socio-economic status of families often leads to delayed treatment.

CLINICAL FEATURES

Signs and Symptoms	
Children, aged 6 weeks to 6 years	
Look	<ul style="list-style-type: none"> • Rapid or troubled breathing (shortness of breath) • Sweating around the head, especially during feeding • Bluish discoloration of skin, nails, tongue, lips (cyanosis) • Pale extremities • Swelling or puffiness in the face, hands, feet, legs, or areas around the eyes.
Ask	<ul style="list-style-type: none"> • History of a sibling with heart disease # • Not able to suck mothers breast due to breathlessness. Typical feeding cycle suck-rest-suck. • Sweating around the head, especially during feeding • Recurrent chest infections • Breathlessness on reduced physical activity like playing • History of fainting <p><i>*Important to note chest pains are not usually present in CHD. If child complains of chest pain he/she should be referred to CHC</i></p>
Perform	<ul style="list-style-type: none"> • On touching, cold extremities (hand and feet) may be felt in babies • Auscultate (listen with stethoscope) for any murmur or thrill • See if pitting edema is present or not

Children, 6 years and above	
Look	<ul style="list-style-type: none"> • Usually asymptomatic except in acute condition • History of rapid or troubled breathing (shortness of breath) during exertion • Poor growth as compared to other students in his/her class • Bluish discoloration of skin, nails, tongue, lips (cyanosis) • Pale extremities • Swelling or puffiness in the face, hands, feet, legs, or areas around the eyes
Ask	<ul style="list-style-type: none"> • History of any joint pain especially fleeting joint pain involving the larger joints • History of any palpitations, breathlessness during brisk walking, climbing of stairs or running during sports • History of a sibling with heart disease # • Recurrent chest infections • Breathlessness on physical activity like playing • History of fainting <p><i>*Important to note chest pains are not usually present in CHD. If child complains of chest pain he/she should be referred to CHC</i></p>
Perform	<ul style="list-style-type: none"> • Auscultation for any murmur or thrill • See if Pitting edema is present or not

ACTIONS:

- Refer to the DH/DEIC if any sign or symptoms are found positive.
- # If there is only a positive history of a sibling with CHD then refer to the CHC provided the child is not symptomatic i.e. does not have any of the clinical features stated above.

***The Congenital Deafness and Retinopathy of Prematurity are not to be screened by Mobile Health Team. They will be screened at District Level.**

FILLING THE SCREENING TOOL CUM REFERRAL FORM FOR DEFECTS AT BIRTH:

The Mobile Health Team should carefully screen every child at the AWC for Defects at Birth. Examine every child from head to toe for a visible deformity as described in the chapter on Head to Toe Examination (Chapter 9) and fill the Checklist for Defects at Birth in the Screening Tool cum Referral Form:

SCREENING TOOL (FOR AGE: BIRTH TO 6 MONTHS)					
A. Defects at Birth, If YES Refer					
A1	Head: Abnormally large or small in size/shape deformity. Measure, Check, Mark - > 2SD; < 2SD	<input type="checkbox"/>	A10	Features Suggestive of Down's Syndrome (Refer Pictorial) *Refer if more than one sign is present amongst under:	<input type="checkbox"/>
A2	Eyes: Any visible abnormality i.e. white pupil, Squint (important esp., after 3 months), frequent jerky movements, tilting the head when focusing (important esp. after 6 months)	<input type="checkbox"/>	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	<input type="checkbox"/>
A3	Ear: Any abnormality of shape * do not refer if isolated finding	<input type="checkbox"/>	A10 (b)	Nose: Depressed Bridge	<input type="checkbox"/>
A4	Lips and Palate: Cleft (One side or both sides)	<input type="checkbox"/>	A10 (c)	Ears: Low set Ears (Imaginary line extended from inner to outer canthus and to the ear, passes above ear)	<input type="checkbox"/>
A5	Difficulty in sucking and swallowing, including sweating on forehead while trying to suck/breast feed (sign is especially important if infants is less than 6 months)	<input type="checkbox"/>	A10 (d)	Palm: Single crease across center of palm (Simian crease)	<input type="checkbox"/>
A6	Neck: Exceptionally short * do not refer if isolated finding	<input type="checkbox"/>	A10 (e)	Feet: Wide gap (cleft) between the great and first toe	<input type="checkbox"/>
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	<input type="checkbox"/>	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)	<input type="checkbox"/>
A8	Limbs: Any deformity/club foot	<input type="checkbox"/>			
A9	Spine: Neural tube defect	<input type="checkbox"/>			

After recording the information on the front page, record findings in the Preliminary Findings section on the last page of the card. Tick the appropriate section on the last page which also has the code number of the specific health condition.

If any Defect at Birth is detected which is not enlisted in the checklist, it has to be recorded in the "Others" column of preliminary findings, that is under Code 30. Also specify which birth defect is detected. If the medical name of condition is not known, it may be mentioned in "Others" with nature of abnormality with the region affected. Refer a child with a birth defect to the district hospital or DEIC and mention the name of the referral facility in the card.

The filled Screening Tool cum Referral Card for Children, 0-6 years, is to be handed over to the child's parent or guardian after screening. Explain that the card has to be kept safely and will accompany the child to the referral facility and that it must be shown by the parent / guardian at the place of referral, that is, at the district hospital or DEIC.

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)															
DEFECTS AT BIRTH			✓	Deficiencies			✓	Diseases			✓	Developmental delay including disability			✓
Code	Findings			Code	Findings			Code	Findings			Code	Findings		
1	Neural Tube Defect	<input type="checkbox"/>		10	Severe Anaemia	<input type="checkbox"/>		15	Skin Conditions	<input type="checkbox"/>		21	Vision Impairment	<input type="checkbox"/>	
2	Down's Syndrome	<input type="checkbox"/>		11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>		16	Otitis Media	<input type="checkbox"/>		22	Hearing Impairment	<input type="checkbox"/>	
3	Cleft Lip & Palate	<input type="checkbox"/>		12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>		17	Rheumatic Heart Disease	<input type="checkbox"/>		23	Neuro-motor Impairment	<input type="checkbox"/>	
4	Talipes (club foot)	<input type="checkbox"/>		13	SAM	<input type="checkbox"/>		18	Reactive Airway Disease	<input type="checkbox"/>		24	Motor delay	<input type="checkbox"/>	
5	Developmental Dysplasia of Hip	<input type="checkbox"/>		30 Others (Specify)				19	Dental Conditions	<input type="checkbox"/>		25	Cognitive Delay	<input type="checkbox"/>	
6	Congenital Cataract	<input type="checkbox"/>						20	Convulsive Disorders	<input type="checkbox"/>		26	Speech and Language Delay	<input type="checkbox"/>	
7	Congenital Deafness	<input type="checkbox"/>						27	Behavioural Disorder (Autism)	<input type="checkbox"/>					
8	Congenital Heart Disease	<input type="checkbox"/>						28	Learning Disorder	<input type="checkbox"/>					
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>						29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>					

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC, SAM to NRC		PHC/CHC/DH Dental condition to DEIC/DH		DEIC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility										
Name and Sign of Doctor, MHT					Date of Visit					

FILLING THE MOBILE HEALTH TEAM REGISTER FOR DEFECTS AT BIRTH

Before the Screening Tool cum Referral Card is handed to the parents / guardian, record the observations in the Mobile Health Team Register for Anganwadi Centre for each child with Preliminary Particulars, Preliminary Finding code (PF code) and the observation code as in the checklist questionnaire.

If the child is affected with more than one defect at birth, intersperse the PF codes with a coma. The checklist code (or reason for referral) has two columns for each D.

In case the child is affected with more than one health condition under a different 'D' that is, if along with Defects at birth a child suffers from Deficiency, Disease or Developmental Delay, the observations are to be recorded under the appropriate column of the register for each 'D' observed.

Use one row in the register for recording the observations for one child, even if multiple conditions exist. Hence each row of the register represents one child. This will prevent repeat counting of the same child for multiple health conditions.

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

DEFECTS AT BIRTH		✓	Deficiencies		✓	Diseases		✓	Developmental delay including disability		✓	
Code	Findings	<input type="checkbox"/>	Code	Findings	<input type="checkbox"/>	Code	Findings	<input type="checkbox"/>	Code	Findings	<input type="checkbox"/>	
1	Neural Tube Defect	<input type="checkbox"/>	10	Severe Anaemia	<input type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>	
2	Down's Syndrome	<input checked="" type="checkbox"/>	11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>	
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>	17	Rheumatic Heart Disease	<input type="checkbox"/>	23	Neuro-motor Impairment	<input type="checkbox"/>	
4	Talipes (club foot)	<input type="checkbox"/>	13	SAM	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>	
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	30 Others (Specify)				19	Dental Conditions	<input type="checkbox"/>	25	Cognitive Delay	<input type="checkbox"/>
6	Congenital Cataract	<input type="checkbox"/>					20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>					27	Behavioural Disorder (Autism)	<input type="checkbox"/>			
8	Congenital Heart Disease	<input type="checkbox"/>					28	Learning Disorder	<input type="checkbox"/>			
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>					29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>			

[illegible]

1. Which Health condition: PF code refers to the Health condition (#38 such) e.g. 1 for Neural Tube Defect. 2. Why did you select it?: Reason (Checklist code) for which a condition is being specified e.g. A9 for Neural Tube defect, D5.3 for hearing etc. 3. PF code 30 is for any "other conditions" among any of the "4Ds". If multiple to be included in the same column separated by comma.* If there are more than 1 health condition i.e. if there is a defect along with deficiency, both have to be indicated in the respective column for defects and deficiencies in the MHT register e.g.

*if there are more than 1 condition of any particular "D" e.g. if there are two birth defects, both have to be indicated in the same column separated by comma in the MHT register e.g. A9A7

[illegible]

Defects at Birth		Deficiencies		Disease		Developmental delay including disability		Others (Specify)	
Specify codes in the corresponding column below as encircled in referral card									
PF code	Reason (Checklist code)	PF code	Reason (Checklist code)	PF code	Reason (Checklist code)	PF code	Reason (Checklist code)	PF code 30	
1, 5	A	9, 7							

B. DEFICIENCIES

The Deficiencies covered under RBSK include:

1. Anaemia especially Severe anaemia
2. Vitamin A deficiency (Bitot spot)
3. Vitamin D Deficiency, (Rickets)
4. Severe Acute Malnutrition
5. Goiter

1. ANEMIA ESPECIALLY SEVERE ANEMIA

Anemia is a reduced number of red cells or a reduced amount of hemoglobin (Hb) in each red cell. Hemoglobin in the blood carries oxygen from the lungs to the tissues where it releases the oxygen to burn nutrients to provide energy to power the functions of the body, and collects the resultant carbon dioxide to bring it back to the lungs to be dispensed from the body.

Severe anemia may impair growth motor and mental development. Children may exhibit a reduced physical development (decreased work output and capacities), and reduced cognitive development (diminished concentration, disturbance in perception and poor learning abilities).

As per NFHS 3 survey (2005-06), 70% of children are anemic and **3% severely anemic**. It is important, to remember, that mostly there is no symptom of anemia unless the Hb is below 8g/dl or 6 g/dl. Sometimes even at still lower levels patient may not be aware of anemia.

CLINICAL FEATURES OF ANAEMIA

<ul style="list-style-type: none"> ■ Dyspnoea – difficulty in breathing ■ Headache , Depression, Dizziness ■ Pallor, Brittle/broken nails ■ Peripheral oedema, cold, clammy skin ■ Fatigue , Reduced exercise tolerance ■ Menstrual irregularities ■ Loss of appetite ■ Impaired cognition ■ Increase in heart rate (Tachycardia) ■ Increase in rate of breathing (Tachypnea) 	<ul style="list-style-type: none"> ■ Brain: <ul style="list-style-type: none"> a) Cognition (school performance) b) Fainting, dizziness c) Fatigue ■ Eyes: Pallor in lower conjunctiva and jaundice in sclera ■ Skin: Pale, cold or yellow ■ Respiratory: Shortness of breath ■ Heart: Palpitation, rapid heart rate, chest pain ■ Blood vessel: low BP ■ Muscle: weakness ■ Spleen: enlarged
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TOOLS FOR SCREENING

RBSK Mobile Health Teams are to screen children of 6 months to 18 years of age for anemia primarily by evident clinical signs and symptoms.

Signs and Symptoms**Ask**

- Does the child have reduced appetite, gets easily fatigued, has weakness?
- Is the child irritable?
- Does the child have shortness of breath?
- Does the child have unusual food cravings, eats mud (pica)?
- History of irregular /scanty periods amongst adolescent girls.

Look and Perform**Examine the palm:**

Look for pale skin color (pallor)



Look for other Physical Signs

- Skin and Conjunctiva: Jaundice
- Tongue: smooth or beefy tongue
- Spleen and liver: enlarged or big
- Cardiac Murmurs

ACTIONS

Refer the child if he/she has severe pallor as shown above, it is essential to counsel for intake of iron and folic acid supplementation and intake of iron rich foods.

FINDING	DIAGNOSIS	ACTION
SEVERE PALMAR PALLOR	SEVERE ANAEMIA	REFER URGENTLY TO HOSPITAL
Some palmar pallor	Anaemia	<ul style="list-style-type: none"> • Assess and counsel for feeding • Advise mother when to return immediately • Follow-up in 14 days
No palmar pallor	No Anaemia	<ul style="list-style-type: none"> • Give prophylactic iron folic acid if child is 6 months or older

COUNSELING AND PREVENTIVE MEASURES

- Exclusive breastfeeding till 6 months
- Regular intake of iron rich foods in the diet viz. dark green leafy vegetables such as spinach, beans, nuts, meat and dry fruit, jaggery etc.
- Active biannual de-worming by tablet Albendazole
- Prophylactic intake of Iron and Folic acid supplementation as per National Iron Plus Initiative.
- Once a year monitoring of Haemoglobin level.

KEY MESSAGES FOR COMMUNITY

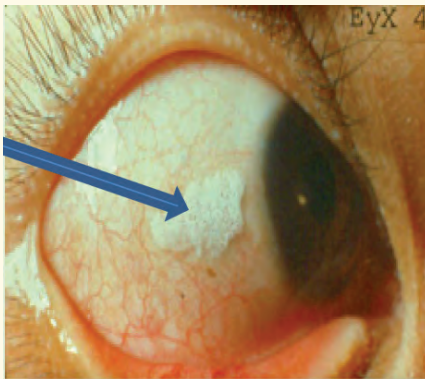
- Anemia is easily preventable
- Anemia is easily treatable
- Tablets of Iron and folic acid are available free of cost under **National Iron Plus Initiative** at Anganwadi and Government and Government Aided Schools and should be consumed as per dosage both for mother (pre and post-delivery) and child after he/ she attains the age of 6 months.
- All children with anemia should be immediately considered for IFA supplementation and referred to a health facility for further management
- Immediate hospitalization is required for a child with severe anemia.

2. VITAMIN A DEFICIENCY (BITOT'S SPOT)

Vitamin A helps in development of visual function of the eye. It also helps in building up immunity in the body. Its deficiency can cause Night blindness, which may further progress to Bitot's spot. If untreated, night blindness can lead to permanent blindness. Clinical prevalence of Vitamin A deficiency is less than 1% in India but biochemical prevalence is quite high. Prevalence of Bitot's spot is around **0.6 – 0.7%** in children.

Tools for screening: Under RBSK, deficiency of Vitamin A is to be identified by looking for Bitot's spot and asking some specific questions related to the disease.

CLINICAL FEATURES

Signs and Symptoms	
Look	For Bitot's spot in the eyes (examine both eyes)
	
Ask	Is the child able to see clearly in less light or during darkness? (Ask only if child is more than 2 years of age)
Perform	Use a torch to examine the eye. <ol style="list-style-type: none"> 1. Check if the white part of the eye is irregular in shape. 2. Are there any triangular shaped white foamy lesions? 3. Does the eye appear dry?

ACTION

Refer the child if there is a visible Bitot's spot or the child gives a history of reduced vision especially, during evening. If available, administer 2 lakh International Unit (IU) of Vitamin A to a child with Bitot's spot and a similar dose 1 to 4 weeks later.

COUNSELING AND PREVENTIVE MEASURES

1. Regular Vitamin A supplementation is required for all children (1 lakh international units at the age of 9 months, thereafter 2 lakh IU at an interval of six months till the child reaches 5 years of age.
2. A child with Vitamin A deficiency may lead to reduced vision (night blindness) which may further progress to Bitot's spot. If left untreated it may lead to permanent blindness.
3. Children should be encouraged to eat food rich in Vitamin A such as green leafy vegetables, dark yellow and orange vegetables, fruits such as carrot, papaya, and guava. Therefore, parents/ guardians should be adequately counseled to include these food items according to their seasonal availability in the daily diet of children.
4. Exclusive breastfeeding till six months of age should be adopted to prevent Vitamin A deficiency.

KEY MESSAGES FOR COMMUNITY

- Night blindness is easily preventable
- Night blindness is the earliest sign of Vitamin A deficiency and is easily treatable
- Untreated night blindness may lead to permanent blindness
- Syp. Vitamin A is available with ANMs and should be given to all children at 9 months of age and thence every six monthly till the child attains the age of 5 years.
- All children with history of night blindness and/ or Bitot spot should be immediately given 2 lakh IU of Vitamin A followed by similar dose 1 to 4 weeks later.

3. VITAMIN D DEFICIENCY

Vitamin D is naturally formed in the body by exposure to sunlight. Spending more time indoors, watching T.V. and computer while compromising on time spent outside during daytime, could result in Vitamin D deficiency. Prolong deficiency of Vitamin D may lead to Rickets, in children. It is estimated that around 80% of Indian population has lower levels of Vitamin D than normal level although visible deficiency states (rickets) may be quite less at 12.5% using biochemical and radiological analysis.

TOOLS FOR SCREENING

RBSK Mobile Health Teams would ask some specific questions and identify visible signs of rickets.

Signs and Symptoms**Look**

Any visible deformities like:

- Widening of the wrist and ankle bones
- Nodular swelling
- Dental deformities
- Bent legs (Bow legs)
- Hunched posture
- Chest and rib deformities (nodules or bumps) at the end of ribs (rachitic rosary) and/ or chest beads.

**Ask**

1. Does the child feel pain in legs during walking?
2. Does the child complain of tiredness (especially during daytime)?
3. Is the child unable to play?
4. Does the child show features of delayed development, slow rate of growth, or "failure to thrive"

ACTIONS

Refer the child if there are visible signs of deficiency for further management. This child would require Vitamin D supplementation.

COUNSELING AND PREVENTIVE MEASURES

- Exclusive breastfeeding till six months of age and intake of Vitamin D rich foods such as fish, milk and eggs as part of complementary food should be adopted to prevent Vitamin D deficiency.
- Infants should be regularly exposed to sunlight for a brief period especially in the noon sun. Excess exposure to sunlight may lead to sunburns in the children.
- Children should be encouraged to play outdoors.
- All parents should be informed that prolonged deficiency of Vitamin D may lead to rickets in children and would manifest as pain during walking.

KEY MESSAGES FOR COMMUNITY

- Vitamin D deficiency is easily preventable
- Pain during walking is the earliest sign of Vitamin D deficiency and is easily treatable.
- Prolonged deficiency of Vitamin D may lead to rickets, bow legs, knock knee etc
- All children should be encouraged to eat foods rich in Vitamin D such as fish, milk, eggs.

4. SEVERE ACUTE MALNUTRITION

Malnutrition commonly represents under-nutrition resulting from inadequate consumption, poor absorption or excessive loss of nutrients. The term can also be used to refer to over-nutrition resulting from excessive intake of specific nutrients. A child will experience malnutrition if the child does not consume the appropriate amount or quality of nutrients, comprising a healthy diet over a period of time.

TYPES OF MALNUTRITION

- **Underweight**
 - Low weight for age (Composite indicator: measure of acute and chronic malnutrition)
- **Stunting**
 - Low height for age (indicator of chronic malnutrition)
- **Wasting**
 - Low weight for height (indicator of acute malnutrition) - age independent (6-59 month)
 - Closely associated with death

As per NFHS 3 survey (2005-06), 43% of children below five are under weight (low weight forage), 48% stunted (low height for age) and 20% wasted (low weight for height) out of which 6% are severely wasted. Since wasting refers to acute malnutrition, therefore these children are said to have as Severe Acute Malnutrition i.e. SAM.

Anthropometry is a commonly used, inexpensive and a non-invasive method of assessing a child's nutrition status. The three commonly used indices are as below:

1. To assess underweight using weight for age (Acute Malnutrition)
2. To assess stunting using height for age (Chronic Malnutrition)
3. To assess wasting using weight for height (Weight for length)

SAM is defined by very low weight for height (below -3 SD i.e. standard deviation of the median, WHO growth standards), a mid-upper arm circumference (MUAC) of less than 115mm, or by the presence of bilateral oedema. Children who are severely wasted are at nine times' higher risk of dying, than well-nourished children.

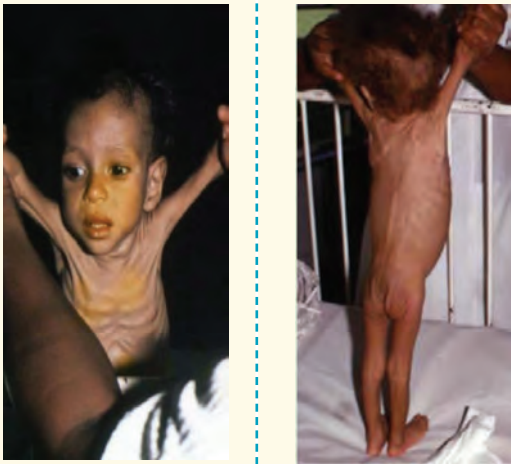


DIAGNOSTIC CRITERIA FOR SAM IN CHILDREN AGED 6–60 MONTHS		
Indicator	Measure	Cut-off
Severe wasting (2)	Weight-for-height (1)	< -3SD
Severe wasting (2)	MUAC	< 115mm
Bilateral oedema (3)	Clinical sign	Oedema

*1: Based on WHO Standards www.who.int/childgrowth/standards

**2, 3: Independent indicators of SAM that require urgent action

Tools for Screening: Look for visible severe wasting and oedema of both feet. Also ask some specific questions suggestive of this condition.

CLINICAL FEATURES

Signs and Symptoms/ Identifying SAM	
Look	<p>Visible severe wasting of the muscles of the shoulders, arms, buttocks and legs (child looks like skin and bones, many folds of skin on the buttocks and thigh i.e. baggy pants appearance).</p> 
Ask	<ol style="list-style-type: none"> 1. Does the child eat well? 2. Does the child suffer from frequent episodes of illness?
Perform	<p>From Birth to 6 months (Identifying Severely underweight: SUW)</p> <p>Take weight for age for all children less than 6 months of age. If severely underweight (SUW: < -3 SD), consider it SAM. Refer to NRC after explaining exclusive breast feeding.</p> <p>If moderately underweight (MUW: weight < -2 SD but > -3 SD), refer the child to the Anganwadi Centre (AWC) after explaining exclusive breast feeding.</p> <p>(Refer to Chapter 7 on Anthropometry)</p>  <p>From 6-60 months (Identifying SAM)</p> <p>Step 1: All children from 6-60 months of age, should be examined for bilateral swelling in the legs/ oedema.</p> <p>Use your thumb and press gently for a few seconds on the top side of each foot. The child has oedema, if a dent remains in the child's foot when you lift/ remove your thumb.</p> 

Consider as SAM and refer to NRC if bilateral oedema is present.



Step 2: Take **weight for age** for all children from 6-60 months of age after you have excluded bilateral swelling.

Using WHO Reference Charts (weight-for-age), identify severely underweight (SUW: < -3 SD) and moderately underweight (MUW: < -2 SD).



For younger children



For older children

Step 3: Among SUW and MUW children, use the **MUAC tape** to identify SAM.

Refer to NRC if MUAC is < 11.5 cm indicating SAM.



Step 4: Among SUW and MUW children with normal MUAC or with MUAC > 11.5 cm, identify SAM by using **Weight-for-Height**.

Refer to NRC if weight for height is < -3 SD indicating SAM.



(Refer to Chapter 7 on Anthropometry)



Infantometer for length



Stadiometer for height

From 6-18 years (Identifying Severe Thinness)			
<p>Take the weight and height in children 6-18 years of age and calculate the Body Mass Index (BMI).</p> <p>BMI is defined as body weight in kilograms divided by height in meters squared.</p> <p>BMI = weight (in kg) / [height (in m)]²</p>			
<p>Use WHO reference tables to identify and refer any child with Severe Thinness whose BMI for age and sex is < - 3 SD (consider it SAM).</p> <p>(Refer to Chapter 7 on Anthropometry)</p>	Take the weight	Take the height	Calculate the BMI
	Use reference tables and classify BMI		

ACTIONS

Refer the child for further evaluation and management to NRC/ CHC/ DH. The child would require clinical evaluation by a Physician/ Medical Officer to rule out signs of complications and admission for few days to correct the nutrition status. Refer to Operational Guidelines on Facility based Management of SAM for further reading (MOHFW, 2011). While transporting keep the child adequately covered to prevent hypothermia.

COUNSELING AND PREVENTIVE MEASURES

- Initiate breastfeeding within 1 hour of birth. The first milk of the mother (Colostrum) is rich in immunoglobulins, vitamins and minerals and must be given to the baby.
- Mothers should be counseled for the correct technique of breastfeeding.

Signs of good attachment:

- Child's mouth should be wide open
- Upper areola should be more visible than the lower areola
- Child's chin should be touching the breast
- Lower lip of the child should be turned upward
- Exclusive breastfeeding till six months of age.
- All children should be encouraged for proper and timely weaning by complementary feeding after six months of age. Breast-feeding should be continued till 2 years or beyond.



- Preferably start complementary feeding by preparing rice based food item using nicely cleaned utensils and clean hands. Initially give 4 meals and then increase to five meals, after 1 year of age.

KEY MESSAGES FOR COMMUNITY

1. Severe Acute Malnutrition (SAM) is easily preventable
2. Malnutrition contributes to more than 50% as an underlying factor for child deaths. Children with SAM are especially vulnerable for common childhood diseases especially diarrhea and pneumonia.
3. Poor maternal nutrition is closely linked to development of severe acute malnutrition and/ or chronic malnutrition in a child besides anemia and other deficiency states.
4. Exclusive breast-feeding till 6 months of age, weaning and complementary feeding after 6 months of age are preventive measures.

5. GOITER

Iodine is an important trace element. It is required for synthesis of thyroid hormone (thyroxine) which controls normal heart function, nerve impulse and rate of body growth and metabolism.




The requirement of Iodine is met through food (cereals and grains). If, enough Iodine is not available it directly affects the thyroid gland function. Deficiency of iodine leads to goiter (enlargement of thyroid gland).

The Iodine deficiency disorders form spectrum of abnormalities which include goiter, mental retardation, deaf mutism, squint, difficulties in standing and walking normally and stunting of limbs.

In India, a population of over 167 million people are at a risk of Iodine deficiency disorders. 44 million actually have goiter and 2.2 million suffer from cretinism (stunted physical and mental growth). With every passing hour 10 children are born who will not attain their optimal mental and physical growth, due to iodine deficiency.

