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ANNUAL HEALTH SURVEY

Clinical, Anthropometric & Bio-chemical (CAB) Survey

INSTRUCTION/TRAINING MANUAL FOR CAB FIELD FUNCTIONARIES

भारत की जनगणना
CENSUS OF INDIA
2011

OFFICE OF THE REGISTRAR GENERAL & CENSUS COMMISSIONER, INDIA
MINISTRY OF HOME AFFAIRS, GOVERNMENT OF INDIA, NEW DELHI

NATIONAL INSTITUTE OF HEALTH & FAMILY WELFARE, NEW DELHI
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PART I

CONTENTS

PART I

PART II

Chapter–1

Introduction

1.1 Annual Health Survey (AHS) has been conceived at the behest of the National Commission on Population, Prime Minister's Office and Planning Commission to yield benchmarks of core vital and health indicators at the district level and to map the changes therein on a continual basis to assess the efficacy of various health interventions including those covered under National Health Mission (NHM). The responsibility for conducting the AHS has been entrusted to the Office of the Registrar General, India (ORGI).

1.2 AHS is being implemented in each of the 284 districts of the Empowered Action Group (EAG) States (Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand) and Assam (henceforth referred as AHS States). The 9 AHS States cover a sample population of about 20.61 million and 4.28 million households [as per 1st updation round (2010-11) of AHS] in 20,694 Primary Sample Units. For effective implementation of the survey, the 9 AHS States have been categorized into 18 zones.

1.3 The AHS was proposed to be undertaken annually for three years (i.e. a baseline survey followed by two updation surveys) starting from 2010-2011. AHS, *inter-alia*, shall generate indicators such as Crude Birth Rate (CBR), Crude Death Rate (CDR), Infant Mortality Rate (IMR), Total Fertility Rate (TFR), Maternal Mortality Ratio (MMR), Sex Ratio at Birth (SRB) and host of other indicators on family planning practices, maternal and child care, and changes therein on a year to year basis at appropriate level of aggregations.

Clinical, Anthropometric and Bio-chemical (CAB) component of AHS

1.4 India is undergoing socio-economic, demographic, nutrition and health transitions. Pace of these interrelated transitions has been steady but slow and uneven across decades, districts, States and segments of population. Twelfth Five Year Plan and National Health Mission emphasise the need to reduce the gap between districts and States and accelerate the pace of improvement in health and nutritional status through district specific planning of interventions based on magnitude of the problems in different districts. Current district level data on health and nutritional status is essential to operationalise this.

1.5 District Level Household Survey 2 (2002-04) was the last survey which provided district level data on family welfare programme and nutrition related data; nearly a decade has elapsed since that survey. District level information on

nutritional status of the vulnerable groups, e.g., elderly and school children are not available. There is no district level data on common morbidity due to infections, accidents and injuries or obesity and non-communicable diseases such as diabetes and hypertension in different age and sex groups. These data are urgently needed for the district specific planning of interventions to combat dual nutrition and health burden during the 12th Plan.

1.6 Annual Health Survey is a comprehensive survey designed to provide district specific data on some process indicators related to important health, nutrition, demographic and family welfare programmes to enable evidence based district level planning of interventions in health, nutrition and family welfare. Two rounds of AHS have already been completed and the district specific fact sheets have been brought out by ORGI. At present, third round of AHS is being carried out in all districts in 9 States. The Clinical, Anthropometric and Biochemical (CAB) component of the survey is proposed to be done in a sub-sample of AHS.

1.7 The CAB survey will collect the following data:

(A) Clinical

(i) Infant and young child feeding practices in children below 3 years

(ii) Acute morbidity episodes during last fortnight in children under 5 years

(iii) Measurement of Blood Pressure and Pulse Rate – Women and Men aged 18 years & above

(B) Anthropometric –

Measurement of Weight and Length/Height - Women, Men and Children (aged 1 month & above). BMI will be computed from height/length and weight

(C) Biochemical –

(i) Hb estimation - Women, Men and Children (aged 6 months & above)

(ii) Fasting Blood Glucose estimation – Women and Men aged 18 years & above

(iii) Testing of household salt for iodine content – all sampled households

1.8 The results of the CAB tests along with other information collected in the CAB Schedules will *inter-alia*, yield the following information:

(i) Nutritional Status of Women *(Lactating, Pregnant and Non-Pregnant or Non-lactating)*, Children *(aged 1 month & above) and Men.*

(ii) Prevalence of Hypertension among Women and Men *(aged 18 years and above)*

(iii) Prevalence of Anaemia among Women, Children *(aged 6 months & above) and Men.*

(iv) Prevalence of abnormal fasting blood glucose levels among Women and Men *(aged 18 years and above)*

(v) Utilization of Iodized salt in households

1.9 Clinical, Anthropometric and Biochemical component of AHS is designed to provide district specific information on magnitude of under- and over-nutrition, micronutrient deficiencies, hypertension and high fasting glucose in all the districts in 9 States with poor nutrition and health indices. Based on these data district specific Programme Implementation Plans can be drawn up, funded and implemented. Progress in implementation and impact of these interventions can be assessed by using the CAB data as the base line. Successful models can be replicated. If performance is sub-optimal, factors responsible for the poor performance can be identified and midcourse corrections made.

1.10 Two major factors that affect nutritional status of children are infant and young child feeding practices and infections in the previous fortnight. At the time of the CAB survey, information on infant and young child feeding practices in children under 3 years, and information on acute morbidity episodes in the last fortnight in all pre-school children will be collected because these two factors influence nutritional status in young children. Pregnancy and lactation modify the nutritional status of women. Therefore details regarding physiological status of women in reproductive age group will be collected at the time of CAB survey.

1.11 Households and persons participating in the CAB survey will get the following benefits:

- Information on their nutritional status, Hb levels; persons who are under-nourished will be advised to access anganwadi/ health services
- those with age above 18 years will get information on their blood pressure and fasting glucose levels
- persons with over-nutrition, hypertension and high fasting blood sugar will be advised to access health care professionals for investigations and management of the problem
- children under 5 years will get the Mother and Child Protection Card (MCPC) with their weight marked on the growth standards; pregnant women will also be given the same card

- pre-school children and pregnant and lactating women who are under-nourished will be advised to access ICDS food supplements regularly and benefit from them;

1.12 Currently, there is very little data on nutritional status of people other than pregnant women and under-five children. There are no ready answers to the questions -

- how do the other vulnerable groups like school children and elderly fare?
- what is the extent and dimensions of intra-family differences in nutritional status?
- what is the extent of under- and over-nutrition and micro-nutrient deficiencies in different segments of population in the same district?
- are there some well-defined groups at higher risk of nutritional problems who require focussed interventions?

1.13 CAB Survey will provide the data to answer most of these questions. It will also provide district level information for undertaking district-specific planning of interventions and resource allocations based on the District Health Action Plan (DHAP).

1.14 AHS CAB training module describes quality control measures to be undertaken during the survey to ensure accuracy of measurements, e.g., how to test for accuracy of weighing machines. All the survey personnel - mostly ANMs and lab technicians - would receive rigorous training in these and will follow the procedures during the survey. The health workers in sub centres and PHCs will see that if simple precautions are followed, it is possible to ensure accuracy in all these measurements. This knowledge if backed by emphasis through the in-service training programmes could result in their optimally utilising the equipment provided and identifying those who require care. Thus the CAB Survey may perhaps contribute to improvement in the content and quality of care provided by the health para-professional in primary health care settings.

1.15 CAB Survey can contribute immensely to rapid improvement in health and nutritional indices in these States by

- Demonstrating good quality assessment of health and nutritional status is possible in community setting and,
- making district-specific data available to enable district-specific intervention planning and monitoring of the impact of interventions
- enable these States to bridge the gap between poor and good performing districts and thereby by improving State's performance in these indicators.

Survey Methodology

1.16 The CAB Tests are to be conducted in sub-samples of selected 12 Primary Sample Units (PSUs) in each of the 284 districts across 9 AHS States covering alternate households in the selected PSUs of the 2nd updation round of AHS (2011-12). This will also include the usual resident members of the selected household as on the date of survey. Within a selected household, all eligible members are to be covered for relevant tests.

1.17 The CAB Survey agencies will be provided the relevant Schedules and Maps of the 2nd updation round of AHS by Field Survey Agencies. These will include the photocopies of the filled-in Schedules of the households selected (i.e., alternate households) for the CAB Survey, House-listing Schedules / Layout Maps of the selected PSUs in each of the districts.

Coverage

1.18 CAB Tests will be conducted in sub-samples during 2013-14 as mentioned in para 1.16 above. In all, about 3.74 lakh households across 284 districts shall be covered for conducting CAB Tests. Within a selected household, all eligible members shall be covered for relevant tests. Thus, approximately 1500 households would be covered per district.

1.19 One field survey team will cover two districts for each zone. A field survey team will consist of a Health Supervisor and 2 Health Investigators, at least one of whom will be a woman.

1.20 Prior to commencement of field work, training shall be provided to the field survey teams including Team Leaders and Coordinators by the National Institute of Health & Family Welfare (NIHFW), Nutrition Foundation of India (NFI) and Indian Council of Medical Research (ICMR) Training Institutes and only persons who are proficient in carrying out the measurements will be carrying out the CAB survey. The overall coordination for conducting the training for field survey teams will be done by NIHFW.

1.21 CAB Tests would be carried out by the selected survey agencies. The overall supervision would be done by dedicated staff of ORGI posted at Headquarters in New Delhi as well as the Directorates of Census Operations (DCOs) in the AHS States. The local health functionaries may also be involved in the supervision work.

1.22 While carrying out the CAB tests, the field investigators will obtain all the necessary information, complete all measurements and enter the data in the CAB schedule ***(Annexure-I).***

1.23 All tests other than Hb estimation test shall yield 'on-the-spot' *results* and they are to be recorded immediately in the CAB Schedule. As regards test for Hb estimation, the Survey Agency(s) needs to ensure that the samples of blood spot are collected on filter paper, dried, put in a self-sealing bag, properly labeled as per the procedure explained in Chapter 2 (para 2.38) and delivered to the earmarked nodal test laboratory in good condition (dried and sealed), in order to yield accurate results. These samples should reach the concerned nodal test laboratory within two weeks from the date of collection. The details of the nodal test laboratory and the mail address to which blood samples are to be sent are given in ***Annexure-Y.*** **Any sample reaching beyond two weeks from the date of collection shall not be tested by the laboratory** and the same shall be reported to NIHFW and ORGI by the concerned Partner Institute (PI) for further action. The agency concerned would be warned not to repeat the same and informed of the appropriate action to be taken.

1.24 The nodal test laboratory given in Annexure-Y shall test the samples preferably within two weeks of receipt of the samples and send the test results to the respective Survey Agency by e-mail and subsequently the duly filled Form II (Haemoglobin Test Schedule) will also be sent to the Survey Agencies by the concerned laboratory. The Survey Agency needs to follow up with the concerned test lab for ensuring timely receipt of the test results.

1.25 In order to ensure completeness of the survey, the Survey Agency(s) shall submit the CAB Tests Schedule (Form I) and Haemoglobin Test Schedule (Form II) [***Annexures I & II***] to the respective DCO after recording the results of Hb Estimation test in Form-II.

1.26 The CAB equipments (one each of Infantometer, balance, Staturemeter, BP apparatus, 2 Glucometers, 10 Hb Pipettes and a back pack for carrying these equipments) will be provided to one team of 3 members of the Survey Agency(s) who meet the proficiency certification norms of the training.

Scope of work

1.27 The Survey Agency(s) would, inter-alia, be responsible for undertaking the CAB tests, canvassing of CAB Schedules, undertaking prescribed internal and external quality checks regularly to ensure adherence to protocols and quality of data, handing over the sample to the nodal test laboratory, data entry of the collected data, submission of canvassed Schedules to the DCO concerned, attending to queries/clarifications of the ORGI during the field survey and data processing stage as well, preparation of provisional district level fact sheets, etc.

1.28 The entire scope of work for Survey Agency(s) can be categorized into three stages namely ***Planning, Implementation*** **and** ***Post-implementation***. The activities to be covered under these stages are enlisted below:

Training

1.29 Adequate training shall be provided to the field survey teams by the NIHFW, NFI and ICMR Regional Institutes. The overall coordination for conducting the training shall rest with NIHFW.

1.30 The training by NIHFW, NFI and ICMR Regional institutes for the field survey teams will be a skill-intensive training and imparted in batches consisting of 12-15 members. The training of field survey staff of the survey agency(s) is planned to be carried out in phased manner. In order to meet this requirement of training, the actual deployment of the field survey teams should be undertaken by the survey agency in such a manner that the training schedule at NIHFW, NFI and Regional ICMR laboratories remains uninterrupted and the field work is executed smoothly. Due care should be taken by the Survey Agency(s) to ensure that adequate buffer of field survey team staff is maintained in order to compensate for field staff disqualified at training stage and attrition of field staff before the commencement of the training.

1.31 Orientation training will be provided by NIHFW to the Medical Consultants of the CAB Survey Agencies.

Training of Medical Consultants and Field Investigators

1.32 In CAB Survey, it is envisaged that a Medical Consultant will supervise the activities of the field survey team, ensure quality of data collected, check the accuracy of the equipment used and undertake duplicate assessment of all the parameters in 10 % of the households on a daily basis. It is expected that this will go a long way in ensuring that the data collected is accurate.

1.33 The field investigators for the CAB component of the AHS are expected to be nurses, ANMs, lab technicians, other para-medical persons like physiotherapist, or home science graduates. All these categories have been taught infant and young child feeding, morbidity in children, health and nutrition care during pregnancy and lactation and ICDS programmes as well as techniques for measurements of parameters that are being measured in CAB Survey as a part of their pre-service training curriculum and would be familiar with them. They would however need skill upgradation and to be taught about quality control measures during the survey so that they could measure these parameters accurately and consistently across personnel and place.

Objective:

1.34 **To train medical consultants and field investigators so that they acquire the skills to**

- ascertain and record age and infant feeding practices in all children below 3 years of age
- ascertain acute morbidity in under 5 children and
- ascertain physiological status (pregnancy & lactation) in currently married women in reproductive age group,
- check instruments for accuracy and sensitivity
- accurately
  - ✓ measure height/length and weight,
  - ✓ measure BP using automated digital BP Monitor
  - ✓ pipette 20 µl from anti coagulant added blood,
  - ✓ collect 20 µl of blood from finger prick onto a filter paper for Hb estimation,
  - ✓ estimate blood glucose using Glucometer and
  - ✓ test household salt for iodine content.
- **perform**
  - ✓ quality control procedures to ensure accuracy in measurements and
  - ✓ infection control and waste disposal practices that they have to use in the field

Batch Size: Each batch will have maximum of 15 and minimum of 12 trainees

Duration of Training: Three days for NIHFW and NFI; and 4 days for the ICMR institutions.

Methodology of training (the schedule given is for 3 days; the same would be spread over a period of four days by the 4 ICMR institutions).

On the first day forenoon, there will be an orientation session on the questionnaire and tools and techniques for measurement of various parameters.

This will be followed by the first practice session in the institution for which the trainees will be divided into three batches.

1.35 On the second and third day, the forenoon sessions will be in hospital/clinic or community/ aanganwadi settings. The afternoon sessions on the second and the third day will be a repeat of the practice sessions as on the first day. Details are been given in **Annexure-VI.**

1.36 All CAB tests except Hb estimation results are available at the time of the survey; concurrent quality control mechanism will ensure that CAB tests are correctly carried out and results are accurately recorded in the CAB Schedules. This concurrent quality control is to be carried out through three modes:

a) Internal Quality Check by the Survey Agency

b) Inspection by ORGI / DCO officials (They may seek the help of local health functionaries wherever required)

c) Quality Assurance Measures

d) Visit by the technical personnel from the Partner Institutes as and when technical problems are to be sorted out in the survey areas.

1.37 Regular inspections (as per the inspection norms) will be carried out by ORGI/ DCO officials to ensure the overall quality of data. The additional technical inspections would be held as indicated below:

(1) NIHFW and Partner Institutes will undertake requisite number of field inspections in order to resolve technical problems in measurement or in collection of blood samples or in matching of the samples with individuals and their household, which may arise in the respective zones and also to ensure that adequate quality control measures as prescribed for the purpose are being adhered to by the field Survey Agency(s). In case of any exception, irregularity, non-adherence etc., the same should be reported to ORGI and NIHFW immediately along with the possible remedial measures.

(2) If required, additional visits may also be undertaken in case any specific problem is being reported by the Partner Institution. During these visits, a threadbare review on all aspects of work will be done and a report will be submitted to ORGI and NIHFW on the completion of visit.

- Post-survey Inspection: This will be carried out in a fixed number of households selected on a random basis in a Sample Unit by ORGI/DCO officials. Selection of these households will be done on the basis of objective criteria. The post survey inspection will ensure proper coverage of Sample Unit by the Survey Agency(s) and also adherence to survey mechanism like distribution of health cards, etc.

1.38 ORGI officials may be facilitated by the local health personnel while conducting both the concurrent as well as post-survey inspection.

1.39 Thus the quality of the survey will be assured by internal checks used by Survey Agency as well as constant monitoring and supervision by ORGI/DCO officials and technical personnel from Partner Institutions.

1.40 Technical aspects of the Quality Assurance Measures to be taken in different CAB tests are explained in detail in Part II of this Manual.

Conduct of CAB Tests

1.41 For the allotted zone(s), Survey Agency will have to ensure complete coverage by carrying out CAB tests in every alternate household in selected Sample Unit by following the order prescribed by ORGI. The survey should be completed within the prescribed time limit as spelt out subsequently by evenly staggering the sample units over the survey period. The CAB tests in a district will be conducted by only one field survey team.

1.42 The Survey Agency will undertake CAB tests for all eligible members of each selected household. A household will be considered complete only if all the eligible individuals for each CAB test who have consented to participate in the survey have been tested and test results/details have appropriately been captured in the CAB Schedule.

1.43 Before undertaking the CAB tests in any household, Survey team will be responsible for communicating to each member of the household the details given in the "Survey Information Sheet" *(Annexure-III)*. Further, the field Survey team members of the Survey Agency will explain the details of the consent forms to each member and take their prior consent before the tests. The consent should be taken from the household member who is 18 years of age or more in the form and the signature or thumb impression as the case may be should also be obtained. If the household member is of age 7 or below, the assent needs to be taken from either of the parent/guardian. However, if the member is above 7 years of age and below the age of 18 years, then the consent of that member as well as consent of his/her parent/guardian needs to be taken.

1.44 Survey Team will record the results of the tests where these would be available on-the-spot on Household Health Card (*Annexure-IV*) and handover the card with the results to the household. In case of pregnant or lactating women and under-three children, the Survey team would enter the information collected during the survey in the Mother and Child Protection Card (MCPC) (*Annexure-V*). Weight-for-age of all under-three children will be marked on the growth chart in the MCPC and handed over to the family. After completion of all tests

in a household, if the result of any test for any member(s) of the household is found outside the normal range, the same shall be informed to the head/ responsible member of the household with the advice to contact the local Health Centre.

1.45 This Instruction / Training Manual for CAB functionaries contains detailed guidelines for filling the following Schedules and Cards by probing and carrying out appropriate tests during the field work:

(i) CAB Tests Schedule (Form I)
(ii) Haemoglobin Test Schedule (Form II)
(iii) Forms for reporting results of duplicate samples
(iv) Consent Form
(v) Child Assent Form (For aged 7- 18 years)
(vi) Household Health Card
(vii) Mother and Child Protection Card

Chapter 2

Cab Tests Schedule – Form I

2.1 A detailed CAB Tests Schedule has been prepared for recording the general information for each member of selected household. The Schedule comprises two sections. Section 1 is meant for salt intake by the household. Section 2 intends to capture information relating to aspects like name, sex, residential status, identification code, date of birth, age etc. Besides, the measurement of weight, length/height, blood pressure and fasting blood glucose, Hb level and information about pregnant women and lactating mothers and also children aged up to 5 years will be collected in Section 2.

2.2 As soon as the Survey team enters a household, they should provide or read out the Survey Information Sheet to the family members and explain why the Survey is being undertaken and the benefits that will accrue to those participating in the Survey. Only those families which are willing to participate in the Survey should be enrolled. Thereafter, in each consenting household, consent for every measurement has to be taken before starting any measurement from every individual participating in the survey. In all adults, their consent has to be obtained. For children below 7 years of age consent from parent /responsible member of the household is to be obtained. In the case of child aged 7 years or but below 18 years, in addition to parental consent, child assent has to be obtained. A person may consent for Hb and Glucometer and not for Height or Weight because he/she knows they are fat but is worried about health consequences of the fatness; once they have said what they agree to and not agree to, the same can be recorded in the respective column.

SIDE–'A'

2.3 The **Identification Particulars** of the sample unit such as State, Zone, District, Rural/Urban and Sample Unit Code are to be provided at the top of the CAB Tests Schedule (Form I). These particulars should be copied from the relevant / corresponding columns with the same name in the House-listing Schedule of Second updation round of AHS.

2.4 The identification particulars should be filled for the alternate households only, i.e., starting from first Household of House-listing Schedule, for every alternate household, identification codes are to be copied. While doing this, particular attention should be given to exclude the frozen records. Frozen records are the records of the houses / households covered in the previous round(s) but frozen

in the current round due to their non-availability at the time of survey. This has been noted in the House-listing Schedule.

2.5 The detailed description of these particulars are indicated below.

2.6 The Identification particulars such as State, Zone, District, Rural/Urban, Stratum and Sample Unit are already recorded in the House-listing Schedule. The following example illustrates the system for allotting the codes:

State Code		Zone Code	District Code		R/U Number	Stratum	Sample Unit		
0	5	1	1	1	1	1 or 2 as the case may be (in case of Rural) ---------- 0 (in case of Urban)	0	1	1

AHS House No.				Household No.	
0	0	0	1	0	2

Besides the above, the AHS House No. and Household No. of selected household are to be recorded at the time of canvassing the CAB Tests Schedule (Form I).

2.7 **State Code (Numeric) :** A two digit code corresponding to the coding pattern in 2001 Census for States is to be followed here. In the above example, the State code '05' belongs to Uttarakhand.

2.8 **Zone Code (Numeric) :** The 9 AHS States have been divided into non-overlapping and exhaustive Zones by pooling together a group of contiguous districts and a one digit numeric code has been assigned to each zone in a State. In the above example, the zone code '1' belongs to the first zone of Uttarakhand.

2.9 **District Code (Numeric) :** A two digit code corresponding to the coding pattern in 2001 Census for the districts within a State is to be adopted. In the above example, the district code '11' belongs to Nainital.

2.10 **Rural/Urban Code (Numeric) :** Code '1' for a rural Sample Unit and code '2' for an urban Sample Unit is to be assigned within a district. In the above example, the unit is a rural one.

2.11 **Sample Unit Number (Numeric) :** A running three digit Code starting from 001 has been provided for the Sample Units within a district of a State. In order to

ensure uniformity in numbering across different districts, the Sample Units falling in Stratum 1 of rural areas have been numbered first followed by Sample Units in Stratum 2 of rural areas and thereafter, Sample Units in urban areas.

Section 1 : Salt Test

2.12 The respondent will be asked to provide a teaspoonful of cooking salt and the contents of Iodine Parts Per Million (PPM) will be recorded. For testing of household salt for Iodine content, Iodine Testing Kit will be used. For recording the Iodine content in the household salt, the appropriate code will be used as given below:

Code for Iodine test	
Item	**Code**
No iodine	1
Less than 15 PPM	2
More than or equal to 15 PPM	3
No salt in household	4
Salt not tested (Specify reason)	5

Section 2: Main CAB Survey Schedule

2.13 The information in this section will be collected in 34 columns. The columns 2, 3, 5 and 6 will be filled in by copying the information in respect of the usual residents from the relevant columns of the Household Schedule pertaining to the AHS second updation survey. The question in Col.4 is to be probed for all members of the household before recording the response.

2.14 These columns are provided to identify the members of the household uniquely along with the basic characteristics like sex, age, etc. The objective is to capture all usual residents present on the date of survey in respect of selected households. CAB Test is a component of the AHS. This is conducted in the background of the second updation round of AHS. So, besides copying the records as mentioned in para 2.13 above, information in respect of the usual residents added as on date of survey will be given at the end of the CAB Tests Schedule (Form I) and the Identification codes assigned to the new usual residents will be the running number next to that of the last Identification code of PSU as per the 2nd updation round of AHS.

2.15 Some members of the household, whose details are copied, may not be available in the household (due to death or migration – within unit or outside unit). For these members, no entry will be made by the field investigator except for writing a remark to explain the absence of the member.

2.16 Many of the members present on the date of survey may not be in the copied list of members. Such individuals will be listed by the Health Supervisor / Health Investigator in respect of Columns 1 to 6 as explained below. However, care should be taken to avoid double listing of the members, especially in case of children as their real names may not be available in the copied records.

2.17 The detailed instructions for filling these columns in Household Schedule are reproduced below.

Columns 1 to 7 : Particulars of Members/Usual Residents of Household

Col. 1: Serial No.

2.18 Each line is to be given a continuous serial number starting with 01 and continued to the last member of the household of a listed house. These serial numbers are to be copied from Col. 1 of the second updation Household Schedule. For the new members in a household, the running number next to that of the last member of that household of the 2nd updation round of AHS would be assigned.

2.19 Additional Schedules may be used in case the number of members in the household exceeds the number of lines provided in the CAB Tests Schedule. Identification particulars should invariably be filled in such additional Schedule(s).

Col.2 & 3 : Name and Sex

2.20 For the CAB tests, besides copying the name of members recorded during the second updation round of AHS, the names of new members who have become usual residents as on date of survey are to be recorded. While copying the names, the order as given in second updation round of AHS is to be adhered to. All out efforts should be made to include members who have become usual residents on account of birth / in-migration after the second updation round of AHS.

2.21 Name and Sex of all the members of the household from Household Schedule of second updation survey will be copied in Col. 2 and 3 respectively. Sex (Code 1 for Male and 2 for Female) will be recorded for those usual residents as on date of survey whose name has been entered as on date of the CAB survey.

Col. 4: Whether usual resident as on date of survey? (Yes-1, No-2)

2.22 This is a filter question to ascertain the usual residence status of a member as on date of survey. This is to be probed for all members of the household. Code 1 is to be recorded to the usual residents as on date of survey and Code 2 is to be recorded otherwise.

2.23 A usual resident is a person who has continuously lived in the Sample Unit for at least six months not including temporary absences for holidays or work assignment, or intends to live for at least six months (all children born after the second updation are to be considered as usual residents).

Col. 5: Identification code of the member of Household

2.24 The identification code of the members of the household consists of a four digit unique number and is to be assigned to each member of the household in the unit. The identification code of the members listed during the second updation survey is to be copied from Col. 6 of the Household Schedule. The identification code of a member of the household will be assigned as given below:

Identification Code of the Member of Household			
0	2	6	7

2.25 For the members whose name is being recorded by the Health Supervisor/ Health Investigator for the first time, new Identification code is to be assigned. The Identification code for the new member will be the running number next to the Identification code of the last member of the last household of the PSU as per the 2nd updation round of AHS.

2.26 This column will be filled after completion of work in the unit so as to avoid omission of any member. The supervisor will start filling the codes in increasing order of House number and Household number.

Col. 6: Date of Birth (DD/MM/YYYY)

2.27 The date of birth of the usual residents of the second updation survey should be copied from the Household Schedule.

2.28 The date of birth in respect of members who have been added as on date of survey is to be recorded. The Health Supervisor / Health Investigator must ask for some evidence like Birth Certificate/ MCH Card, etc. before recording the information, especially in the case of children.

Col. 7: Age (as on date of survey - in days/months/years)

2.29 This column is divided into two sub-columns. In first sub-column, the unit of age as on date of survey (D/M/Y) will be recorded. In second sub-column, the Age as on date of survey in completed units of age, i.e., Days/ Months / Years, as recorded in the first sub-column is to be recorded. This column has been

provided to assist the field investigator in canvassing the subsequent part of the Schedule which is filtered on age. This is to be calculated from the date of birth recorded in Col. 6.

Cols. 8 – 11 : Weight Measurement and Length /Height Measurement (For members aged 1 month and above)

Cols. 8 – 9 : Weight Measurement

2.30 Weight is one of the most widely used parameters for assessment of nutritional status. It is therefore essential to ensure accurate recording of weight. Digital Weighing Scale will be used for measuring the weight of the person. Weighing of infants and young children, who cannot or will not be able to stand on the weighing machine, will be computed by finding out the difference in weight between the weight of mother/caregiver when she is carrying the child and her own weight. It is therefore, essential that the digital balance used is accurate and sensitive to 100 grams (sensitive to assess differences of 100 grams when the adult woman & child are weighed together).

Col. 8 : Weight (Measured- 1; Member not present – 2, Refused- 3, Other- 4)

2.31 Record the result of the interview and indicate it in code. Give Code 1 if the weight is measured, Code 2 if the concerned household member is not present, Code 3 if the member has refused for weight measurement and give Code 4 in other cases. Before recording Code 2 (Member not present), the field investigator has to visit the household at least 3 times during his/her stay in the Sample Unit.

Col. 9 : Weight (in kilograms)

2.32 The weight is to be ascertained for all members aged 1 month and above. Record the weight of the person in kilograms in the boxes provided. The weight should be in kilogram with 1 decimal place. For example, if the weight of the member is 57.8 kilogram, then it should be recorded as given below:

0	5	7	.	8

Cols. 10 – 11 : Length/Height Measurement

2.33 Length will be measured by Infantometer and the height of the person will be measured through Wall Mounted Height Measuring Tape.

Col. 10 : Length/Height (Measured- 1; Member not present – 2, Refused- 3, Other- 4)

2.34 Record the result of the interview and indicate it in code. Give Code 1 if the weight is measured, Code 2 if the concerned household member is not present,

Code 3 if the member has refused for weight measurement and give Code 4 in other cases. Before recording Code 2 (Member not present), field investigator has to visit the household at least 3 times during his / her stay in the Sample Unit.

Col. 11 : Length (L)/Height (H) (in centimetres)

2.35 The length/height will be measured for each member aged 1 month and above. Record the length/height in centimetres. If the child is too small to walk, the measurement will be taken as length and for other members, it will be height. Record the length/height of the person in centimetres in the box provided. Length/height should be recorded in centimetres up to 1 decimal place with the Codes 'L' or 'H,' as the case may be, in the box provided on the left.

For example, if the height of the person is 168.3 centimetres, then it will be recorded as below:

H	1	6	8	.	3

Similarly, if the length of the infant/child is 58.7 centimetres, then it will be recorded as below:

L	0	5	8	.	7

SIDE-'B'

Cols 1-2 : Serial No. and Name

2.36 The serial number and the name of the person will be copied from Side-'A' in the same order as listed therein.

Cols. 12-14 : Haemoglobin (Hb) estimation

2.37 The Hb estimation will be done for all persons aged 6 months and above. For this purpose, blood sample of all usual residents aged 6 months and above will be collected on a filter paper. After obtaining the consent for Hb measurement, take filter paper on which 20 µl of blood is to be deposited. The line number (in 4 digits) of the member is to be entered in pencil at the top left hand corner of the filter paper before depositing the blood on the filter paper. However, if duplicate samples are to be collected, write the same line number of the person in both the filter papers and add the letter 'D' in pencil on the second filter paper before depositing the blood. Then prick the finger tip with the lancet and take 20 µl of blood and deposit the same on the filter paper in case of single sample and deposit 20 µl of blood in each of the two filter papers in case of duplicate samples.

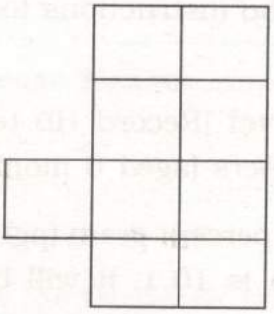
2.38 Generally, one filter paper with the dried blood spot is to be placed in a self-sealing bag. However, if duplicate samples are to be collected, place both the filter papers with the dried blood spot in the same self-sealing bag. This bag with laminated label as detailed below will be provided:

District

PSU

HH No.

Line no. of H.I.O.



Name . . . . . .

The details of the label are explained below:

District : The two-digit code of the district is to be copied from Form II (Haemoglobin Test Schedule)

PSU : The three-digit code of the Sample Unit is also to be copied from Form II (Haemoglobin Test Schedule)

HH No. : The AHS House No. in Col. 2 of Form II (Haemoglobin Test Schedule) is to be recorded.

Line No. of H.I.O. : This number is to be copied from Col. 1 of Form II (Haemoglobin Test Schedule).

In case these numbers have more digits than the boxes provided for, additional boxes must be added on the printed label to accommodate the additional digits.

All samples of a particular PSU have to be kept in one big envelope. One envelope should strictly contain samples for one PSU only. In no case, the samples of any other PSU will be mixed in one envelope.

Col. 12 : Whether given consent for Haemoglobin test (Yes-1; No-2)

2.39 Record 1 if the person has given the consent; if not, record 2. For Hb estimation, 20 µl of blood will be collected from finger prick and deposited on the filter paper; estimation of Hb will be done from the dried blood spot using cyanmethaemoglobin method.

Col. 13 : Haemoglobin (Measured-1; Member not present-2, Refused-3, Other- 4)

2.40 Record the result of the interview and indicate it in code. Give Code 1 if the Haemoglobin is measured, Code 2 if the concerned household member is not

present, Code 3 if the member has refused for haemoglobin measurement and give Code 4 in other cases. Before recording Code 2 (Member not present), the field investigator has to visit the household at least 3 times during his/her stay in the Sample Unit. If Code 1 is filled in Col. 14, then fill in Form II (Hb estimation) in duplicate. The instructions for filling in Form II have been given separately in Chapter 3.

Col. 14 : Haemoglobin (Hb) level [Record Hb test result received from Laboratory in respect of all members (aged 6 months and above) in percentage gms.]

2.41 Hb level will be recorded in percent gram (pg) up to 1 decimal place. For example, if the Hb level of a person is 10.1, it will be recorded in the box provided as below:

1	0	.	1

Cols 15-17 : Blood Pressure Measurement and Pulse Rate (For all members aged 18 years and above)

Cols 15-17 : Blood Pressure (In mm of Hg) Systolic (Upper Reading) and Diastolic (Lower Reading) and Pulse Rate

2.42 Blood Pressure and Pulse Rate will be measured for all members of the household aged 18 years and above by using Digital Blood Pressure Measuring Instrument. Blood Pressure will be recorded in terms of Systolic (Upper reading) and Diastolic (Lower reading). Two readings with an **interval of 5 minutes** will be taken for both Systolic and Diastolic Blood Pressure and it will be measured in millimetre of Hg (mm). For example, if the Systolic and Diastolic Blood Pressure are 147mm and 75mm in the first reading and 148mm and 76 mm in the second reading, then record these measures in the boxes provided as given below.

The blood pressure and pulse rate indicated in the screen of the BP Monitor will be recorded in Col. 15 - 16 and Col. 17

First Reading

Systolic (Upper reading)

1	4	7

Diastolic (Lower reading)

0	7	5

Second Reading

Systolic (Upper reading)

1	4	8

Diastolic (Lower reading)

0	7	6

Col. 17 : Pulse Rate

2.43 Two readings for Pulse Rate will be taken and recorded as under:

First Reading		Second Reading	
7	4	7	8

Cols. 18–20 : Fasting Blood Glucose Measurement (For all members aged 18 years and above)

2.44 Fasting blood glucose level will be estimated for all persons aged 18 years and above.

Col. 18 : Whether given consent for Diabetes testing (Yes-1; No-2)

2.45 Record Code 1 if consent has been given by the member and if not, record 2.

Col. 19 : Fasting blood glucose (Measured - 1; Member not present - 2, Refused-3, Other- 4)

2.46 For all those individuals over 18 years of age who will have both Hb estimation and fasting blood glucose done, blood collection by finger prick will be done in the early morning; first 20 µl of blood for Hb estimation will be drawn and then blood for glucose estimation will be collected on the glucose strip. Blood glucose level will be estimated from finger prick blood using Glucometer. Record the result of the test and indicate it in code. Record Code 1 if Fasting Blood Glucose is measured, Code 2 if the concerned household member is not present, Code 3 if the member has refused for Fasting Blood Glucose measurement and record Code 4 in other cases. Before recording Code 2 (Member not present), field investigator has to visit the household at least 3 times during his/her stay in the Sample Unit.

Col. 20 : Fasting blood glucose (in mg/dL)

2.47 Fasting blood glucose level will be measured for all members aged 18 years and above. Record the Fasting Blood Glucose in milligram/dL. For example, if the Fasting Blood Glucose level of the person is 95, then it will be recorded in the 3 boxes provided for the purpose as given below:

0	9	5

Col. 21 : Marital status (For women aged 15-49 years) (Code)

2.48 This question is to ascertain the marital status of woman in the age group 15-49 years as on date of survey. Record the current status (Never married-1, Married but Gauna not performed-2, Married and Gauna performed-3, Re-married-4, Widow-5, Divorced-6, Separated-7, Not stated-8).

Col. 22–23 : Current status and duration of pregnancy/lactation (For women aged 15-49 years)

2.49 These questions are to be canvassed in respect of Currently Married Women aged 15-49 years only and all out efforts should be made to record the response in Code after enquiring from the concerned woman only.

Col. 22 : For Code 3 or 4 in Col. 21, whether Pregnant-1; Lactating-2; Non-pregnant or Non-lactating-3.

2.50 If currently married, i.e., Code 3 or 4 in Col. 21, record the current status (Pregnant-1; Lactating-2; Non-pregnant or Non-lactating-3) against this column.

Col. 23 : For Code 1 or 2 in Col. 22, duration of pregnancy/lactation in months

2.51 If pregnant (Code 1) or lactating (Code 2) in Col. 22, record the duration in completed months.

SIDE-'C'

Cols 1-2 : Serial No. and Name

2.52 The serial number and the name of the person will be copied from Side-'A' in the same order as listed therein.

Col. 24 to 34 pertain to feeding practices and acute morbidity of the children. These questions should preferably be enquired from the mother of the child. In case of non-availability of mother, the member of the household who is closely associated with rearing up of the child should be interviewed.

Cols. 24–31 : For children aged under-3 years as on date of survey.

Col. 24: When was the child first breast fed? (Code)

2.53 The objective is to know the time at which the mother started breast-feeding her child. For recording the response, appropriate codes are tabulated below. If Code 5, skip to Col. 27.

Code for Col. 24	
Item	**Code**
Immediately within 1 hour of birth	1
1 hour to 24 hours of birth	2
2-3 days	3
After 3 days	4
Never breast-fed	5

Col. 25 : Is the child being currently breastfed? (Yes-1; No-2)

2.54 Ask the respondent whether she is currently breast feeding her baby. If the reply is "Yes", record Code '1', otherwise Code '2'.

Col. 26 : For how many days/ months was the child exclusively breastfed (if duration of breastfeeding is less than one month, record no. of days and if duration is in months, record no. of months) (Code)

2.55 Record the number of days/months the mother exclusively breastfed her baby. Exclusive breast feeding does not include even water (If duration of breastfeeding is less than one month, record no. of days with Code "D" and if duration is in months, record no. of months with Code "M"). If the mother didn't breastfeed her baby at all, record '00' for that particular birth.

Cols. 27 – 31 : At what age (in months), was the child given specific type of food other than breast milk? (if only breast feeding, record '00')

[Water, Animal Milk/Formula Milk, Semi Solid Mashed Food, Solid (Adult) Food, Vegetables/Fruits]

2.56 Ask the respondent when she started feeding the baby, food other than breast milk like water, animal milk/formula milk, semi solid mashed food (cereals and pulses e.g. roti-dal, rice-dal etc. with added ghee, oil, sugar or jaggery), solid(adult) food and vegetable/fruits as a supplement.

2.57 If duration is in months, record number of months against these types of food given. Record '00', if only breastfed. Code 00 will also be given if duration of starting other type of food is less than one month. If vegetable formed part of the semi-solid mashed food, then it is also to be recorded separately under vegetables/fruits.

Cols. 32 – 34 : For children aged under 5 years as on date of survey Acute illness (during last 15 days as on date of survey)

2.58 These columns are applicable only for children aged less than 5 years.

Col. 32: Type of illness (Code)

2.59 If any child aged less than 5 years of the household has suffered from any 'acute illness' during last fifteen days prior to the date of survey, ascertain the type of illness and record the code for the same. If a person is suffering from more than one 'acute illness', then the more troublesome (as felt by the respondent) is to be recorded.

2.60 Some of the common acute illnesses along with their codes have been described below in order to facilitate better understanding:

Code for Col. 32		
	Type of Illness	
Item	**Description**	**Code**
Diarrhoea	Watery motions two or more than usual number in infants and young children and three or more times in 3-5 year children in the last 24 hours.	1
Dysentery	Three or more small volume of stools in 24 hours, with mucus and/or blood associated with colicky pain; may be associated with fever in severe cases.	
Acute Respiratory Infection	Characterized by watery/mucoid discharge from the nose, sneezing, sore throat, cough, headache, malaise, and fever.	2
Fever	Fever is raised body temperature, the child feels hot and looks flushed (red-faced). Fever can be with rashes all over the body (like measles), rashes in some part / parts of the body, with chills and rigor (like Malaria) or with jaundice or of any other type. All fevers of known or unknown causes other than fever with dysentery/fever with respiratory infection will be given Code 3.	3
Other illnesses	Illnesses other than those listed above	4
No illness	Did not have any acute illness in the last fortnight	0

Col. 33 : Duration of illness (in days)

2.61 Ask the respondent about the number of days of illness of the child. Record the number of days in the box under this column.