Tools for screening: RBSK mobile health teams would look for visible swelling in the neck region in children suggestive of swelling of the thyroid gland. They would also ask some specific questions suggestive of this deficiency.

CLINICAL FEATURES

Signs and Symptoms	
Look	Increased size or presence of visible swelling in the neck (in a normal child, the gland is non-palpable). Child is observed sideways. In case of suspicion ask the child to swallow and see the gland movement.
	  

Ask	1. Is the swelling painless (usually Goiter is painless)? 2. Is there problem during swallowing? 3. Does the child have cough?
------------	--

ACTIONS

Refer the child for further management. The child would require clinical evaluation by a Physician/ Pediatrician and adequate intake of Iodine for correction of this deficiency.

COUNSELLING AND PREVENTIVE MEASURES

- All children should be given exclusive breast feeding till six months of age and encouraged to eat foods rich in Iodine, such as cereals and grains, fish, sea foods etc.
- It should be ensured that salt used, in cooking, should be iodized
- All parents should be informed that prolonged deficiency of Iodine may lead to Goiter in children and would manifest as a visible neck swelling;

KEY MESSAGES FOR COMMUNITY

1. Goiter is easily preventable
2. Goiter occurs due to deficiency of Iodine in the body which is required for normal functioning of the thyroid gland
3. Goiter can be easily identified as a visible swelling in the neck region
4. All children should be encouraged to eat foods rich in Iodine such as cereals and grains, fish seafood etc.
5. Use of Iodized salt for cooking prevents deficiency of Iodine.

FILLING THE SCREENING TOOL CUM REFERRAL FORM FOR DEFICIENCIES:

After completing assessment for birth defects, assess every child for deficiencies as described in this chapter. After assessing the child for deficiencies, record your findings in the Screening Tool cum Referral Card in Section B.

0-6 YEARS:

B. DEFICIENCIES, IF YES REFER					
B1	SAM: Weight for Height/length: refer if the child is less than- 3 SD as per WHO chart, counsel if <-2 SD	<input type="checkbox"/>	B4	Vitamin A Deficiency: Ask for night blindness/look for Bitot's spot (white patches on sclera)	<input type="checkbox"/>
B2	SAM- Oedema: Bilateral pitting oedema	<input type="checkbox"/>	B5	Vitamin D Deficiency: Look for Wrist widening/bowing of legs/ nodular swelling on the chest	<input type="checkbox"/>
B3	Severe anemia: Look for severe palmar pallor	<input type="checkbox"/>			

6-18 YEARS:**B. DEFICIENCIES, IF YES REFER**

B1	Severe anemia – Look for severe palmar pallor	<input type="checkbox"/>	B3	Vitamin D Deficiency – Look for Wrist Widening/Bowing of legs	<input type="checkbox"/>
B2	Vitamin A Deficiency – Ask for night blindness/look for Bitot's spot (white patches on sclera)	<input type="checkbox"/>	B4	Goitre - Any swelling in the neck region	<input type="checkbox"/>
			B5	Oedema of both feet	<input type="checkbox"/>
*Record from BMI indicated in Preliminary Particulars>				Severe Thinness/Obesity	<input type="checkbox"/>

After recording the information on the front page, tick the preliminary findings on the last page of the Screening Tool cum Referral Card which also has the code number of the specific condition.

0-6 YEARS:**PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)**

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

6-18 YEARS:

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

Defects at Birth		✓	DEFICIENCIES		✓	Diseases		✓	Developmental delay including disability		✓	Adolescent Health concerns		✓
Code	Findings		Code	Findings		Code	Findings		Code	Findings		Code	Findings	
1	Neural Tube Defect	<input type="checkbox"/>	10	Severe Anaemia	<input type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>	31	Growing up concerns	<input type="checkbox"/>
2	Down's Syndrome	<input type="checkbox"/>	11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>	32	Substance abuse	<input type="checkbox"/>
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Deficiency, (Rickets)	<input checked="" type="checkbox"/>	17	Rheumatic Heart Disease	<input type="checkbox"/>	23	Neuro-motor Impairment	<input type="checkbox"/>	33	Feel depressed	<input type="checkbox"/>
4	Talipes (club foot)	<input type="checkbox"/>	13	Severe Thinness/Obesity	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>	34	Delay in menstrual cycles	<input type="checkbox"/>
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25	Mental Retardation	<input type="checkbox"/>	35	Irregular periods	<input type="checkbox"/>
6	Congenital Cataract	<input type="checkbox"/>				20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>	36	Pain or burning sensation while urinating	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>	30 Others (Specify)					27	Behavioural Disorder (Autism)	<input type="checkbox"/>	37	Discharge / foul smelling discharge from the genito-urinary area	<input type="checkbox"/>	
8	Congenital Heart Disease	<input type="checkbox"/>						28	Learning Disorder	<input type="checkbox"/>				
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>						29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>	38	Pain during menstruation	<input type="checkbox"/>	

Refer children with deficiencies to the nearest PHC or CHC. Refer children with SAM to the nearest Nutritional Resource Centre (NRC).

0-6 YEARS:

Please ✓	Defects at Birth		DEFICIENCIES		Diseases		Developmental delay including disability		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC, SAM to NRC		PHC/CHC/DH Dental condition to DEIC/DH		DEIC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility			CHC							
Name and Sign of Doctor, MHT					Date of Visit					
Data entered in Register - Yes /No					Data entered in register by Name and Sign					

6-18 YEARS:

Please ✓	Defects at Birth		DEFICIENCIES		Diseases		Developmental delay including disability		Adolescent Health Concern		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC,		PHC/CHC/DH		DEIC		CHC/AFHC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility			CHC									
Name and Sign of Doctor, MHT					Sign of Teacher				Date of Visit			
Data entered in Register - Yes/No					Data entered in register by Name and Sign							

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

Record the findings in the Screening Tool cum Referral Card in the Mobile Health Team Register for each child with Preliminary Particulars, Preliminary Finding code (PF code) and the observation code as given earlier for Defects at Birth.

C. DISEASES OF CHILDHOOD

Under RBSK, the Diseases covered include:

1. Skin conditions (Scabies, fungal infection and Eczema)
2. Otitis Media
3. Rheumatic heart disease
4. Reactive airway disease
5. Dental conditions
6. Convulsive disorders

RBSK mobile health teams will screen children for selected diseases prevalent in childhood. The objective is to identify chronic conditions in addition to diseases covered under other programmes like IMNCI. The list is by no means comprehensive, but includes selected diseases.

These conditions if left untreated may lead to serious developmental delays, adding to the burden of morbidity besides having an adverse effect on speech and emotional development e.g, early dental caries, infection of ear, convulsions and also some dental and skin conditions.

1. SKIN CONDITIONS

Skin is the largest organ of human body and can be infected with **Scabies, Eczema and Fungal infection, besides others.**

A. SCABIES

Scabies is an infestation of the skin by the human itch mite, the most common symptoms being intense itching and a pimple-like skin rash. The microscopic scabies mite burrows into the upper layer of the skin where it lives and lays its eggs.

CLINICAL FEATURES

Signs and Symptoms	
Ask	<ol style="list-style-type: none"> 1. Is there a history of Itching on the skin (especially at night)? 2. Does the child complain of pain from skin problem? 3. Are there rashes (especially between the fingers)? 4. Are there sores (abrasions) on the skin from scratching and digging? 5. Are there any thin, pencil-mark lines on the skin (indicative of burrows)?
Look	<ol style="list-style-type: none"> 1. Extensive warm, redness and swelling 2. Localized warm, tender swelling or redness 3. Swelling or redness around the eyes 4. Obvious wound with pus or crusts 5. Small swellings on the skin of the hands, knees, elbows, feet, trunk 6. Round or oval scaly patches <ol style="list-style-type: none"> a. In young children, the head, neck, shoulders, palms and soles are involved b. In older children, the hands, wrists, genitals, and abdomen are involved.
Perform	Examine the skin with torch for burrows



ACTION

Refer the child to PHC/CHC

PREVENTIVE MEASURES

- Avoid close contact with the affected person
- Maintain health & hygiene by regular bathing

KEY MESSAGES FOR COMMUNITY

- Avoid close contact with the affected child
- Whole family and close contacts should be treated at the same time
- Must wash clothes in hot water and sun dry
- Mattress should be kept in sunlight
- Avoid sharing towels and other clothes of the child.

B. ECZEMA

Eczema refers to a range of skin conditions which includes dryness and recurring skin rashes that are characterized by one or more of these symptoms: redness, skin oedema (swelling), itching and dryness, crusting, flaking, blistering, cracking, oozing or bleeding. Scratching open a healing lesion may result in scarring and may enlarge the rash. The most common cause of eczema is atopic dermatitis, sometimes called infantile eczema although, it occurs in infants and older children. The word “atopic” describes conditions that occur when someone is overly sensitive to allergens in their environment such as pollens, molds, dust, animal dander, and certain foods. “Dermatitis” means that the skin is inflamed, or red and sore.

CLINICAL FEATURES

Signs and Symptoms		
Ask	Ask for any discharge from skin, itching, bleeding	
Look	<ul style="list-style-type: none"> • Redness, skin oedema (swelling) • Itching and dryness • Crusting, flaking, blistering • Cracking, oozing or bleeding 	

ACTIONS

Refer to PHC/CHC

PREVENTIVE MEASURES

- Observe and avoid of any known irritant/triggers, such as harsh soaps, dust mites, food allergies, overheating and sweating, wool and polyester clothing.
- Keep skin well-moisturized through moisturizer/oil after bathing.

KEY MESSAGES FOR COMMUNITY

- Eczema is not contagious
- Although there is no permanent cure, this could be controlled by changing the food habits, environmental advice and medicines. Many children either outgrow their eczema, or it at least it gets better as they get older.
- For many kids, eczema begins to improve by the age of 5 or 6; others may experience flare-ups throughout adolescence and early adulthood.
- Take bath daily and tap dry the skin
- Keep nails trimmed and avoid scratching the lesion
- Wear cotton clothes
- Avoid using scented soaps.
- Child should be made to drink plenty of water, which adds moisture to the skin.

C.FUNGAL INFECTIONS

Some common fungal infections in the children include:

- Oral thrush (Candidiasis)
- Athlete's foot (Tinea pedis)
- Diaper rash
- Ringworm of the groin (Tinea cruris)
- Ringworm of the body (Tinea corporis)
- Ringworm of the scalp (Tinea capitis)

CLINICAL FEATURES

Signs and Symptoms

Ask	<p>Fungal infections are debilitating and symptoms and appearance of a fungal skin infection depends on the type of fungus causing it and the part of body affected.</p> <ul style="list-style-type: none"> ● Itching ● Discharge
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Ask	<ul style="list-style-type: none"> • Burning sensation • Any hair loss, as fungal infections of scalp can lead to hair loss • Whether painful or not. Usually fungal infections are painless. 		
Look	<p>Fungal skin infections can cause rashes with a variety of different appearances. Some are red, scaly and itchy. Others may produce a fine scale, similar to dry skin. The fungus can affect just one area or several areas of body.</p>		
	<ul style="list-style-type: none"> • Redness of skin • Rashes • Discharge • Crusting/ scaling/ flaking • Creamy white lesions on tongue, inner cheeks and sometimes on the roof of mouth, gums and tonsils • Lesions with a cottage cheese-like appearance 		

ACTIONS

Refer for Management to PHC/CHC.

PREVENTIVE MEASURES

- Keep the skin dry and dry skin thoroughly after bathing and sweating
- Wash clothes and bed linen frequently to remove any fungi
- Do not share hair brushes, towels and combs that could be carrying any fungi
- Avoid bottle feeding
- Use loose cotton clothing
- Regular bathing
- Avoid close contact with affected children

KEY MESSAGES FOR COMMUNITY

- Avoid close contact with other children and family members
- Wear loose cotton clothing
- Keep the affected area dry
- Trim nails
- Avoid scratching
- Avoid bottle feeding
- Change diaper/nappy on a regular basis
- Do not share towels, hair brushes and combs that could be carrying any fungi

PHOTOGRAPHS OF COMMON SKIN CONDITIONS IN CHILDREN:



ERYTHEMA NEONATORUM



PYODERMA NEONATE



SCABIES WITH PYODERMA



SCABIES WITH SECONDARY INFECTION



2. OTITIS MEDIA

Otitis Media refers to the infection of the middle ear. It happens when the ear canal gets blocked with fluid and gets infected.

TOOLS FOR SCREENING

Torch

CLINICAL FEATURES

Signs and Symptoms			
Ask	<ul style="list-style-type: none"> Is the child suffering from cold or fever? Is there pain in the ear? Is there discharge from ear (or pus)? If yes, for how many days? Does the child keep on rubbing the ear? In an infant, if there are no visible signs of ear discharge, ask parents is the child irritable or keeps on rubbing his/her ear? Is there a feeling of blocked ear? Does the child complain of reduced hearing? Is there pain behind the ears? Does the child have frequent throat infections? 		
	Look and Perform	Examine the ear with a torch for: <ul style="list-style-type: none"> Redness, discharge in the ear Perforation (hole) in the tympanic membrane 	 <p>Schematic diagram of discharging ear</p>  <p>Watery discharge from ear</p>

ACTION

Refer the child to CHC for further management

PREVENTIVE MEASURES

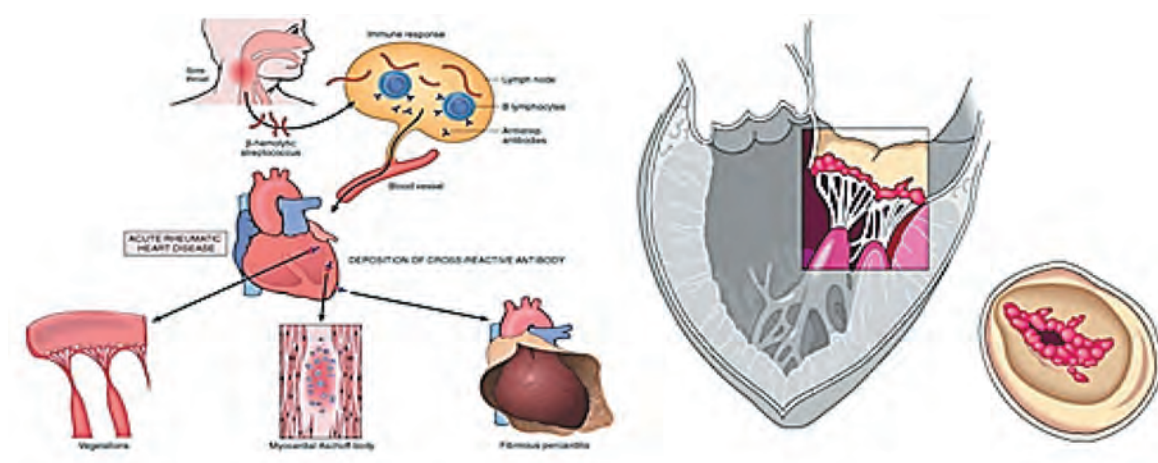
- Do not attempt to dig out excess or hardened earwax with items such as a cotton swab, paper clip or hairpin
- Avoid exposing the child to cigarette smoke, it can increase the chance of ear infections
- Do not bottle feed, the child, in lying down position;

KEY MESSAGES FOR COMMUNITY

- The discharge from the ear should be wiped out with a cotton wick or a tissue paper roll
- Do not use any sharp objects for cleaning the ear
- Dry ear heals fast
- Do not put oil in the ear
- Prevent entry of water during bathing or any other liquid in the ear.

3. RHEUMATIC HEART DISEASE

Rheumatic heart disease (RHD) describes a group of short-term (acute) and long-term (chronic) heart disorders that can occur after an episode of acute rheumatic fever (ARF). Rheumatic fever is an inflammatory disease that may affect many connective tissues of the body, especially, those of the heart, joints, brain or skin. It usually starts out as a streptococcal throat infection in children between the ages of 5 and 15 years. One common result of rheumatic fever is heart valve damage. This damage to the heart valves may lead to a valve disorders and also heart failure. RHD is the most serious complication of rheumatic fever.



CLINICAL FEATURES

Signs and Symptoms

Ask



- Is there history of rheumatic fever?
 - Ask for history throat infection (pharyngitis)
 - Is there history of fever, headache, pain in chest, abdominal pain, nausea and vomiting?
 - Is there history of pain and swelling in the joints (especially large joints, fleeting joint pains)?



Sore Throat



Skin Sores

Ask (Contd.)	<ul style="list-style-type: none"> - Are there any trembling/ flinging movements in the hands? - Ask for any palpitations, breathlessness on exertion, swelling (oedema), fainting spells (syncope) 	 <p>Swollen Joints</p>
Look	<ul style="list-style-type: none"> • Redness at the back of throat (oral mucosa) • Red, raised, lattice-like rash, usually on the chest, back, and abdomen • Uncontrolled movements of arms, legs, or facial muscles • Swollen, tender, red and extremely painful joints • Weakness and shortness of breath • Nodules over swollen joints • Fever <div data-bbox="448 880 1430 1152">  </div>	
Perform	Auscultate to hear abnormal heart sounds (or murmurs) with stethoscope.	

TOOLS FOR SCREENING

Stethoscope

ACTION

1. Counsel and refer the case to DH
2. Diagnosis needs to be confirmed using echocardiography.

PREVENTIVE MEASURES

- Never neglect a throat pain and take care of oral hygiene
- If diagnosed as a case of rheumatic fever, long term prophylaxis needs to be given with penicillin injection and the significance has to be explained to both the parent and the child. Many of the families do not understand why the child needs penicillin injections when he or she feels fine, following the episode of ARF. Many mistakenly think the injections are for the arthritis and therefore do not comply with this regimen once the arthritis has resolved.

- Dental care needs to be taken
- Avoid sleeping on the floors in damp houses.

KEY MESSAGES FOR COMMUNITY



- Get regular check-ups at local health PHC/CHC
- Do not ignore a sore throat. Proper treatment of sore throat can go a long way in preventing the first attack of rheumatic fever
- Keep sores clean and covered
- Wash hands regularly
- Eat a healthy diet.

4. REACTIVE AIRWAY DISEASE

Reactive airway disease (RAD) in children, is a general term which is used to describe a history of coughing, wheezing or shortness of breath triggered by infection. These signs and symptoms may or may not be caused by asthma. Estimated prevalence is 5% among children aged 1 month to 14 years.

CLINICAL FEATURES

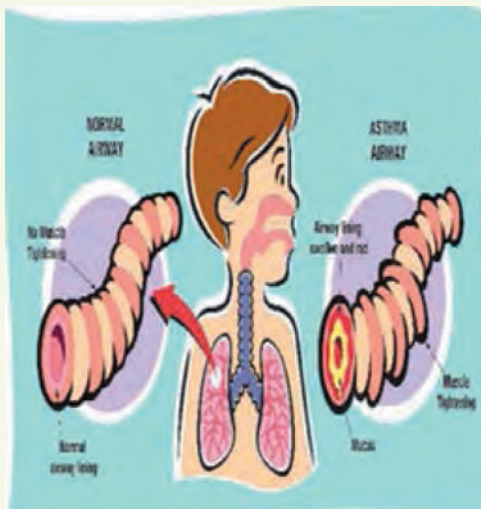
Signs and Symptoms

Ask

- Is child suffering from cough, cold and/or difficulty in breathing? If yes then for how long?
- Does the episode of cough, cold start after exposure to a triggering factor like dust, smoke, strong odor or perfume, stress, physical activity etc?
- Is there a family history of allergies?
- Decreased appetite/weight loss.

Look and Perform

- Running nose
- Wheezing – it is a high pitched whistling sound during expiration heard with stethoscope
- Difficulty in breathing
- Retraction of ribs

**TOOLS FOR SCREENING**

Torch, Stethoscope

ACTIONS

Refer to PHC/CHC

COUNSELING AND PREVENTIVE MEASURES

- Identify and Avoid exposure to triggering factors
- Avoid exposure to cigarette smoke

KEY MESSAGES FOR COMMUNITY

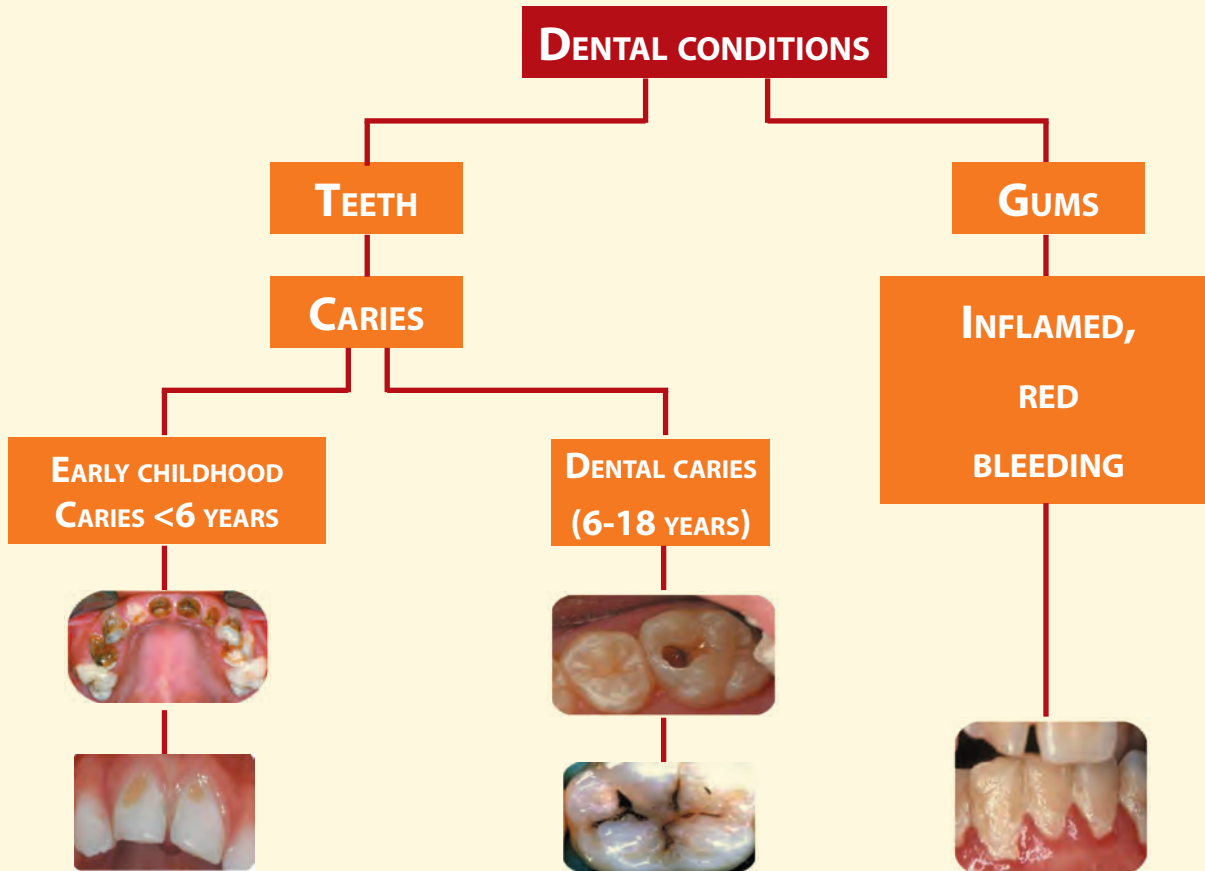
- RAD is not always Asthma. It is a general term which, does not indicate a specific diagnosis
- To minimize attacks avoid triggering factors and take medications regularly, as per doctor's advice

5. DENTAL CONDITIONS

Oral health is a window to overall health. Teeth and gums (gingiva) are important pillars of the oral cavity and hence it is important to maintain their health. Two main dental diseases, caries and gum diseases, begin in childhood and are preventable by early diagnosis.

FLOW CHART FOR IDENTIFICATION OF DENTAL CONDITIONS

Identify dental conditions as shown in the following flow chart:




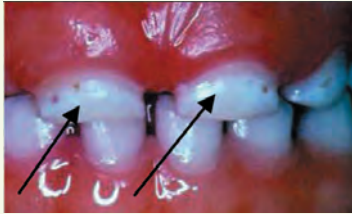


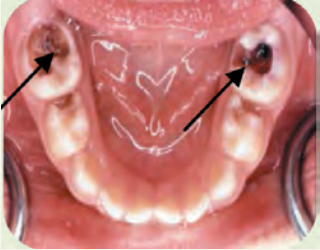




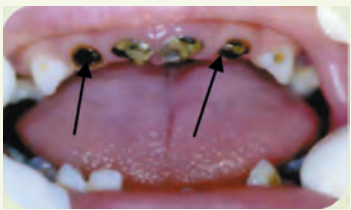


DENTAL CARIES

There are two sets of teeth, milk teeth and permanent teeth. The first milk tooth erupts at the age of 6-7 months and first permanent tooth erupts at age of 6-7 years. Caries is a chronic disease affecting both milk teeth and permanent teeth, leading to their breakdown. Caries is further divided into Early Childhood Caries (ECC) and Adolescent Caries and, Adult Caries.

EARLY CHILDHOOD CARIES

ECC is defined as “the presence of one or more decayed (non-cavitated or cavitated lesions), missing teeth (due to caries), or filled tooth surfaces, in any primary tooth, in a child 6 year of age or younger. If not identified ECC causes extreme pain, spread of infection, difficulty in chewing, poor nutrition, distraction from normal activities including learning, speech and eating dysfunctions, growth delay, high risk of dental decay and extensive and costly dental treatment.

Signs and Symptoms		
Ask	Ask parents if the child complains of sensitivity to hot/ cold/ sweet/ food lodgement/ pain?	
Look and Perform	Examine teeth for white, opaque, dull, white band of demineralized enamel especially neck of maxillary anterior (upper front teeth)	   
	Yellow or brown discolored area, break in continuity of tooth	   
	Break down of teeth	   

TOOLS FOR SCREENING

Torch, disposable tongue blades

ACTIONS

- Oral hygiene education to care giver,
- Refer for treatment to CHC/ DEIC

PREVENTIVE MEASURES

- Healthy infant feeding habits
 - Breast feeding is best
 - Avoid bottle feeding
- Avoid in-between meal snacks, juices
- Avoid saliva sharing
- Oral health education for proper brushing


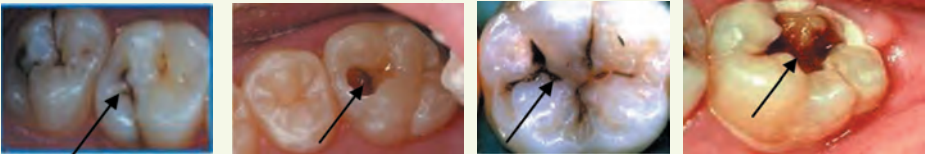
KEY MESSAGES FOR COMMUNITY

- Teeth, including baby teeth, are essential for good general health and development
- Dental decay in early childhood is a serious infectious disease
- Decay develops in the presence of teeth, bacteria and sugars
- Dental decay in early childhood is entirely preventable
- Proper brushing technique and oral hygiene are preventive measures
- Drink water after eating sweets.

CARIES (6-18YRS)

Chewing (occlusal) surface of teeth is more prone to caries because of the presence of grooves (pit and fissures) on it.

CLINICAL FEATURES

Signs and Symptoms	
Ask	<ul style="list-style-type: none"> • Does the child complain of sensitivity to sweets/hot /cold / food lodgment? • What is used to clean teeth - brush/tooth powder/paste/Datun?
Look and Perform	<p>Examine the teeth for white, spots</p>  <p>Yellow or brown discolored area, cavity</p> 

TOOLS FOR SCREENING:

Torch, disposable tongue blades

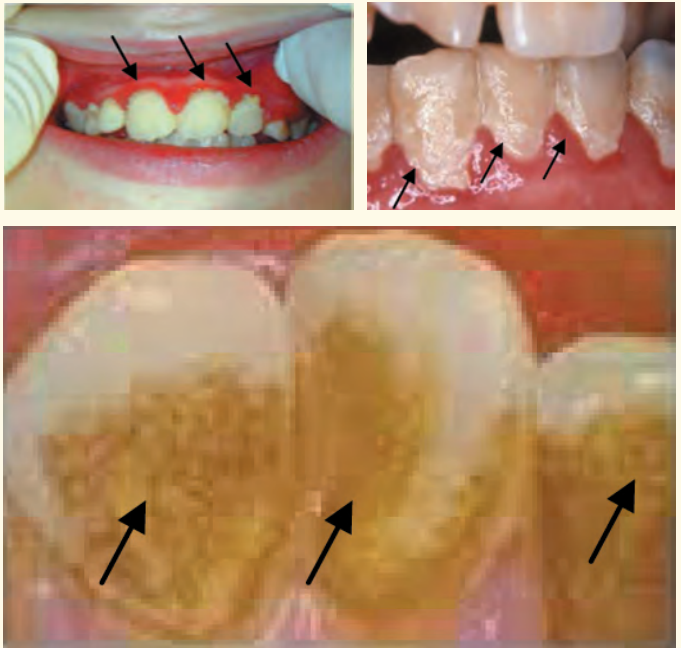
ACTIONS

- Oral hygiene education
- Refer for treatment to CHC.

GUMS (GINGIVA)

Gums surround the neck of the teeth like a collar. Along with anchoring the teeth, the gingiva also creates a seal around the tooth preventing bacteria, plaque etc. to cause infection. Healthy gums are pink, firm, resilient and sharp edged.

CLINICAL FEATURES:

Signs and Symptoms	
Look and Perform	<p>Red, swollen gums, bleeding gums and plaque</p> 

ACTIONS

- Oral hygiene education
- Refer for treatment to CHC/DEIC.

6. CONVULSIVE DISORDERS (EPILEPSY)

Convulsive disorders (Epilepsy) are a group of brain disorders characterized by a tendency for recurrent seizures (convulsions), over time. Seizures are episodes of disturbed brain activity that cause changes in attention or behavior. When a person has two or more unprovoked seizures, they are considered to have epilepsy. A single seizure that does not happen again is not epilepsy.

CLINICAL FEATURES

Signs and Symptoms

Ask

1. Has the child experienced seizures?
2. If yes:
 - a. Did the child bite his/her tongue?
 - b. Did the child turn blue?
 - c. Was it followed by a period of deep or noisy breathing?
 - d. Did he/ she pass urine during the seizure?
 - e. Did the child experience rhythmic/ jerky movements of the hands?
3. Does the child experience 'aura'? Some people with epilepsy have a strange sensation (such as tingling, smelling an odor that is not actually there, or emotional changes) before each seizure.
4. Was the seizure caused by a short-term problem (like fever or infection) that can be corrected?

ACTION

Counsel and refer the child to CHC/DH

CONVULSIONS IN SMALL CHILDREN:

In infants between the ages of one month and one year convulsions are usually, associated with fever. If there is no fever, epilepsy should be considered, which is more prolonged and requires long term treatment, as compared to convulsions associated with fever which usually, stops by 5-6 years.

Fits can be divided into generalized – that means involving the whole body or partial seizures – which involves only a particular function or part of the human body. A febrile convulsion is a fit occurring in a child aged from six months to five years, precipitated by fever, arising from infection outside the nervous system, in a child who is otherwise, neurologically, normal.

Among children who have convulsions with fever involving the brain (pyogenic or viral meningitis, encephalitis) such children will have prolonged fits lasting for more than one hour and even after the fits have stopped the child does not appear to be normal. Most of the fits that occur between the ages of six months and five years are simple febrile convulsions and have an excellent prognosis.

All children who have had a first febrile convulsion should be admitted to hospital to exclude meningitis or any other problem and to educate the parents, as many fear that their child is dying, during the fit.

Convulsions must be differentiated from blue-breath holding attacks, which usually begin at 9–18 months' of age. Immediately, after a frustrating or painful experience infants cry vigorously and suddenly, hold their breath, become cyanosed, and in the most severe cases lose consciousness. Rarely, their limbs become rigid and there may be a few clonic movements, lasting a few seconds. Respiratory movements begin again and infants gain consciousness, immediately. The attacks diminish with age with no specific treatment.

FILLING THE SCREENING TOOL CUM REFERRAL FORM FOR DISEASES

Assess for the selected conditions as per checklist below and as described earlier in this chapter and tick the relevant columns in the Diseases section.

0-6 YEARS:

SCREENING TOOL (FOR AGE: BIRTH TO 6 YRS.)				
B. DISEASES, IF YES REFER				
C1	Convulsive Disorder - 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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
C2	Otitis Media: Did child have more than 3 episode of ear discharge in last 1 year/Look for active discharge from ear	<input type="checkbox"/>	C5 Reactive airway disease: More than 3 Episodes of increased shortness of breath and difficult breathing and wheezing in the past 6 months	<input type="checkbox"/>
C3	Dental Condition: Look for white/brown areas, cavitations, swollen/bleeding/red gums	<input type="checkbox"/>		

6-18 YEARS:

C. DISEASES, IF YES REFER				
C1	Convulsive Disorders – Did the child ever have had spells of unconsciousness and fits?	<input type="checkbox"/>	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.	<input type="checkbox"/>
C2	Otitis Media - Did the child have more than 3 episodes of ear discharge in last 1 year? Look for Active discharge from ear	<input type="checkbox"/>	C5 Rheumatic Heart Disease – Auscultate for Murmur	<input type="checkbox"/>
C3	Dental Condition - Look for white demineralized/ brown tooth, Discoloration, cavitation, Swollen/bleeding/red gums, Visible Plaque/stains	<input type="checkbox"/>	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.	<input type="checkbox"/>

Tick Preliminary Findings as applicable on the last page of the card.

0-6 YEARS:

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

A Brief

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

6-18 YEARS:

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

Defects at Birth			✓	Deficiencies			✓	DISEASES			✓	Developmental delay including disability			✓	Adolescent Health concerns			✓
Code	Findings			Code	Findings			Code	Findings			Code	Findings			Code	Findings		
1	Neural Tube Defect	<input type="checkbox"/>		10	Severe Anaemia	<input type="checkbox"/>		15	Skin Conditions	<input type="checkbox"/>		21	Vision Impairment	<input type="checkbox"/>		31	Growing up concerns	<input type="checkbox"/>	
2	Down's Syndrome	<input type="checkbox"/>		11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>		16	Otitis Media	<input checked="" type="checkbox"/>		22	Hearing Impairment	<input type="checkbox"/>		32	Substance abuse	<input type="checkbox"/>	
3	Cleft Lip & Palate	<input type="checkbox"/>		12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>		17	Rheumatic Heart Disease	<input type="checkbox"/>		23	Neuro-motor Impairment	<input type="checkbox"/>		33	Feel depressed	<input type="checkbox"/>	
4	Talipes (club foot)	<input type="checkbox"/>		13	SAM	<input type="checkbox"/>		18	Reactive Airway Disease	<input type="checkbox"/>		24	Motor delay	<input type="checkbox"/>		34	Delay in menstrual cycles	<input type="checkbox"/>	

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25	Cognitive Delay	<input type="checkbox"/>	35	Irregular periods	<input type="checkbox"/>
6	Congenital Cataract	<input type="checkbox"/>				20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>	36	Pain or burning sensation while urinating	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>	30 Others (Specify)						27	Behavioural Disorder (Autism)	<input type="checkbox"/>	37	Discharge / foul smelling discharge from the genito-urinary area	<input type="checkbox"/>
8	Congenital Heart Disease	<input type="checkbox"/>							28	Learning Disorder	<input type="checkbox"/>			
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>							29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>	38	Pain during menstruation	<input type="checkbox"/>

Refer the child to the nearest PHC / CHC / DH for diseases, depending on the severity of the condition and to the nearest DEIC / DH for dental conditions.

0-6 YEARS:

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC, SAM to NRC		PHC/CHC/DH Dental condition to DEIC/DH		DEIC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility										
Name and Sign of Doctor, MHT						Date of Visit				
Data entered in Register - Yes /No						Data entered in register by Name and Sign				

6-18 YEARS:

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Adolescent Health Concern		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC,		PHC/CHC/DH		DEIC		CHC/AFHC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility												
Name and Sign of Doctor, MHT						Sign of Teacher			Date of Visit			
Data entered in Register - Yes/No						Data entered in register by Name and Sign						

D. DEVELOPMENTAL DELAYS INCLUDING DISABILITIES

Under RBSK, the Developmental Delays including Disabilities covered include:

1. Vision Impairment
2. Hearing Impairment
3. Neuro-motor Impairment
4. Motor delay
5. Cognitive delay
6. Language delay
7. Behavior disorder (Autism)
8. Learning disorder
9. Attention deficit hyperactivity disorder

THE SCIENCE AND PHILOSOPHY OF EARLY CHILDHOOD DEVELOPMENT

- Brain and overall biological development during the first years of life depends on the quality of stimulation in the infant's environment—at the level of family, community, and society.
- Brain develops over the period of time.
- The interactive influence of genes and environment literally shape up the architecture of a developing brain
- Stress which is toxic in early childhood, is associated with persistent effects on the nervous system that can damage developing brain architecture and lead to lifelong problems in learning, behaviour, and both physical and mental health.
- Creating the right conditions for early childhood development is likely to be more rational and cost effective approach than addressing problems at a later age.

EARLY BRAIN DEVELOPMENT

There are some important concepts that help us understand early brain development:

- At birth, newborns start with very similar brains and brain structures.
- Beginning in the last trimester of the prenatal period, brain pathways are formed by developing new connections. This growth increases after birth and follows a predictable sequence.
- There are “sensitive periods” during child's development, when the wiring of the brain for specific abilities is established.
- Providing responsive, nurturing and stimulating experiences establish the wiring of the brain connections. Children who are well supported and nurtured physically, emotionally, socially and intellectually will develop a multitude of neural connections that will serve them well throughout their life course.

EARLY BRAIN DEVELOPMENT

- A child's interest and curiosity are the motivators that create new connections to acquire new skills. Each new skill builds on a skill already learned.
- The child's environment can support and enhance his interest and curiosity.
- Early brain development establishes a child's social competence, cognitive skills, emotional well-being, language, literacy skills, and physical abilities and is a marker for well-being in school and life.

Under RBSK, we should aim to close the Gap between "What We Know and What We Do"

1. WHAT IS CHILD DEVELOPMENT?

The Convention on the Rights of the Child (CRC), defines a child as human being below the age of 18 years.

Child development is the gradual unfolding of capacities. Children become more and more capable, and learn to talk, walk, run, solve problems, receive affection and express emotions.

Child Development is the ability of the child to do increasing complex things. It extends from the moment of birth till adulthood. Environment and learning experiences from the society has a major role in child development.



- Let us take the example, a six month old child trying to pick up a small object like a pea or kismis (raisin) from the floor, but would not succeed in the mission, however the same child at 9 to 10 months will easily pick up the same, holding the small object between his thumb and the index finger. This is possible with development of the child's hand grip.



AGE 7-8 MONTHS: RAKING GRASP
TRIES TO GRASP THE SMALL OBJECT BUT MISSES



**MORE MATURE GRASP BETWEEN THUMB
 AND INDEX FINGER AT 12 MONTHS**

WHAT IS THE DIFFERENCE BETWEEN GROWTH AND DEVELOPMENT?

Growth refers to the child getting only bigger in size

Growth refers to quantitative changes i.e. increase in body size, proportion and structure, which can be measured through increase in height, weight and size of internal organs.

Growth stops at a particular age.

Development refers to acquiring skills and abilities to perform finer and more complex tasks

Child development is the gradual unfolding of capacities. Children become more and more capable, and learn to talk, walk, run, solve problems, receive affection and express emotions.

Development is a continuous process that begins during the prenatal period and continues even when the physical changes are not visible.

Growth is measured through growth chart (WHO Charts)

To monitor growth we need to measure :

- **Weight** of the child
- **Height (length)** of the child
- **Head Circumference** to monitor brain growth
- **Mid-upper arm circumference** among children from 6 months to 5 years is fairly constant and hence is used as a measure of thinness at mid arm to detect severe acute malnutrition in under five children, who are at high risk of death

When we talk about normal development, we are talking about developing skills like:

- **Gross motor:** using large groups of muscles to sit, stand, walk, run, etc., keeping balance, and changing positions.
- **Fine motor:** using hands to be able to eat, draw, dress, play, write, and do many other things.
- **Language:** speaking, using body language and gestures, communicating, and understanding what others say.
- **Cognitive:** Thinking skills: including learning, understanding, problem-solving, reasoning, and remembering.
- **Social:** Interacting with others, having relationships with family, friends, and teachers, cooperating, & responding to feelings of others.





A. STAGES OF CHILD HOOD :

Childhood is divided into five stages, each of the five stages are characterized by differences in physical, mental, language, Social and emotional abilities. These are:

1. **Prenatal (Before birth)** : From Conception to birth
2. **Infancy** : Birth to 1 years (Psychologist consider it up to 2 years)
3. **Toddler** : 1-3 years (12 to 36 months)
4. **Preschool**: 3-6 years : (30-60 months)
5. **School** : Middle childhood : 6-10 years and 5) School: Adolescents : > 10 years (10-18 years).

Age Vs Periods	Childhood period																													
	INFANTS (Birth to 12 months)												Toddler		Preschool 3-6 years		School 6-10years			Adolescence 10-18y										
Age	Newborn												1-3		Preschool: 3-6 yrs.		School, middle 6-10 years													
Weeks	1 w	2 w	3 w	4 w	INFANTS (Birth to 12 months)								Toddler 1-3y		Pre- School															
Month	First month				2	3	4	5	6	7	8	9	10	11	12	12-36 months.		Pre-school 30-60 months		School			Adolescence :10-18y							
Years	First year or 1 st year (Infant)												2y	3y	3 y	4 y	5 y	6 y	7 y	8 y	9 y	10	11	12	13	14	15	16	17	18

CHANGE FROM ONE STAGE TO THE OTHER IS A GRADUAL AND A CONTINUOUS PROCESS

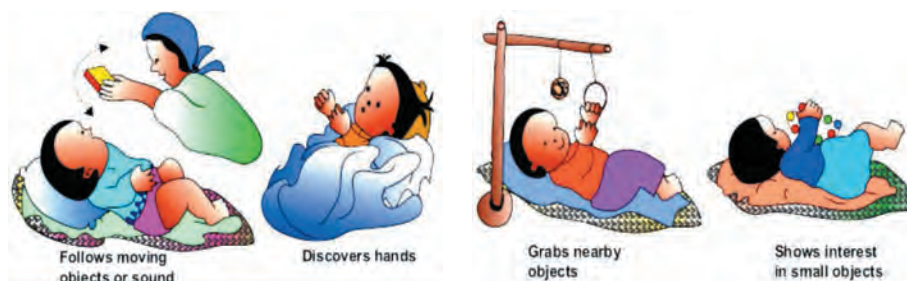
Sensory motor (Birth -2 years)	Preoperational (2-6 years)	Concrete Operational (6-12y)	Formal operational (12 years –adult)
			
The Infant explores the world through his direct sensory contact e.g. through his mouth. Object Permanence and Separation anxiety develops during this stage	The child uses symbols (own words and images) to represent objects but does not reason logically. The child has the ability to pretend. During this stage he is egocentric “me do”	Logical thinking about concrete objects and thus can add or subtract. Understands conversation	The adolescent can reason abstractly and thinks in hypothetical terms
Screening of a child under RBSK			
Six weeks to two years: Anganwadi center	Two to six years: Anganwadi center	Six to eighteen years: (6-10 and 10-18 years) At School	

DO YOU KNOW THE AVERAGE SLEEP REQUIREMENT OF A CHILD?

Age Group	On an Average...
New-born	A Newborn's sleep requirement is 16-20 hours daily
6 months	A 6 month old's sleep requirement is 13-14 hours daily
Toddler:1-3 years	A Toddler's sleep requirement is 12 hours daily
Preschool: 3-6 years	A Pre-schooler sleep requirement is 11-12 hours of sleep daily
Middle childhood : 6-10 years	Middle childhood's sleep requirement is 10-11 hours of sleep daily
Adolescents:> 10years	Adolescents sleep requirement is 9 hours of sleep daily

B. STAGES OF DEVELOPMENT

A. Birth to two years: Sensory motor stage



Explores through hands and mouth, i.e. Use of hands (touch), mouth, eyes, ears, nose to understand the object. **This is sensory motor stage** (0-2 yrs.). *Using all sensory organs to learn and explore in the first 2 years.*

6 months: Object permanence: Child looks at a spoon or toy that has dropped and thus tries to see where the object has gone. **6 months onwards,** searches for **partially hidden objects at 9 months** followed by search for **fully covered objects at 12 months**. This phenomena is called *Object permanence. It starts with playing of “peek a boo” with the mother. This is a game in which mothers hides her face partially behind her sari and then suddenly removes the barrier and pops back into the babys view and says **“Peek a boo”**. **Typically achieved at 9 months of age.**

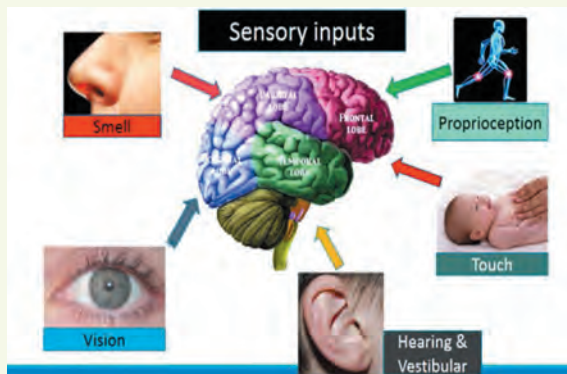


Child looks at a spoon or toy that has dropped



“Peek a boo” at 9 months

12 MONTHS: Casting: (“I throw it down , and you pick it up for me”) is typically seen at 12 months and suggests of : **object permanace and social reciprocity**. Throwing objects through the window and expecting the parents to bring it back is testing the theory “what is outside the range of our visual field still exists”. **Stranger anxiety :** After 6 months the child learns to differentiate between unfamiliar and familiar persons. (By going to the mother and not to a guest). Hence after 6 months the child should be examined in the mothers lap.



- Using all sensory organs to learn and explore in the first 2 years
- Midline hand play at 4 month
- Grasping an object within reach 6 months
- Transfer the object from hand to hand at 9 months
- Looks for a toy that has dropped at 6 months
- Looks for a partially hidden toy at 9 months
- Looks for a fully hidden object at 12 months
- Peek a boo at 9 months
- Casting objects: I throw,you pick at 12 months

B. 2 to 6 years: Pre operational: Child uses symbols or Icons for learning. When a child sees a cat, he/she does not identify it by characteristics of a cat but does so by an icon of cat and may say “Meow”. Recognizes objects or animals by using a specific sound or word consistently.

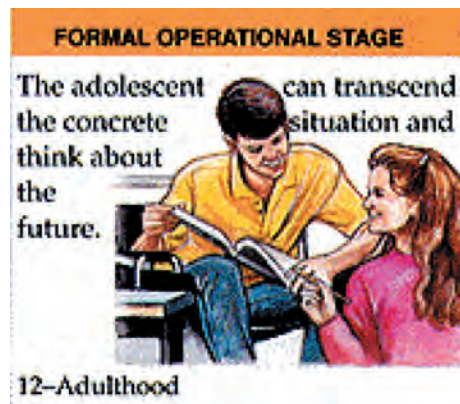
Pretend play or imitative play is seen at 24 months. eg Like feeding the doll or playing teacher – teacher or helping with the dishes. Egocentric: the world is around him and about him. The child considers his views as final with a complete disregard to others view. Egocentrism is the limitation to distinguish between one's own view and someone else's view. This was initially studied by Piaget to study how the child reacted when asked to select from a series of photos the one photo that reflects the doll's view. Children in the preoperational stage pick up their own view rather than the doll's view.



C. 6-12 years: Concrete Operational: Child can think logically about concrete objects. Plays simple board games, rule based outdoor games,



D. Child > 12 Years- Adulthood: Adolescent thinking about abstract thinking and hypothetical thinking.



Piaget's Theory Of Cognitive Development

1. Sensorimotor stage



2. Preoperational Stage



3. Concrete Operational Stage



4. Formal Operational Stage

- A child's development is a complex and continuous process.
- They should be able to do certain activities at certain ages. These are called **Developmental milestones**.
- As a parent, it is important to realize that no two children develop at the same rate. It is, therefore, futile to worry that the child next door can do this and that, while one's own child cannot. However using the current tool if there is delay in any domain, then the child requires close observation and detailed examination at the DEIC
- At the ages noted for different activities, the child should be observed for some time before arriving at any conclusion.
- Sometimes the child may develop slowly in certain areas when compared to the children of the same age while in some areas he/she may be ahead of other children of his/her age.
- Forcing a child to learn to walk when the Baby is not ready does not help.

DOMAINS:

Gross-Motor (Physical)

Fine-Motor (Physical)

Speech & Language (Expressive and Receptive)

Cognitive/intellectual development (Exploration including mouth)

Social and Emotional (Communication through gestures)

Vision (Seeing with eyes & interpreting what has been seen) Complex function

Hearing (Listening with ears and interpreting what has been heard)

WHAT ARE THE SKILLS THAT A CHILD DEVELOPS?

Child development is defined as, in simple terms, what a child can do. Child development especially focuses on four areas of skills development. These areas are motor, cognitive, social, and affective skills.

1. MOTOR SKILLS

Motor skills are particularly physical, like reaching and grabbing. The goal of motor skills is to organize planned eye and hand movement, and control and strengthen muscles.

2. COGNITIVE SKILLS

Cognitive skills focus on the ability to explore and learn, like seeing, hearing, moving, and touching. Cognitive skills help a child to recognize people, things, and sounds. They help to compare sizes and shapes. They also stimulate exploring and learning.

3. SOCIAL SKILLS

Social skills help a child communicate interests and needs. Social skills develop to help someone express self through verbal and non-verbal skills.

4. AFFECTIVE/EMOTIONAL SKILLS

Affective skills help a child to receive and express appropriate emotions and affection. Good affective skills help a person have appropriate emotional reactions to his or her own efforts, and to other people

PATTERNS OF CHILD DEVELOPMENT

- Development is from **Head to Toe** or Cephalo (Head) – Caudal (Toe). Child first learns head holding and then to sit followed by standing and walking
- Development proceeds **from midline (center) of the body to the distal parts**. In midline we have head and neck, shoulder, trunk and pelvis. Arms and legs are the distal parts of the body.
- Development proceeds **from Flexion** - bending of the limb **to extension** - straightening of the limbs.
- Development Proceeds from **Involuntary to Voluntary** i.e. from spontaneous / automatic / uncontrollable to controlled movements
- Development Proceeds from **Undifferentiated (gross or crude movement) to Differentiated** (more selective, controlled and fine movements) e.g. a 2 month old child when tries to get a toy, her whole body moves including her facial expression whereas a 12 month old child will simply move his/her upper limb in a precise manner and get the toy. (Only her/his upper limb and hand moves)
- Development Proceeds **from Ulnar Palmar to Radial Digital Grasp**.
- Development is **continuous and progressive**. Over the period of time simple skills are replaced by finer and complex skills through learning and practice. Crawling on 4 legs is replaced by walking on two legs.



Involuntary to voluntary :
Primitive grasp reflex vs. Voluntary palmar grasp



Primitive finger holding which was involuntary to mature voluntary grasp

Involuntary to voluntary : Primitive
walking reflex vs. Voluntary walking



***Picture shows progression of **primitive walking** that was involuntary to **mature voluntary walking**

PATTERN OF CHILD DEVELOPMENT AND THE CHARACTERISTICS

Understanding of normal child development process pattern and its characteristics would help to understand the delays and deviations. All children follow a predictable similar and orderly pattern with one stage leading to the next and it is always in order. E.g. all babies stand before they start walking. They cannot walk without standing first.

PATTERN OF DEVELOPMENT:

Development spreads from **Head to Toe or Cephalo- Caudal**. The head region is the first to develop followed by trunk & then limbs. Child first learns head holding and then to sit and followed by standing and walking.



Head to toe or Cephalo-caudal development

Development proceeds from midline (center) of the body to the distal parts. In midline we have head and neck, shoulder, trunk and pelvis. Arms and legs are the distal parts of the body. In essence a child develops control over his/her head and shoulder, trunk and pelvis that is followed by his/her ability to reach out and hold objects with hands. Head and trunk control always precedes ability to grasp and release.



Yellow arrow head shows the distal part i.e. hand. Trunk and head are proximal parts of the body

Development proceeds from Flexion - bending of the limb to extension - straightening of the limb or stretching out of a limb after it has been bent and the position attained.



Flexed posture at birth



Extended at one month

Child is born with all the four limbs bent and if they are not so it is a sign of worry. Slowly through development the limb stretches out and becomes straight.



Extension up to lumbar spine



Extension up to thoracic spine

Development Proceeds from Involuntary to Voluntary i.e. from spontaneous /automatic / uncontrollable to controlled movements.

For example **palmar grasp** in Newborn: if we stimulate by placing our finger into the baby's palm the Newborn responds by grasping the finger or any matter. This involuntary grasp is very different from a 4 month old child reaching out to a toy and grasping it. The first is not in the control of the child so known as Involuntary reflex or uncontrollable (also known as **primitive palmar grasp**) whereas the latter is voluntary and in the control of the child. He/she is attracted to the toy and hence stretches the arm to hold it. Primitive Palmar grasp reflex in Newborn disappears by 2-3 months after birth as this is involuntary and must be replaced by a matured **voluntary palmar grasp**.

Grasp response

Reflex	Palmar grasp reflex
Onset	Birth
Elicitation	A finger or small object placed in the infant's palm elicits an involuntary flexion or grasp. Attempts to remove the object produce an even tighter grasp.
Changes by	<ul style="list-style-type: none"> • Suppressed by about 2 to 4 months of age. • Should disappear by about 6 months of age. • Abnormal if asymmetric or persistent. Often seen in patients suffering from paralysis of the arm, leg, and trunk on the same side of the body (hemiplegic).

A newborn when held, tries taking stepping reflex but this is involuntary. Later in life, this is replaced by voluntary walking.

Development Proceeds from Undifferentiated to Differentiated.

For example, a two month old child who wishes to get a toy would move all the limbs; use her facial expression and her whole body to explain to the mother to get the toy (Undifferentiated).

But a one year old child will do the same by pointing out with a finger to get the object. This ability to use her finger in isolation of her whole hand or body requires Differentiated development.

Development is continuous and progressive. Over the period of time simple skills are replaced by finer and complex skills through learning and practice. Crawling on 4 legs is replaced by walking on two legs.