Col. 34 : Whether hospitalized for the specific illness? (Yes-1, No-2)

2.62 Ask the respondent whether the child was hospitalized for the specific illness. If 'Yes', give Code '1' and Code '2' in case of 'No' in the box provided against this column.

Chapter – 3

Haemoglobin Test Schedule – Form-II

Haemoglobin Estimation

3.1 Haemoglobin Test Schedule - Form II is to be filled in duplicate. The instructions for filling the columns are given below. **In a district, the results of separate PSUs are to be captured in separate Forms.**

Identification Particulars

3.2 The identification particulars, viz., State, Zone, District name and code, Rural/ Urban, name and code of PSU, AHS House Number, AHS Household Number and date of survey are to be recorded as given in CAB Tests Schedule (Form I).

Cols 1-9 : Columns 1 to 7 are to be filled in by the field investigator and Col.8 & 9 by the Measurer at the Laboratory.

Col. 1 : Line No. (in 4 digits)

3.3 Each line will be numbered serially, starting from 0001 and the serial number will be recorded in Col. 1.

Col. 2 : AHS House No.

3.4 AHS House number is to be recorded in four digits as given in CAB Tests Schedule (Form I).

Col. 3 : Household No.

3.5 Household number in two digits as given in the CAB Tests Schedule (Form I) should be recorded against Col. 3.

Col. 4 : Identification code of member of the Household

3.6 For each member, Identification code (in 4 digits) has already been recorded in the CAB Tests Schedule (Form I). The same has to be copied here for the respective member.

Col. 5 : Name

3.7 The name of the person whose Hb estimation is done is to be recorded in Col. 5. Name should be the same as given in Col. 2 of the CAB Tests Schedule (Form I).

Col. 6 : Sl. No. in CAB Tests Schedule (Form I – Col. 1)

3.8 For each person, the serial number as given to her/him in Col. 1 of the CAB Tests Schedule (Form I) is to be recorded.

Col. 7 : Name of the Health Supervisor/Health Investigator of CAB Survey Agency who collected sample

3.9 Record the name of the Survey personnel who collected the sample.

Col. 8 : Hb level (in percentage gms)

3.10 This column is to be filled by the Measurer at the laboratory in percent gms. upto 1 decimal place in Col.8. In case valid result from the sample is not available, i.e., the sample is rejected, the same is to be indicated in the box by a dash ('-').

Col. 9 : Reason for rejection of sample (Code)

3.11 If dash ('-') is recorded against Col. 8, the Measurer at the laboratory will indicate the reason for rejection of sample as under:

Code for Col. 9	
Item	**Code**
Partial or total non-elution of blood spot	1
Non-concordance of duplicate values	2
Contamination/deterioration of blood spot	3
Others	4

Date of dispatch of the blood sample by the Survey Agency, Date of receipt of the sample at the Laboratory, Date of Haemoglobin test, Date of report and Date of dispatch of the Hb test result are to be filled by the Health Supervisor / Health Investigator / Laboratory concerned. The Hb level Measurer at the laboratory should record her / his name and sign at the appropriate place.

Chapter – 4

Survey Information Sheet and Consent/Child Assent Form

4.1 The Survey Information Sheet (***Annexure-III***) explains the purpose of the Clinical, Anthropometric and Bio-chemical (CAB) Survey under AHS, the CAB tests proposed to be undertaken, the possible benefits to the individual/National Health Programmes, etc.

4.2 Before undertaking the CAB tests in any household, the Survey Team will be responsible for communicating to each member of the household the details given in the "Survey Information Sheet". Further, the field survey team members of the Survey Agency will explain the details of the Consent Forms to each member and take their prior consent before the tests.

4.3 The consent will be taken from the household member in the form of signature or thumb impression as the case may be.

4.4 If the household member is of age 7 or below, the consent will be taken from either of the parent/guardian/adult member.

4.5 However, if the member is above 7 years of age and below the age of 18 years, then the assent of that household member and his/her parent/guardian/adult member will be taken.

4.6 In case the household member is above 18 years of age, then the consent will be taken from that member only.

Chapter – 5

Household Health Card and Mother and Child Protection Card

Household Health Card

5.1 The CAB component under AHS will provide a new benchmark by providing households with a Household Health Card in which the weight, length/height, blood pressure, pulse rate, and level of fasting blood glucose of each individual in the household and iodine content in the household salt will be entered.

5.2 The Household Health Card will be prepared for each household separately. The result of the tests where it is available on the spot will be recorded by the field investigator on the Household Health Card and it will be handed over to the head of the household. The instructions for filling up the different columns of the Household Health Card are summarized below.

5.3 The identification particulars of the Sample unit such as State, Zone, District, Rural/Urban and Sample Unit Code may be copied from the CAB Tests Schedule (Form I). The detailed description of these particulars has been discussed in paragraphs 2.3 to 2.11 of Chapter 2.

Col. 1 : Serial No.

5.4 Serial number of each member of the household should be recorded in this column.

Col. 2-10 : Name, Sex, Age as on date of survey, Weight, Length/Height, Blood Pressure (Systolic and Diastolic), Pulse Rate, Fasting blood glucose

5.5 The information to be recorded in columns 2-10 of the Household Health Card is to be compiled from respective columns of the CAB Tests Schedule (Form I) household wise.

5.6 This card may be shown by the head or responsible member of the household to the ANM/AWW for getting her/his advice. If she/he advises any of the members of the household to consult the physician, the same has to be followed by the concerned person. In particular, if the Fasting Blood Glucose is above 110 mg/dL, or if Systolic Blood Pressure is over 130 mm of Hg and /or Diastolic Blood Pressure is over 90 mm of Hg, then the field investigator should advise the individual to consult the PHC doctor or family physician.

5.7 After completion of all tests in a household, if the result of any test for any member(s) of the household is found outside the normal range, the same shall be informed to the individual (in case of adult) and/or head/responsible member of the household with the advice to contact the local health centre.

Mother and Child Protection Card

5.8 In addition to the Household Health Card, all pregnant and lactating women and women with children below 3 years of age will be given a Mother and Child Protection Card. In the households having children less than 3 years of age, the weight of the child will be plotted in the growth chart in the Mother and Child Protection Card.

5.9 The Mother and Child Protection Card, developed jointly by the Ministry of Health & Family Welfare and Ministry of Women and Child development for use in ICDS and in NRHM, is a mother held card which aims to record details of ante-natal, natal and post-natal problems and care in the mother as well as danger signals in pregnancy, labour; it also provides a record of immunization, advice regarding infant and young child feeding, monitoring development of infants and young children, care during illnesses during infancy and childhood and provides standard growth charts for monitoring growth from birth until three years of age to identify growth faltering and advise mothers/parents on appropriate action.

ANNEXURES

Annexure-I

SIDE - 'A'

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Page No.____

ANNUAL HEALTH SURVEY | **CLINICAL, ANTHROPOMETRIC & BIO-CHEMICAL (CAB) TEST SCHEDULE**

FORM-I

State: | **Zone:** | **District :** | **Rural-1/Urban-2:** | **Stratum:**

AHS Sample Unit: | **AHS House No.:** | **Household No.:** | **Date of Survey:** D D M M Y Y Y Y

Section 1 - Salt Test

1. Ask Respondent for a Teaspoonful of cooking salt. Test salt for Iodine [Record Parts Per Million (PPM)]:

2. [Record Code for No iodine – 1; Less than 15 PPM – 2; More than or equal to 15 PPM – 3; No salt in Household – 4; Salt not tested – 5]:

3. In case of Code 4 or 5 in Point 2 above, specify reason:

Section 2

Sl. No.	Name	Sex (Male-1, Female-2)	Whether usual resident as on date of survey? (Yes – 1; No – 2)*	Identification code of the member of Household	Date of Birth (DD/ MM/YYYY)	Age (as on date of survey- in days or months or years)	For members aged 1 month and above			
							Weight Measurement		Length/Height Measurement	
							Weight (Measured-1; Member - not present-2, Refused-3, Other-4)	Weight (in kilograms)	Length/Height (Measured-1; Member not present-2, Refused-3, Other-4)	Length (L) / Height (H)# (in centimetres)
1	2	3	4	5	6	7	8	9	10	11
					D D M M Y Y Y Y			.		.
					D D M M Y Y Y Y			.		.
					D D M M Y Y Y Y			.		.
					D D M M Y Y Y Y			.		.
					D D M M Y Y Y Y			.		.
					D D M M Y Y Y Y			.		.

*Col.4 is to be probed for all members of the household as on the date of survey. Col 5 onwards to be filled only if the concerned member is a usual resident as on date of survey; for usual residents as on 01.01.2012, copy the Name, Sex, Identification code and Date of Birth from the Household Schedule of 2nd updation round of AHS; information in respect of new members as on date of survey who have become usual residents after 01.01.2012 will be added at the end of the CAB Test Schedule (Form I) and the Identification codes assigned to such usual residents will be the running number next to that of the last Identification code of the PSU of the 2nd updation round of AHS. For members whose details have been copied but who are no more usual residents (due to death or migration within unit or outside unit), only a remark will be given to explain her/his absence.

Length(L)-measured with baby lying down or Height(H) -measured with person standing up

For Column 7		
Details	**Code**	**Details to be recorded in adjacent two boxes**
If age less than 1 month	D	Age in completed days (0 to 29 days)
If age less than 1 year	M	Age in completed months (1 to 11 months)
If age 1 year and above	Y	Age in completed years (1 to 99 years, for age 100 or more, record 99)

SIDE - 'B'

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Sl. No.	Name	Whether given consent for Haemo-globin test (Yes-1; No-2)	Haemo-globin (Measured-1; Member not present-2, Refused-3, Other-4)	Haemoglobin Level (Hb) (Record Hb test result received from Lab in respect of all members aged 6 months and above) in percentage gms	Blood Pressure Measurement and Pulse Rate (For all members aged 18 years and above)			Fasting Blood Glucose Measurement (For all members aged 18 years and above)			For Women aged 15-49 years		
					Blood Pressure (in mm of Hg)								
					Systolic (Upper Reading)	Diastolic (Lower Reading)	Pulse Rate	Whether given consent for Diabetes testing (Yes-1; No-2)	Fasting blood glucose (Measured-1; Member not present-2; Refused-3; Other-4)	Fasting blood glucose(in mg/dL)	Marital status (Code)	For Code 3 or 4 in Col.21, whether Pregnant-1; Lactating-2; Non-pregnant or Non-lactating-3	For Code 1 or 2 in Col.22, duration of pregnancy/ lactation in months
1	2	12	13	14	15	16	17	18	19	20	21	22	23
						First Reading / Second Reading							
						First Reading / Second Reading							
						First Reading / Second Reading							
						First Reading / Second Reading							
						First Reading / Second Reading							
						First Reading / Second Reading							

Code for Col. (21)	
Item	**Code**
Never married	1
Married but Gauna not performed	2
Married and Gauna performed	3
Remarried	4
Widow	5
Divorced	6
Separated	7
Not stated	8

SIDE - 'C'

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Sl. No.	Name	For children aged under 3 years								For children aged under 5 years		
		When was the child first breast-fed? (Code)	Is the child being currently breast-fed? (Yes-1, No- 2)	For how many days / months was the child exclusively breastfed (if duration of breast-feeding is less than one month, record no. of days and if duration is in months, record no. of months) (Code)	At what age (in months), did the child receive specific type of food other than breast milk (if only breast-feeding, record '00')					Acute illness (during last 15 days)		
					Water	Animal Milk/ Formula Milk	Semi Solid Mashed Food	Solid (Adult Food)	Vegetables/ Fruits	Type of illness (Code)	Duration of illness (in days)	Whether hospitalized for the specific illness? (Yes-1, No-2)
1	2	24	25	26	27	28	29	30	31	32	33	34
				D/M								
				D/M								
				D/M								
				D/M								
				D/M								
				D/M								

Code for Col. (24)	
Item	Code
Immediately within 1 hour of birth	1
1 hour to 24 hours of birth	2
2-3 days	3
After 3 days	4
Never Breastfed	5

Code for Col. (26)	
Unit	Code
Days	D
Months	M

Code for Col. (32)	
Type of illness	Code
Diarrhoea/Dysentery	1
Acute Respiratory Infection	2
Fever of any type	3
Other illnesses	4
No illness	0

	Name	*Id. No.	Signature	Date
Health Investigator - 1				
Health Investigator - 2				
Health Supervisor				

* A unique Id. No. should be given to every member of the Survey Team by FSAs

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ANNUAL HEALTH SURVEY	CLINICAL, ANTHROPOMETRIC & BIO-CHEMICAL TESTS

Form II (to be filled in duplicate)
Haemoglobin Test Schedule

(To be filled in by the Health Supervisor / Health Investigator (Col. 1-7) / Measurer (Col. 8 & 9)

State: | | | **Zone:** | | **District :** | | |

Rural-1/Urban-2: | | **Stratum:** | | **AHS Sample Unit:** | | | |

Date of Survey: D D M M Y Y Y Y **Sample collection date:** D D M M Y Y Y Y

Line No. (in 4 digits)	AHS House No.	Household No.	Identification code of member of the Household	Name	Sl. No. in CAB Tests Schedule (Form-I - Col. 1)	Name of Health Supervisor/Health Investigator of CAB Survey Agency, who collected sample, and his/her Id. card number	Hb level (in percentage gms)	Reason for rejection of sample (Code)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	
							.	

Sample:	Date of despatch by SA:	Date of receipt at Lab:	Date of Hb Test:	Date of report: Date of despatch by Lab to SA:

Measurer at the Laboratory:

Signature _____

Name:

Date

Code for Col (9)	
Item	**Code**
Partial or Non-elution of blood spot	1
Non-concordance of duplicate values	2
Contamination/deterioration of blood spot	3
Others	4

Annexure-III

Survey Information Sheet

Title: Clinical, Anthropometric and Biochemical component of Annual Health Survey

IMPLEMENTATION AGENCY : Registrar General of India on behalf of the Ministry of Health & Family Welfare, Government of India

What is the purpose of this study?

In India, under-nutrition and anaemia have been major public health problems in all segments of population. DLHS 2 provided district wise information on prevalence of under-nutrition in pre-school children and anaemia in preschool children, adolescent girls and pregnant women. However data on prevalence of anaemia and under-nutrition in other age and physiological groups are not available. It is essential to have district specific information so that appropriate district specific interventions can be planned, implemented and impact monitored.

India is currently undergoing nutrition and health transition. Over-nutrition, hypertension and diabetes are emerging as public health problems in both urban and rural areas. There has not been any nationwide survey to provide district level data on prevalence of over-nutrition, diabetes and hypertension. The present survey will provide such information and enable district specific interventions to be planned, implemented and impact monitored.

What does this study involve?

All members of the household will have their height and weight measured and Hb estimated. All persons over 18 years of age will have their BP recorded and fasting blood sugar estimated.

Possible benefits

To the individual:

All persons of the household will have their height weight and blood sugar levels recorded and given to them; those who are under or over-nourished or have high fasting glucose will be advised to access the nearest health facility for care and advice. As soon as Hb data becomes available they will be sent to the agencies and the village wise list of persons with moderate and severe anaemia will be provided to the district officials for necessary interventions.

Pre-school children and pregnant and lactating women who are undernourished can access Integrated Child Development Scheme (ICDS) food supplements regularly and benefit from them.

To the national programmes:

The district wise data will enable the districts to incorporate priority interventions in their District Health Action Plan (DHAP) for management of under and over-nutrition, anaemia, hypertension and diabetes. The present survey will also provide baseline data against which future data can be compared to assess the impact of interventions.

Possible risks to your family

There are no risks to the study subjects.

Cost to the participant

There is no cost to the participant. The investigators will go to the households and conduct the survey

Compensation

No compensation will be given to the members of the household as the survey will be done at home and the study population will not incur any expenses for participating in the survey. The families may have health and nutrition benefits in terms of knowing their current status and advice on where to access necessary services if any problem was detected.

Confidentiality of the information

Confidentiality of individual's data will be maintained.

How will decision to not to participate in the study affect the care received?

Decision to not to participate in this survey will not affect the relationship between the household members and the health and nutrition services. The households can continue to have access to all the services provided by the health and ICDS services.

Contact persons

For further information/questions, any one of the following persons can be contacted at the given address/Phone number:

Name:
Address

Phone No

Name:
Address

Phone No

Consent form
Title: Clinical, Anthropometric and Biochemical component of Annual Health Survey

IMPLEMENTATION AGENCY: Office of the Registrar General of India and Ministry of Health and Family Welfare, Government of India

PSU No.
AHS House No.: **AHS Household No.:**
Identification code of the person
Name of the participant:
Address:

Contact No (if available)

Documentation of the person giving consent

I, _____ (father / mother / guardian / adult member), have read the information in the Summary Information Sheet/it has been read to me. I was free to ask questions and they have been answered.

I am over 18 years of age and, exercising my free power of choice, hereby willingly give my consent (consent to include my ward/child) as a participant in the above survey and clarify that

(1) I have fully understood the information provided about the study.
(2) I have been informed that there are no known risks associated with this study
(3) I am aware of the fact that I can opt out of the study and this will not affect my / my child's access to any health or ICDS services.
(4) I have been provided information about individuals whom I can contact to seek clarifications.
(5) I have been told that my/my child's identity will be kept confidential if the data are presented or published

Name and signature / thumb impression of the person who has given consent

_____ (Name) _____ (Signature / thumb impression)

Date: / / Time: _____

Witness

I certify that the nature, purpose and potential benefits of the above study have been read out and explained to the participant and all his/her queries have been satisfactorily answered.

Name and signature of witness:

_____ (Name) _____ (Signature)

Date: / / Time: _____

Address of the witness: _____

_____

Child Assent form (for 7-18 year old children)
Title: Clinical, Anthropometric and Biochemical component of AHS

IMPLEMENTATION AGENCY: Office of the Registrar General of India and Ministry of Health & Family Welfare, Government of India

PSU No.
AHS House No.: **AHS Household No.:**
Identification code of the person
Name of the participant:

Documentation of the assent by the child

I _____ have been informed about the survey in which I have been requested to participate and the investigators have answered my questions and cleared my doubts. My parents have consented to my participation in the survey.

I am _____ years of age and, exercising my free power of choice, hereby willingly give my assent as a participant in the above survey and clarify that

(1) I have fully understood the information provided about the study.
(2) I have been informed that there are no known risks associated with this study
(3) I am aware of the fact that I can opt out of the study and this will not affect my access to health or nutrition services.
(4) I have been provided information about individuals whom I can contact to seek clarifications.
(5) I have been told that my identity will be kept confidential if the data are presented or published

Name and signature / thumb impression of the person giving the assent

_____ (Name) _____ (Signature / thumb impression)

Date: / / Time: _____

Name and signature/thumb impression of father/mother/guardian /adult member

_____ (Name) _____ (Signature / thumb impression)

Date: / / Time: _____

Witness

I certify that the nature, purpose and potential benefits of the above survey have been read out and explained to the child and her/his father /mother /guardian / adult member in her/his mother tongue and all queries have been satisfactorily answered. I certify that the child understood and has voluntarily given his/her assent to participate in the survey.

Name and signature of witness:

_____ (Name) _____ (Signature)

Date: / / Time: _____

Address of the witness: _____

_____

Confidential when filled   Page No.____

ANNUAL HEALTH SURVEY	CLINICAL, ANTHROPOMETRIC & BIO-CHEMICAL TESTS

Household Health Card

State: ______ Zone: ______ District : ______ Rural-1/Urban-2: ______

Stratum: ______ AHS Sample Unit: ______

AHS House No.: ______ Household No.: ______ Date of Survey: ______

Salt Test* : ______

*[Code for No iodine – 1; Less than 15 PPM – 2; More than or equal to 15 PPM – 3; No salt in Household – 4; Salt not tested – 5]:

Sl. No.	Name	Sex	Age as on date of survey (in completed years/months)	Weight (in Kg.)	Length/ Height (in Cms)	Blood Pressure (in mm of Hg)		Pulse Rate	Fasting blood glucose (in mg/dL)
						Systolic	Diastolic		
1	2	3	4	5	6	7	8	9	10

Please show this card to the ANM/AWW and get her/his advice. If she/he advises you to consult the physician, please do so. If Fasting Blood Glucose (Sugar) is over 110 mg/dL, or if systolic Blood Pressure is over 130 mm Hg and/or Diastolic Blood Pressure is over 90 mm of Hg, please consult the PHC Doctor or Family Physician.

Annexure-V

Integrated Child Development Services
National Rural Health Mission

Mother and Child Protection Card

Photograph of Mother & Child

Family Identification

Mother's Name _____ Age ____

Father's Name _____

Address _____

Mother's Education: Illiterate/primary/middle/high school/graduate

Pregnancy Record

Mother's ID No. _____

Date of the last menstrual period ___/___/___

Expected date of delivery ___/___/___

No. of pregnancies/previous live births ___

Last delivery conducted at : Institution ☐ Home ☐

Current delivery: Institution ☐ Home ☐

JSY Registration No. _____

JSY payment Amount ____ Date ___/___/___

Birth Record

Child's Name

Date of Birth ___/___/___ Birth Weight ___ kgs. ___ gms

Girl ☐ Boy ☐ Birth Registration No: ____

Institutional Identification

AWW _____ AWC/Block _____

ASHA _____ ANM _____

SHC/Clinic _____

PHC/Town _____ Hospital / FRU _____

Contact Nos. ANM _____ Hospital _____

Transport Arrangement _____

AWC Reg. No. ____ Date ___ Sub-centre Reg. No. ____ Date ___

Referral ____ ____ ____ ____ ____

Ministry of Women & Child Development, Government of India
Ministry of Health and Family Welfare, Government of India

Regular checkup is essential during pregnancy

Registration

Register with the health centre in the first trimester

ANC

Have at least 3 antenatal checkups, after registration

BP, Blood & Urine

Have blood pressure (BP) checked and blood and urine examined at each visit

Weight

Have weight checkup at each visit. Gain at least 10-12 kg. during pregnancy. Gain at least 1 kg. every mth. during the last 6 mths. of pregnancy.

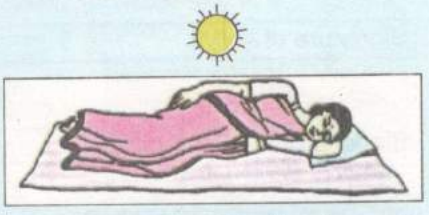
T.T. Injection

Take two T.T. injections. T.T.1 when pregnancy is confirmed and T.T.2 after 1 month. (Fill in the date)

Iron Tablets

Take one tablet of iron and folic acid a day for at least 3 months. Take at least 100 tablets. (Fill in quantity and date issued)

Care During Pregnancy



- Consume a variety of foods
- Consume more food – around 1/4th times extra than the normal diet
- Consume SNP from the AWC regularly
- Take at least two hours of rest during the day in addition to 8 hours of rest at night.
- Use only adequately iodised salt

Ensure nutrition counselling at every ANC

ANTENATAL CARE

OBSTETRIC COMPLICATION IN PREVIOUS PREGNANCY
(Please tick (✓) the relevant history)

A. APH	☐	B. Eclampsia	☐	C. PIH	☐
D. Anaemia	☐	E. Obstructed labor	☐	F. PPH	☐
G. LSCS	☐	H. Congenital anomaly in baby	☐	I. Others	☐

PAST HISTORY
Please tick (✓) the box of the appropriate response/s)

A. Tuberculosis	☐	B. Hypertension	☐	C. Heart Disease	☐
D. Diabetes	☐	E. Asthma	☐	F. Others	☐

EXAMINATION

General Condition	Heart	Lungs	Breasts

ANTENATAL VISITS

	1	2	3	4
Date				
Any complaints				
POG (Weeks)				
Weight (Kg)				
Pulse rate				
Blood Pressure				
Pallor				
Oedema				
Jaundice				

ABDOMINAL EXAMINATION

Fundal height Weeks/cm				
Lie/Presentation				
Fetal movements	Normal/Reduced/ Absent	Normal/Reduced/ Absent	Normal/Reduced/ Absent	Normal/Reduced/ Absent
Fetal heart rate per minute				
P/V if done				

ESSENTIAL INVESTIGATIONS

Haemoglobin				
Urine albumin				
Urine sugar				

Signature of ANM				

Blood Group & Rh Typing. ☐ Date / /

OPTIONAL INVESTIGATIONS

1. Urine pregnancy test ☐ Date / /
2. Hbs Ag. ☐ Date / /
3. Blood sugar ☐ Date / /

Participate in monthly fixed village Mother Child Health & Nutrition Day

If you or anyone in your family sees any of these danger signs, take the pregnant woman to the hospital immediately

Bleeding during pregnancy, excessive bleeding during delivery or after delivery

Severe Anaemia with or without breathlessness

High fever during pregnancy or within one month of delivery

Headache, blurring of vision, fits and swelling all over the body

Labour pain for more than 12 hours

Bursting of water bag without labour pains

Ensure Institutional Delivery

Contact ASHA/ANM/ AWW

Register under Janani Suraksha Yojna (JSY)

Obtain Benefits under JSY

Identify Hospital in Advance

Arrange for Transport in Advance

Ensure 48 hours of stay after delivery

Preparation in case of Home Delivery

Ensure safe delivery by ANM

- ✓ Clean hands
- ✓ Clean surface & surroundings
- ✓ Clean blade
- ✓ Clean umbilical cord
- ✓ Clean thread to tie the cord
- ✓ Clean set of clothes for newborn

Ensure Family Care & Support

Emergency

Arrange Transport to Hospital

After Delivery

Initiated Breastfeeding within 1 Hour of Birth

Yes ☐ No ☐

Family Planning Counselling

Ensure early and exclusive breastfeeding 0-6 months

POST NATAL CARE

Date of delivery ☐☐☐☐☐☐ Place of delivery _____ Type of Delivery N. ☐ Instr. ☐ CS ☐

Term/Preterm _____ If at institution, period of stay post delivery _____

Complications, if any (Specify) _____

Sex of baby M F *Weight of baby ☐ Kg. ☐☐☐ gms

Cried immediately after birth Y N

Initiated exclusive breast feeding within 1 hour of birth Y N

*(Three extra visits if birth weight <2.5kg)

POST PARTUM CARE

	1st Day	3rd Day	7th Day	6th Week
Any complaints				
Pallor				
Pulse rate				
Blood pressure				
Temperature				
Breasts Soft/engorged				
Nipples Cracked/normal				
Uterus Tenderness Present/absent				
Bleeding P/V Excessive/normal				
Lochia Healthy/foul smelling				
Episiotomy/Tear Healthy/infected				
Family Planning Counselling				
Any other complications and referral				

CARE OF BABY

	1st Day	3rd Day	7th Day	6th Week
Urine passed				
Stool passed				
Diarrhoea				
Vomiting				
Convulsions				
Activity (good / lethargic)				
Sucking (good / poor)				
Breathing (fast/difficult)				
Chest indrawing Present/absent				
Temperature				
Jaundice				
Condition of umbilical stump				
Skin pustules Present/absent				
Any other complications				

NEWBORN CARE

- Keep the child warm
- Start breastfeeding within 1 hour after birth
- For the first 6 months, feed the baby only mother's milk
- Do not bathe the child for the first 48 hours
- Keep the cord dry
- Keep the child away from people who are sick
- Weigh your child at birth
- Give special care if child weighs less than 2.5 kg. at birth

DANGER SIGNS – SEE HEALTH WORKER

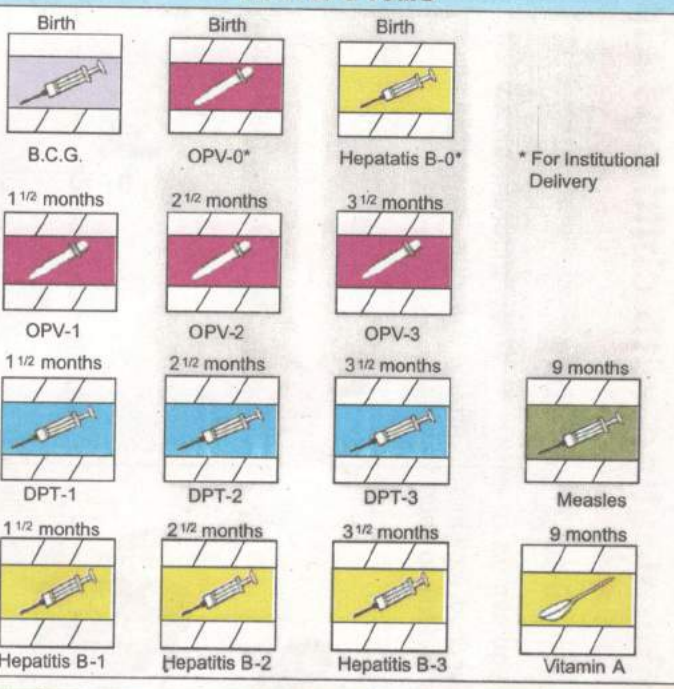
- Week sucking or refuses to breastfeed
- Baby unable to cry/difficult breathing
- Yellow palms and soles

- Fever or cold to touch
- Blood in stools

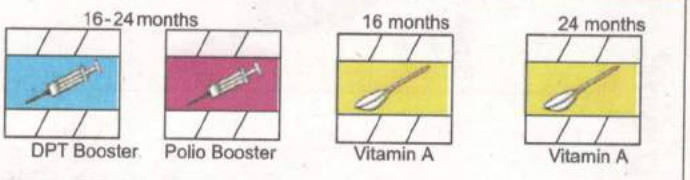
- Convulsions
- Lethargic or unconscious

Details of Immunisation

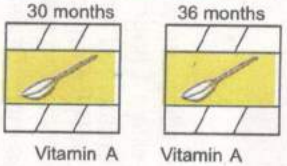
Birth to 3 Years



16 to 24 months



24-36 months



Remember

- Give Iron & Folic Acid syrup to children over 6 months as prescribed
- Deworm children over 1 year biannually as prescribed

Developed by the Ministry of Women & Child Development and the Ministry of Health & Family Welfare, Government of India in collaboration with NIPCCD and UNICEF, India-:

Feeding, playing and communicating with children helps them grow and develop well

0 to 6 months

Feeding

- Start breastfeeding immediately after birth – within 1 hour
- Exclusively breastfeed for 6 months. Do not give any other food or drinks and not even water
- Breasfeed as many times as the child wants
- Breastfeed day and night

0 to 3 months

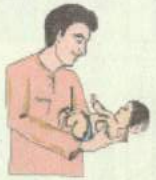
What you can do

Smile at your child, look into child's eyes and talk to your child

Provide ways to the child to see, hear, feel and move

What children can do

Around 3 months, most children can Smile in response



Track a ribbon bow

Begin to make sounds

3 to 6 months

What you can do

Have large colourful objects for your child to see and to reach for

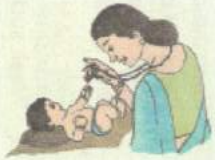
Talk to & respond to your child. Get a conversation going with sounds or gestures

What children can do

Around 6 months, most children can

Hold head steady when held upright

Turn to a voice



Reach out for objects

Continue breastfeeding during illness **Always use adequately iodized salt for the family** **Child needs extra food after illness**

6 to 12 months

Feeding

- On completion of 6 months, start with small amounts of soft mashed cereal, dal, vegetables and fruits
- Increase the quantity, frequency and thickness of the food gradually
- Understand child's signals for hunger and respond accordingly
- Feed the child 4-5 times a day and continue breastfeeding

What you can do

Give your child clean safe items to handle and things to make sounds with.

Play games like peek-a-boo. Tell the child names of things & people

What children can do

Around 9 months, most children can

Sit up from lying position

Pick up with thumb and finger

Sit without support

Around 1 year, most children can

Stand well without support

Wave

Say papa/mama

If the child seems slow, increase feeding, talking and playing. If the child is still slow, take the child to a

Feeding, playing and communicating with children helps them grow and develop well

1 to 2 years

Feeding

- Continue to offer a wide variety of foods including family foods, such as rice/ chappati, dark green leafy vegetables, orange & yellow fruits, pulses and milk products
- Feed the child about 5 times a day
- Feed from a separate bowl and monitor how much the child eats
- Sit with the child and help her finish the serving
- Continue breastfeeding upto 2 years or beyond

What you can do

Give your child things to stack up & to put into containers and take out.

Ask your child simple questions. Respond to your child's attempts to talk.

What children can do

Around 1½ years, most children can

Express wants

Put 3 pebbles in a cup

Walk well

Around 2 years, most children can

Stand on one foot with help

Say one other word

Imitate household work

Continue breastfeeding during illness **Always use adequately iodized salt for the family** **Child needs extra food after illness**

2 to 3 years

Feeding

- Continue to feed family foods 5 times a day
- Help the child feed herself / himself
- Supervise feeding
- Ensure hand washing with soap before feeding

What you can do

Help your child count and compare things; make simple toys for your child.

Encourage your child to talk & respond to your child's questions.
Teach your child stories, songs and games.

What children can do

Around 2½ years, most children can

Point to 4 body parts

Feed self spilling little

Name one colour correctly

Around 3 years, most children can

Copy & draw straight line

Wash hands by herself

Name 3 out of 4 objects

If the child seems slow, increase feeding, talking and playing. If the child is still slow, take the child to a doctor

GIRL : Weight-for-age – Birth to 3 years (As per WHO Child Growth Standards)

Growth Curves

Good

Dangerous

Very Dangerous

Normal

Moderately Underweight (Below - 2SD to - 3SD)

Severely Underweight (Below - 3SD)

Talk to the AWW/ANM immediately

Weight (kg)

Age (completed weeks, months and years)

Birth

1 2 3 4 5 6 7 8 9 10 11 1 yr. 1 2 3 4 5 6 7 8 9 10 11 2 yrs. 1 2 3 4 5 6 7 8 9 10 11 3 yrs.

1 2 3 4 5 6 7 8 9 10 11 1 yr.

1 2 3 4 5 6 7 8 9 10 11 2 yrs.

1 2 3 4 5 6 7 8 9 10 11 3 yrs.

+ Care During Illness +

Fever

- If high fever take the child to the health centre

Diarrhoea

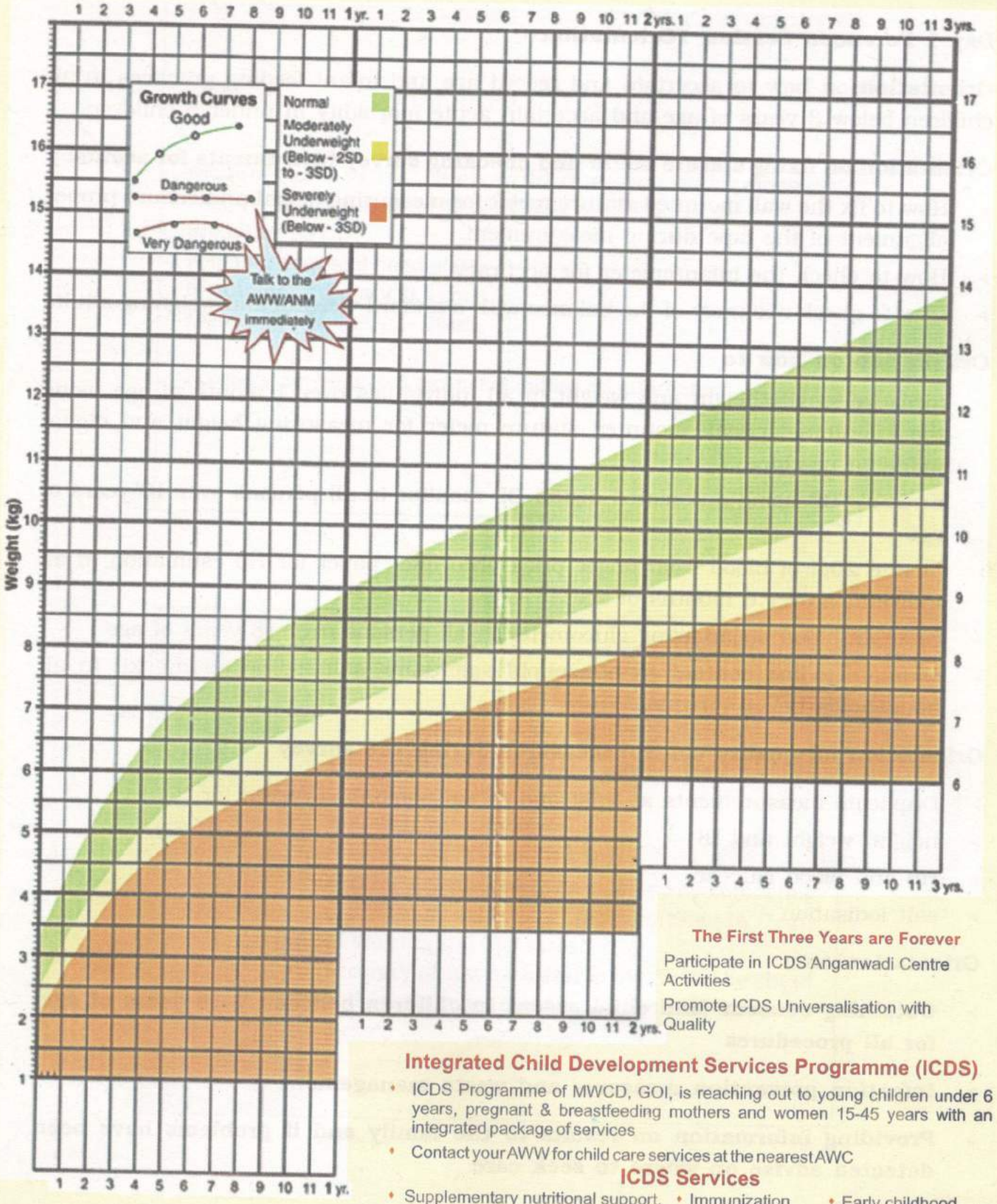
- Breastfeed more often
- Give extra fluids
- Give ORS and dispersible Zinc tablets as prescribed
- Continue feeding
- Take the child to hospital if loose motions do not stop

ARI

- If the child has rapid and/or difficult breathing, take the child to the health centre

Ensure equal care for the girl child

BOY : Weight-for-age – Birth to 3 years (As per WHO Child Growth Standards)



The First Three Years are Forever

Participate in ICDS Anganwadi Centre Activities

Promote ICDS Universalisation with Quality

Integrated Child Development Services Programme (ICDS)

- ICDS Programme of MWCD, GOI, is reaching out to young children under 6 years, pregnant & breastfeeding mothers and women 15-45 years with an integrated package of services
- Contact your AWW for child care services at the nearest AWC

ICDS Services

- Supplementary nutritional support, Growth monitoring and promotion
- Nutrition and health education
- Immunization
- Health check-up
- Referral services
- Early childhood care and pre-school education

Have your child weighed at the AWC every month

Annexure-VI

TRAINING SCHEDULE

Day 1 Forenoon Session 1Orientation

Orientation on how to ascertain and record age and infant feeding practices in all children below 3 years of age and ascertain acute morbidity in under 5 children.

Orientation on fixing stature meter and checking survey instruments for accuracy

- How to fix the wall mounted stature meter for measuring height and ensure proper alignment of the tape during measurement.
- How to check the infantometer for accuracy.
- How to check accuracy of the balance with standard weights and weighing adults

Orientation on how to

- measure length/height and weight in all individuals over 1 month of age using the infantometer/wall mounted stature meter for measuring height and digital weighing machine
- measure BP using automated digital BP monitor in all persons over 18 years of age
- pipette 20μl of blood from finger prick onto filter paper for Hb estimation in all individuals over 6 months of age
- estimate blood sugar using glucometer in all persons over 18 years of age
- estimate iodine content in household salt using salt iodine testing kit in all households being surveyed.

Orientation on quality control measures during the survey

- Duplicate measurements at least one in ten persons surveyed for
- height, weight and BP
- Hb and blood glucose
- salt iodisation

Orientation on

- **Obtaining consent (and child assent in children between 7-18 years of age) for all procedures**
- **Infection prevention measures and waste management**
- **Providing information on results to the family and if problems have been detected advise on where to seek care**

Day 1, 2 and 3 Afternoon Sessions Skill development training

The trainees will be divided into three groups for the afternoon training.

Each trainee will measure

- Height (each group of five trainees will measure 4 other trainees in the group, thrice every day for three afternoon sessions and values compared with the measurements made by the faculty 5x4x3 x3);
- BP (each trainee will measure BP on one trainee three times with 5mt interval between two readings daily for three days 1x3x3);
- Pipette out 20 µl from anticoagulated blood 45 times (3 samples to be pipetted out five times daily for three days 3x5x3); Hb will be estimated in a sub-sample on the first and second day and in all the samples on the last day.
- Collect blood by finger prick on each other and pipette out accurately in duplicate (afternoon on second day); Hb will be estimated and the difference if any between the 2 samples will be recorded
- Check blood sugar (group activity check from two samples five times daily for three days 2x5x3)
- Check iodine content in salt 6 times (group activity 2 samples x 3 days)

The faculty/resource person will also take height, weight, pipette 20µl of blood from anti-coagulated blood for Hb estimation

The findings of the trainees will be compared with the measurements/estimations by the faculty and variations if any will be recorded.

Accuracy checking of the instruments

Infantometer (group activity check 2 infantometers for accuracy using a segment of the anthropometry rod daily for 3 days 2x5x3)

Balance (group activity 2 balances x six standards weights daily for 3 days (2x6x3)

Each of the trainees will weigh four other trainees five times in 2 balances daily for 3 days (5x4x2x3)

Day 2 and 3 Forenoon Session 3 Hospital/community visit for skill development

Trainees will be divided into small groups and practise all measurements/estimations in persons attending OPD/ inpatients of the hospital/clinic under the supervision of the faculty.