This is more explained in the development of grasp. Development of grasp of an object proceeds from Ulnar Palmar to Radial Digital Grasp (Voluntary Palmar grasp/Voluntary release).

PATTERN OF DEVELOPMENT:

Crude Palmar Grasp
from the Ulnar side (Ulnar Palmar Grasp) by age 4-5 months:



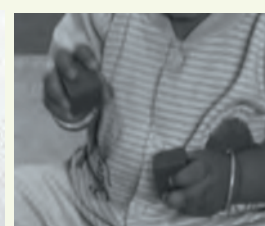
Notice the grasp of the object in the ulnar side of the palm and the lack of thumb involvement in this grasp. The corresponding picture on the right shows where on the palm the object is placed while using a crude palmar grasp.

Palmar Grasp by age 5-6 months:



Notice that the object is now secured in the center of the palm in the palmar grasp; the infant has grasped it with the whole hand because he or she does not yet have the ability to use more precise movements. However, there is lack of thumb use. Note that now the object is in the center of the palm.

Radial Palmar Grasp
appears by ages 6-7 Months



The object is secured in the radial side of the palm. Note the flexion of the ulnar fingers for stability and the thumb that is beginning to oppose and actively press the object into the palm.

Raking Grasp by ages 7-8 months:



Note the flexion of the index and middle (radial) fingers to bring the objects into the palm while using the raking grasp.

PATTERN OF DEVELOPMENT:

Radial Digital Grasp

(First two fingers and thumb) at ages 8-9 months:



Observe the full opposition of the thumb to help secure the object, and the flexion of the ulnar fingers for stability while using the radial digital grasp.

Inferior Pincer Grasp by

Ages 8-9 months



Note the movement of the thumb towards the body (Adduction) to secure the object against the extended index finger while using the inferior pincer grasp.

Pincer Grasp by age 10-12 months.



Note the full opposition of the pad of the thumb and the pad of the index finger to secure the object in pincer grasp. This is differentiated from the neat pincer grasp, in that the pad of the finger secures the object in the pincer grasp; whereas the tip of the finger secures the object in the neat pincer grasp.

RECAPITULATION



DEVELOPMENT MILESTONES



Rate of development in each child is unique and differs from others due to genetic influences and environmental experiences. Sisters and brothers, in spite of being brought up in the same family; differ in looks, nature and habits. One child may start walking at the age of 9 months and the other may do so at the age of 13 months. Both are normal. The individual differences in rate of development due to heredity & environment influences define a normal range. **Once it is outside the normal range then we say there is developmental delay** and requires further evaluation in details.

- Child's progress on the path of development across definite stages is marked by achievement of indicators called Developmental Milestones specific to the chronological age of the child.
- Milestones are like guideposts for various stages of development, through which every child passes in the normal trajectory at a particular age.
- Milestones indicate the age at which children are expected to perform tasks which are also called developmental tasks.
- For every child there is a normal range for completion of a 'milestone'. But each child reaches a 'milestone' or performs the expected 'developmental task' at his own pace and in his or her own way.
- Sometimes, a stage is skipped or another one is delayed or there is deviation and, some children progress more rapidly than the others. But this need not be a cause for alarm. If accomplishment of 'milestones' is unduly delayed, it is a signal that a child should be medically examined
- Domains of development e.g. Motor, Cognitive, language, social development, etc. are interlinked and more complex. like:
- **Motor development** which helps in any form of movement. There are two categories within the area of motor skills: **Gross motor and Fine motor.**
 - **Gross motor:** using large groups of muscles to sit, stand, walk, run, etc., keeping balance, and changing positions.
 - **Fine motor:** using hands to be able to eat, draw, dress, play, write, and do many other things.
- **Speech and language:** speaking, using body language and gestures, communicating, and understanding what others say.

- **Cognitive:** Learning and Reasoning. It includes, understanding, problem-solving, and remembering.
- **Social:** Interacting with others, having relationships with family, friends, and teachers, cooperating, and responding to the feelings of others. Social (use of social skills), Emotional (emotional control): This includes the interaction the child develops with his or her mother and at a later stage with his friends.
- **Vision Problem** usually manifests during the first three years but rarely diagnosed and treated
- **Hearing Problem** would manifest as speech and language delay
- **Adaptive Development:** needs to be assessed mostly when a delay has been confirmed and we need to start therapy. It basically deals with child's Self-care skills required for daily Activities.

These different areas of development may include:

- i. **Gross motor development (Physical)**
- ii. **Fine motor development (Physical)**
- iii. **Speech and language development (Hearing, understanding and speaking)**
- iv. **Cognitive/intellectual development (Exploratory)**
- v. **Social and emotional development (Communication)**
- vi. Vision: Complex function: **The act of seeing that requires light to see by and the brain to interpret what is seen and then respond in a socially appropriate way.**
- vii. Adaptive: **child's Self-care skills required for daily Activities.**

Disorders which cause persistent developmental delay are often termed developmental disabilities. Examples are *cerebral palsy, muscle disorders, language disorders, autism, emotional problems and disorders of vision and hearing. All these conditions can cause developmental delay.*

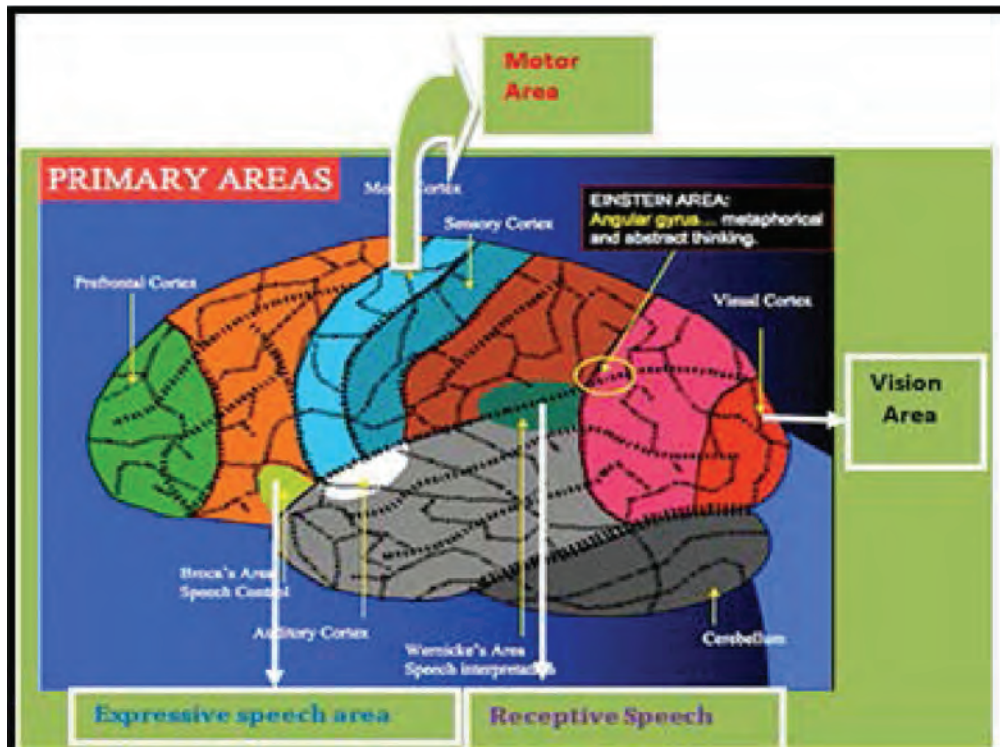
Based on the domains or area of developmental delay the child may be placed in

Focal delay: Delay in one area or domain

Global delay: Delay in more than one area.

Area	The child may have..
Motor area or Domain	Neuro-motor impairment like Cerebral palsy or others
Cognitive area or Domain	Isolated Intellectual Disability or Mental retardation either mild or severe
Communication area including speech and language delay (Both Expressive and Receptive abilities. *Receptive ability is the ability to receive sound i.e. ability to hear *Expressive ability is to express through talking or gestures) :	a. Hearing problems or Deafness, b. Expressive language delay or speech problems, c. Articulation problems like stammering. d. Autism which is also Communication deficit but also have associated social interaction problem and a repetitive stereotypical behavior patterns
Visual Impairment.	These are children diagnosed with partial to complete visual impairment
Epilepsy or convulsions	Isolated problem or associated with other problems
Problems at School going age	a. Attention-deficit/hyperactive disorder (ADHD) b. Learning disorder (LD) among school children (6-9 years)









In a child with congenital cataract i.e. cataract since birth, the child's cognition is also affected. While to rectify the vision the ophthalmic surgeon needs to operate however at the same time the child would require support in catching up cognition delay. *In a room, to get light, if we are unable to open one of the closed windows, we must try to stimulate/use other windows.*


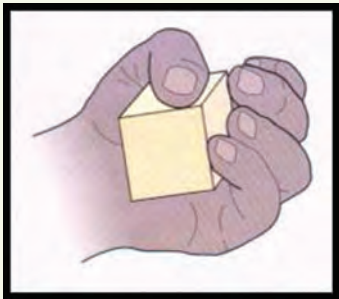
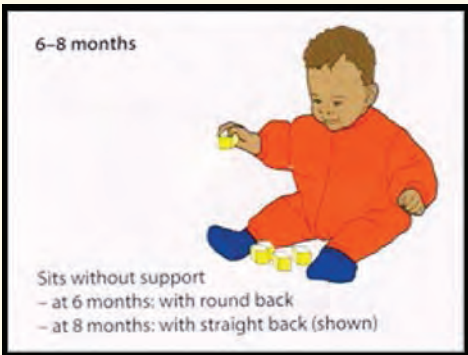

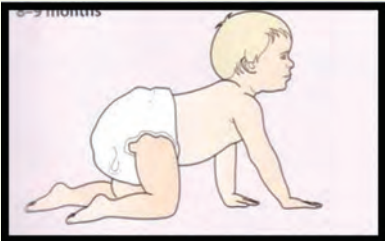














WHAT TOOLS ARE AVAILABLE TO MONITOR CHILD DEVELOPMENT?






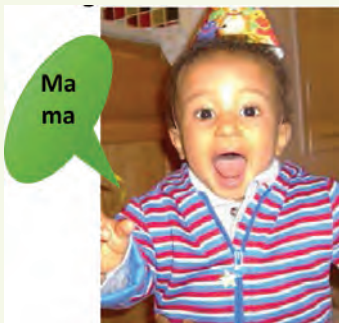


There are many different charts that explain milestone development for certain age groups. These milestones are usually described for particular skills, like motor or speech.







- i. **Screening tool cum Referral card for 0-6** years will help in identifying children with developmental delays in the areas of vision, hearing, speech & language, cognition, motor and autism.
- ii. **0-2.5 year milestones** are also supplemented with a ready reckoner Pictorial tool for systematic identification of the developmental delays.
- iii. **Developmental deviation or Neuro-motor impairment - A pictorial tool** depicting developmental deviation as compared with normal development **for 0-30 months**
- iv. Vision-Identification of vision related problems for 0-6 years. **A pictorial tool** depicting vision related problems.
- v. **Hearing and language**
- vi. **Cognitive tool-simple pictorial tool** for identifying delays in cognition.
- vii. **Dental tool**




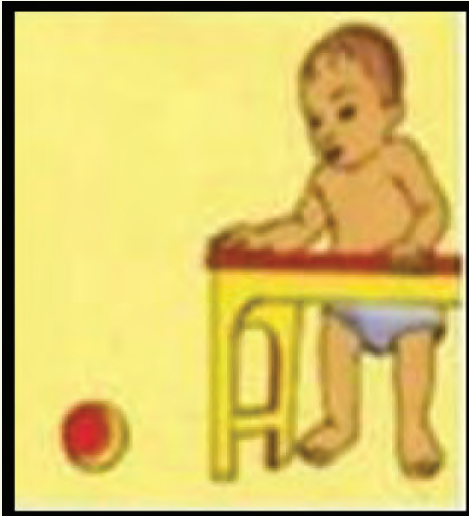


AGE	GROSS MOTOR	FINE MOTOR
Newborn	 <p>Both hands and legs bend or flexed, symmetrical posture</p>	 <p>Grasp reflex</p> <p>Reflex grasp</p>
By 2 months	 <p>Lifting head while lying on stomach</p>	 <p>Keeps palm open and relaxed most of the time compared with the abnormal where thumb is inside the palm and fisted (cortical thumb)</p>
By 4 months	 <p>Holds head straight when held on shoulder</p>	 <p>4 months</p> <p>Reaches out for toys</p>
By 4 month		 <p>Notice the grasp of the object in the ulnar side of the palm and the lack of thumb involvement in this grasp.</p>



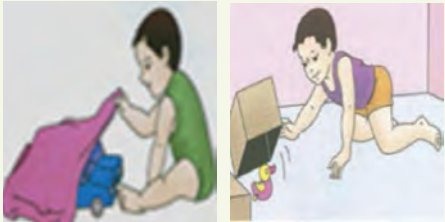






AGE	GROSS MOTOR	FINE MOTOR
By 6 months	 <p>Rolls over in either direction</p>	 <p>Grasps a cube by using his/her whole hand</p>
By 9 months	 <p>Sits without any support – at 6 months: with round back – at 8 months: with straight back (shown)</p>	 <p>Transfers object from hand to hand</p>
By 12 months	 <p>Reciprocal crawling</p>	 <p>Picks up small objects using thumb and index finger</p>
By 15 months	 <p>Child walks on his/her own</p>	 <p>Puts small things into the container</p>  <p>Points to objects</p>

AGE	GROSS MOTOR	FINE MOTOR
By 18 months	 <p>Walks steadily while pulling a toy</p>	 <p>Scribbles spontaneously</p>
By 24 months	 <p>Climbs upstairs and down stairs</p>	 <p>Holds spoon and gets food safely to mouth</p>
AGE	HEARING	SPEECH
By 2 months	 <p>Startles to loud noise</p>	 <p>Vocalizes by cooing esp. after feeding</p>
By 4 months	 <p>Responds to sound by turning the head. Responds by looking at the mothers face when spoken to.</p>	 <p>Vocalizes alone or when spoken to, coos and laughs aloud</p>

AGE	HEARING	SPEECH
By 6 months	 <p>Locates and turns towards a soft sound out of sight</p>	 <p>Utters consonant sound like "P", "m", "b"</p>
By 9 months	 <p>Responds to his/her name</p>	 <p>Babbling</p>
By 12 months	 <p>Understands meaning of "NO"</p>	 <p>Utters one meaningful word like "Dada Mama"</p>
By 15 months	 <p>Follows simple instruction like "Give me the Ball".</p>	 <p>Says at least two words other than "dada or mama". The child says Dink which means water to drink</p>

AGE	HEARING	SPEECH
By 18 months	<p>Mummy, Daddy, baby, milk, juice, hello, ball, yes, no, dog, cat, nose, eye, banana, biscuit, car, hot, thank you, bath, shoe, hat, book, all gone, more and bye bye.</p> <p>Says at least 5 words consistently even if not clear. E.g. dudhu (Milk), meow-meow (cat), Bow-bow (Dog), No, Yes, gone, bye -bye, bath, Hot, etc.</p>	 <p>By 24 Months : Join two words Like “Mama-milk” Speech</p>
AGE	VISION	COGNITION AND SOCIALIZATION
BY 2 month	 <p>EYE contact</p>	 <p>Social smile</p>
BY 4 month	 <p>Follows moving object or face by turning the head.</p> 	 <p>Oral exploration</p>

AGE	VISION	COGNITION AND SOCIALIZATION
BY 6 month	<p>Tracks an object as it moves out of his visual field</p>  <p>Watches TV with his head straight and not tilted</p> 	<p>Child stretches his arms to be picked up by the mother</p>  <p>Child looks for a toy that has dropped</p> 
BY 9 months	 <p>Child moves about avoiding obstacles Child moves avoiding bumping into objects</p>	 <p>Child enjoys playing "Hide and seek" (Peek- a- boo)</p>

AGE	VISION	COGNITION AND SOCIALIZATION
By 12 months	 <p>Looks alternately at near and far object</p>	 <p>**Cries when Stranger picks *Imitates Bye- Bye</p>  <p>Searches for completely hidden toys</p>
By 15 months	 <p>Tries to put a circular shape in a puzzle Child pulls the toy and explores it</p>	 <p>Manipulates toys with his fingers</p>
By 18 months	 <p>Imitates House hold tasks</p>	 <p>Points to one or more body parts</p>
BY 24 months	 <p>Parallel play : Playing alongwith with other children</p>	 <p>Pretend play : Feeding the doll</p>

RECAP OF MILESTONES:

A. MOTOR

I. 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

II. 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

B. 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

C. 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

D. SOCIAL

- 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 “bye bye”, “Namaste” by 15 months
- Parallel play by 24 months

E. 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



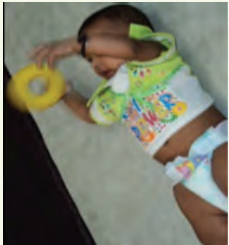






AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
2	<p>*Starts lifting the head occasionally while on tummy (45 degree)</p> <p>*Moves both arms and legs freely and equally when awake</p>  	<p>*Opens hand intermittently</p> <p>*Keeps his hand open and relaxed most of the time</p> 	<p>*Make Coos, and throaty sounds like gurgling.</p> <p>*Responds to loud sound. Alert to sound</p> 	<p>Can see large size objects at a distance of 25-30 cm</p> <p>Eye contact with mother or care giver.</p> <p>*Eye to eye contact</p> 	<p>Social smile begins to respond to mother's facial expressions while being talked. Prefers the human face to all other objects.</p> 	
	 		<p>Child does not respond to loud sound ? Like no startle response after a cracker burst or any loud noise</p>	<p>No eye contact</p>	<p>No social smile. Any of these abnormal postures</p>   	



RED FLAG







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A Brief












AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
4	<ul style="list-style-type: none"> * Holds Head steadily when held in sitting or held on shoulder * Holds head up, lifts the head and chest, when lying on stomach  	<ul style="list-style-type: none"> * Reaches and tries to grasp an object (Ulnar or inner side of palm) * Brings both hands in mid line and is able to play around with both hands  	<ul style="list-style-type: none"> * Turns Head/ eyes to voice and sound * Responds to mother's speech * Responds to facial expression of care giver * Laughs aloud  	<ul style="list-style-type: none"> * Recognizes parents * Follows an object. * Stares at own hand * No crossed eye * Follow moving objects  	<ul style="list-style-type: none"> While sitting in mother's lap smiles back at mother and holds head steadily. 	<ul style="list-style-type: none"> Sucks on hands. Oral exploration of all objects  

AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
 RED FLAG at 4 months	Cannot lift & hold the head in prone (low tone) GM 	Does not reach out for a toy FM Cannot lift & hold the head in prone (increased tone) GM 	Child utters consonant sounds like "p", "b", "m" 	*Can look for a dropped toy *Shifts gaze from one object to another 	Stretches arm to be picked up by the parents 	Moves to look for a fallen object Child pays attention to a person and an object  
6	*Can roll over from prone (lying on tummy) to supine (lying on back) 	*Holds object using thumb side (radial palmer grasp) *Transfer object from hand to hand (begin)  				

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AGE IN MONTHS						
 RED FLAG at 6 months						<ul style="list-style-type: none">*Seems very stiff or floppy like a doll prepared with old cloth (rag doll) GM/NM*Heads fall back when pulled to sit GM*Cannot sit even with support GM*No affection for her care giver S*Does not roll over or rolls like a log of wood GM/NM*Not searching for a toy that has fallen down C*No babbling Sp*Crossed eye or persistent tearing V
	Cannot roll over as he/she cannot bring shoulder forward Rolls like a log of wood GM/NM	Cannot sit even with support. Falls to side, no head and trunk control GM	Persistent fencing posture after 4 months GM/NM	Does not grab at a toy. Does not follow moving people across the midline V, FM & C	Unable to sustain upright posture, knees bend GM	

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AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
9	<p>*Sits without arm support</p> 	<p>*Tries to hold object like marble between thumb and first two finger</p> <p>* Transfer object from hand to hand (mature)</p>  	<p>Polysyllabic babbling 'ma ma- ma ma'</p> <p>Non-specific mama dada</p> 	<p>Avoids bumping into objects while moving</p> 	<p>*Plays peek a boo</p> <p>*Responds to his/her name</p>   <p>Responds when called by name (9 months)</p>	<p>Looks for a toy that is incompletely covered</p> 
 <p>RED FLAG at 9 months</p>	<p>W sitting</p> 	<p>Cannot be made to sit GM/NM</p> 	No babbling	<p>Bumps into objects very frequently</p>	<p>Does not play Peek a boo or does not respond to name</p>	<p>No interest in toy which is hidden</p> <p>No interest in "peek a boo"</p>

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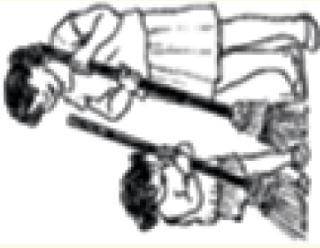


A Brief

AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION	
12	<ul style="list-style-type: none">* Reciprocal crawling* Pulled to stand  	<ul style="list-style-type: none">* Able to pick small object with thumb and fingertip or Pincers grasp* Bangs two cubes together* Pokes with index finger   <p>Pincer grasp</p>	<ul style="list-style-type: none">* Can say at least one meaningful word clearly and specifically like 'papa'; 'mama'; 'dada'.* Understanding the word 'no'  <p>Understands meaning of "No" (12 months)</p> 	<ul style="list-style-type: none">* Looks alternately at near and far object  	<ul style="list-style-type: none">* Waves good bye* Hugs doll or any one (express emotion of affection/joy/anger/fear like kissing, cuddling, crying etc.).* Imitates gestures  	<ul style="list-style-type: none">* Looks for a toy that is completely covered / hidden* Explores object by shaking, banging, throwing, dropping* Stranger anxiety: Shy or anxious with strangers * cries when mother or father leave  	<ul style="list-style-type: none">Does not search for objects that are hidden while he/she watches
 RED FLAG at 12 months	<ul style="list-style-type: none">* Does not crawl* Drags one side of the body while crawling* cannot stand even with support.	<ul style="list-style-type: none">* No pincers grasp or cannot hold a small object between thumb or finger	<ul style="list-style-type: none">* Says No single word (mama or dada)* Does not understand the meaning of "No"	<ul style="list-style-type: none">Does not look alternately at near and far object. Does not track any object.	<ul style="list-style-type: none">* Does not learn to use gestures such as waving or shaking head	<ul style="list-style-type: none">Does not search for objects that are hidden while he/she watches	

AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
15	<p>*Begins to walk alone, walking pattern is wide based.</p> 	<p>*Pointing with index finger (where is the ball, where is the Dog?) and</p> <p>* Put blocks in a container</p>  	<p>*Can speak 2 words other than "Papa", "mama" like Bow-bow to dog</p>  	<p>*Follows simple instruction – 'give me the ball', 'come here', 'sit down' (Also applicable for cognition and hearing)</p> <p>Vision : Tries to put a circular shape in a puzzle</p>  	<p>Child Manipulates a toy with his fingers or explores a toys or pulls the toy</p>  	<p>Does not look at the correct picture when the image is named</p> <p>Does not pull a toy or manipulate with a toy</p>
 <p>RED FLAG at 15 months</p>	<p>*Not pulling to stand (12)</p> <p>*Not crawling or bottom shuffling(12)</p> <p>* Not attempting to walk</p>	<ul style="list-style-type: none"> No finger pointing Does not put objects in the container 	<p>No Babbling phrase that sounds like talking</p> <p>Not using three words</p> <p>Not looks or points at 5-10 objects named by the parents</p>	<p>Does not follow simple instructions like not putting a circular shape in puzzle</p>		

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A Brief







AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
18	<p>*Child walks steadily even while holding or pulling a toy</p> <p>*Begins to run</p> 	<p>*Spontaneously scribbles, *Turns 2-3 pages of a picture book at a time</p> 	<p>Has expressive vocabulary of at least 5 words consistently even if not clear</p> <p>•Can listen and respond to simple directions</p> <p>Says Mummy, papa, baby, dudhu (Milk), meow (cat), Bow-bow (Dog), No, Yes, gone, bye -bye, bath, Hot, biscuit, nose, eyes etc.</p>	<p>Vision : Tries to put a Triangular shape in a puzzle</p> 	<p>*Imitates household tasks</p> 	<p>*Identifies at least one or two body parts when asked</p> 
 <p>RED FLAG at 18 months</p>	<ul style="list-style-type: none"> Not attempting to walk without support Not standing alone 	<p>No fine pincer grasp with index finger and thumb apposition</p> <p>Not holding or scribbling with a crayon</p> <p>No spontaneous scribbling</p>	<ul style="list-style-type: none"> Does not follow simple commands " Roll the ball" No clear words 	<p>Does not use both hands and put the triangle in the puzzle</p>	<ul style="list-style-type: none"> Lacks interest in playing and interacting with others 	<p>Does not point to body parts on request.No interest in "cause- and -effect " games</p>

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AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
24	<ul style="list-style-type: none"> *Runs well *Able to jump, *Walks up and down stairs without help (2 feet steps) 	<ul style="list-style-type: none"> Open the bottle by turning cap Turn pages one at a time Imitates vertical or circular stroke with pencil. *Child feeds self or drinks from cup. 	<ul style="list-style-type: none"> *Speaks in two words combination – 'mama milk' 	<ul style="list-style-type: none"> Identifies a picture in a book or points to his own photo 	<ul style="list-style-type: none"> Parallel play: playing along with other children though not playing with each other. 	<ul style="list-style-type: none"> *Simple Pretend play like feeding a doll. *Opens lid of container to obtain a sweet *Stack rings on a peg in order *Mentions six body parts  
 RED FLAG at 24 months	<ul style="list-style-type: none"> *Unable to use stairs holding on handrail *Unable to run 	<ul style="list-style-type: none"> *Cannot drink from a cup *No interest in helping in self care skills, e.g. feeding or dressing 	<ul style="list-style-type: none"> *Single word vocabulary of less than 10 words *Not using unique two words phrases *Does not point to pictures or body parts when they are name. *Does not verbally response to or shake head to questions 	<ul style="list-style-type: none"> Does not look for and identifies picture in a book Does not categorise similarities e.g animals vs vehicles 	<ul style="list-style-type: none"> *Does not watch or imitate other children *No interest in helping in self care skills, e.g. feeding or dressing 	<ul style="list-style-type: none"> When playing with toys tends to bang or throw a toy rather than use them for the purpose e.g cuddle a doll, feed a doll etc.