Each trainee will

- ascertain and record age, infant feeding practices and acute morbidity in at least 2 children below 3 years of age,
- measure the weight & length of at least one infant children using infantometer,
- measure height and weight of at least two children
- measure height, weight and BP in at least three adults.
- prick the finger and collect 20μl of blood as duplicate samples from at least two persons. Hb will be estimated and the difference if any between the 2 samples will be recorded.

The faculty will also measure length/height, weight, in the same individuals as the trainees and findings of the trainees will be compared against the measurements of faculty.

The trainees will be practiced and demonstrated on the management of potentially infectious waste in the hospital setting/ community.

Summary of the training programmes

Training will be skill based; the first session will describe the training programme and other 5 will focus on skill development in measurement of parameters

There is one session each in practising the measurements in the institution on the afternoon of each of the three days during which the trainees will repeat measurements on other trainees:

- Height (five trainees will measure 4 other trainees in the group, thrice every day on for three afternoon sessions and values compared with the measurements made by the faculty 5x4x3 x3)
- BP in adults (each trainee will measure BP on one trainee three times with 5mt interval between two readings daily for three days 1x3x3)
- Pipette out 20 μl from anti-coagulated blood 45 times (3 samples to be pipetted out five times daily for three days 3x5x3)
- Collect blood by finger prick on each other and pipette out accurately in duplicate (afternoon on second day)
- Check blood sugar 6 times each as duplicate samples (group activity check from two samples five times daily for three days 2x5x3)
- Check iodine content in salt 6 times (group activity 2samples x 3 days)

Accuracy checking of the instruments

Infantometer (group activity check 2 infantometers for accuracy using a segment of the anthropometry rod daily for 3 days 2x5x3)

Balance (group activity 2 balances x six standards weights daily for 3 days (2x6x3)

Each of the trainees will weigh four other trainees five times in 2 balances daily for 3 days (5x4x2x3)

In clinic/hospital and community setting

Measure height and weight of 2-3 adults and 2-3 children per day on two days

Measure weight and length of one infant per day on two days

Collect blood from finger prick in duplicate in 2 individuals

Criteria for proficiency

Accurate recording of the age, infant feeding practices and morbidity in preschool children as compared to the faculty.

Accurate recording of other measurements (as compared to the faculty).

Allowable margin of difference is shown below:

Height/length	± 0.1 cm
Weight	± 100 grams
Blood sugar	± 20 mg/dl
Haemoglobin	± 0.01 OD

Trainees who could measure the parameters accurately at least 90% of the times in the measurements were done on the last day (as indicated above) will be given a certificate indicating satisfactory completion of the training course.

Performance appraisal of each trainee as per a standardized format would be kept in the training institutions. The name and address of the Nodal Training Institutes and the zones attached to them are given below:

S.No.	Name & address of Nodal Training Institute	Zones attached to the Institute
1	National Institute of Health & Family Welfare, Baba Gang Nath Marg,Munirka, New Delhi-110 067.	U1, U2 & U3 (Uttar Pradesh) & Ut1 (Uttarakhand)
2	Nutrition Foundation of India, C-13, Qutab Institutional Area, **New Delhi-110 016.**	B1 & B2 (Bihar), C1 (Chhattisgarh), J1 & J2 (Jharkhand) & Ut2 (Uttarakhand)
3	Regional Medical Research Centre, North-East Region, P.O. Lahowal, **Dibrugarh-786 001** Assam	A1 & A2 (Assam)
4	Regional Medical Research Centre, NALCO Nagar, Nandankanan Road, Chandrasekharpur, **Bhubaneswar-751 016** Odisha	O1 & O2 (Odisha)
5	Regional Medical Research Centre for Tribals, R.M.R.C. Complex, Nagpur Road, P.O. Garha, **Jabalpur-482 003** Madhya Pradesh	M1 & M2 (Madhya Pradesh)
6	Desert Medical Research Centre, New Pali Road, **Jodhpur-342 005** Rajasthan	R1 & R2 (Rajasthan)

Annexure-VII

CLINICAL, ANTHROPOMETRIC & BIO-CHEMICAL (CAB) SURVEY UNDER ANNUAL HEALTH SURVEY

Data quality check of measurements by field investigator

State: | | | **Zone:** | | **District :** | | |

Rural-1/Urban-2: | | **Stratum:** | | **AHS Sample Unit:** | | | |

Date	Identification code of member	Name of member	Parameter	Initial measure-ment	Name of field investigator & his/her Id. No.	Duplicate measurement	Name of field investigator & his/her Id. No.	Remarks of Medical Consultant

Signature of field investigator
Name & Id. No.

Signature of field investigator
Name & Id. No.

Signature of field investigator
Name & Id. No.

Countersigned

Signature :
Name of Medical Consultant :
Date:

Note: (i) The field team will carry out this exercise in 10% of the persons surveyed per day. The name of the person who initially measured the parameter and the name of the person who repeated the measurement is to be mentioned. Some times, the same person may be doing the measurement both the times.

(ii) Measurements are to be taken for different members for different parameters.

Annexure-VIII

CLINICAL, ANTHROPOMETRIC & BIO-CHEMICAL (CAB) SURVEY UNDER ANNUAL HEALTH SURVEY

Data quality check of measurements by Medical Consultant

State: | | Zone: | | District : | |

Rural-1/Urban-2: | | Stratum: | | AHS Sample Unit: | |

AHS House No. | | | Household No. | |

Identification code of member	Name of member	Date of Initial measure-ment	Parameter	Initial reading of measure-ment	Name of field investigator & his/her Id. No.	Date of measurement by Medical Consultant	Measurement done by Medical Consultant	Remarks of Medical Consultant

Signature :
Name of Medical Consultant :
Date:

Note: (i) The Medical Consultant will carry out this exercise in 10% of the households in which survey teams have already completed their measurements ; Medical Consultant will take measurements in every person available in the household at the time of the visit.

(ii) Measurements are to be taken for all available members of the chosen household for all parameters.

ANNEXURE-Y

NODAL TEST LABORATORIES FOR CAB TESTS UNDER AHS

S.No.	State	Zone	Nam3e of Nodal Test Laboratory
1	Assam	A1	Regional Medical Research Centre, North-East Region,P.O. Lahowal, **Dibrugarh-786 001** Assam
		A2	Regional Medical Research Centre, North-East Region,P.O. Lahowal, **Dibrugarh-786 001** Assam
2	Bihar	B1	National Institute of Nutrition, Jamai-Osmania P.O., **Hyderabad-500 007,** Hyderabad
		B2	Nutrition Foundation of India, C-13, Qutab Institutional Area, **New Delhi-110 016.**
3	Chhattisgarh	C1	National Institute of Nutrition, Jamai-Osmania P.O., **Hyderabad-500 007,** Andhra Pradesh
4	Jharkhand	J1	National Institute of Nutrition, Jamai-Osmania P.O., **Hyderabad-500 007,** Andhra Pradesh
		J2	National Institute of Nutrition, Jamai-Osmania P.O., **Hyderabad-500 007,** Andhra Pradesh
5	Madhya Pradesh	M1	Regional Medical Research Centre for Tribals, R.M.R.C. Complex, Nagpur Road, P.O. Garha, **Jabalpur-482 003** Madhya Pradesh
		M2	Regional Medical Research Centre for Tribals, R.M.R.C. Complex,Nagpur Road, P.O. Garha, **Jabalpur-482 003** Madhya Pradesh

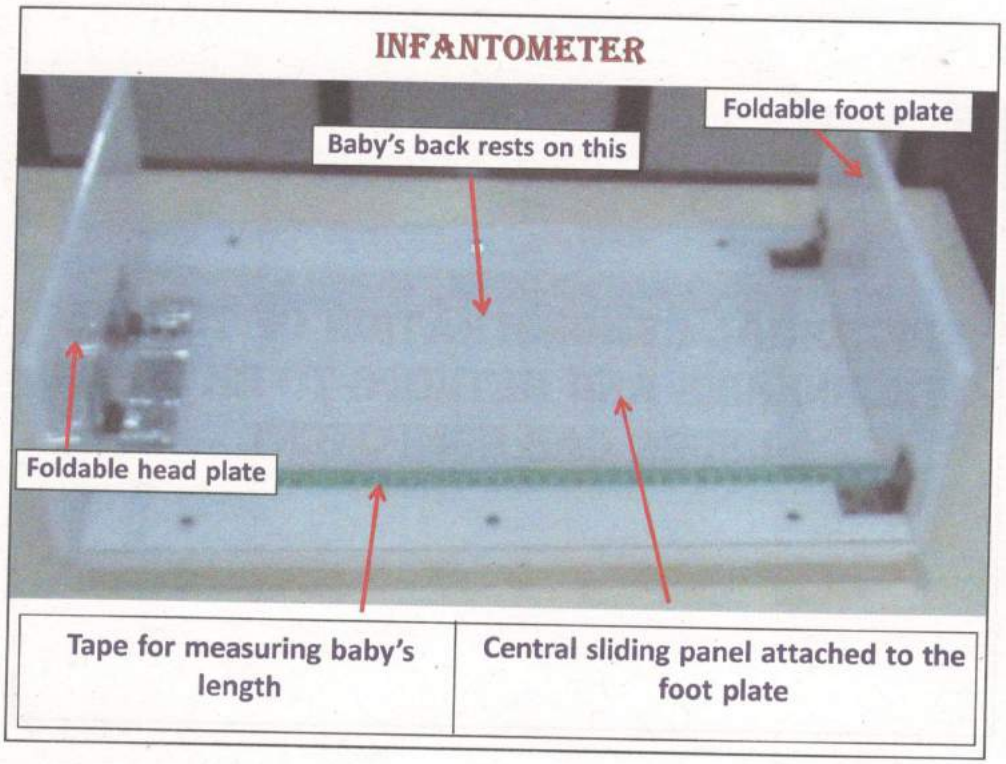
Sl.No.	State	Zone	Name of Nodal Test Laboratory
6	Orissa	O1	Regional Medical Research Centre, NALCO Nagar, Nandankanan Road, Chandrasekharpur, **Bhubaneswar-751 016** Odisha
		O2	Regional Medical Research Centre, NALCO Nagar, Nandankanan Road, Chandrasekharpur, **Bhubaneswar-751 016** Odisha
7.	Rajasthan	R1	Desert Medical Research Centre, New Pali Road, **Jodhpur-342 005** Rajasthan
		R2	Desert Medical Research Centre, New Pali Road, **Jodhpur-342 005** Rajasthan
8	Uttar Pradesh	U1	Nutrition Foundation of India, C-13, Qutab Institutional Area, **New Delhi-110 016.**
		U2	National Institute of Health & Family Welfare, Baba Gang Nath Marg, Munirka, **New Delhi-110 067.**
		U3	National Institute of Health & Family Welfare, Baba Gang Nath Marg, Munirka, **New Delhi-110 067.**
9	Uttarakhand	Ut1	Nutrition Foundation of India, C-13, Qutab Institutional Area, **New Delhi-110 016.**
		Ut2	Nutrition Foundation of India, C-13, Qutab Institutional Area, **New Delhi-110 016.**

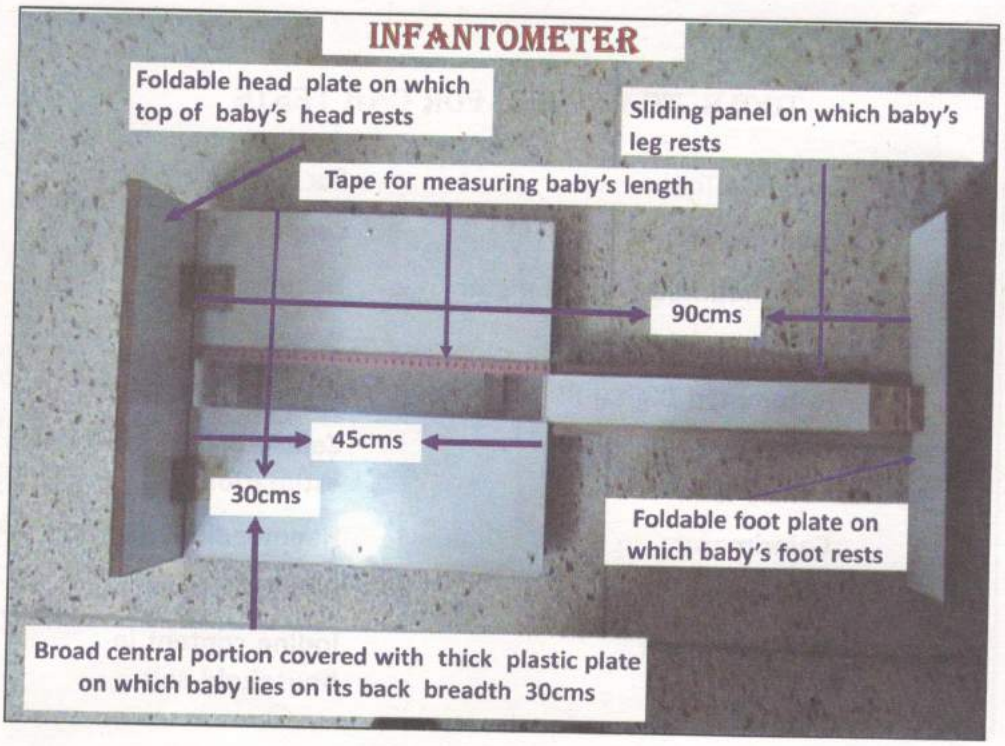
PART II

PICTORIAL DEMONSTRATION OF TOOLS, TECHNIQUES AND METHODS TO BE USED UNDER CAB COMPONENT

TOOLS TO BE USED FOR CAB TESTS

S.No.	Name of Tool	For Measurement of
(i)	Infantometer	Length
(ii)	Wall mounted Stature meter	Height
(iii)	Digital Weighing Scale	Weight
(iv)	Automated Digital BP Monitor	Blood Pressure
(v)	Hb Pipette	Colection of blood for Hb estimation
(vi)	Colorimeter	Haemogolobin level
(vii)	Glucometer	Blood Glucose
(viii)	Salt Testing kit	Iodine content in household salt


INFANTOMETER
Foldable foot plate
Baby's back rests on this
Foldable head plate
Tape for measuring baby's length
Central sliding panel attached to the foot plate


INFANTOMETER
Foldable head plate on which top of baby's head rests
Sliding panel on which baby's leg rests
Tape for measuring baby's length
90cms
45cms
30cms
Foldable foot plate on which baby's foot rests
Broad central portion covered with thick plastic plate on which baby lies on its back breadth 30cms

INFANTO METER

Made of plastic so that there is no risk of warping during monsoon
Length : 45 cm base and 45 cm sliding central panel
Breadth : 30 cm
Foldable foot and head plates
Instrument Accuracy 0.1 cm
Measurable length 45 - 90cm

Accuracy to be tested against standard infantometer

STATURE METER FOR HEIGHT MEASUREMENT

Wall mounted stature meters are used for measuring height.
Tape length : 2 meters.
Instrument accuracy : 0.1 cm.
Accuracy of the tape to be assessed by comparing with the standard steel tapes certified by Deptt of Weights and Measures.
Accuracy of stature meter in measuring height of individuals to be tested against a standard stature meter.

DIGITAL WEIGHING MACHINE

Digital weighing machine
Lithium battery operated
Can weigh 5 - 150 kg
Accuracy ± 100g

Accuracy and sensitivity to be tested against the standard of digital weighing machine.

AUTOMATED DIGITAL BLOOD PRESSURE MONITOR

Automated digital blood pressure monitor approved by European Society of Hypertension (EHS) and/or British Hypertension Society (BHS)
Specifications
Measuring method: Oscillometric system
Indication: Digital display
Range: Blood Pressure: 40- 240mm Hg,
Pulse: 40-199beat/min
Measure twice with 5 min interval and record both measurements
Instrument Accuracy: Pressure: ±3mmHg,
Pulse: ±5%
Accuracy checking: Instruments certified by manufacturer as EHS /BHS compliant.

HB ESTIMATION

Accuracy of pipette to be tested against a standard pipette: expected accuracy colorimetric reading ± 0.01 OD.

Accuracy of 5ml dispenser to be tested against a standard dispenser: expected accuracy volume of ± 0.1 ml or colorimetric reading ± 0.01 OD.

Accuracy of colorimeter to be tested against a standard colorimeter: expected accuracy colorimetric reading ± 0.01 OD.

GLUCOMETER

Specifications

Method: Glucose Oxidase SA Method

Results in terms of Plasma glucose equivalent units

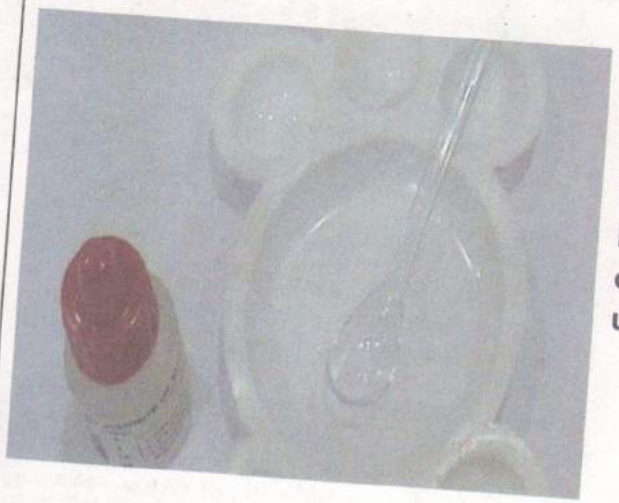
Blood Sample: 1 microlitre

Range: 20-600 mg/dl

Battery operated

LCD Digital Display

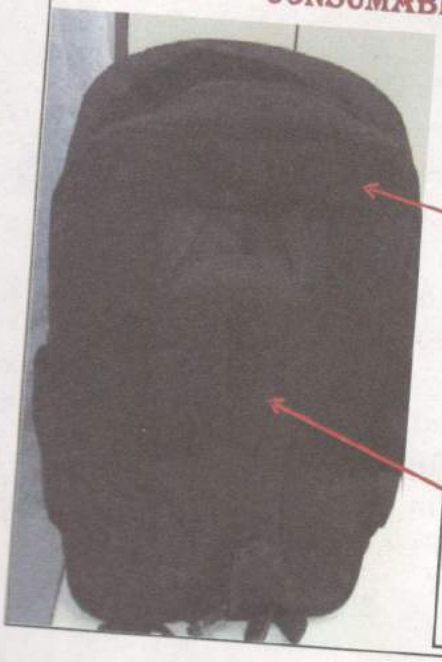
Accuracy tested against the colorimetric/ spectrophotometric plasma glucose estimation in "apparently normal" persons - difference should be less than ± 20 mg/dl.



KIT FOR TESTING IODISATION OF SALT

Salt testing kit provided by the National Institute of Nutrition is to be used.