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A Brief

AGE IN MONTHS	GROSS MOTOR	FINE MOTOR	SPEECH & LANGUAGE	VISION	SOCIAL	COGNITION
36	Hops one to three times on one foot Can climb up and down stairs * Able to go down stairs with alternating feet without holding	Mimic straight line and circle 	Is able to ask 'what is this' Speak simple sentences and three word sentences 	Able to give the name of one to two colors 	Able to play together with other friends (cross play) 	Matches blocks that are of same colors Puts square triangle on the form board. Differentiate between cup plate Big and small 
 RED FLAG at 15 months	Unable to climb up or down stairs	Cannot copy or draw a circle	Is unable to speak short sentences	Cannot visualise and mention colors	Does not play with other children	Does not have sense of color and shape

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

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SIGNS OF DEVELOPMENTAL DELAY

- AT THE END OF 4 MONTHS:

Early signs of developmental problems at the end of 4 months that may require special attention:

- Cannot lift and hold her head up in prone or when held against shoulder
- Does not bring hands to midline of the body or does not look at hands
- Tonic neck reflex and Moro reflex persisting (both the reflexes hinder the child's ability to bring both hands to midline)
- Does not bear weight through legs when made to stand
- Does not seem to turn head to the sound of a squeaky toy or called beyond the child's visual range
- Does not smile when an adult smiles and talk to the child
- Does not look at a bright color toy or to a human face at a distance of 10 to 12 inches
- Does not babble by 3-4 months
- Does not bring hands into mouth
- Does not reach out for or tries to grasp a small toy
- Crosses eyes most of the time
- Does not pay attention to a new face or seems very frightened by new faces or surroundings

MEASURES TO BE TAKEN TO ADVANCE DEVELOPMENT

- Sing to your baby
- Make the child hold a rattle and by shaking try to attract his/her attention
- Hang colorful and sound making mobile toys in front of his/her eyes
- Put the child on her tummy and talk to her or make sounds from a squeaky toy to encourage head control

AT THE END OF 6 MONTHS

Early signs of developmental problems at the end of 6 months that may require special attention:

- The child seems very stiff with tight muscles
- Does not roll over in either direction by five months of age
- Cannot sit even with support by six
- Seems very floppy like a rag doll
- Head falls back when pulled to sit
- Reaches with one arm only, other arm and leg remain stiff
- Refuses to cuddle
- Shows no affection for the person who cares for her

- Does not seem to be interested in the surroundings
- One or both eyes consistently turn in or out
- Persistent tearing, eye drainage, or sensitivity to light
- Does not respond to sound around her
- Inconsolable
- Does not smile spontaneously by five months
- Does not laugh or make squealing sounds
- Does not actively reach for objects by six to seven months
- Does not follow objects with both eyes at near and far ranges
- Does not bear weight through legs
- Does not attract attention of the adults through actions
- Does not babble
- Seems uninterested in reciprocally enjoining activities such as peek-a-boo

MEASURES TO BE TAKEN TO ADVANCE DEVELOPMENT

- The child needs physiotherapeutic intervention to address his/her motor problems
- Provide a stimulating environment by talking to him/her, providing opportunities to experience through touch, sound and vision during daily care activities such as bathing, feeding, dressing -undressing
- Give him/her toys of different textures to feel while playing with them
- Put her in different postures (in case of motor disability) so that she can experience upright posture. Help her to reach for toys and give consistent, warm physical contact which she cannot otherwise experience due to motor impairment.
- Seek professional help how to improve or expedite your child's development.

COGNITION (INTELLIGENCE)

DEVELOPMENTAL MILE STONES		
	Cognition	Social development
By 2 months	• Social smile	• Social smile
By 4 months	• Sucks on hands	
By 6 months	• Reaches out for an object • Looks for a spoon or a toy that has dropped	• Raises arms to be picked by parents
By 9 months	• Responds to his/her name	• Enjoys peek-a-boo
By 12 months	• Responds to "NO" • Searches for hidden objects	• Differentiates familiar faces from strangers
By 15 months	• Pointing to objects • Child plays with toys by poking or pulling	• Imitate actions like "bye-bye", "Namaste"
By 18 months	• Imitate house hold tasks	
By 24 months	• Pretend play • Parallel play	• Parallel play
By 36 months	• Cross play	

COGNITIVE DEVELOPMENT

Social smile : Reciprocal smile

Exploration : Explores object in different ways including **oral exploration** /shaking of rattle/
banging of cubes/throwing of objects /dropping in the container/ **manipulating a toy**

Eye Hand Coordination

Object permanence : Searching for hidden toys

Object recognition (child will look at objects/people and identify by their functions)

Recognition of objects or people by using a specific sound or word used consistently for specific objects and people : mum for water

Identifications of familiar Persons from unfamiliar ones : Stranger anxiety

Understands the meaning of words as for eg. " NO"

Picture recognition: child will look, identify and name pictures of familiar objects either by picture identification or by picture naming

Imitation of Sounds as for eg. Meow-meow, Bow-bow.

Imitates action like bye-bye, clap-clap, kiss etc.

Imitates house hold actions e.g. cleaning of the floor

Play : Pretend play, Parallel play , Cross play

Understanding : related to objects, related to body awareness

Related to Objects & Related to body awareness : Identify body parts : points to one or more body parts

FOR CHILDREN < 6 YEARS

1. SOCIAL SMILE

(reciprocates smile) [2months]

**2. EXPLORATION:****Oral exploration** (sucks on hands) [4 months]

*Midline hand play

* Sensorimotor ; self-discovery



Fine motor & cognition
 Oral exploration: mouthing
 a toy (from 4 months)
 Mouthing usually decreases
 by 2-3 years of age








4 months

3. EYE HAND COORDINATION:

4 months

Tries to reach out for an object near the hand at 4 months.may or may not succeed.

Ability to effect environment around him/her

 <p>Reaches out and grasps an object at 6 months. Direct reaching , precision reaching the object at 6 months.</p>	 <p>Transfer of object from one hand to other begins at 6-9 months</p>	 <p>Eye-hand coordination (reaches out and holds the toy with both hands in front) [6 months]</p>	6 months
	 <p>Banging of cubes [9-months] *Cognition :Active comparison of objects</p>		9 months
 <p>Cognition : *pulling the toy by 15 months (problem solving)</p>	 <p>*Cognition: Manipulates a toy or explores with his fingers</p>	 <p>* Puts object in a container- Fine Motor</p>	15 months

4. OBJECT PERMANENCE (SEARCHING FOR HIDDEN OBJECTS)



Object permanence: plays with a toy



Looking at the toy that has fallen from her hand



Moves out to retrieve the toy

6 months



Finds partially hidden toy (9 months)



Finds completely hidden toy (12 months)



Peek-a-boo (9 months)

9 to 12 months

5. PROBLEM SOLVING



Pull a hankchief to get the ball 12 months (problem solving)

Can use a stick to bring an object of interest within his reach at 18 months.

*Able to link action to solve problems *Reaching object out of reach



12-18 months

6. PERSON, OBJECT RECOGNITION: (RECOGNIZES PARENTS, STRANGER ANXIETY, OBJECT RECOGNITION AND ANTICIPATION)



Recognizes the voice of mother at 4 months










Recognizes father : Gives social smile and expresses by 4 months



Child stretches his arms to be picked up by the parents. At 6 months. Recognizes both parents

4 months to 6 months

Mother recognition at 2-3 months

 <p>Responds when called by name (9 months)</p>	 <p>Smiles & Vocalizes (P,b,m) at the mirror image at 6 months</p>	<p>9 months Respond to name. 6-9 months : Vocalizes with the mirror image</p>
 <p>Stranger anxiety: Child cries when sees unfamiliar faces, at 12 months</p>		<p>Person Recognition</p>
 <p>a) *Asks for objects by pointing at 15 months (object recognition)</p>	 <p>b) Pointing pictures at 15 months (object recognition)</p>	<p>Picture recognition : 15 months</p>
 <p>c) Object recognition: gets excited when sees a vehicle in anticipation that he will be going out (12 months)</p>		<p>Anticipating an situation in which child is contemplating to be taken outside</p>
<p>7. UNDERSTANDS THE MEANING OF NO</p>		
		
	<p>Understands meaning of "No" (12 months)</p>	

8. IMITATION OF ACTION, SOUNDS AND WORDS



Imitation of actions:
Imitates "ta..ta" (12 months)



Imitates claps
(15 months)



Imitation of House hold
activities at 18 months

Imitates
household
chores (18
months)

9. PLAY



Pretends play at 24 months



Parallel play (24 months)



Cross play- plays by
sharing, turn taking (36
months)

24-36
months

1. SOCIAL SMILE AT 2 MONTHS

- Exploration: Explores object in different ways including oral exploration /shaking of rattle/banging of cubes/throwing of objects /dropping in the container/ manipulating a toy. Oral exploration : sucks on hands by 4 months

2. EXPLORATION : EYE HAND COORDINATION

- Reaches out for an object by 6 months (FM)
- Transfer object from Hand to Hand by 9 months (FM)
- Matching of an object i.e. child bringing one cube to the other as if compare the two (banging of two cubes together) by 12 months
- Manipulates or explores a toy with his fingers e.g. poking with index finger or pulling the toy by 15 months
- Puts object into a container or cup when shown by 15 months (FM, Vision)

3. OBJECT PERMANENCE :

- Looks at direction of fallen object by 6 months
- Look for an object which has been shown to him and then hidden in front of him: a) finds partially hidden objects b) Finds completely hidden objects
 - a. Finds partially hidden objects by 9 months (peek a boo) (social development)
 - b. Finds completely hidden objects by 12 months
- Tries to get object that is out of reach (**problem solving**):
 - a. Will pull a support to get an object which is out of reach and the object is attached to the support e.g., pulls a handkerchief to get a ball which is out of reach (ball is kept on the handkerchief) by 12 months
 - b. Will use another object to get an object which is out of reach e.g., uses a stick to bring the object within his reach by 12 months

4. OBJECT RECOGNITION (WILL LOOK AT OBJECTS/PEOPLE AND IDENTIFY BY THEIR FUNCTIONS) PERMANENCE :

- Immediate environment: Will stop crying when he sees his mother by 4 months (Speech & Language & Hearing)
- Extended environment: Anticipating that the particular environment is related to his/her going outside : Excited when he sees a car or any indication that he will be going out by 12 months

5. RECOGNITION OF OBJECTS OR PEOPLE BY USING A SPECIFIC SOUND OR WORD CONSISTENTLY FOR OBJECTS AND PEOPLE :

- Immediate environment: looks at mother and says "mama" by 12 months i.e. one meaningful word
- Extended environment: looks at a cat and says 'meow' by 15 months

6. IDENTIFICATIONS OF PERSONS : STRANGER ANXIETY : CHILD WILL DIFFERENTIATE BETWEEN FAMILIAR AND UNFAMILIAR PEOPLE (BY GOING TO HIS/HER MOTHER AND NOT TO A GUEST) : DIFFERENTIATE BETWEEN FAMILIAR FACES FROM STRANGERS BY 12 MONTHS

7. IDENTIFICATION OF HIMSELF BY HIS/HER NAME : CHILD RESPONDS TO HIS/HER NAME BY 9 MONTHS

8. UNDERSTANDS THE MEANING OF " NO" BY 12 MONTHS

9. PICTURE RECOGNITION: CHILD WILL LOOK, IDENTIFY AND NAME PICTURES OF FAMILIAR OBJECTS EITHER BY PICTURE IDENTIFICATION OR BY PICTURE NAMING. PICTURE NAMING IS MORE DIFFICULT THAN PICTURE IDENTIFICATION.

TO TEST:

- Picture naming: one needs to ask the child: Name a particular picture in the picture book? And the child has to reply by "name".
- Picture identification is simpler and after showing a picture of the cat in the picture card the child is asked "where is the cat(picture)?" and child responds by pointing it.
- Points to one (where is the?) by 15-18 months
- Points to five (where is the?) by 24 months

10. IMITATION OF ACTIONS, SOUNDS, WORDS. IMITATION OF ACTIONS :

- Imitates action like bye-bye, clap-clap, kiss etc. by 15 months. Understands gestures and simple action words (bye- bye, ta-ta, pat-a-cake) by replicating the facilitator by 15 months (social development)
- Imitates house hold actions by 18 months e.g. cleaning of the floor

11. PRETENDS PLAY BY 24 MONTHS : FEEDING THE DOLL OR PLAYING TEACHER- TEACHER

12. PARALLEL PLAY BY 24 MONTHS : PLAYING ALONG WITH OTHER CHILDREN BUT NOT WITH EACH OTHER

13. CROSS PLAY BY 36 MONTHS : PLAYING WITH EACH OTHER

14. UNDERSTANDING : RELATED TO OBJECTS, RELATED TO BODY AWARENESS :

Related to Objects: By 36 months

- Size: big, small: Arrange smaller to bigger objects
- Shape: round, square: Sort based on shapes
- Colour: blue, red: Matches pictures; Sorts objects based on size and color
- Function: things we eat and things we wear

Related to body awareness:

- Identify body parts : points to one or more body parts by 18 months
- Identify body parts of a doll or another person by 24 months

SIGNS OF SEQUENTIAL DELAY IN COGNITIVE ACHIEVEMENT : REFER IF-	
2 month	No social smile by end of 2 months
4 month	Not alerting to mother i.e. does not stop crying even after seeing the mother or does not look at the mother when spoken to.
4 month	Does not bring objects to her/his mouth by 4 months
6 month	Not searching for dropped object by 6 months
9 months.	No interest in peek-a-boo by 9 months
9 months	Does not bang two cubes by 9 months
12 months	Does not search for hidden object by 12 months
12 months	Does not imitate any action like Bye-Bye, Ta-ta by 12 months, clapping by 15 months , imitate house hold tasks by 18 months
15 months	Does not explore, manipulate a toy with his fingers and hand
18 months	Does not point to one or more body parts by 18 months
18 months	Does not imitate house hold tasks

18 months	Does not reach objects which are out of reach by 18 months. Usually children use a stick or pulling a cloth to bring an object of interest within his reach at 18 months.
24 months	Egocentric symbolic play:beginning symbolic thought: Does not do any pretend play like feeding doll
24 months	Does not play along with other children : Parallel play
36 months	Does not participate in cross play i.e. children playing with each other
2 yr.	Does not categorize similarities (animal versus vehicles)
3 yr.	Does not know own full name
4 yr.	Cannot pick shorter or longer of two lines
4 1/2 yr.	Cannot count sequentially
5 yr.	Does not know colours or any letters
5 1/2 yr.	Does not know own birthday or address

CAN YOU IDENTIFY A CHILD WITH COGNITIVE IMPAIRMENT IN EARLY AGE (< 6 YEARS)?

Lateness	<p>*Delay in smiling and taking notice with usually delayed motor development</p> <p>*Delay in following with the eyes (d/d with blindness, Child takes no interest in the surroundings)</p> <p>*Delay in responding to sound (d/d with deafness , Child takes no interest in the surroundings)</p> <p>*Delay in learning to chew and associated feeding difficulties. (If the cognitively impaired child is given solid food before he can chew, he shall vomit, but if not given solid food once he has recently learnt to chew i.e. the critical period, he will always refuse the solid food though he will not vomit.</p>
*Reciprocal kick	Must disappear by 12-15 months, if persists beyond this period will delay walking (abnormal movements)
* Hand regard	Persistence of hand regard beyond 6 months. (Lying on the back child watches the hand movements)
*Mouthing	Mouthing beyond two years (Taking all objects to mouth and not thumb sucking which may persist in a normal child up to 10 years)
*Casting	Casting : deliberate & continuously throwing one object after other on the floor after three years
*Drooling	Drooling usually stops by two years , but if it persists
*Tooth grinding	Tooth grinding when awake not at night during sleep
*Lack of interest & concentration	Of all features this is the most important: a) lack of interest in the surroundings; b) Fleeting interest in toys or may not notice the new toy at all; c) Given a toy: does not explore, does not hold attention, if he/she drops it no attempt to recover it and if out of reach makes no attempt to obtain it; d) lacks an alert expression; e) Easily distracted
Aimless over activity	Aimless over activity with defective concentration

Autism (Emotional behavior)	<p>Shows no interest in being picked up and cuddled. Cry only rarely or scream continually without any apparent reason. Gaze stereotyped mannerisms, gaze aversion, minimal facial expression, and ritualistic behavior such as flicking his fingers in front of his eye, rocking, or whirling objects. Prefer toys to persons.</p> <p>Most autistic children have a normal-shaped head and often an intelligent appearance, so that they look normal – but they may function as mental subnormality.</p> <p>Autism manifests itself in early infancy, or at least within the first 2 years.</p>
Physical finding	Abnormalities in size or shape of skull or dysmorphic facial features
Head circumference	Serial measurement of Head circumference (H.C.) showing subnormal growth
Does not help: may be Normal finding	<p>a. An epicanthus fold, b. Open Fontanelles, c. late teething</p> <p>d. central palmar crease</p>

SYMPTOMS OF COGNITIVE DELAY FOR CHILDREN BEFORE THE AGE OF 6 YEARS:

1. In infants and toddlers: fine motor skill development and language development are the best correlates of cognitive achievement.
2. As the child ages, the various milestones can be evaluated.
3. Significant sequential delay should ask for referral and evaluate at the DEIC for IDD

SUMMARY: BE CAREFUL!

1. The diagnosis of mental sub-normality may be made wrongly, when the true diagnosis is emotional deprivation, mere temporary slow maturation ('slow starter'), a sensory defect (hearing or vision), neuromuscular disease, cerebral palsy, the effect of drugs, or infantile autism.
2. The normal variations must be remembered. Mental sub-normality is never diagnosed on a single feature, such as isolated retardation in some field of development, but always on a combination of abnormalities.

FOR CHILDREN > 6 YEARS:

Mental retardation or Intellectual and developmental disability (IDD)

- Mental Retardation is defined as an intellectual functioning level (as measured by standard tests for intelligence quotient) **well below average (IQ of 70-75)** and **significant limitations in daily living skills (adaptive functioning)**. Usually this diagnosis is stigmatizing hence it should be called as **Intellectual and developmental disability (IDD)**. Significant limitation in adaptive functioning in at **least 2** of the areas: **communication, self-care, social skills, self-direction, academic skills**, work, leisure,

health, **and or safety**. These limitations manifest themselves before the age of 18 years of age

- According 'Centers for Disease Control and Prevention' in the 1990s, mental retardation occurs in 2.5 to 3 percent of the general population. Mental retardation begins in childhood or adolescence before the age of 18.
- Diagnosis of mental retardation is made if an individual has an intellectual functioning level well below average and significant limitations in two or more adaptive skill areas.
- Mental retardation is defined as **IQ score below 70 to 75**.
- **Adaptive skills are the skills needed for daily life.** Such skills include the ability to produce and understand language (communication); home-living skills; use of community resources; health, safety, leisure, self-care, and social skills; self-direction; functional academic skills (reading, writing, and arithmetic); and work skills.
- In general, mentally retarded children reach developmental milestones such as walking and talking much later than the general population.
- Symptoms of mental retardation may appear at birth or later in childhood. Time of onset depends on the suspected cause of the disability.
- Some cases of mild mental retardation are not diagnosed before the child enters pre-school.
- These children typically have difficulties with social, communication, and functional academic skills.
- Children who have a neurological disorder or illness such as encephalitis or meningitis may suddenly show signs of cognitive impairment and adaptive difficulties.

Symptoms of Mental Retardation or IDD: (Use only in older children)

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

REMEMBER:

- Most preventable cause of Mental retardation is Iodine Deficiency Disorder (IDD)
- Severe endemic iodine deficiency can cause hypothyroidism for both mother and fetus. Newborn may present with deafness, severe intellectual deficiency, inability to speak and even hypothyroidism. World wide it may occur in 2-10 % of isolated world communities.
- Moderate iodine deficiency are far more common and can cause mild to moderate cognitive deficiency
- Use of Iodized salt for cooking prevents deficiency of Iodine, and hence Iodine Deficiency disorders.
- All children should be encouraged to eat foods rich in Iodine such as cereals and grains, fish, seafood etc.

RBSK Mobile Health Team is to first ascertain the near exact chronological age of the child. Then assess the child through the following questions and by observing the child while performing specific activities as below.


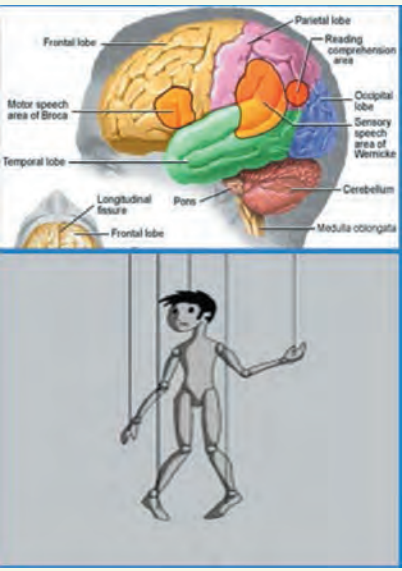
D. DEVELOPMENTAL DELAYS		
For infants over 2 months but less than 4 months, Look and ask		If No, Refer
D1.5	Does the child coos or able to vocalize other than crying? like "ooh", "ng" (S)	
D1.7	Does the child gives a social smile? (Reciprocal, responds to mother's expression or smile i.e. smile back at you) (S)	
For infants over 4 months but less than 6 months of age Look and ask		If No, Refer
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
D3.6	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
D4.3	Does the child respond to his or her name? (H & C)	
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
D5.3	Does the child stops activity in response to "NO"? (H & C)	
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
D6.4	Does the child follow simple one step direction as for e.g. "Sit down"? (H & C)	
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
D7.4	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? (e.g. 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
D8.4	Does the child play along with other children? (S)	
D8.5	Does the child enjoy simple pretend play like feeding a doll? (C)	
For children above 2 -6 years		If Yes, Refer
(If answer to any of the following is "Yes", Child needs to be referred)		
D11.6	Compared to children of his age, does your child find it difficult to read or write or do simple calculations? (C)	
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)	

NEURO-MOTOR IMPAIRMENT

A) BACKGROUND

Neuro-motor development involves two parts: Neuron and Motor. Neurons are the cells of the brain which through spinal cord and the peripheral nervous system control the muscles and its function i.e. the movements. This is very much like the puppet master, who in this case is the Brain. Brain through wires (neurons) controls the functioning of the muscles and also guiding the movements of the body (puppet).

- Puppet master = Brain
- Spinal cord and the peripheral nervous system = wires from the brain
- Muscles = learn and can perform mature function provided the puppet master pulls the correct wires.
- Correct information must go to the puppet master from the periphery, as the position and movement of the limbs of the puppet.

		<ul style="list-style-type: none"> • Puppet master = Brain • Spinal cord and the peripheral nervous system = wires from the brain • Muscles = learn and can perform mature function provided the puppet master pulls the correct wires. • Correct information must go to the puppet master from the periphery, as the position and movement of the limbs of the puppet.
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For smooth and matured movement the brain on one hand has to pull and relax the exact wires and at the same time message has to go from the muscles and joints to the brain informing the position of the limbs. In newborns this system is not matured and through repeated actions and learning by the brain it acquires enough skill to perform the role of a matured puppet master.

Muscle tone may be defined as the resistance of muscle to stretch. Evaluation of tone involves both the observation of resting posture (**passive tone - when you move the child's muscle**) and the assessment of resistance of the limbs to passive movement or to changes in posture (**active tone - when the child moves the limb or muscle**). The infant's level of alertness, whether born as preterm have a major influence on tone and clinical observations should be interpreted in the context of these factors.

Hypotonia: Low tone. Muscles when felt are flaccid like the muscles when felt of an old person. Abnormal posture and movement

Hypertonia: Increased tone: muscles are stiff leading to abnormal posture and movement

*Development of skills in a child occurs as the brain matures through myelination i.e. covering of the wires and better connectivity among the neurons. Any adverse condition that affects the normal functions of the brain and spinal cord may cause disorder of movements that restricts movements and daily activities of a child.

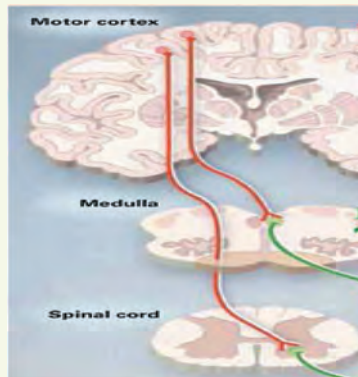
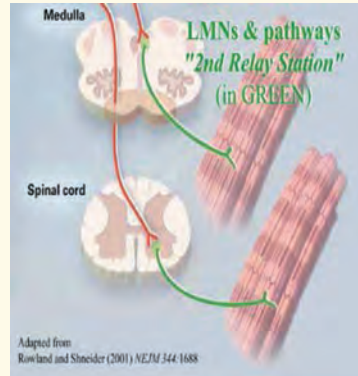
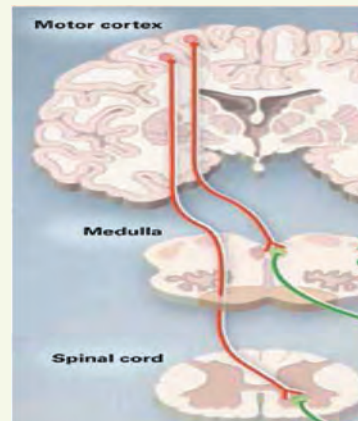
DEVELOPMENTAL MILESTONES MOTOR:		
Age group	GROSS MOTOR	FINE MOTOR
By 2 months	• Moves both arms and legs freely and equally when awake	• Keeps hand open and relaxed
By 4 months	• Head holding	• Reaches and tries to grasp an object (inner side of palm)
By 6 months	• Rolls over/turn over in either direction	• Hold rattle by using whole palm
By 9 months	• Sit alone	• Transfers object from hand to hand
By 12 months	• Crawls (reciprocal)	• Pincer grasp
By 15 months	• Stands-alone	• Puts objects or toys in a container
By 15-18 months	• Walks alone	• Points to objects by 15 months
By 18 months	• Walks steadily while pulling a toy	• Scribbles
By 24 months	• Climbs upstairs and downstairs	• Feeds self with hand or by spoon

So one must look for two things in any case of delay in Motor mile stones as per the pictorial tool from Birth to 30 months:

- Does the child have only delay in motor mile stones but no abnormal posture or movement? If yes it is a case of isolated motor delay
- Does the child have delay in motor mile stones & also abnormal posture and movement? **If yes it is a case of Neuromotor impairment.**
- In case of Neuro-motor impairment i.e. children with motor delay + abnormal posture and movement i.e. "Difficulty in performing activities related to movements of the limbs or lack of coordinated movements of the body"
- Ask is the onset before 2 years or after? Onset before 2 years/ onset after 2 years
- Ask whether it is progressive i.e. some Motor milestones the child had already achieved and now it is lost? or the problem is static in that case there is some improvement over the course of time in motor milestones.
- Ask whether there is additional involvement of cognition, hearing, speech, vision and convulsion apart from lack of coordinated movements of the body then it is most likely involving the higher centers of Nervous system. Thus if onset before 2 years, it is static or non-progressive and involvement of the upper part of brain, it is Cerebral Palsy. If onset before 2 years, it is static or non-progressive and involvement of the muscle or lower part of brain connection to the muscle then it is **Neuro Muscular impairment**

B) DEFINITION: NEURO-MOTOR IMPAIRMENTS:

- **Neuro-motor impairment or NMI** is caused by neurological (brain/spinal cord/muscle) damage that affects child's ability to move one or more body parts. Any Abnormal posture and abnormal movement in a child suspect
- Neuro-motor impairment or NMI: 3 types:
 1. Progressive Neuro motor impairment.
 2. Neuro- Muscular impairment
 3. Cerebral Palsy

DIAGNOSIS OF NEURO-MOTOR IMPAIRMENT	
<p>A. Static or progressive difficulty in performing activities related to movements of the limbs or coordinated movements of the body</p>	
<p>B Any one of the following :</p> <ol style="list-style-type: none"> 1. Findings suggestive of progressive lesions usually of brain or spinal cord , age above 2 years : Cerebral Palsy (as Cerebral Palsy is below 2 years and is non-progressive) 	
<ol style="list-style-type: none"> 2 Findings suggestive of static lesions usually of the nerve cells in the lower part of brain known as lower motor neurons and their connections up to the muscle : Neuron muscular impairment : NMD under NMI. Age below 2 years, non-progressive but involvement of muscle and lower part of the brain and is not Cerebral Palsy as Cerebral Palsy is below 2 years and is non-progressive but involves upper part of brain. 	 <p>Adapted from Rowland and Schneider (2001) NEJM 344:1688</p>
<ol style="list-style-type: none"> 3 Finding suggestive of Non progressive , on-set before 2 years, cerebral in origin: Upper motor neuron CP (NMI) CP or Cerebral Palsy as is below 2 years , is non-progressive but involves upper part of brain 	

- This injury could be one time insult or progressive.
- Onset of this injury could be either before two years or after 2 years
 - In children it usually refers to the brain insult/injury at the time of birth or just before birth but that is a one-time insult and usually do not progress.
 - As the child grows older, the brain matures, and therefore the child improves in motor function with time.
 - Neuro-motor impairments can be broadly divided into three groups:
 1. Cerebral palsy (CP) **which is one time injury i.e. Non progressive brain injury before the age of 2 years**, additional involvement of cognition, hearing, speech, vision and convulsion apart from lack of coordinated movements of the body (involving the higher centers of Nervous system)
 2. Neuromuscular disorders (NMD) which is injury to the cells of the lower part of brain (**lower motor neuron**) and their connections up to the muscle and the third grouped as
 3. Others. Included in the others groups are progressive degenerative diseases usually above the age of 2 years.