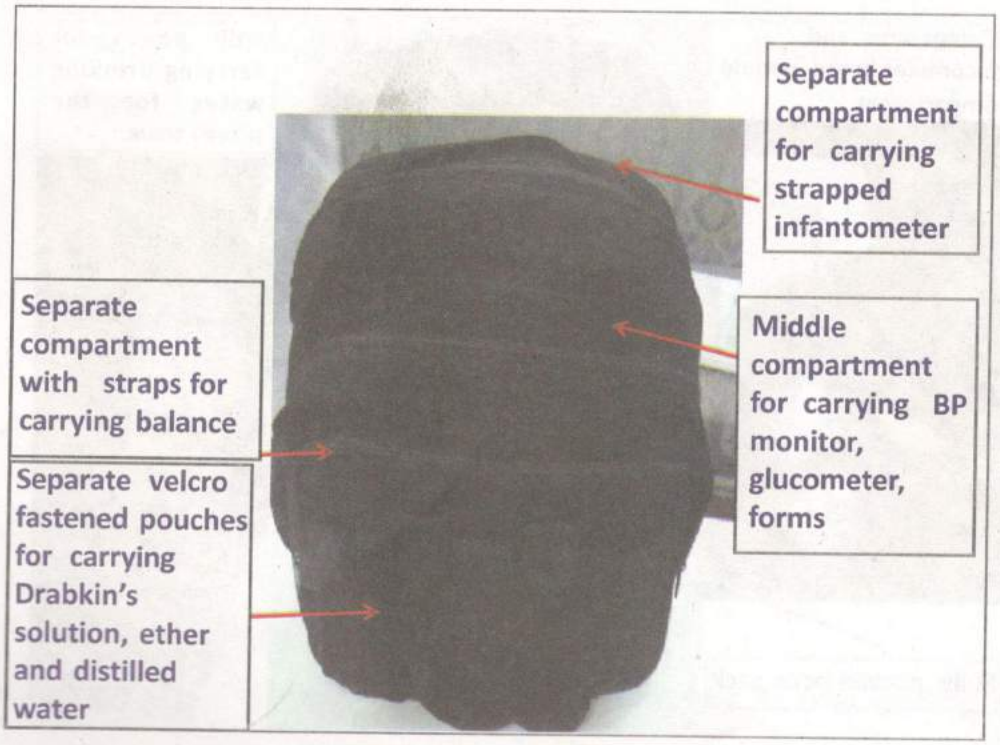
BACK PACK FOR CARRYING EQUIPMENT AND CONSUMABLES FOR CAB SURVEY

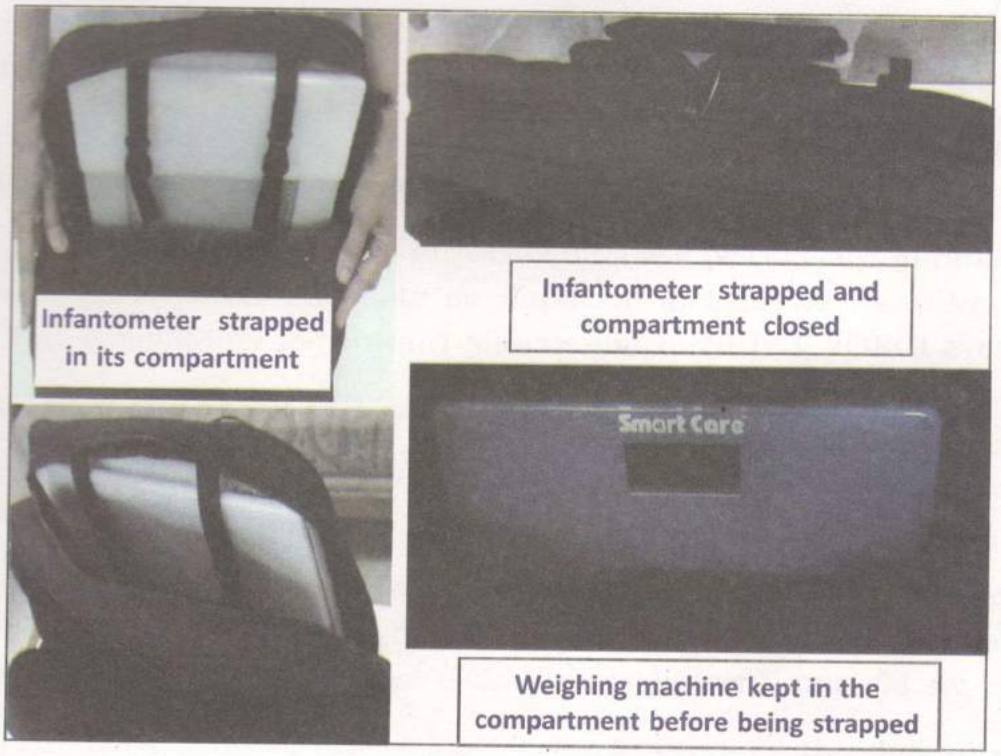


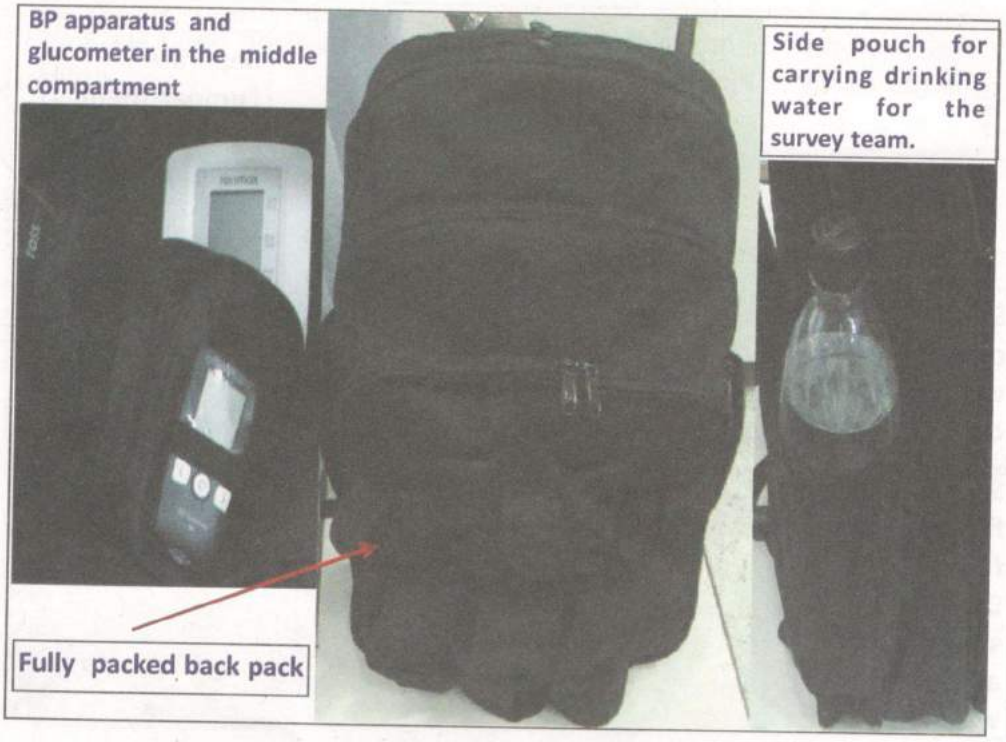
A back pack has been custom designed keeping in mind the two requirements of safety of equipment and comfort of the team members carrying the back pack.

The part of the backpack in contact with the back of the person carrying it is well padded to ensure comfort

Broad, padded , thick straps of the back pack will ensure that they rest on the shoulders without causing any discomfort.


Separate compartment for carrying strapped infantometer
Separate compartment with straps for carrying balance
Middle compartment for carrying BP monitor, glucometer, forms
Separate velcro fastened pouches for carrying Drabkin's solution, ether and distilled water


Infantometer strapped in its compartment
Infantometer strapped and compartment closed
Smart Care
Weighing machine kept in the compartment before being strapped


BP apparatus and glucometer in the middle compartment
Side pouch for carrying drinking water for the survey team.
Fully packed back pack

QUALITY ASSURANCE MEASURES IN CAB SURVEY

Steps taken to ensure quality of data

The following steps are being taken to ensure quality of data collected in the CAB survey:

- All the parameters being studied in CAB survey are simple to measure and have been taught as a part of the pre-service training curriculum for all the survey personnel.
- Time tested equipment and methods are being used for measuring these parameters.
- The equipment for undertaking these measurements has been procured centrally and tested for accuracy before being handed over to survey personnel.

Prior to initiation of CAB Survey, all the survey personnel will be trained on methods used for measuring each of these parameters; only those who are proficient would be inducted into the survey team.

Quality Assurance Measures to be followed by Survey Teams during the survey

In order to ensure quality of data collected, the survey team will

- Check the accuracy of the balances using standard weights and weighing two adults five times every day before the balance is used to measure survey population.
- Check that the stature meter is correctly fixed at 2 metres before height measurements are undertaken in every household.
- For all parameters measured, duplicate data will be collected in randomly chosen 10% of the subjects and data on duplicate measurements will be sent to the medical consultants for onward submission to NIHFW /ORGI every month.

Process to be followed for collecting duplicate data

Every day, the team is expected to visit 14 households – and take measurements in about 70 persons.

- For height, weight, and Hb duplicate measurements are to be collected in 7 persons every day. For height and weight, it is suggested that the 7 persons should include one pre-school child, one adolescent, one elderly person.
- For BP, blood glucose collect duplicates in every tenth adult surveyed.

- In one in ten infants (measured during 2-3 days), length measurement is repeated.
- After measuring the parameter in all the household members and recording the data in the form, one person is to be selected and the measurements are to be repeated.
- After checking household salt in all houses, one house is to be selected every day and the household salt is tested again.
- The Data quality check of measurements under CAB Survey will be reported in the prescribed formats by the field team and the Medical Consultant concerned. The formats prescribed for the purpose are given in Annexures-VII & VIII in Part I of this Manual.

Formats for repeat measurements to be reported by field team/Medical Consultant:

The field team will carry out repeat measurements in 10% of the persons surveyed per day. The name of the person who initially measured the parameter and the name of the person who repeated the measurement is to be mentioned. Sometimes, the same person may be doing the measurement both the times. The measurements are to be taken for different members for different parameters and recorded in the prescribed format (Annexure-VII) and the same submitted along with copy of Form I for those households to the Medical Consultant concerned for recording his remarks and onward transmission to NIHFW.

The Medical Consultant will carry out this exercise in 10% of the households in which survey teams have already completed the measurements; the Medical Consultant will take measurements in every person available in the household at the time of the visit. The measurements are to be taken for all available members of the chosen household for all parameters; the details of these will be entered in the prescribed format (Annexure-VIII) and sent along with copy of Form I for those households to NIHFW.

Quality Assurance Measures for Hb estimation

Seven laboratories will be doing Hb estimation for CAB survey. They will be doing between 1000-2000 Hb estimations every day.

- Every day in the morning, all the laboratories will run the standards in each of the colorimeters which will be used for Hb estimation on that day.
- They will also run in each of the colorimeters which will be used for Hb estimation on that day, a batch of five samples which had been estimated on the previous day and have been stored overnight in the fridge in test tubes sealed with foil or screw-topped tubes.

- Every day before beginning the afternoon session, five samples of dry blood spot that has been eluted in Drabkin's solution in the morning will be estimated in all the colorimeters in use on that day.
- Testing is strictly to be done based on the samples of one particular PSU.

NIHFW and NIN are part of the national and international quality control network for Hb estimation.

Procedure for inter laboratory monthly Quality Assurance Measures for Hb estimation

- Each of the seven laboratories will collect 10 samples of blood in an anticoagulant.
- From each of these samples, they will make 20 dry blood spots containing 20µl of blood.
- They will estimate Hb in duplicate and send the value to NIHFW.
- They will send one sample to each of the other laboratories.
- Each laboratory will estimate Hb from the sample within 15 days after sample collection and send the results to the laboratory which sent the samples and NIHFW.
- The laboratory which sent the sample will consolidate the results and verify that Hb values reported by all the laboratories are within permissible range (±1 OD).
- If the variation is more, the laboratory which sent the sample will re-test using the dry blood spot that they have and also send two dry blood spots to the laboratory which showed the variation for re–checking and sort out where the problem was and rectify the same.

TESTING ACCURACY OF INFANTOMETERS

For evaluation of Infantometers it was envisaged that:

- Tape in the Infantometer will be checked against the standard steel tape certified by Department of Weights and Measures.
- Five infants will be measured five times in the test Infantometer and length will be compared with length of these infants as measured in the Stadiometer.

Experience during evaluation of Infantometers showed that:

- taking Stadiometer to the small tenement rooms through narrow stair cases was difficult.
- older infants were not able to lie comfortably on the narrow Stadiometer and hence length measurements were not accurate.
- measuring any infant six time was difficult even when done over a three hour period with sufficient time between measurements.

TESTING ACCURACY OF INFANTOMETERS

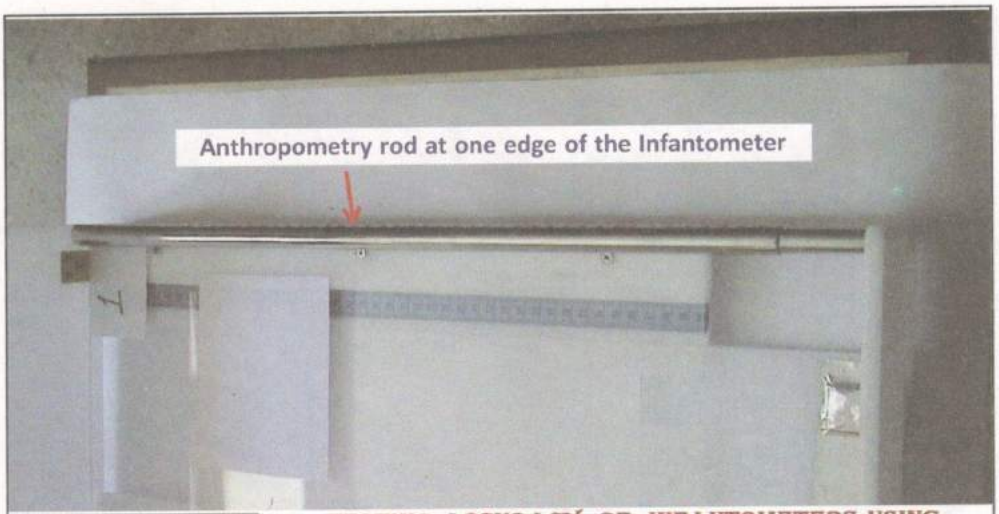
In view of these problems, two modifications in the testing procedure were suggested and accepted:

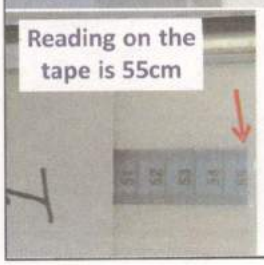
Use a standard Infantometer for comparison with the test Infantometer.

Check the accuracy of the Infantometer by measured rod/wooden plank of known length five times to check accuracy in five locations on the Infantometer.

Measure two infants once in the test and once in the standard Infantometer and compare the length.

This modified procedure is feasible and works well in testing Infantometers for accuracy both in clinic and community settings.

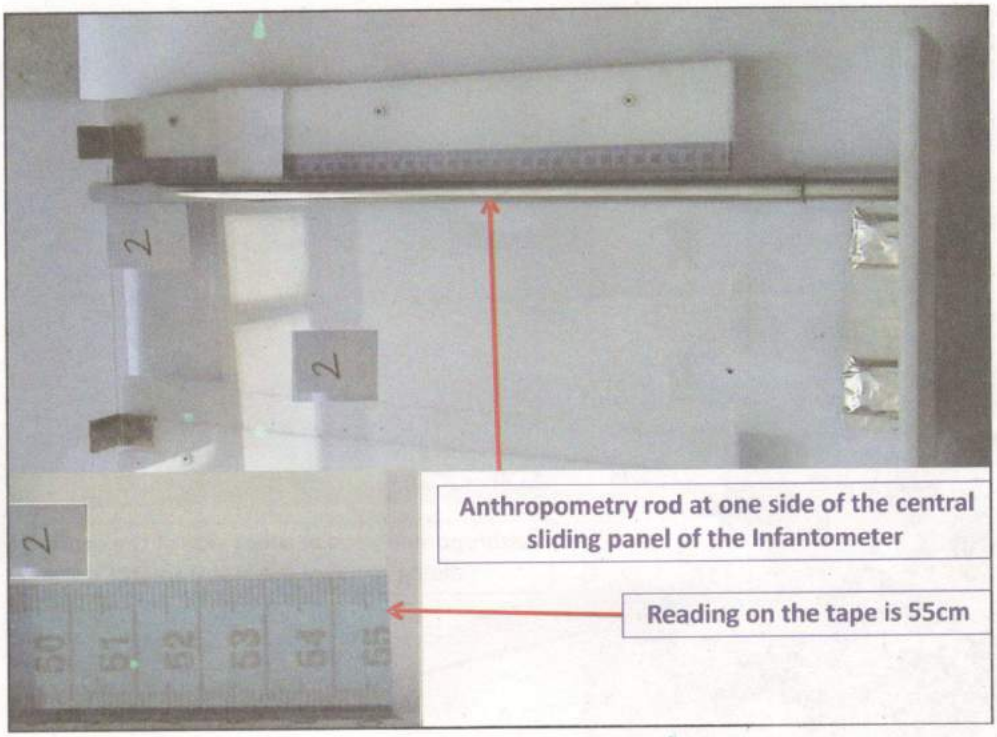


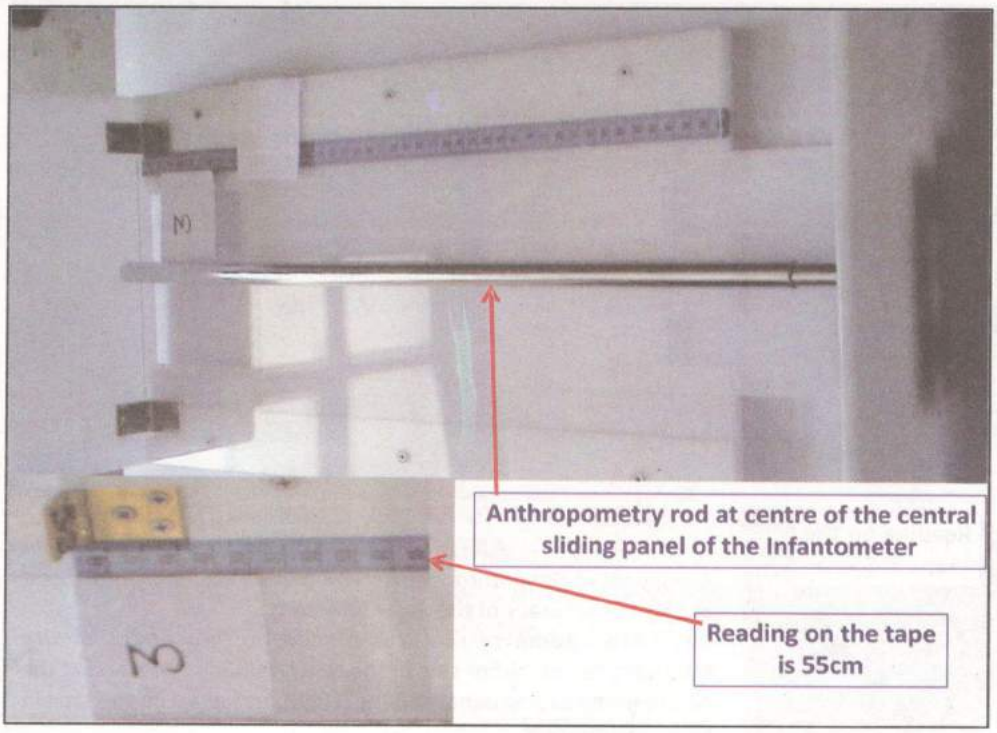


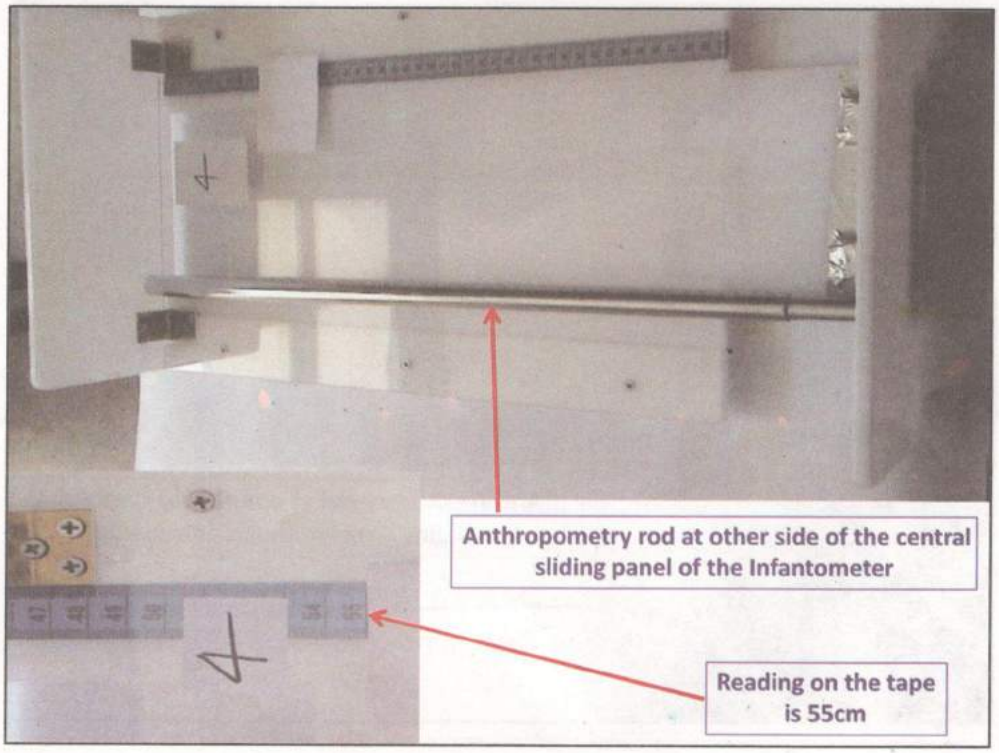
TESTING ACCURACY OF INFANTOMETERS USING ANTHROPOMETRY ROD

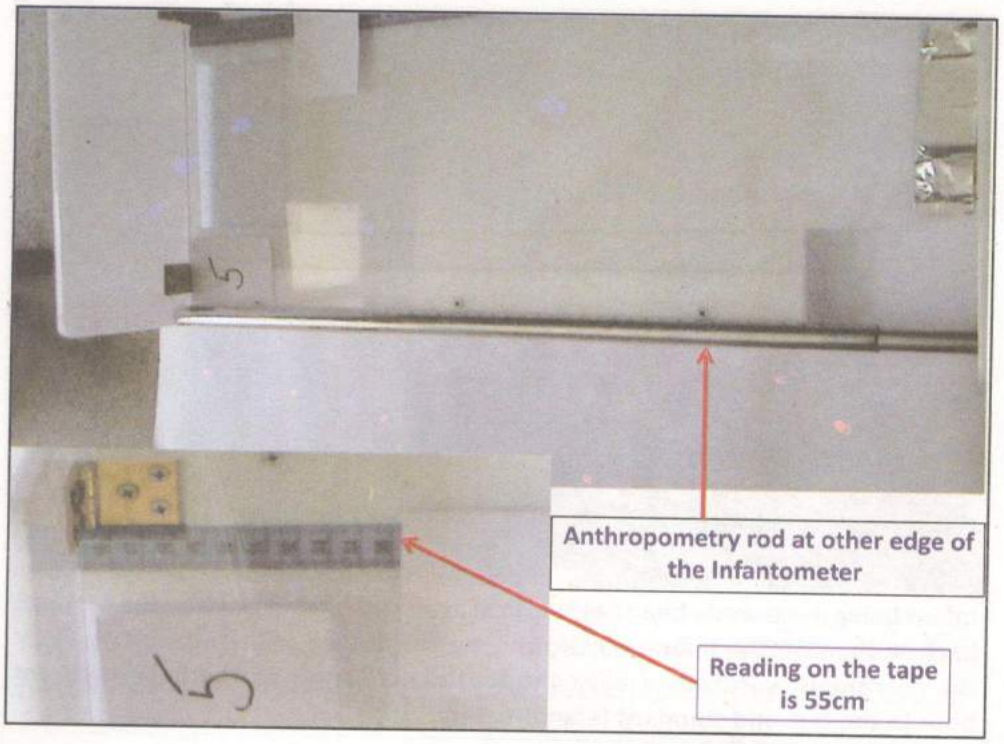
A segment of the anthropometry rod measuring 55 cms was used to test the accuracy of the Infantometer.