Postural tone

Muscles in our body are always in a state of contraction (tension) whether at rest or during movement. This is the tone and since this allows us to maintain our posture it is also known as postural tone.

It is due to the tone of the muscles that we maintain our posture and move about against gravity i.e. we can sit, stand and walk.

Damage can be at level of the 1) Brain, 2) Spinal Cord, 3) Connection between the spinal cord and the Muscle or Muscle itself.

1. **Brain:** Damage to those areas of the brain that regulate tone of the muscles alters normal tone.
2. **Connection between the spinal cord or brain stem and the Muscle or Muscle itself:** Damage to the connection between the spinal cord and muscle or the muscle itself leads to less tone. The child looks like a ragged doll, unable to lift his head, unable to sit without support or cannot walk or walks with wide gait. As a result, it becomes difficult to sit, stand and walk for the child or able to follow the age appropriate milestones.

Abnormal tone affects every voluntary muscle in the body that influences postures and movement. Abnormal postural tone is the common factor in all types of cerebral palsy.

A key distinction is to determine whether the infant has low tone with or without muscle weakness.

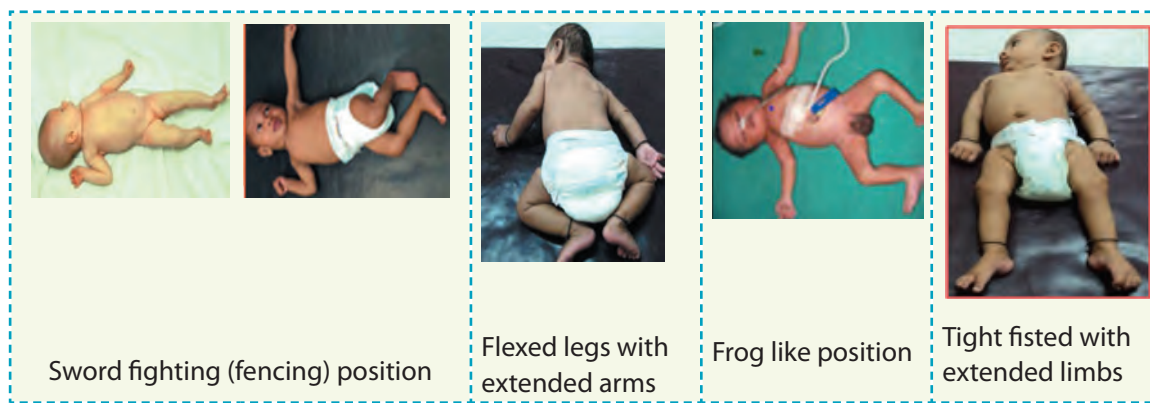
- Tone is defined as the resistance of muscles to stretch; therefore **hypotonia is diminished resistance of muscles to passive stretching.**
- With respect to infantile hypotonia, it may be considered the **“least resistance that an alert infant generates while opposing passive movement”.**
- In contrast, weakness is diminished Muscle power or strength. While weak infants are always hypotonic, hypotonia is often present with normal strength. Hypotonia is caused

by disorders that affect any level of the nervous system – brain, brain stem, spinal cord, peripheral nerves, neuromuscular junction and muscle. We would now learn to diagnose abnormal posture or movement.

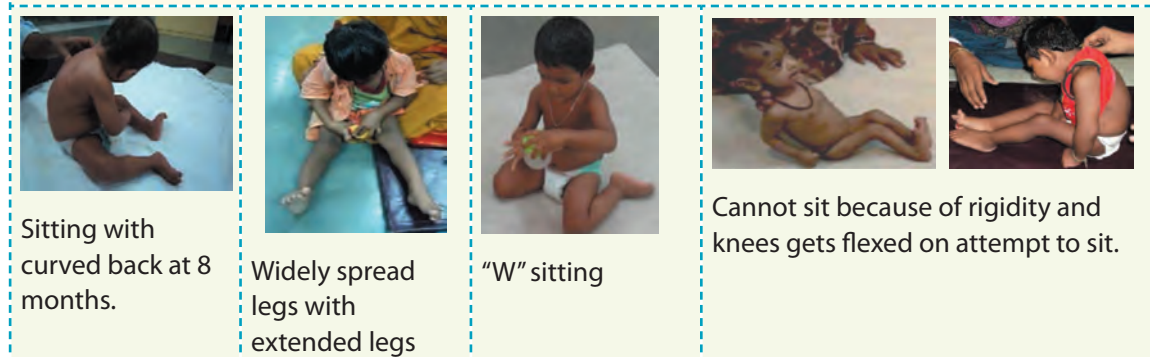
The RBSK Mobile Health Team should try to determine the tone by observing the child. (Refer pictures) Also look for:

- **Asymmetry**
- **Posture of the child at rest**
- **Movement of the child**
- **Posture the child acquires due to change in his/her position**

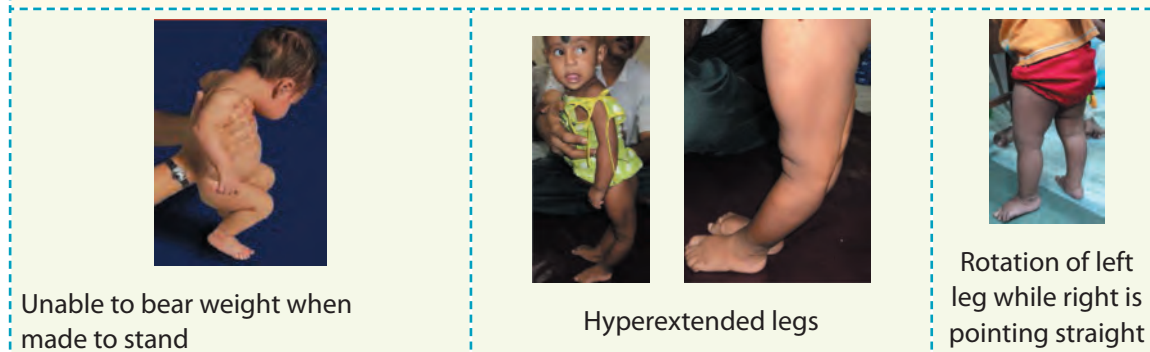
ABNORMAL POSTURE IN LYING DOWN WITH ASYMMETRY



ABNORMAL SITTING POSTURE



ABNORMAL STANDING POSTURE





Unable to bear weight when made to stand



Walking on toes

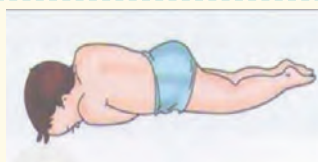


Inwardly rotated right leg with toe walking

ILLUSTRATION OF INCREASED TONE OR HYPERTONIA (INCREASED TONE IS LIKE A STIFF DOLL)



Opisthotonus
(Arched back)



Unable to lift his head



Crossed legs like a scissor



Sits with stiff back



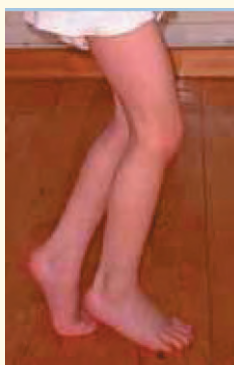
Walking



Standing



Cannot sit due to increased tone



Stands on toes due to increased tone



Dystonia

ILLUSTRATION OF LOW TONE OR HYPOTONIA.



Child is like Ragged doll unable to sit either requires support of the wall or sits with both legs spread behaves like a child with low tone



Normal child with legs bent (Flexed) showing normal tone



This picture is of a newborn with low tone sleeping like a frog



This picture is of a newborn with low tone sleeping like a frog



Head falling to the side at 6 months



Head falling to the front



Head falling to the back at 6 months



Sitting with legs apart and round back because of low truncal tone



Walking with legs apart because of low tone



Stands with support with head falling on one side because of low tone

CLINICAL CLUES OF POSSIBLE MOTOR DISORDER

1. **Hypotonia** (floppiness) of the trunk: The baby lies in a frog like position. The baby slips through the hands when held under the arms in a vertical position.



2. **Plantar flexed feet** (highlighted with the red ring)



3. Hands held habitually in a fisted position (highlighted with the red ring)



4. Non-sequential Motor Development like:

- Early rolling by 3 months (rolls as a piece)
- Brings head and chest up on forearms in- prone- position prior to developing good head control
- Preference for early standing prior to sitting
- Preference for using one hand more than the other before 3 years



Picture showing rolling like a log

5. Qualitative Differences in Motor Development Commonly Reported by Parents and Caregivers

- Startles easily; jittery
- Does not like to cuddle; seems "stiff"
- Arches back frequently
- Baby seems "floppy" (Baby slips through the hands when held under the arms in an erect position)
- Infrequent or limited variety of movement
- Favors one side of body more than the other
- Feeding problems, particularly after 6 months
- Falls backward when in a sitting position
- Crawls in a "bunny hop" fashion
- Walks on tiptoes
- Sits with legs in "w" position (reversed tailor position)



Startles easily; jittery



Arches back frequently



Baby slips through the hands when held under the arms in an erect position



Falls backward when in a sitting position



Crawls in a "bunny hop" fashion



Walks on tiptoes



Sits with legs in "w" position

6. Observations of Movement and Posture

- Rolling as a unit (log rolling) after the age of 6 months
- 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 kept extended along trunk
- Head and neck are hyperextended and arms are extended along trunk
- When pulled to sit from lying down position, comes to standing instead of sitting position



Rolling as a unit (log rolling)
after the age of 6 months



Hyperextension of head and
neck



Significant head lag when
pulled to sit



Head and neck are hyperex-
tended and arms are
extended along trunk



A tendency to thrust trunk
backward while sitting



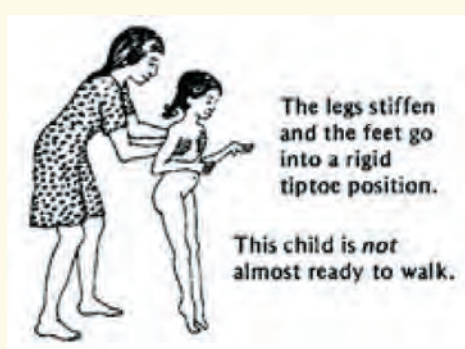
Legs are positioned in a re-
verse tailor or "w" posture

One or more of the following is observed during crawling:

- Hips are excessively adducted, reciprocal movements of legs are done very slowly, and movements are 'Jerky' in appearance
- Legs are kept extended and adducted while child creeps (pulls body forward with arms)
- Both legs are moved as a unit resulting in "bunny hop" movements while crawling



One or more of the following is observed during standing:



In a supported standing posture, legs are excessively extended and adducted, and child stands on toes.

Hips and knees are flexed and hips are adducted

Red arrow- Adduction of hips

Yellow arrow – Flexion of knees

One or more of the following is observed during walking:

- Crouched gait (hips are flexed and adducted, knees are flexed, and feet are pronated)
- Red arrow- Flexion of hips, Yellow arrow- Flexion of knees, Blue arrow – Pronated feet



Intermittent tiptoe gait and overextension of the knees



Intermittent Tiptoe gait



Hyperextension of the knees



Yellow arrow- Tiptoe Red arrow – Overextension of the knee

Abnormality in symmetry, posture and movement esp. in children less than 2 years is Neuro-motor impairment. Refer to Neuro-motor tool: if positive indicate in section D9.1 as under:

D9.1

Any Neuro-motor abnormality (Refer to picture in Job Aid)

If Y, Refer ✓

BIRTH -2 MONTHS

TYPICAL DEVELOPMENT



Supine – Symmetrical flexed posture



Prone – symmetrical flexed posture, clears nose



Sitting - Head and trunk flexed



Stands with Positive support reflex

ATYPICAL DEVELOPMENT



Supine – Asymmetrical posture, extended posture



Prone- Cannot clear airway



Sitting – pushes head backward



Crossed extension of legs

TYPICAL DEVELOPMENT



Symmetrical posture, alternate movements of arms and legs



Lifts head 45° in prone



Holds head up in mid-line for a while



Sustain weight on lower extremities

ATYPICAL DEVELOPMENT



Asymmetrical posture, head turned to one side, no alternate movements



Does not lift head, hips remain flexed



Cannot hold head up in midline



Unable to sustain weight through legs

4 MONTHS

TYPICAL DEVELOPMENT



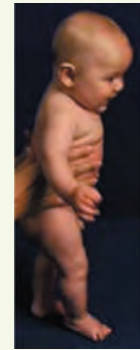
Brings arms forward in supine, maintains midline symmetry



Lifts head up bearing weight on forearms



Holds head up steady in sitting

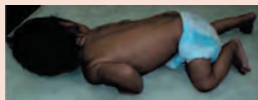


Can sustain standing posture

ATYPICAL DEVELOPMENT



Asymmetry of head and extremities, cannot bring arms forward



Unable to bear weight through forearms, cannot lift head



Unable to lift head up and sustain



Unable to sustain upright posture, knees bend

6 MONTHS

TYPICAL DEVELOPMENT



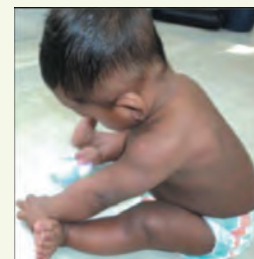
Reach out with arms and grasp a toy



Bears weight on extended arms



Rolls over into both sides



Sits with two arm support on a broad base



Stands with some support

BIRTH - 6 MONTHS

ATYPICAL DEVELOPMENT



Unable to reach and grasp



Unable to lift head and trunk



Unable to maintain head in midline



Unable to sustain weight through legs in a supported standing position

9 MONTHS

TYPICAL DEVELOPMENT



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)

ATYPICAL DEVELOPMENT



Child cannot be put to a sitting position



Cannot maintain symmetrical and stable supine posture



Showing ATNR posture when held in standing position



W-sitting posture, lacks proper palmar grasp

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. One should not wait to resolve the tonal abnormality till the child learns to sit or stand.

SPEECH/LANGUAGE DELAYS AND DISORDERS

- Speech is the sound that comes out of our mouths. When it is not understood by others there is a problem. Speech problems could be inability to speak at all or have problems such as stuttering and mispronunciation which can be very frustrating to the child. Ability to hear is essential for speech. **Speech is speaking ability.**
- Language also has to do with meanings, rather than sounds alone. Language is both **Hearing and Understanding ability.** It deals with Hearing and Understanding the meaning of words one hears. At times Language is also used as a measure of intelligence. Language delays are more serious than speech problems.

Language delay is when a child's language is developing in the right sequence, but at a slower rate. Speech and language disorder describes abnormal language development. Delayed speech or language development is the most common developmental problem. It affects five to ten percent of preschool children. These children may have trouble producing speech sounds, using spoken language to communicate, or understanding what other people say. Speech and language problems are often the earliest sign of a learning disability.

Language has two components: Receptive and Expressive

LANGUAGE - RECEPTIVE:

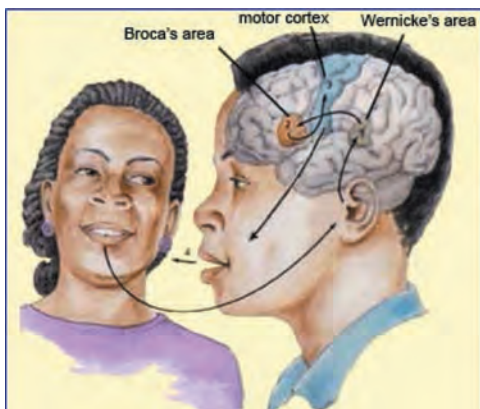
Hearing and Understanding. It deals with Hearing and Understanding meaning of words one hears. Also refers simply as Language. The components are:

1. Hearing
2. Understanding the meaning of words
3. Understanding and communicating the Body parts
4. Understanding and following directions

LANGUAGE - EXPRESSIVE:

Talking. It deals with Speaking or vocalizing also refers simply as speech.

1. Expressive vocabulary
2. Communicating with others either by a) Gestures or b) verbally



- **Receptive language:** Voice > External Ear > Middle ear > Inner ear > Receptive speech area > Understands
- **Expressive language :** > Expressive speech are a starts pronunciation > motor cortex > muscles that helps in articulation > finally speaks

DEVELOPMENT OF EXPRESSIVE, RECEPTIVE AND VISUAL LANGUAGE

Age (month)	Expressive(Speech)	Receptive(hearing)	Visual
Birth-3	Coo	Alerts to voice	Recognizes parents : visual tracking
4-6	Monosyllabic babbling, laugh	Turns to voice and sounds	Responds to facial expressions
7-9	Polysyllabic babbling; Mama/dada, nonspecific	Recognizes own name; Inhibits to command 'No'	Imitates games: pat-a-cake, peek-a-boo
10-12	Mama/dada specific; First word other than mama/ dada or names of other family members or pets	Follows one-stage command without a gestural cue e.g., "give me"	Eye or finger point desired objects
16-18	Use words to indicate wants	Follows many one-stage commands, can point to body parts when asked	
22-24	Two-word phrases	Follows two-stage commands	
30	Telegraphic speech	Follows prepositional commands	
36	Simple sentences		

SIGNS OF SPEECH-LANGUAGE PROBLEMS THAT NEED FURTHER EVALUATION

Age (mo.)	Receptive (hearing)	Expressive (Speech)
15	Does not look or point at 5-10 objects/ people named by parents	Not using three words
18	Does not follow simple commands e.g., "Roll the car"	No use of single words including mama/ dada
24	Does not point to picture or body parts when they are named	Single word vocabulary less than 10 words
30	Does not verbally respond or nod or shake head to questions	Not using two-word phrases including noun-verb combinations; unintelligible speech
36	Does not understand prepositions or action words; does not follow two-stage commands	Vocabulary less than 200 words, does not ask for things by name; echolalia to questions, regression of language after acquiring two-word phrases

INDICATORS OF LANGUAGE DEVELOPMENT DISORDER

1. No meaningful words by 18 months or no meaningful phrases by 2 years
2. Intelligibility of speech should increase by 25% per year from one year up to the age of 4 years.
3. Stuttering is common in younger children, but beyond the age of 5-6 years, it needs speech evaluation
4. Autism spectrum disorder, cognitive impairment, cerebral palsy may present with speech delay
5. Significant speech delay warrants hearing assessment.

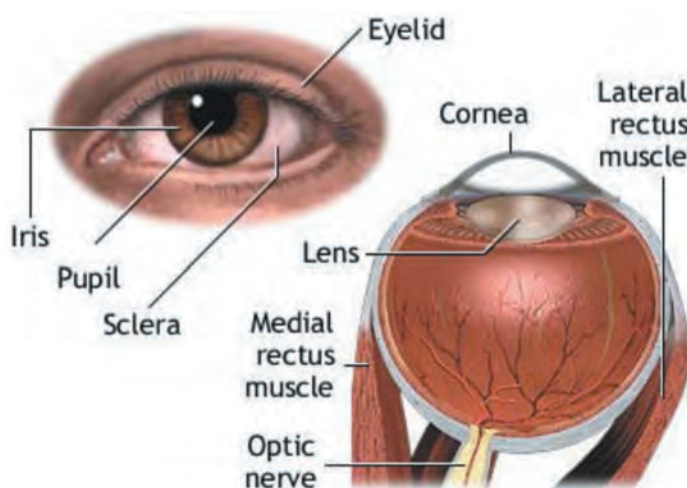
INDICATIONS FOR REFERRAL FOR DELAYS AND DISORDERS OF SPEECH & LANGUAGE

Age	Finding
Birth and at any age	Lack of response to sound Lack of interest in interaction with people
4 months	Lack of any drive to communicate
6 to 9 months	Loss of the early ability to coo or babble Poor sound localization or lack of responsiveness
12 months	No verbal routines Failure to use ma-ma or da-da Loss of previous language or social milestones
15 to 18 months	No single words Poor understanding of language
24 months	Vocabulary less than 50 words No two-word phrases Less than 50% of speech intelligible to strangers
36 months	Rote memorization of words or phrases Frequent immediate or delayed repetition of others' speech Flat or stilted intonation More than 75% of speech unintelligible to strangers
48 months	Inability to participate in conversation Stuttering of initial sounds or parts of words
6 to 7 years	Immature or inaccurate speech sound production

VISION IMPAIRMENT

VISION SCREENING FOR INFANTS AND CHILDREN

Good vision is essential for proper physical development and educational progress in growing children. The visual system in the young child is not fully mature. Equal input from both eyes is required for proper development of the visual centers in the brain. If a growing child's eye does not provide a clear focused image to the developing brain, then permanent irreversible loss of vision may result. Early detection provides the best opportunity for effective, inexpensive treatment.



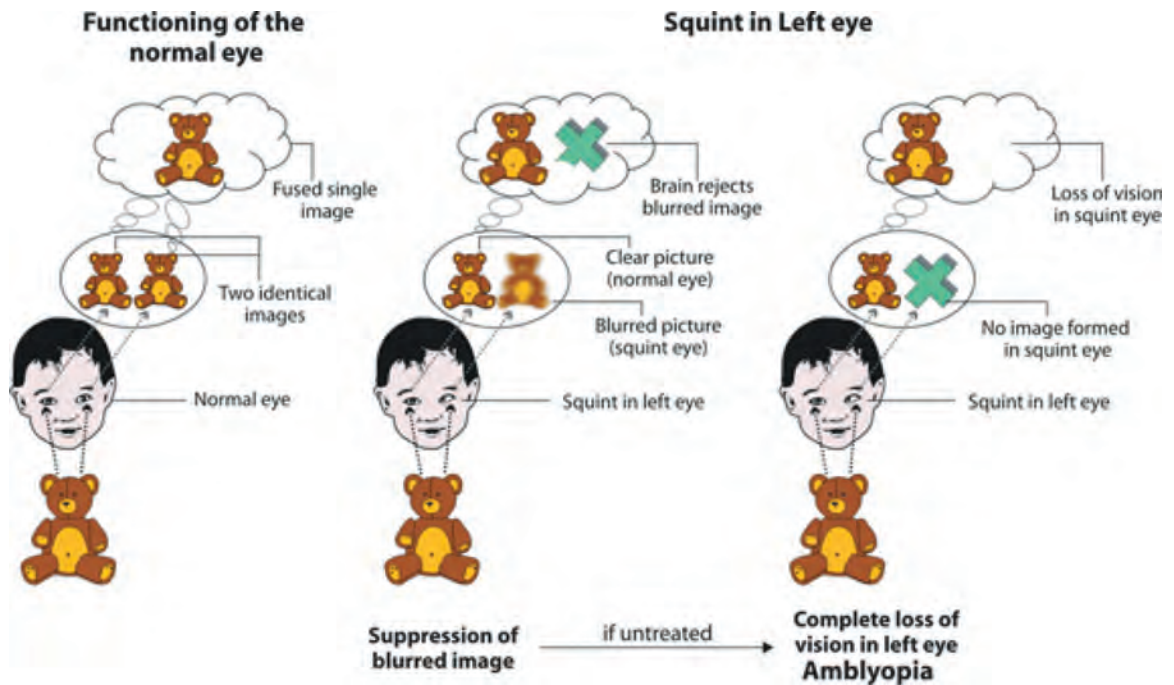
AGE OF SCREENING:

- I. Vision screening at District facility for preterm children: objective for Retinopathy of prematurity
- II. Vision screening from 0-3 years: "S" subjective and by history mainly.
- III. Vision screening from 3-6 years: "S" subjective and by history mainly.
- IV. Vision screening from 6-18 years: "O" objective by appropriate standard testing method

AGE OF SCREENING	PLACE OF SCREENING	TOOLS FOR SCREENING	PERSON
Newborn esp. Preterm	Facility, District Hospital	Indirect ophthalmoscope	Ophthalmologist
0-3 years	Anganwadi center	1. Questionnaire 2. Torch 3. Toy 4. Occluder 5. Raisins	Mobile team
3-6 years	Anganwadi center	Do	Mobile team
6-18 years	School	Snellen's chart	Mobile team

SOME FACTS ABOUT VISUAL DEVELOPMENT AND RELATED DISORDERS

- Because of the short diameter of the eye as well as retinal immaturity, a newborn's visual acuity is roughly 20/200 to 20/400. The human face is the most preferred object of fixation during early infancy. The light sense is one of the most primitive of all visual functions and is present by the 7th fetal month.
- A neonate's eyes will never be lighter than they are at birth. The pigmentation of the iris in all races increases over the first 6-12 months. The eye color is usually defined by 6 months and always by 1 year.
- **The normal visual acuity for children:**
 - Birth to 6 months:** Gradually improves from 20/400 to 20/80
 - 6 months to 3 years: Improves from 20/80 to 20/50
 - 2 to 5 years:** Improves to 20/40 or better, with a less than two-line difference between left and right eyes on visual charts.
 - >5 years: 20/30 or better, with a less than two-line difference between eyes on visual charts.
- Almost 20% of children require eyeglasses for correction of refractive errors before adulthood.
- Binocularity of vision depends primarily on the adequate coordination of the extra-ocular muscles and is normally established by 3 to 6 months of age. At about 6 to 8 months, early evidence of depth perception is seen, but it is still poorly developed. Depth perception becomes very accurate at 6 or 7 years and continues to improve through the early teenage years.
- The newborn infant is typically slightly hyperopic (farsighted). The mild hyperopia actually increases slowly for about the first 8 years. It then decreases gradually until adolescence, when vision is emmetropic (no refractive error). After 20 years, there is a tendency for myopia (nearsightedness).
- **The degrees of blindness:** The World Health Organization defines blindness as follows:
 - Visual Impairment:** Snellen visual acuity of $\leq 20/60$ (best eye corrected)
 - Total blindness:** No light perception
- **A. STRABISMUS** is the misalignment of the eyes with either an in-turning (esotropia), out-turning (exotropia), or up-turning (hypertropia) of one eye. (refer to picture on next page)
- Intervention is not needed unless the symptom persists beyond 2 to 3 months of age.
- Infants do not focus well because the macula and fovea are poorly developed at birth. Therefore, it is not uncommon for infants to occasionally have an inward crossing of the eyes or for their eyes to be turned slightly outward to 10 or 15 degrees. Persistent in-turning of the eyes for more than a few seconds or outward deviation of more than 10 to 15 degrees requires ophthalmologic referral.