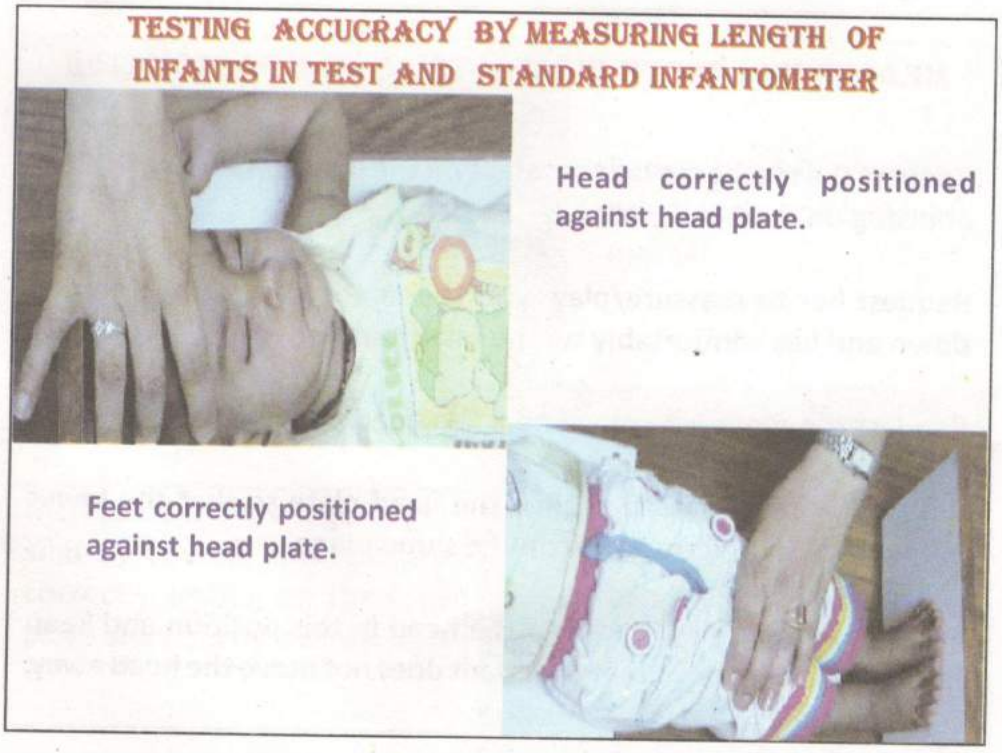
The anthropometry rod was placed on two edges of the Infantometer, on either side of the central sliding panel and at the centre of the sliding panel and the length measured on the tape in the Infantometer.

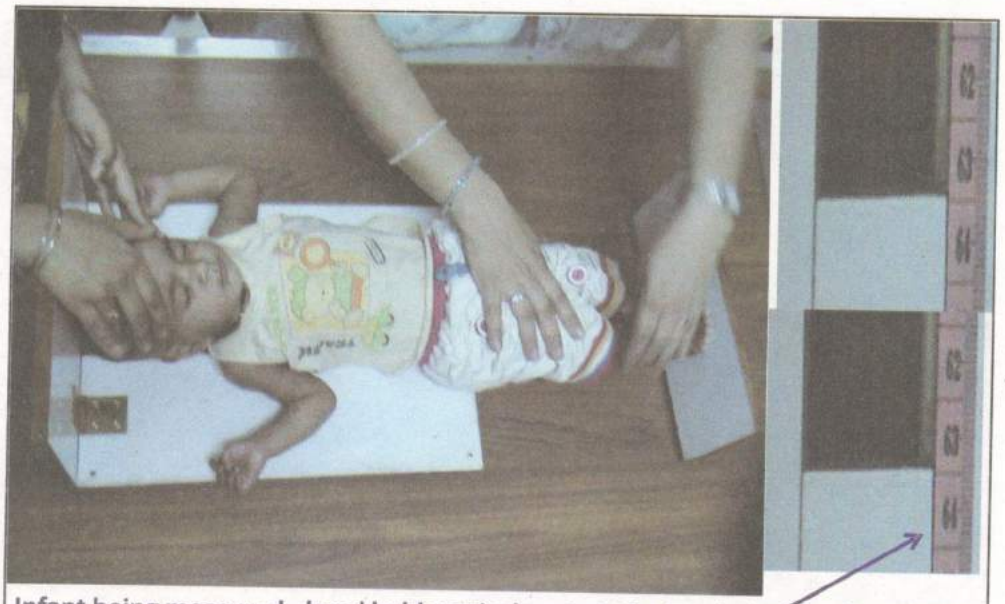



Anthropometry rod at centre of the central sliding panel of the Infantometer
Reading on the tape is 55cm


Anthropometry rod at other side of the central sliding panel of the Infantometer
Reading on the tape is 55cm


Anthropometry rod at other edge of the Infantometer
Reading on the tape is 55cm


TESTING ACCUCRACY BY MEASURING LENGTH OF INFANTS IN TEST AND STANDARD INFANTOMETER
Head correctly positioned against head plate.
Feet correctly positioned against head plate.



Infant being measured - head held vertical against the head plate by the mother; back straight on the Infantometer; knees straightened and feet positioned by the nutritionist vertically against the foot plate. Length of the baby is 63 cm both in the test and standard Infantometer.

MEASURING LENGTH IN INFANTS USING INFANTOMETER

Request the mother to lay the infant on the Infantometer with head abutting on the head plate.

Request her to reassure/play with the infant until he/she settles down and lies comfortably on the Infantometer.

Request the mother to move near the head plate.

Adjust the infant's head against the head plate so that the lower orbital margin and tragus lie on the same plane.

Request mother gently to hold the head in this position and keep talking to the infant so that the infant does not move the head away.

Infants will keep the knees bent while lying on their back.

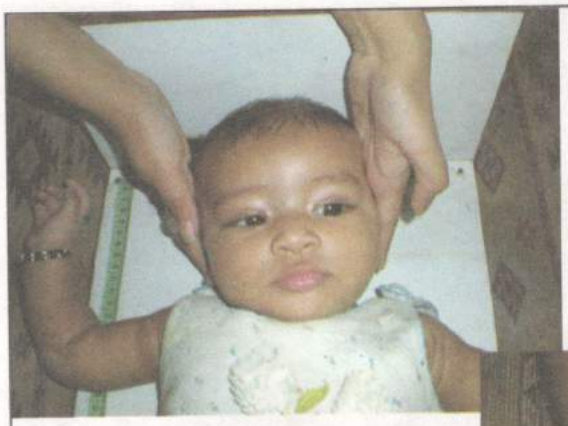
With your left hand gently press the bent knee on to the central board. The knee will straighten and the feet will push the foot plate out.

Infant's feet should not be pulled to straighten the legs.

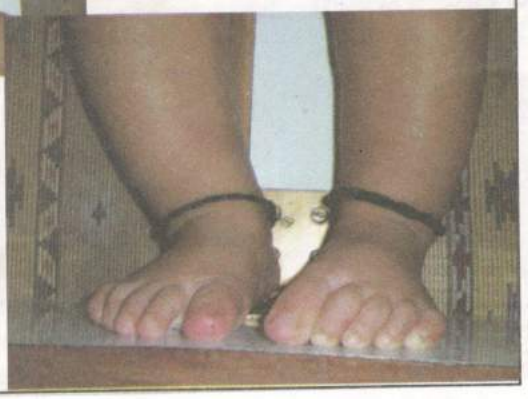
Press the dorsum of the feet on to the foot plate so that the there is no gap between the feet and the foot plate. This is the length of the baby.

Request the mother to pick the baby from the Infantometer without disturbing the position of the foot plate; .

Place a white sheet of paper on the Infantometer at the level of the top of the central sliding panel (to prevent parallax errors in taking the reading) and read the measurement on the tape.

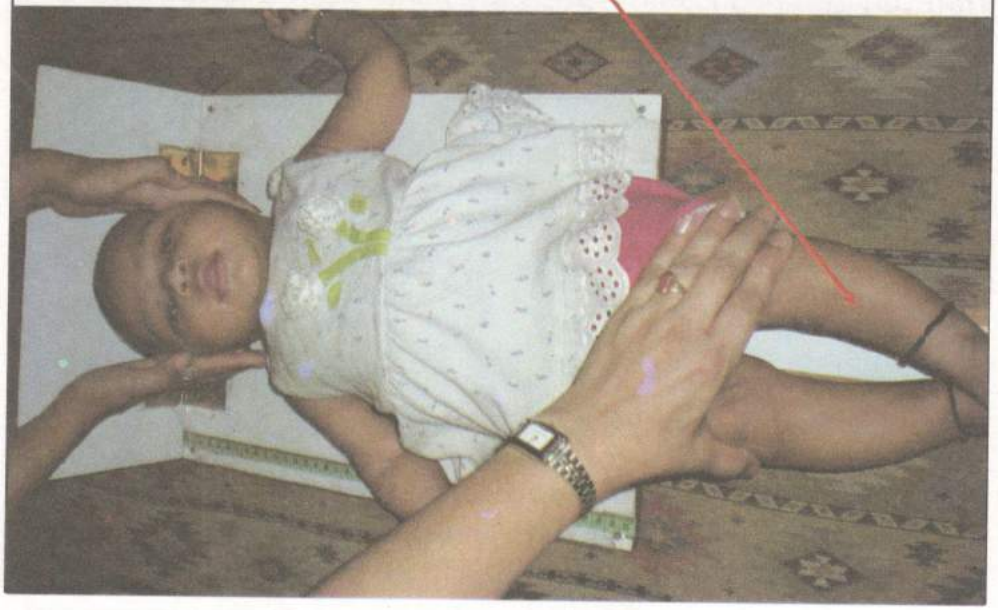


Baby's head is correctly positioned and held by mother



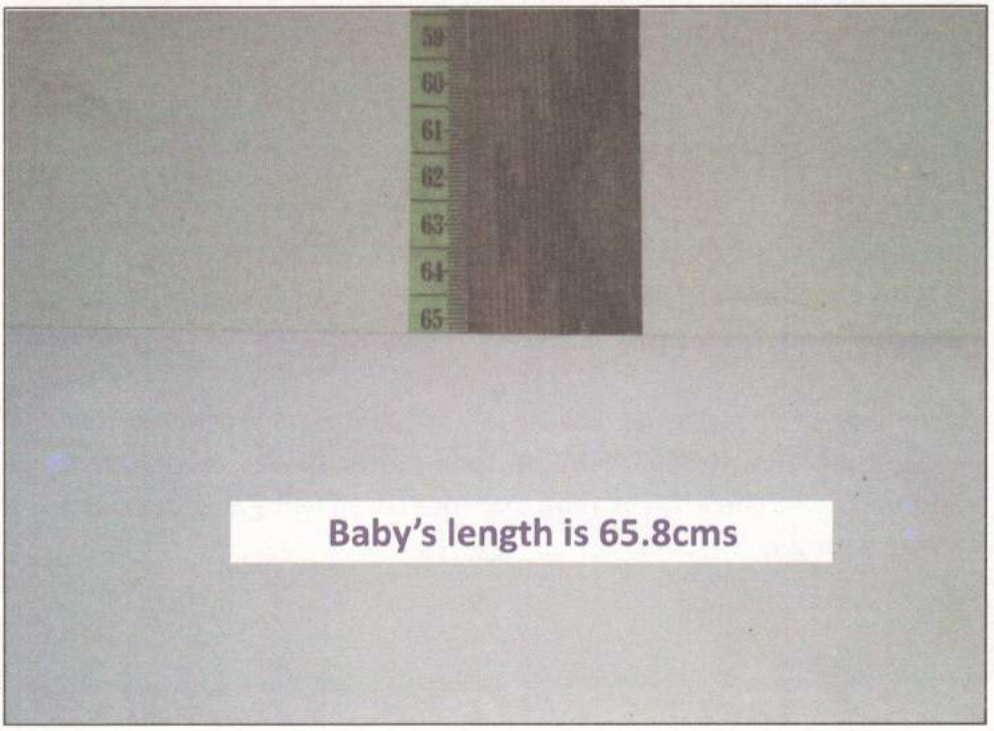
Inspite of baby's legs being slightly bowed, the feet are correctly resting on the foot plate and held by nutritionist.

Head has been positioned and knees are straightened. The baby has slightly bowed legs (indicated by arrow). This is normal in young babies and cannot be straightened.



Error – feet not resting on foot plate

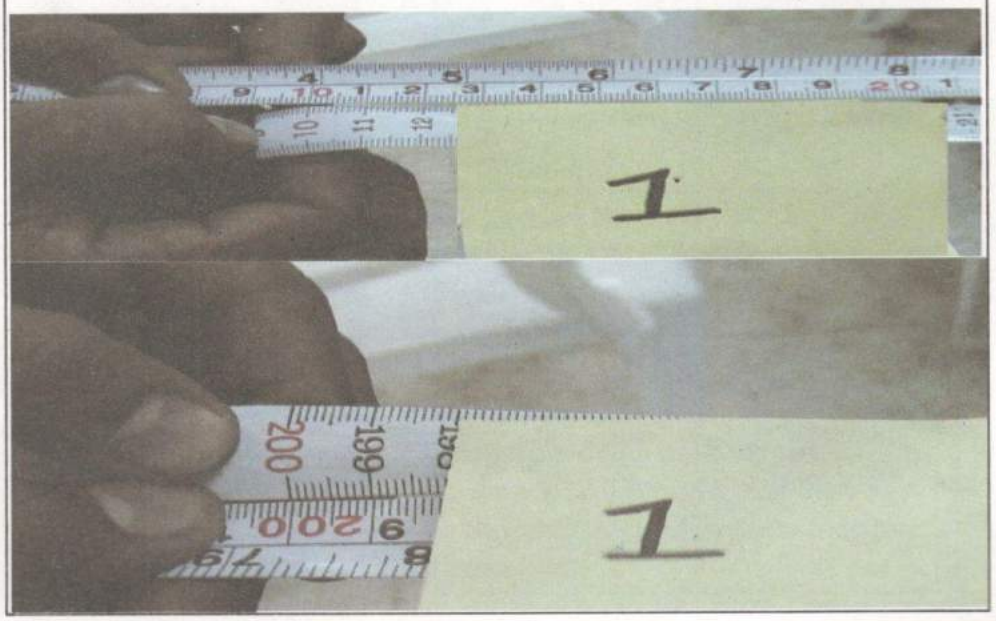
Feet correctly resting on the foot plate

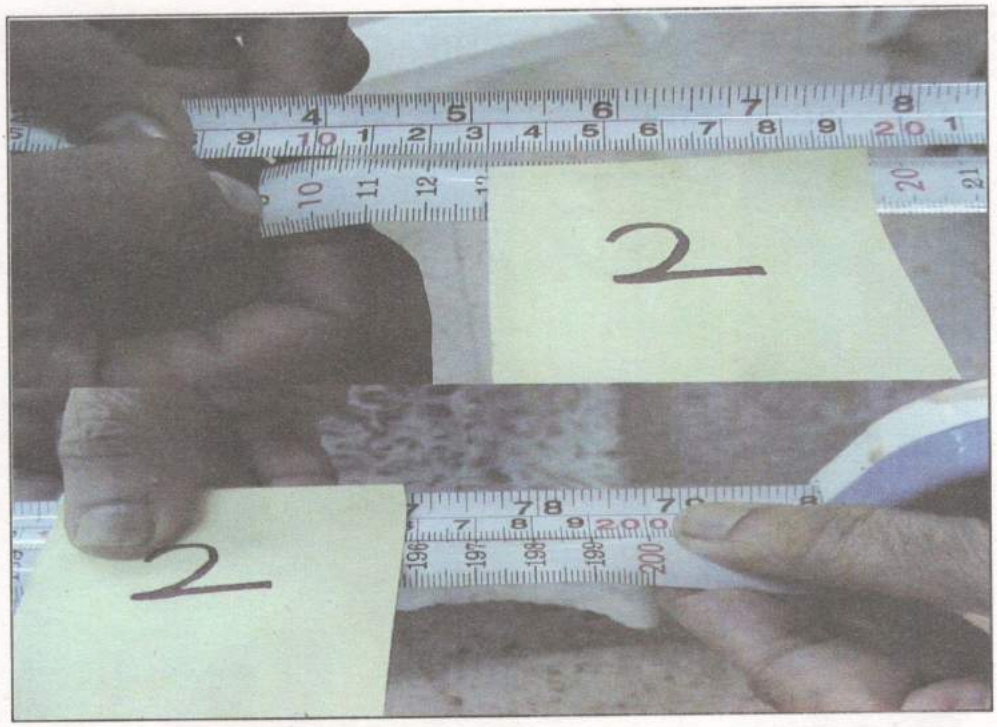

59
60
61
62
63
64
65
Baby's length is 65.8cms

CHECKING ACCURACY OF THE STATURE METER

Accuracy of tape in the Stature meter is to be tested by comparing it with the standard steel tape certified by the Department of Weights and Measures.

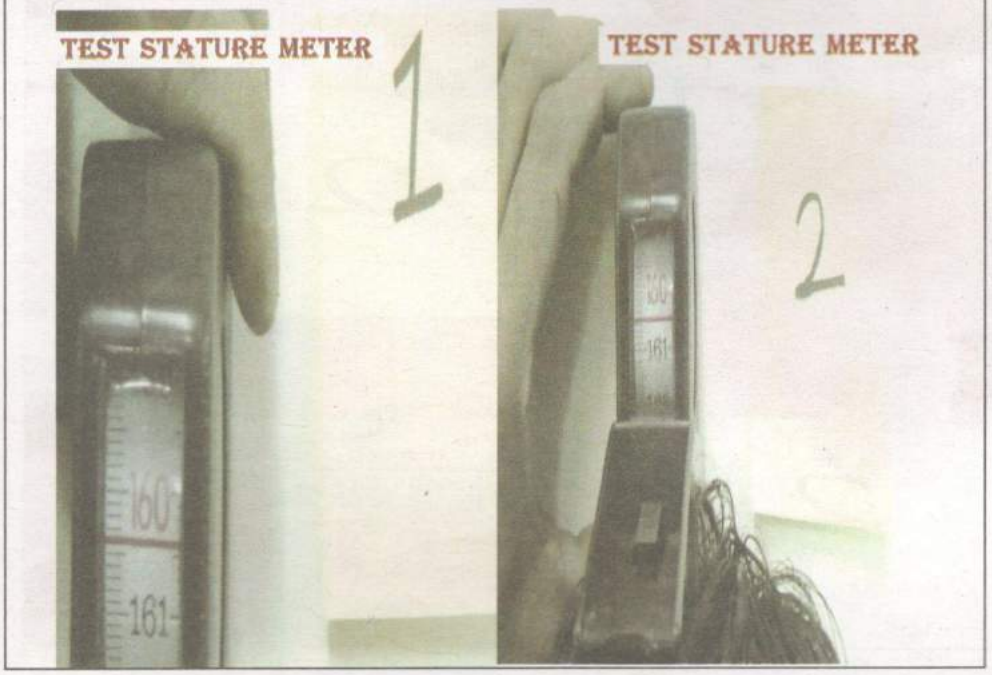
Accuracy of the stature meter is assessed by measuring five individuals five times in the stature meter under testing and comparing the height with the one measured using the standard Stature meter.