■ **Types of childhood strabismus:**

Strabismus of visual deprivation occurs when normal vision in one or both eyes is disrupted by any cause. The most serious varieties occur with tumors (e.g., retinoblastoma). In children with ocular tumors, strabismus may be the presenting sign.

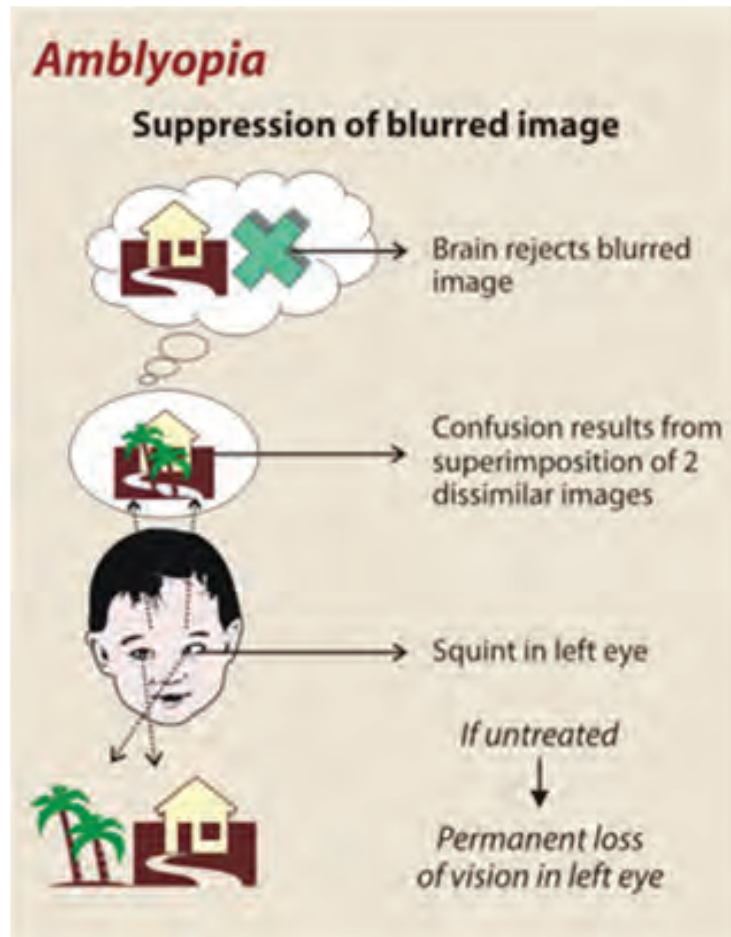
Infantile or congenital esotropia occurs within the first few months of life, usually as an isolated condition and often with large-angle strabismus. Corrective surgery is usually required.

Accommodative esotropia commonly occurs between the ages of 3 months and 5 years in very farsighted (hyperopic) children. These children use extra lens accommodation because of their visual problems, which leads to persistent convergence. Eyeglasses to correct the hyperopia often correct the esotropia.

Intermittent exotropia appears between the ages of 2 and 8 years as misalignment that is often brought on by fatigue, visual inattention, or bright sunlight. There is a strong hereditary component. Surgery is often necessary after the correction of refractive errors and the elimination of any pathology that might have caused visual deprivation.

Incomitant strabismus is caused by limited eye movement due to restriction (e.g., periocular scarring) or muscle paresis, most commonly from neurologic (e.g., cranial nerve palsies) or muscle pathology. The size of the deviation changes depending on the gaze because of the restrictions of eye movement.

- **B. AMBLYOPIA** refers to decreased visual acuity in one eye that is not correctable by glasses and is a result of decreased visual stimulation of that eye. The visual cortex adheres to the concept of "use it or lose it." Amblyopia is the most common cause of vision loss in children younger than 6 years, and it occurs in 1% to 2% of this age group and in 2% to 2.5% of the general population.



■ **Causes of amblyopia:**

Strabismus: Input from one eye is suppressed to avoid double vision.

Anisometropic amblyopia: Significant refraction differences cause the suppression of images from weaker eye.

Deprivation: Images received are unclear (e.g., from congenital cataracts or ptosis)

Occlusion amblyopia: This is typically iatrogenic. Prolonged covering of the preferred eye as a treatment for amblyopia can cause changes in visual acuity in the preferred eye.

■ **The red reflex test:**

An essential component of any eye examination in an infant or child, the red reflex test is an evaluation of reflected light off the ocular fundus. A direct ophthalmoscope, set to a lens power of "0," is projected onto both eyes from a distance of 18 inches. A red image, symmetrical from both eyes, should be visible. Abnormal colour (particularly white), incomplete coloring (dark spots present), or asymmetrical coloring warrant ophthalmologic consultation because these can represent cataracts, glaucoma, retinoblastoma, strabismus, or high refractive errors.

- In cases of Congenital Cataract, delay in treatment can lead to irreversible vision loss as a result of deprivation amblyopia. Cataracts undiagnosed for as little as 4 to 8 weeks after

birth can result in permanent deficits. In general, the younger the child, the more urgent the need for evaluation if cataracts are suspected.

■ **C. OTHER CONDITIONS WHICH PRESENT WITH A WHITE PUPIL:**

Leukocoria, or white pupil, may be a result of any mass behind the pupillary space. This includes infants with cataracts, retinoblastoma, or retinopathy of prematurity who develop retinal detachment.

Color blindness typically involves the variable loss of the ability to distinguish colors, especially red, green and blue. The defects can be partial (anomaly) or complete (anopia). Defects in appreciating red or green color are transmitted in an X-linked recessive manner and affect up to 1% and 6%, respectively, of the male population. Blue color blindness is an autosomal dominant phenomenon and occurs in 0.1% of the population.

Vision screening from 0-3 years

The purpose of vision screening is to detect vision disorders such as refractive errors, amblyopia and strabismus at an early age (less than 6 years.)



Courtesy American Association for Pediatric Ophthalmology and Strabismus

BIRTH TO THREE YEARS

CHILD VISION DEVELOPMENT CHECKLIST FOR PARENTS/CAREGIVERS

- 1. During the first month of life, does your child?**
 - a. Look towards the face of the person holding them?
 - b. Closes eyes to sudden bright light?
- 2. When your child is 2 months, does your child?**
 - a. Follow a moving object? Follow light past midline?
 - b. Look at the eyes of the person holding them?
 - c. Switch gaze between two people or objects?
- 3. When your child is 4 months, does your child?**
 - a. Reach towards an object and grasp it?
 - b. Fixate on a close object with eyes not crossing?
 - c. Respond to the full range of colors?
 - d. Show visual interest to near and distant objects?
- 4) When your child is 6 months, does your child?**

- a. Enjoy looking in a mirror?
- b. Sustain visual interest at near and distant objects?
- c. Maintain fixation on stationary object, even in the presence of competing moving stimuli?
- d. Begin to demonstrate hand-eye coordination?

5) When your child is 7-12 months, does your child?

- a. Notice small objects such as breadcrumbs?
- b. Smile back at another person?
- c. Recognize objects that are partially hidden?
- d. Scan eyes around the room to see what is happening?

6) When your child is 18 months, does your child?

- a. Point to objects or people using words "look or see"?
 - b. Look for and identify pictures in books?
 - c. Play with simple puzzles?
 - d. When your child is 24-36 months, does your child?
- See small pictures well with both eyes?
 - Show ability to arrange similar pictures in groups?
 - Watch and imitate other children (30-36 months)?

BIRTH - 3 MONTHS



Looks at and follows light with eyes



Looks at objects and human faces



Looks towards the source of sound

3-6 MONTHS



Child reaches with hands to toys shown to him



Maintains eye contact during face to face interaction

6-9 MONTHS



Child smiles at mirror image of himself



Picks up small objects like beads & marbles on looking at them

9-12 MONTHS



Child manipulates objects in hand and looks for details



Child Imitates simple actions like Namaste or bye-bye



Child moves about (while crawling or walking) avoiding obstacles

KEY POINTS: VISION

1. Red reflex testing should be done routinely for all infants.
2. Suspected cataracts require urgent evaluation, particularly in newborns and younger infants.
3. Uncorrected visual acuity errors in children <8 years old can cause irreversible, lifelong problems.
4. Amblyopia accompanies strabismus in 30% to 60% of cases.
5. Pseudoesotropia, a normal variant, mimics strabismus as a result of widened epicanthal folds. Unlike strabismus, corneal light reflections are equal.
6. Nasolacrimal duct obstruction is common in infants and resolves spontaneously in >95% of cases by 6 months of age.

AUTISM (AUTISM SPECTRUM/BEHAVIORAL DISORDERS)

Autism spectrum disorders (ASDs) are a group of developmental disabilities caused by a problem with the brain. The exact cause is not known. People with ASDs have serious impairments with **social, emotional, and communication** skills. ASDs can impact a person's functioning at different levels, from very mildly to severely. An ASD child will look like any other child. There is usually nothing about how a person with an ASD looks that sets them apart from other people, but they may communicate, interact, behave, and learn in ways that are different from most people. The thinking and learning abilities of people with ASDs can vary – from gifted to severely challenged.

WHAT ARE SOME OF THE SIGNS OF ASDS?

People with ASDs have serious impairments with social, emotional, and communication skills.

A) Social Skills

Social impairments are one of the main problems in all of the autism spectrum disorders (ASDs). People with ASDs do not have merely social "difficulties" like shyness. These social problems are often combined with the other areas of deficit, such as communication skills and unusual behaviors and interests. For instance, the inability to have a back-and-forth conversation is both a social and a communication problem.

NORMAL INFANTS:

Typical infants are very interested in the world and people around them. By the first birthday, a typical toddler tries to imitate words, uses simple gestures such as waving "bye -bye," grasps fingers, and smiles at people. One-way very young children interact with others is by imitating actions—for instance, clapping when mom claps

AUTISTIC INFANTS:

But the young child with autism may have a very hard time learning to interact with other people. Children with ASDs may not show interest in social games like peek-a-boo or pat-a-cake. Although the ability to play pat-a-cake is not an important life skill, the ability to imitate is. They might not make eye contact and might just want to be alone. Many children with ASDs have a very hard time learning to take turns and share

B. COMMUNICATION

Each person with an ASD has different communication skills. Some people may have relatively good verbal skills, with only a slight language delay with impaired social skills. Others may be not speak at all or have limited ability or interest in communicating and interacting with others. About 40% of children with ASDs do not talk at all. Another 25%–30% of children with autism have some words at 12 to 18 months of age and then lose them.[1] Others may speak, but not until later in childhood.

C. REPETITIVE BEHAVIORS AND ROUTINES

Repeated Behaviors and Routines

Unusual behaviors such as repetitive motions may make social interactions difficult. Repetitive motions are actions repeated over and over again. They can involve part of the body or the entire body or even an object or toy. For instance, people with ASDs may spend a lot of time repeatedly flapping their arms or rocking from side to side. They might repeatedly turn a light on and off or spin the wheels of a toy car in front of their eyes. These types of activities are known as self-stimulation or “stimming.”

People with ASDs may have problems with social, emotional, and communication skills. They might repeat certain behaviors and might not want change in their daily activities. People with ASDs often thrive on routine. A change in the normal pattern of the day—like a stop on the way home from school—can be very upsetting or frustrating to people with ASDs. They may “lose control” and have tantrum, especially if they’re in a strange place.

Also, some people with ASDs develop routines that might seem unusual or unnecessary. For example, a person might try to look in every window he or she walks by in a building or may always want to watch a video in its entirety—from the previews at the beginning through the credits at the end. Not being allowed to do these types of routines may cause severe frustration and tantrums.

It is very important to begin this intervention as early as possible in order to help your child reach his or her full potential. Acting early can make a real difference

POSSIBLE RED FLAGS FOR AUTISM SPECTRUM DISORDERS :

Children with an autism spectrum disorder might:

- Not play “pretend” games (pretend to “feed” a doll)
- Not point at objects to show interest (point at an airplane flying over)
- Not look at objects when another person points at them
- Have trouble relating to others or not have an interest in other people at all
- **Avoid eye contact and want to be alone**
- Have trouble understanding other people’s feelings or talking about their own feelings
- Prefer not to be held or cuddled or might cuddle only when they want to
- Appear to be unaware when other people talk to them but respond to other sounds
- Be very interested in people, but not know how to talk to, play with, or relate to them
- Repeat or echo words or phrases said to them, or repeat words or phrases in place of normal language (echolalia)
- Have trouble expressing their needs using typical words or motions
- Repeat actions over and over again
- Have trouble adapting to changes in routine
- Have unusual reactions to the way things smell, taste, look, feel, or sound
- Lose skills they once had (for instance, stop saying words they were once using)

Talk to your child’s doctor if your child loses skills at any age.

D. AUTISM SPECIFIC QUESTIONNAIRE (ANSWER Y/N DISCRETELY) REFER AS PER INSTRUCTIONS					
15-18 months		18-24 months			
D 10.1.1	Does your child look in your eyes for more than a second or two (poor eye contact)? (If N Refer)	<input type="checkbox"/>	D 10.2.1	Does your child take an interest in other children or play with other children? (If N refer)	<input type="checkbox"/>
D 10.1.2	Does you child ever use his/her index finger to point to ask for something? (If N Refer)	<input type="checkbox"/>	D 10.2.2	Does your child make unusual finger movements/ repetitive hand and body movements like finger Wiggling/ flapping/ spinning/jumping? (Repeated purposeless motor activity)	<input type="checkbox"/>
D 10.1.2	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)	<input type="checkbox"/>	D 10.2.3	Does your child ever pretend play (talk on phone/take care of dolls)? (If N refer)	<input type="checkbox"/>

Today, the main research-based treatment for ASDs is intensive structured teaching of skills, often called behavioral intervention. **It is very important to start this intervention as early as possible to help your child reach his or her full potential. Acting early can make a real difference!**

LEARNING DISABILITY: FOR SCHOOL GOING CHILDREN AGED 6 YEARS TO 9 YEARS

WHAT IS A LEARNING DISABILITY?

Some individuals, despite having an average or above average level of intelligence, have real difficulty acquiring basic academic skills. These skills include those needed for successful reading, writing, listening, speaking and/or math. These difficulties might be the result of a condition - Learning Disability (LD).

- **“Specific learning disability”** means a disorder in one or more of the processes involved in understanding or in using language, spoken or written, which may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations.
- **Disorders included**, such term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.
- **Disorders not included**, such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

- A learning disabled is a child with average intelligence whose vision, hearing, motor ability is normal, yet he or she does not perform well at the school.
- It does not include children with mental retardation, visual problems, hearing problems or neuro-motor impairment

Many children with LD have to struggle with reading. The difficulties often begin with individual sounds. Students may have problems with rhyming, and pulling words apart into their individual sounds and putting individual sounds together to form words (blending). This makes it difficult to decode words accurately, which can lead to trouble with fluency and comprehension. As students move through the grades, more and more of the information they need to learn is presented in written (through textbooks) or oral (through lecture) form. This exacerbates the difficulties they have succeeding in school.

Other related categories include disabilities that affect memory, social skills, and executive functions such as deciding to begin a task.

TYPES OF LEARNING DISABILITIES:

LD is a broad term. There are many different kinds of learning disabilities. Most often they fall into three broad categories:

- Reading disabilities (often referred to as dyslexia)
- Written language disabilities (often referred to as dysgraphia)
- Math disabilities (often called dyscalculia)



SIGNS AND SYMPTOMS

A child with LD would:

- Have trouble learning the alphabet, rhyming words, or connecting letters to their sounds
- Make many mistakes when reading aloud, and repeat and pause often
- Not understand what he or she reads
- Have to struggle with spellings
- Have very messy handwriting or hold a pencil awkwardly
- Struggle to express ideas in writing,
- Learn language late and have a limited vocabulary
- Have trouble remembering the sounds that letters make or hearing slight differences between words

DYSLEXIA	<ul style="list-style-type: none"> • Letter and word recognition • Understanding words and ideas • Reading speed and fluency • General Vocabulary skills • Remembering sound
DYSGRAPHIA	<ul style="list-style-type: none"> • Neatness & consistency of writing • Accurately copying letters & words • Spelling consistency • Writing organization & coherence
DYSCALCULIA	<ul style="list-style-type: none"> • Difficulty learning math's concepts • Memorizing math's facts • Difficulty organizing numbers • Poor 'Number sense'

0-18 YEARS:

D5	Compared to his/her classmates, does the child find it difficult to read or write or to do simple calculations? (LD)	<input type="checkbox"/>
D8	Compared with other children of his / her age, does the child have difficulty in learning new things? (LD/C)	<input type="checkbox"/>

ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

Attention-deficit/hyperactivity disorder (ADHD) refers to a constellation of inappropriate behaviors found in many children and adults. The essential feature of ADHD is a persistent pattern of inattention and/or hyperactivity-impulsivity. These features are more frequently displayed and more severe than typically observed in a child at a comparable level of development.

A child with ADHD may be unusually active and/or impulsive for their age and has trouble sustaining attention in various settings like at school, at home or at work. He often fails to give close attention to details or makes careless mistakes, does not wait for his term during sports, is talkative and does not sit quiet for long at places where he is expected to (for e.g., in a classroom). These behaviors may contribute to significant problems in social relationships and learning. For this reason, children with ADHD are sometimes seen as being “difficult” or as having behavior problems.

The symptoms should be inconsistent with developmental level and should have persisted for at least six months, to a degree that is maladaptive and inconsistent with developmental level and causes impairment.

Diagnosis and management of children with ADHD have been controversial but behavioral therapy, medications and counseling are usually attempted.

0-18 YEARS:

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)	<input type="checkbox"/>
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FILLING THE SCREENING TOOL CUM REFERRAL FORM FOR DEVELOPMENTAL DELAYS INCLUDING DISABILITIES

Assess for the selected conditions as per checklist below and as described earlier in this section and tick the relevant columns in the Developmental delays including disabilities section.

0-6 YEARS:

C. DEVELOPMENTAL DELAYS IF NO REFER			
LOOK, ASK & PERFORM, AS PER AGE : up to 12 months			
Over 2 months but less than 4 months		Over 4 months but less than - 6 months	
D1.1	Does the child move both arms and both legs freely & equally when awake or when excited? (GM)	<input type="checkbox"/>	
D1.2	Does the child raise his or her head momentarily when lying face down? (GM)	<input type="checkbox"/>	D 2.1 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)
D1.3	Does the child keep his hands open and relaxed most of the time? (By 3 months) (FM)	<input type="checkbox"/>	
D1.4	Does the child responds to your voice or startles with loud sounds or becomes alert to new sound by quietening or smiling? (H)	<input type="checkbox"/>	D 2.2 Does the child reach 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)
D 1.5	Does the child coos or able to vocalize other than crying? Like "ooh", "ng" (S)	<input type="checkbox"/>	D 2.3 Does the child respond to mother's speech by looking directly at her face? (H)
D 1.6	Does the child make eye contact? (Focus their eyes on the eyes of a care giver) (V)	<input type="checkbox"/>	D 2.4 Does the child laugh aloud or make squealing sounds? (Sp)
D 1.7	Does the child give a social smile? (Reciprocal, responds to mother expression or smile i.e. smile back at you) (S)	<input type="checkbox"/>	D 2.5 Does the child follow an object with his or her eyes? (without any visible squint) (V)
D 1.8	Does the child suck and swallow well during feeding i.e. without any choking? (Sp)	<input type="checkbox"/>	D 2.6 Does the child sucks on hands? (C)

0-6 YEARS:

C. DEVELOPMENTAL DELAYS IF NO REFER

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

Over 6 months but less than 9 months			Over 9 months but less than 12 months		
D 3.1	Does the child roll over or turn over in either direction? (GM)	<input type="checkbox"/>			
D 3.2	Does the child grasp a small object by using his whole hand? (secures it in the center of palm) (FM)	<input type="checkbox"/>	D 4.1	Does the child sit without any support? (GM)	<input type="checkbox"/>
D 3.3	Does the child locate source of sounds? i.e. turns his head or eyes if you whisper from behind? (H)	<input type="checkbox"/>	D 4.2	Does the child transfer object from hand to hand? (FM)	<input type="checkbox"/>
			D 4.3	Does the child respond to his or her name? (H&C)	<input type="checkbox"/>
D 3.4	Does the child utter consonant sounds like "p" "b" "m"? (Sp)	<input type="checkbox"/>	D 4.4	Does the child babble example- "ba", "ba", "da", "ma", "ma"? (Sp)	<input type="checkbox"/>
D 3.5	Does your baby watch TV or any toy without tilting his/her head? (V)	<input type="checkbox"/>	D 4.5	Does the child avoid bumping into objects while moving? (V)	<input type="checkbox"/>
D 3.6	Does the child raises hands to be picked up by parents? (S)	<input type="checkbox"/>			
D 3.7	Does the child look for a spoon or toy that has dropped? (C+V)	<input type="checkbox"/>	D 4.6	Does the child enjoy playing hide-and-seek (peek-a-boo)? (S)	<input type="checkbox"/>

D. DEVELOPMENTAL DELAYS IF NO REFER					
SCREENING TOOL (FOR AGE: 2.5-6 YEARS) If YES Refer					
GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social					
D 11.1	Does your child have difficulty in seeing either during day/night ? (without spectacles) (V)	<input type="checkbox"/>	D 11.7	Does the child have difficulty in speaking (as compared to other children of his/her age)? (Sp)	<input type="checkbox"/>
D 11.2	Compared with other children of his/her age, did your child have any delay in walking? (GM)	<input type="checkbox"/>	D 11.8	Is your child's speech in any way different from other children of his/her age? (Sp)	<input type="checkbox"/>
D 11.3	Does your child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM)	<input type="checkbox"/>	D 11.9	Does your child have difficulty in hearing? (without hearing aid)? (H)	<input type="checkbox"/>
D 11.4	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)	<input type="checkbox"/>	D 11.10	Compared with other children of his/her age, does your child have difficulty in sustaining attention on activities at school, home or play? (C)	<input type="checkbox"/>
D 11.5	From birth till date, has your child ever lost consciousness? (Convulsive Disorder)	<input type="checkbox"/>	D 11.11	As compared with other children of his/her age, does your child have difficulty in learning new things.	<input type="checkbox"/>
D 11.6	Compared to children of his age, does your child find it difficult to read or write or do simple calculations? (C)	<input type="checkbox"/>	D 6.5	Does the child say at least two words other than mama or dada like dog, cat, and ball even if it is not clear? (Sp)	<input type="checkbox"/>
D 5.6	Does the child cry when a stranger picks him up? Differentiates familiar faces from strangers (S&C)	<input type="checkbox"/>	D 6.6	Does the child manipulate or explore a toy with his/her finger like poking or pulling the toy (C)	<input type="checkbox"/>
D 5.7	Does the child search for completely hidden objects (C)	<input type="checkbox"/>			

D. DEVELOPMENTAL DELAYS IF NO REFER				
GM-Gross Motor, FM-Fine Motor, V-Vision, C-Cognition, H-Hearing, Sp-Speech, S-Social				
Over 6 months but less than 9 months			Over 9 months but less than 12 months	
D 7.1	Does the child walk steadily even while pulling a toy?	<input type="checkbox"/>		
	(GM)			
D 7.2	Does the child scribble spontaneously	<input type="checkbox"/>	D 8.1	Does the child climb upstairs and downstairs?
	(FM)			(GM)
			D 8.2	Does the child feed self either with hand or spoon?
D 7.3	Does the child say at least five words consistently even if not clear?	<input type="checkbox"/>		(FM)
	(Sp)		D 8.3	Does the child join 2 words together like mama-milk, car-go? (2 words phrases)
				(Sp)
D 7.4	Does the child imitate house hold tasks? (try to copy domestic chores like sweeping, washing clothes)	<input type="checkbox"/>	D 8.4	Does the child play along with other children?
	(C)			(S)
D 7.5	Does the child point to 2 or more body parts? (e.g. show me your nose, child points to nose by using one finger)?	<input type="checkbox"/>	D 8.5	Does the child enjoy simple pretend play like feeding a doll
	(H&C)			(C)

6-18 YEARS:

D. DEVELOPMENTAL DELAY INCLUDING DISABILITY, IF YES REFER				
Does the child have difficulty in seeing, either during day or night? (without spectacles) (V)	<input type="checkbox"/>	D5	Compared to his/her classmates, does the child find it difficult to read or write or to do simple calculations? (LD)	<input type="checkbox"/>
Compared with other children of his/her age, did the child have any delay in walking? (GM)	<input type="checkbox"/>	D6	Vitamin D Deficiency: Look for Wrist widening/bowing of legs/nodular swelling on the chest	<input type="checkbox"/>
Does the child have stiffness or floppiness and/or reduced strength in his/her arms or legs? (GM, NMI)	<input type="checkbox"/>	D7	Does the child have difficulty in hearing? (without hearing aid) (H)	<input type="checkbox"/>

6-18 YEARS:

D. DEVELOPMENTAL DELAY INCLUDING DISABILITY, IF YES REFER

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)	<input type="checkbox"/>	D8	Compared with other children of his / her age, does the child have difficulty in learning new things? (LD/C)	<input type="checkbox"/>
		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)	<input type="checkbox"/>

PRELIMINARY FINDINGS AND REFERRAL (TICK AS APPLICABLE)

Defects at Birth		✓	Deficiencies		✓	Diseases		✓	DEVELOPMENTAL DELAY including disability		✓			
Code	Findings	<input type="checkbox"/>	Code	Findings	<input type="checkbox"/>	Code	Findings	<input type="checkbox"/>	Code	Findings	<input type="checkbox"/>			
1	Neural Tube Defect	<input type="checkbox"/>	10	Severe Anaemia	<input type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>			
2	Down's Syndrome	<input type="checkbox"/>	11	Vitamin A Deficiency (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>			
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Deficiency, (Rickets)	<input type="checkbox"/>	17	Rheumatic Heart Disease	<input type="checkbox"/>	23	Neuro-motor Impairment	<input checked="" type="checkbox"/>			
4	Talipes (club foot)	<input type="checkbox"/>	13	Severe Thinness/Obesity	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>			
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input checked="" type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25	Cognitive Delay	<input type="checkbox"/>			
6	Congenital Cataract	<input type="checkbox"/>	30 Others (Specify)						20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>							27	Behavioural Disorder (Autism)	<input type="checkbox"/>			
8	Congenital Heart Disease	<input type="checkbox"/>							28	Learning Disorder	<input type="checkbox"/>			
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>							29	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>			

Please ✓	Defects at Birth		Deficiencies		Diseases		Developmental delay including disability		Others	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, Refer to	DH/DEIC		PHC/CHC, SAM to NRC		PHC/CHC/DH Dental condition to DEIC/DH		DEIC		PHC/CHC/DH	
Referral	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Name of referral facility										
Name and Sign of Doctor, MHT					Date of Visit					
Data entered in Register - Yes /No					Data entered in register by Name and Sign					

**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.*

Record the findings from the Screening Tool cum Referral Card in the Mobile Health Team Register for Anganwadi Centre for each child 0-6 years with Preliminary Particulars, Preliminary Finding code (PF code) and the observation code as given earlier for Developmental delays including disabilities.

Record the findings for a child aged 6-18 years in the Mobile Health Team Register for School in a similar manner before handing the Screening Tool cum Referral Card to the parent / caregiver.

Adolescence (10-19 years) as defined under RCH programme, Ministry of Health & Family Welfare, is a phase of life which has recently gained recognition, as a distinct phase of life, with its own special needs. This phase is characterized by acceleration of physical growth and, psychological and behavioral changes thus, bringing about transformation from childhood to adulthood.

FACTS ABOUT ADOLESCENTS, IN INDIA

- Adolescents comprise about 22% of India's population.
- Girls make up 47% of adolescent population.
- Anemia and Stunting are widely prevalent, especially in girls.
- 50% girls are married by 18 years (NFHS 2).
- Adolescents (15-19 years) contribute 19% of Total Fertility Rate (TFR - NFHS 2).
- High Maternal mortality among adolescent mothers.
- Unmet need for contraception (15-19 years) 27% (NFHS 2).
- Contraceptive use is 8% and contraceptive use of modern methods is 5%.
- Premarital sexual relations are increasing.
- Reproductive Tract Infections (RTIs) are common in young women.
- Misconceptions about HIV/AIDS are wide spread.
- 40% start, taking drugs & substance abuse between 15-20 years (UNODC, 2002).
- Nearly, one out of three in 15-19 years is working. 21% as main workers and 12% as marginal workers (Census 2001).
- Girls and rural adolescents are disadvantaged.

WHY INVEST IN ADOLESCENTS?

What adolescents do today will have an influence on their health as adults and on the health of their children, in future. Improvement in the health of adolescents will increase their achievements in school and will lead to greater productivity. Investing in Adolescents' health will reduce the burden of disease during this stage and in late life. It is during adolescence that behaviors are formed which often last a lifetime. These are formative years, where physical, emotional and behavioral patterns are set. A healthy adolescent becomes a healthy adult.

It is generally considered that adolescents are a healthy section of our population. While they no longer have diseases like pneumonia, diarrhea, measles etc. that are common during childhood, adolescents have a different set of problems. To have a health problem, it is not necessary for

the adolescent to be sick. Even normal growth and development processes can cause health problems in adolescents. Many of these have an impact on National demographic and health indicators.

REASONS FOR INVESTING IN ADOLESCENT HEALTH AND DEVELOPMENT

- To develop capacity of adolescents to cope with daily life situations and deal with them effectively
- To inculcate healthy habits and lifestyles
- To reduce morbidity and mortality in adolescents
- To impact National indicators like high TFR, Maternal Mortality Rate (MMR), Infant Mortality Rate (IMR) and to arrest HIV epidemic
- A healthy adolescent grows into a healthy adult, physically, emotionally and mentally – to maximize potential and productivity
- Economic benefits - increased productivity, averting future health costs of treating AIDS, tobacco related illness and life-style related illness
- As a human right, adolescents have a right to achieve optimum level of health.

CHANGES IN ADOLESCENTS

The following changes occur in adolescents as they transition from childhood to adulthood.

CHANGES IN ADOLESCENTS

Physical Events/Changes	
Boys	Girls
<ul style="list-style-type: none"> ● Growth spurt occurs ● Muscles develop ● Skin becomes oily ● Shoulders broaden ● Voice cracks ● Under arm and chest hair appears ● Pubic hair appears ● Facial hair appears ● Penis and testes enlarge ● Ejaculation occurs 	<ul style="list-style-type: none"> ● Growth spurt occurs ● Breasts develop ● Skin becomes oily ● Hips widen ● Under arm hair appears ● Pubic hair appears ● External genitals enlarge ● Uterus and ovaries enlarge ● Menstruation begins
Sexual Development	
<ul style="list-style-type: none"> ● Sexual organs enlarge and mature ● Erections in boys ● Sexual desire ● Sexual attraction ● Menarche, Ovulation ● Sperm Production, Ejaculation ● Initiation of sexual behaviors 	

Emotional and Social Changes

- Preoccupied with body image
- Want to establish own identity
- Fantasy / daydreaming
- Rapid mood changes, Emotional instability
- Attention seeking behavior
- Sexual attraction
- Curious, Inquisitive
- Full of energy, Restless
- Concrete thinking
- Self-exploration and evaluation
- Conflicts with family over control
- Seek affiliation to counter instability
- Peer group defines behavioural code
- Formation of new relationships

HEALTH IMPLICATIONS OF CHANGES IN ADOLESCENTS

The following health implications may occur as a result of physical, sexual, emotional and social changes in adolescents.

CHANGES IN ADOLESCENTS	HEALTH IMPLICATIONS
Physical Changes	
Normal growing-up	Anxiety and tension
Increase in height	Increase nutrition requirement—if inadequate, under-nutrition and anemia
Breast Development	Stooping of shoulders, poor posture, back pain
Skin becomes oily	Acne
Desire to be thin	Undernutrition, anaemia
Sexual Development	
Desire to have sex	Unsafe sex leading to unwanted pregnancy, Sexually Transmitted Infections (STIs), HIV: Need of health education and services
Ejaculation	Fear, guilt, myths-emotional problems
Menstruation	Dysmenorrhea, Menorrhagia-Anemia, Poor menstrual hygiene may lead to RTIs
Emotional and Social Development	
Development of identity	Confusion, moodiness, irritation
Very curious	Experimentation, Risk taking behaviour
Peer pressure	Effect on lifestyles: <ul style="list-style-type: none"> ● Unhealthy eating habits – leading to obesity ● Smoking and alcohol use leading to ill health ● Speed driving, accidents

VULNERABILITY OF ADOLESCENTS

Adolescents are vulnerable by virtue of:

- Normal developmental processes
- Family/Peer/Environmental influences
- Lifestyle patterns.

SPECIAL ATTENTION GROUPS

Within adolescents there are some special attention groups who are “At Risk” because of certain behaviors:

- “Out of school” adolescents and street adolescents
- Sexually abused adolescents
- Commercial sex workers
- Adolescents with mental and physical disabilities
- Orphan Adolescents, those in institutions
- Adolescents in conflict with the law
- Working Adolescents

Adolescents in general and especially, the above mentioned special attention groups, are vulnerable and need special attention.

Priority Health Problems of adolescents

- Sexual and reproductive health problems
- Nutritional problems
- Substance abuse
- Injuries and accidents
- Acute and chronic diseases (like asthma, TB, Diabetes, etc.)

Clustering of problems is common

PERCEPTIONS OF ADOLESCENTS

People who interact with adolescents on a regular basis (parents, teachers) and people who do not interact with adolescents on a regular basis (policy makers, administrators) have different perspective for adolescents and perceived priorities of adolescent issues.

ADOLESCENTS ISSUES: DIFFERENT PERSPECTIVES	
Parents' Perspective	Examination marks, growth, career, happiness, good citizen, marriage
Teacher's Perspective	Examination marks, all round development, career, civic sense, safe behaviour
Health Sector's Perspective:	Growth, health protection and promotion, safety, early pregnancy, HIV/STI
Administrator's/Policy makers' Perspective	Healthy and productive population
Adolescents themselves	Body image, career, sexual concerns, general health

It is important to influence the health seeking behavior of adolescents as their situation will be central in determining India's health, mortality, morbidity and population growth scenario. Adolescents have the right to information, knowledge about reproduction, sex, contraception, health issues, options/choices available, to make decisions and to access to safe services. However, it is important to know how to communicate with adolescents in an effective way.

COMMUNICATING WITH ADOLESCENTS

Adolescents may gather a lot of information on sexual reproductive health and their concerns from peers and/or from other sources. These may not always be accurate. Inaccurate communication on sexual and reproductive health matters among adolescents (peers), and inadequate communication between them and their parents and other adults around them results in inadequate access to the reproductive health information and services, by adolescents.

For effective communication it is important to know what adolescents need. Under RBSK the mobile health team may ensure the following to attract attention of adolescents. Adolescents in turn look for a 'friendly' Providers who are defined as:

- Providers who are aware of adolescent issues
- Provide correct and complete information
- Respect and empathy for adolescent's needs and concerns
- Increase self-confidence in adolescents
- Ensure privacy and confidentiality
- Non-judgmental friendly attitude
- Good communication and counseling skills
- Help develop life skills
- When adolescents approach to seek help on such issues the health care provider should use this opportunity to promote their health and development holistically.

HOW TO BE YOUTH FRIENDLY

The Government of India has a special responsibility in strengthening the abilities of health service providers to be youth friendly. The RBSK Mobile Health Teams are reaching out to

adolescent girls and boys in schools and this gives you an opportunity to interact with them and help adolescents by guiding them to Adolescent Friendly Health Centers (AFHCs) for appropriate actions. The RBSK mobile teams have an important role to play to bridge between the AFHCs and the adolescent in the community by being sensitive to the needs of the adolescents. Establishing trust, a friendly and non-judgmental attitude and ensuring confidentiality helps build effective communication channels. Effective communication is a skill, to be practiced. Following are some examples of what the RBSK team needs to know and do differently.

NON-VERBAL COMMUNICATION
<ul style="list-style-type: none"> ■ Friendly - welcoming/ smiling ■ Non-judgmental/ empathetic ■ Listens/attentive/ nods head to encourage and acknowledge client's responses ■ Allows client enough time to talk
VERBAL COMMUNICATION
<ul style="list-style-type: none"> ■ Greets client ■ Tells clients about their choices/options
EXPLAINS WHAT TO DO
<ul style="list-style-type: none"> ■ Language is simple and brief when the team speaks with adolescents. It is important to use simple language which is understood by the adolescent.
PRIVACY AND CONFIDENTIALITY
<ul style="list-style-type: none"> ■ It is ideal that Male Medical Officer (MO) is interacting with male adolescents and Female MO with female adolescents. ■ In case, both the MO of the team are males, ensure that the female member of the team is present during discussion with female adolescent and vice versa. ■ Ensure that when you are discussing adolescent health issues with an adolescent client not more than the required person/s are present in the room or enter the room. ■ Explain to the adolescents that the discussion between the adolescent and the RBSK team member is confidential and no information would be shared with anybody. Data is maintained without any mention of name.

Sometimes, without realizing it, you may communicate one message verbally, while communicating the opposite message non-verbally. Non-verbal actions may be "positive" or "negative". RBSK team must avoid negative nonverbal actions while dealing with adolescent clients and practice positive non-verbal actions.

NEGATIVE NON-VERBAL ACTIONS	POSITIVE NON-VERBAL ACTIONS
Leaning away from the client	Leaning towards the client
Sitting with arms crossed	Smiling without showing tension
Glancing at ones watch obviously and more than once	Facial expressions which show interest and concern
Not making or maintaining eye contact	Maintaining eye contact with the client

NEGATIVE NON-VERBAL ACTIONS	POSITIVE NON-VERBAL ACTIONS
Frowning nodding ones head	Encouraging supportive gestures such as
Fidgeting	Avoiding nervous mannerisms
Flipping through papers or documents. Yawning or looking bored	Appear attentive and listening

For more details refer to the Orientation programme for ANM/LHVs to provide Adolescent-Friendly Reproductive and Sexual Health Services: Handouts, MoHFW, GoI available at http://nrhm.gov.in/images/pdf/programmes/arsh/guidelines/implementation_guide_on_rch-2.pdf
<http://nrhm.gov.in/nrhm-components/rmnch-a/adolescent-health/adolescent-health/job-aids-handout.html>

FILLING THE ADOLESCENT SPECIFIC QUESTIONNAIRE IN THE SCREENING TOOL CUM REFERRAL CARD

For all adolescents fill the Adolescent Specific Questionnaire in the Screening Tool cum Referral Card. Ensure privacy while asking the following questions and tick the relevant answers.

E. ADOLESCENT SPECIFIC QUESTIONNAIRE (10-18 YEARS) REFER AS PER INSTRUCTIONS			
NOTE: FOLLOWING QUESTIONS TO BE ASKED ONLY AFTER AUDIO VISUAL PRIVACY IS ENSURED			
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)	<input type="checkbox"/>	E5 Do you have your periods every months (i.e. 28 ± 7 days)? (If N, 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)	<input type="checkbox"/>	E6 Do you experience any pain or burning sensation while urinating? (If Y, Refer)
E3	Do you feel unduly tired early in the morning or you feel depressed most of the time? (If Y, Refer)	<input type="checkbox"/>	E7 Do you have any discharge/ foul smelling discharge from the genitor-urinary area? (If Y, Refer)
E4	In case of females-Have your menstrual cycles started yet? (If not started by 16 years, Refer)	<input type="checkbox"/>	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)														
Defects at Birth			Deficiencies			Diseases			Developmental delay including disability			Adolescent Health concerns		
Code	Findings	✓	Code	Findings	✓	Code	Findings	✓	Code	Findings	✓	Code	Findings	✓
1	Neural Tube Defect	<input type="checkbox"/>	10	Anaemia	<input type="checkbox"/>	15	Skin Conditions	<input type="checkbox"/>	21	Vision Impairment	<input type="checkbox"/>	31	Growing up concerns	<input type="checkbox"/>
2	Down's Syndrome	<input type="checkbox"/>	11	Vitamin A Def. (Bitot Spot)	<input type="checkbox"/>	16	Otitis Media	<input type="checkbox"/>	22	Hearing Impairment	<input type="checkbox"/>	32	Substance abuse	<input type="checkbox"/>
3	Cleft Lip & Palate	<input type="checkbox"/>	12	Vitamin D Def. (Rickets)	<input type="checkbox"/>	17	Rheumatic Heart Disease	<input type="checkbox"/>	23	Neuro-motor Impairment	<input type="checkbox"/>	33	Feel depressed	<input checked="" type="checkbox"/>
4	Talipes (club foot)	<input type="checkbox"/>	13	Sam/ Stunting	<input type="checkbox"/>	18	Reactive Airway Disease	<input type="checkbox"/>	24	Motor delay	<input type="checkbox"/>	34	Delay in menstrual cycles	<input type="checkbox"/>
5	Developmental Dysplasia of Hip	<input type="checkbox"/>	14	Goiter	<input type="checkbox"/>	19	Dental Conditions	<input type="checkbox"/>	25	Cognitive Delay	<input type="checkbox"/>	35	Irregular periods	<input type="checkbox"/>
6	Congenital Cataract	<input type="checkbox"/>				20	Convulsive Disorders	<input type="checkbox"/>	26	Speech and Language Delay	<input type="checkbox"/>	36	Pain or burning sensation while urinating	<input type="checkbox"/>
7	Congenital Deafness	<input type="checkbox"/>	30 Others (Specify)							Behavioural Disorder (Autism)	<input type="checkbox"/>	37	Discharge / foul smelling discharge from the genito-urinary area	<input type="checkbox"/>
8	Congenital Heart Disease	<input type="checkbox"/>							23	Learning Disorder				
9	Retinopathy of prematurity (only at DH)	<input type="checkbox"/>							33	Attention Deficit Hyperactivity Disorder	<input type="checkbox"/>	38	Pain during menstruation	<input type="checkbox"/>

Please ✓	Defects at Birth	Deficiency	Disease	Developmental Delay	Adolescent Health Concern	Others
	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, Refer to	DH/DEIC	PHC/CHC	PHC/CHC/DH	DEIC	CHC/AFHC	PHC/CHC/DH
Referral	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Name of referral facility						
Name and Sign of Doctor, MHT			Sign of Teacher			Date of Visit
Data entered in Register - Yes /No			Data entered in register by Name and Sign			

"If you are failing to plan...you are planning to fail"

NEED: TO MAKE A COMPREHENSIVE MICRO PLAN FOR VISITS BY RBSK MOBILE TEAM

OUTLINE/ OBJECTIVES;

1. Ensure all stakeholders and team members are identified.
2. Ensure all villages and public/ public aided schools are covered for visits by mobile teams.
3. Prepare mobile team visit plan with route charts for day-wise visits.
4. Prepare a Block plan/Urban area Plan to help logistics management and reporting system.
5. Share micro plan with other departments to ensure coordination and timely communication.

UNIT OF MICRO PLANNING:

The block will be the unit of micro planning for the RBSK mobile team.

The in charge MO of the Block will take lead in the micro planning process for RBSK mobile team visits. He will be supported by members of the mobile team and local health staff (including those in the PHCs) in making the micro plan.

In case of urban area, the district chief Medical officer will designate a nodal hospital/ dispensary with a key-in-charge staff for overseeing the activities and preparing micro plans related to RBSK.

STEPS IN MICRO PLAN PREPARATION

1. **Ensure all stakeholders, team members and local volunteers/ mobilizers are identified.**

This is the first step in the micro planning process is to identify the local stakeholders related to the RBSK program. While the health department is the lead agency, it will also have to take the help of the Education department, ICDS department and local Panchayati Raj institutions.

Procure the names and contact details of the following persons in the local area:

- a. Education department: Name of Block education Officer and his contact details (address, mobile number, office landline number). If a regular block education officer is not posted, procure the name and contact details of the person-in-charge of the public schools and education activity in the block/ urban area.

- b. ICDS department: Name of local ICDS officer with contact details (address, mobile number, office landline number).
- c. In each block three or more mobile RBSK teams must be constituted.
- d. All members of the RBSK mobile team must be identified and their names will feature in the micro plan. Their designation and contact details must also be written.
- e. Each team will have a separate micro plan.
- f. The prescribed micro plan format is to be used to enter all relevant information related to the mobile team constitution and visits.

2. **Ensure all villages, hamlets, urban areas are included in the comprehensive planning for RBSK team visit**

This is the next step in the micro planning process is to identify all villages/ urban areas to be visited as well as the schools and Anganwadi centers situated in the village/ urban area.

The following activities are to be undertaken:

- a. List out all villages within a PHC/ Block using multiple sources (e.g Routine Immunization micro plan, block panchayat and village list, urban municipality list)
- b. Collect information about public/ public aided schools from the local office/ officer of the Education department and Anganwadi centers (ICDS centers) from the ICDS department.
- c. List out all the schools and ICDS centers
- d. Procure a map of the block/ urban area, mark out the ICDS centers and schools in the map (use different symbols or colours)
- e. For small hamlets/ areas of residence of migratory populations (like brick kilns, mines, construction sites etc.) tag these to the larger close by villages which have ICDS Kendra / public school. In case of tagging, ensure a specific social mobilizer is allocated these villages/ areas, and is responsible for ensuring that all beneficiaries are identified contacted before the RBSK team's scheduled visit.
- f. For each village, ICDS Kendra and school prepare a list of contact persons, volunteers and social mobilizers who will assist the team in informing the public and helping during the mobile team visit.
 - i. For schools it will be important to have the name and contact details of the principal or headmaster as well as a nodal teacher for assisting in RBSK activities.
 - ii. For Anganwadi centers the name and contact details of all ICDS workers must be compiled.
 - iii. For all villages, the names and contact of ASHA workers and local ANMs must also be compiled.
 - iv. Names and contact details of PRI members are also important and need to be compiled.
- g. For each school and ICDS Kendra, the information about the number of children

who are to be screened must also be collected. The number of boys, girls and total number of children must be separately collected and compiled.

- h. The ICDS code for the Aganwadi centers also needs to be noted.
- i. For the school the details of school code, category, and standards in the school involved in RBSK screening as well as the school contact number needs to be noted in the micro plan.

3. **Prepare mobile team visit plan with route charts for day-wise visits.**

- a. Each mobile RBSK team needs to make their own micro plan for the visit schedules to Aganwadi centers and schools.
- b. The route chart is to be made in the prescribed format used for micro planning.
- c. Route charts for visit by the mobile team needs to be made for 6 working days in a week.
- d. Holidays, Sundays and important public festivals are to be earmarked so that mobile team visits are not planned on these days.
- e. Depending on the number of mobile teams constituted in a block, the block area is to be divided amongst them. E.g. if there are three mobile teams then the block area must be divided into three areas. The area among the teams must be rationally divided considering factors like terrain, travel time and distance to be covered.
- f. For each team the allotted villages and areas allotted must be covered at least once in every six months for Aganwadi centers and once a year for the schools.
- g. The teams must make a day wise visit schedule to cover all the Aganwadi centers and schools in their areas.
- h. Care must be taken to get local information about condition of roads, accessibility to villages on certain seasons and the need for use of other means of transport for difficult areas (like hilly terrain, river crossings etc.) while making a six monthly or annual visit schedule.
- i. The advance plan needs to be prepared for an entire year for each RBSK mobile team.

4. **Prepare a Block plan/ Urban area Plan to help logistics management and reporting system.**

- a. As the block/ designated nodal hospital for urban areas is the focal point for planning and managing of RBSK activities; the block must also have its own plan.
- b. The block plan will have a plan with information related to various management aspects like:
 - i. Allocation of vehicles and POL needed for each RBSK mobile team
 - ii. Logistics and supplies for each mobile team
 - iii. Reporting formats, screening tools
 - iv. Communication and coordination activities and

- v. Supervision and monitoring activities.
 - c. The block should also have a system in place to compile all the reports submitted by the mobile teams.
 - d. The block should also have an emergency or alternate plan in case there are any last moment problems and emergencies. The contact number of key persons (such as the Block Medical officer and the Block Program manager) who will manage the problems should they arise should be made available to all mobile teams.
5. **Share micro plan with other departments to ensure coordination and timely communication.**
- a. Once the micro plan is prepared in the set format, it needs to be shared with all stakeholders like the mobile team members, Education department, ICDS department and also the ASHAs, Health workers and PRI members of the block/ urban area.
 - b. As the micro plan is prepared once a year, it will be helpful to remind the concerned teams, ASHAs, Health workers and community representatives about the scheduled visits at the beginning of each month and if possible each week.
 - c. The team leader of each mobile team should personally call the concerned school authorities, Anganwadi worker and ASHA of the village which is scheduled to be visited at least a week before and two days before the actual visit. This will help in ensuring that all preparations are made and the children are informed about the mobile teams visit.
 - d. In case of any changes in the micro plan or rescheduling of visits, all concerned persons must be notified.

PARTICIPANT'S MANUAL

RASHTRIYA BAL SWASTHYA KARYAKRAM

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REPORTING:

PRIMARY SOURCE - SCREENING TOOL CUM REFERRAL CARD

- Two sets of cards – 0-6 years at AWC and 6-18 years at Govt. and Govt. aided schools
- Three sections –
 - Preliminary particulars,
 - Observations and,
 - Preliminary findings
- Cards are to be completely filled.

COLLATION:

Attention for accuracy is to be paid.

Later data collection could be inaccurate.

- Responsibility – Pharmacist, to be crossed check by AYUSH Doctor.
- Information to be entered in registers and computers
- Stock register(s) – equipment and medicine, log book of vehicle movement
- Reason for non-compliance, if any.

MONTHLY REPORTING:

- RBSK reporting to be submitted in the stipulated format each month - State Nodal officer
- Sections – Screening by ASHA, at delivery points, AWC and Schools (by MHT)
- Includes referral and service access at secondary tertiary facilities, AFHC, DEIC

STATE LEVEL COMBINED REPORTING

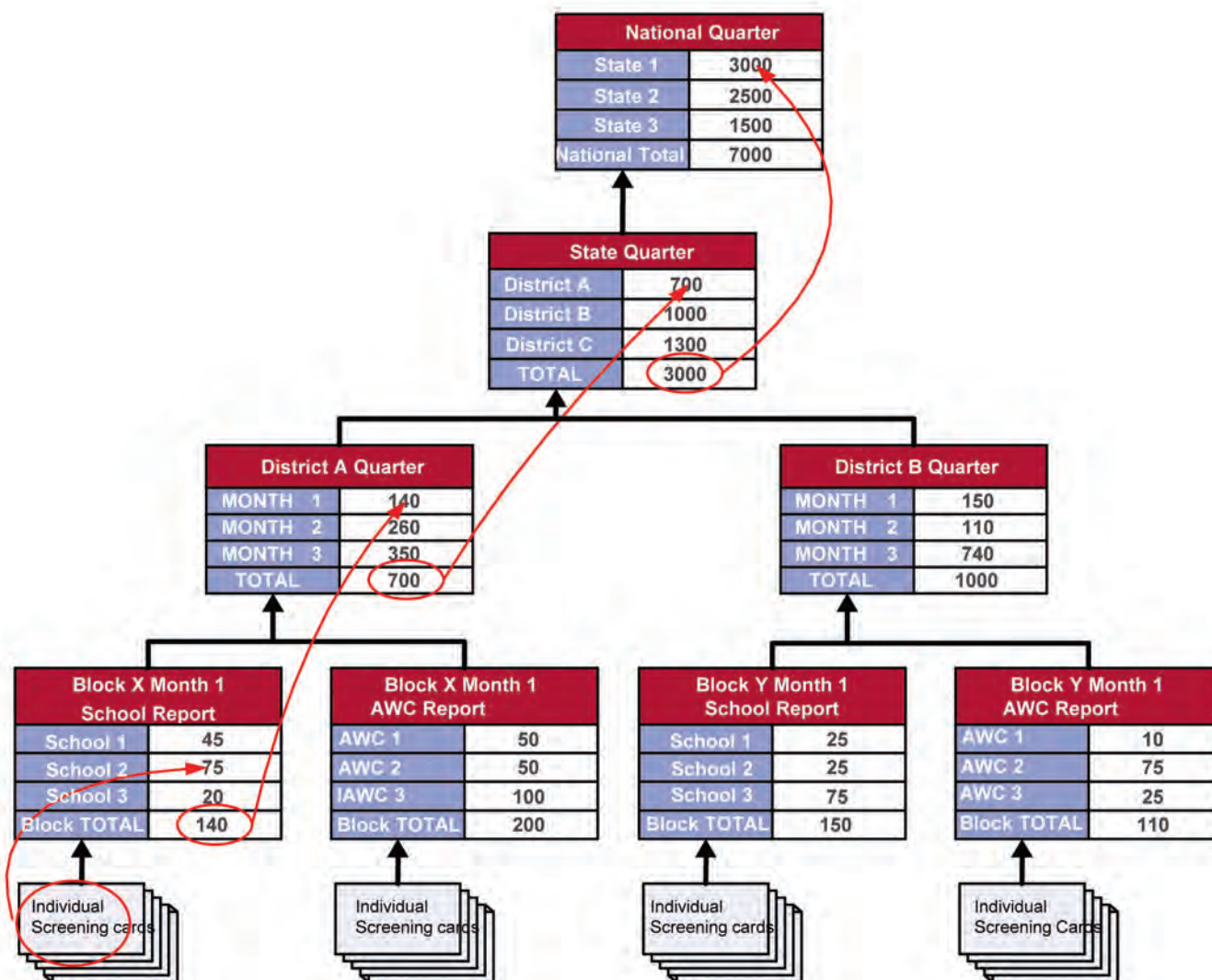
State RBSK cell will prepare monthly report and monitor progress in the programme.

Share report with MoHFW & National RBSK Unit on a Monthly basis.

Interface - District and State :

- ASHA Mentors
- Delivery points (designated)
- Mobile Health Teams – AWC and Schools

FOLLOWING THE DATA TRAIL:



Micro-planning
and Reporting



*Empowered lives.
Resilient nations.*

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