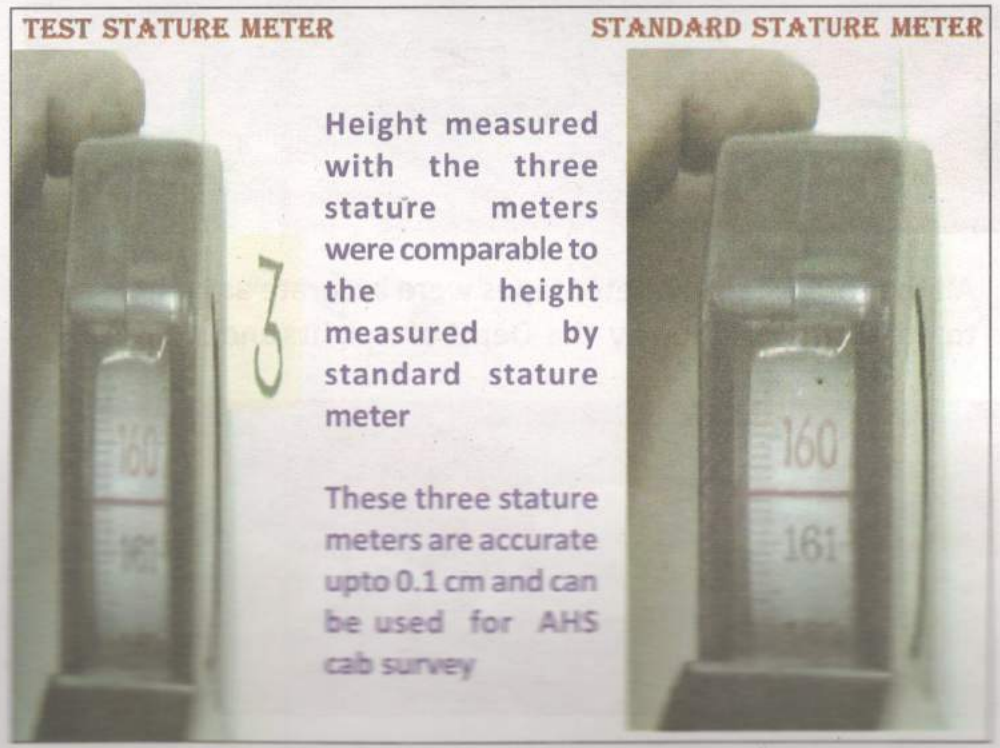




All the three stature meter tapes were accurate as compared to steel tape certified by the Deptt of weights and measures.

CHECKING ACCURACY OF THE STATURE METER





OTHER PROBLEMS

Some stature meter tapes do not unwind fully or smoothly.

Such stature meters may not function under field conditions and so should be rejected and replaced.

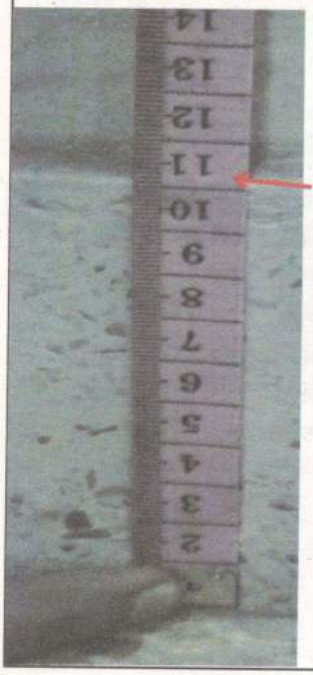
The vertical limb may get fractured if the hammer blow falls on it when it is nailed to the wall. This may lead to slanted fixation and lead to errors in measurement of height. Efforts should be made to protect the vertical limb from hits while fixing the stature meter.

If the vertical limb has been fractured such stature meters should be rejected and replaced.

MEASUREMENT OF HEIGHT USING WALL MOUNTED STATURE METER

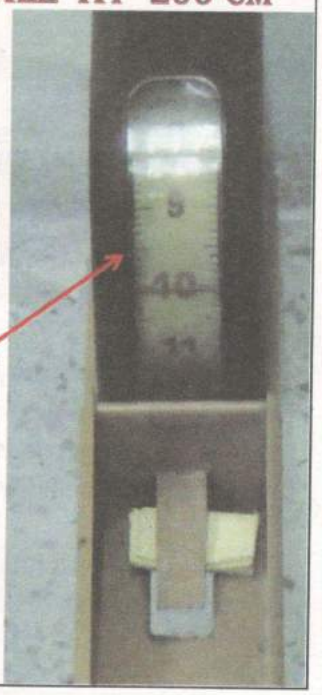
Height is one of the most widely used indicators for assessment of nutritional status and provides an index of linear skeletal growth.
Until a few decades ago many of the surveys were carried out in places without level ground or vertical wall.
Under these circumstances height was measured using either a Stadiometer or anthropometry rod.
Stadiometer is a bulky instrument, occupies space and is heavy.
Anthropometry rod is relatively compact but intensive training is required to keep the rod perpendicular and accurately measure the height.
Currently in all urban areas and most rural areas most residences have even flat floor and vertical walls.
Under these conditions the small readily portable wall mounted stature meter is used for measurement of height.

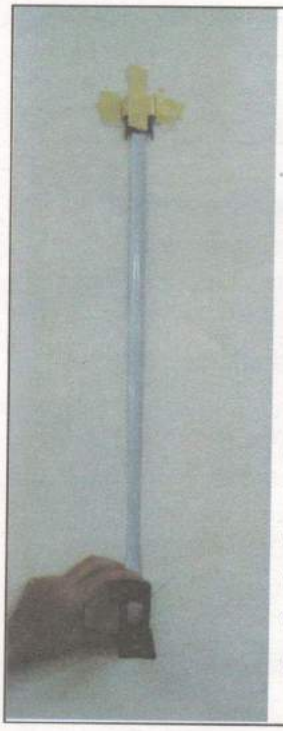
FIXING STATURE METER TO THE WALL AT 200 CM



Measure the height of skirting using a tape - it is 10 cm in this case.

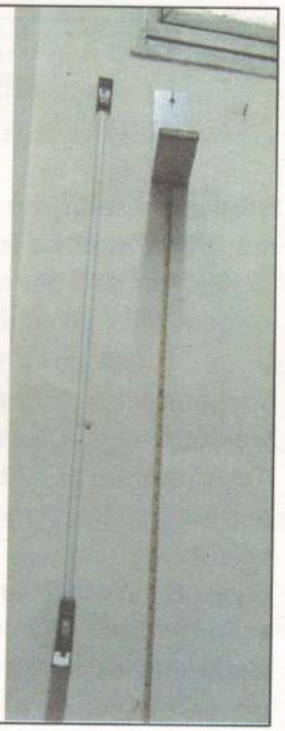
Fix the nail on which the vertical limb of stature meter is hung on the wall, at the level in which the horizontal limb of the stature meter resting on the top of skirting reads 10 cm.





Fix the vertical limb of the stature meter to the wall with a double sided tape if the stature meter is used to measure heights in houses.

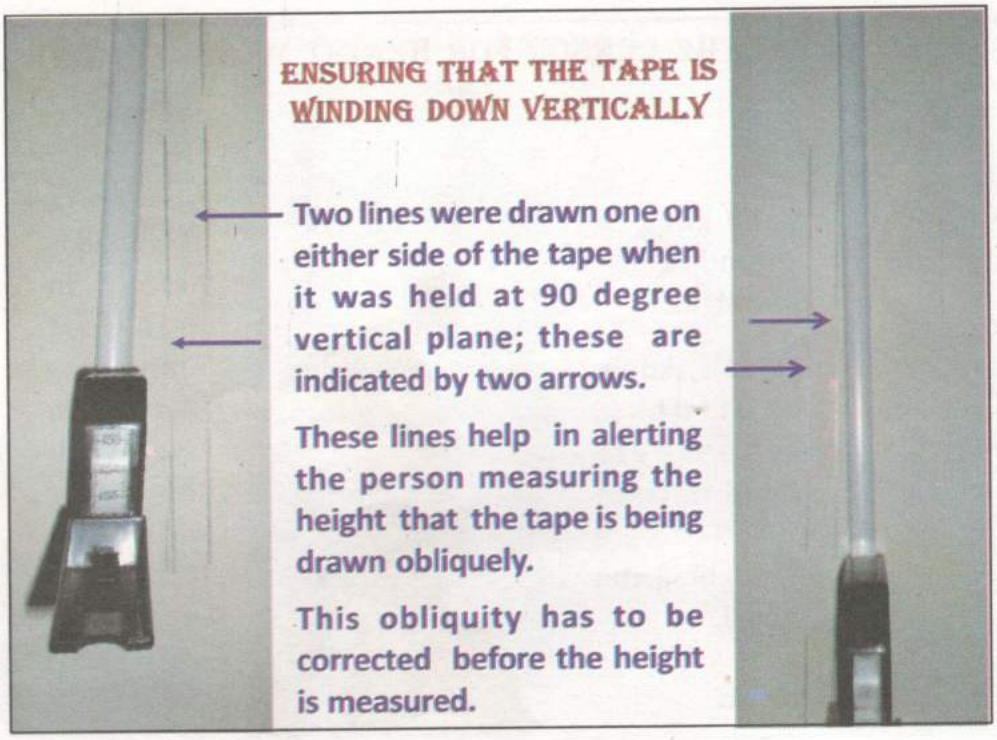
If the stature meter is used to measure height of a number of persons in places like anganwadi or community hall, fix the stature meter to the wall by nailing it to the wall through the holes provided in the vertical limb of the equipment.



ENSURING THAT THE TAPE IS WINDING DOWN VERTICALLY

Draw down the tape vertically and ensure that the horizontal limb rests evenly on the floor.

Draw a line on either side of the tape, so that it is possible to check whether the tape is being drawn down without any obliquity while height is measured.



ENSURING THAT THE TAPE IS WINDING DOWN VERTICALLY

Two lines were drawn one on either side of the tape when it was held at 90 degree vertical plane; these are indicated by two arrows.

These lines help in alerting the person measuring the height that the tape is being drawn obliquely.

This obliquity has to be corrected before the height is measured.

MEASUREMENT OF HEIGHT

The person should be barefoot and hair should be flat;
Feet to be together with heels, buttocks, shoulder touching the wall;
Tragus of the ear and the lower orbital margin should be at the horizontal plane. This is called Frankfurt Plane.
The horizontal limb of the stature meter should be firmly placed on the top of the head but should not be pressed;
The eyes of the investigator should be in level with the window showing the reading. The height should measured to the nearest 0.1 cm

Standing on a stool and stooping to read the height of taller persons

If the subject is taller than the investigator then a stool should be used to ensure that the eye of person who takes the measurement is on the same level as the window providing the reading in the stature meter.
If the subject is shorter, the investigator should stoop to take the measurement.

Stooping to read the height of shorter person

POSITIONING THE PERSON FOR HEIGHT MEASUREMENT

The girl is standing straight.

Heals, knee, buttocks, shoulders and back of the head are touching the wall.

The head is held in Frankfurt Plane - tragus is in line with the lower orbital margin.


POSITIONING THE PERSON FOR
HEIGHT MEASUREMENT


POSITIONING THE PERSON FOR
HEIGHT MEASUREMENT
147
148

POSITIONING THE PERSON FOR HEIGHT MEASUREMENT

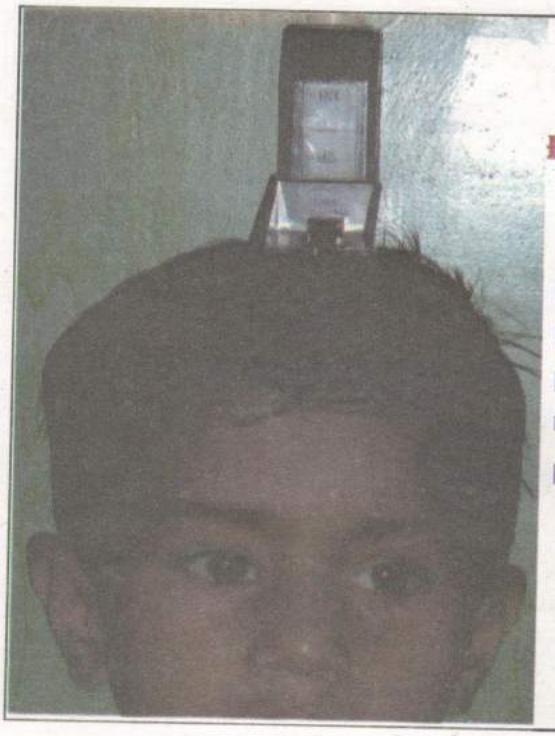
Height is being measured in a child.

Child is standing straight.

Heals, knee, buttocks, back, shoulders and back of the head are touching the wall.

Head is held in Frankfurt plane.

The horizontal limb of the stature meter is resting on the top of the child's head.



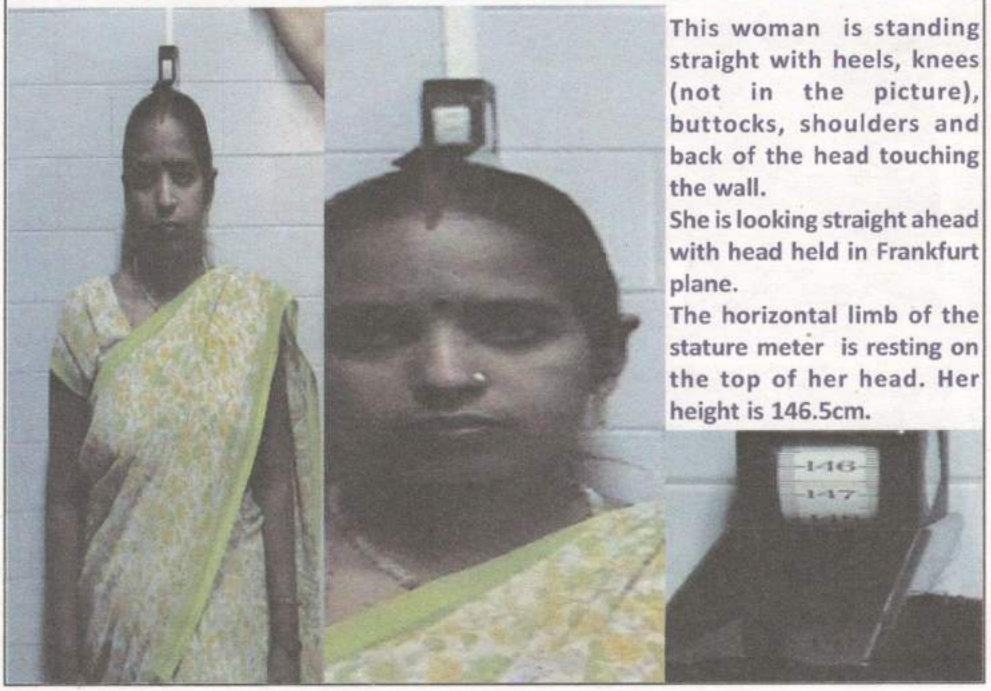
POSITIONING THE PERSON FOR HEIGHT MEASUREMENT

Child is looking straight ahead; head is held in the Frankfurt plane;

horizontal limb of the stature meter resting on the head.

His height is 94 cms.

POSITIONING THE PERSON FOR HEIGHT MEASUREMENT



This woman is standing straight with heels, knees (not in the picture), buttocks, shoulders and back of the head touching the wall.
She is looking straight ahead with head held in Frankfurt plane.
The horizontal limb of the stature meter is resting on the top of her head. Her height is 146.5cm.

TESTING ACCURACY OF DIGITAL BALANCES

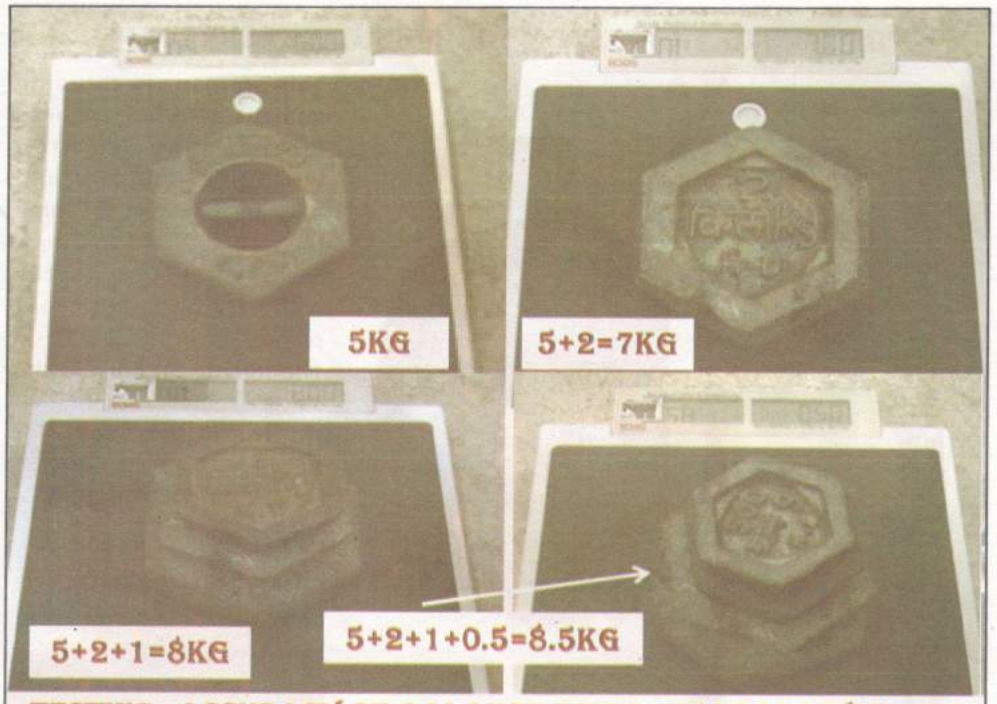
Weight and BMI are two important parameters used for assessment of nutritional status.

In AHS CAB, battery operated digital balances are used for weighing.

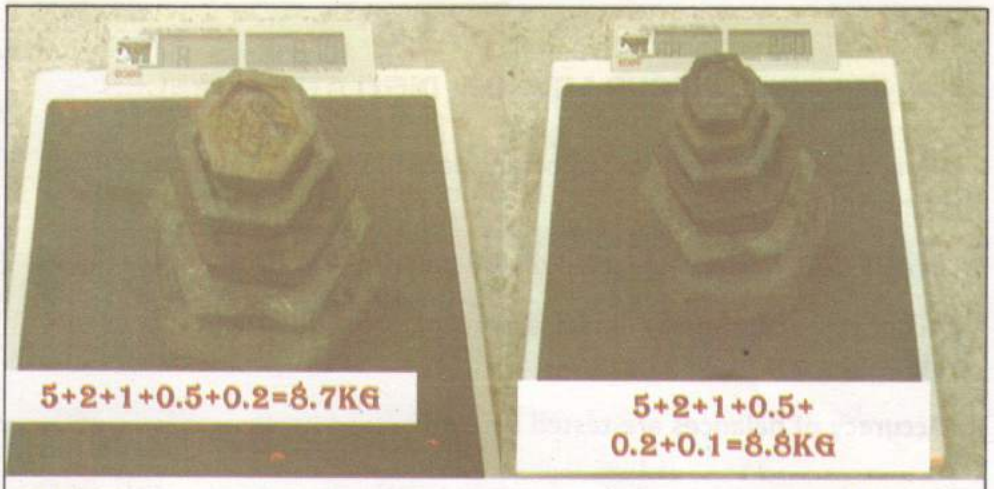
Accuracy of balances is an essential prerequisite for accurate measurement of weight.

Accuracy of balances are tested by:

- using standard weights certified by the Department of Weights and Measures and checking the weight recorded by the balance.
- by weighing persons of varying weights five times in the test balances and comparing it with the weight of the same person weighed using the standard balance.



TESTING ACCURACY OF BALANCE USING STANDARD WEIGHTS



TESTING ACCURACY OF BALANCE USING STANDARD WEIGHTS

Deptt of Weights and Measures certified Standard weights of 5, 2, 1, 0.5, 0.2 and 0.1 kg are used.
Weigh first 5 kg and then 7, 8, 8.5, 8.7 and 8.8 kg as shown in the figures.
The balance should record weights with accuracy of ± 0.1 kg.

Weigh five adults five times in each test balance.

Weigh the same five adults once in the standard balance.

The difference between weight measured by test balance and standard balance should not be > 0.1 kg.

		P	R	V	K	S
TEST BALANCE	1	70.3	80.9	83.7	78.3	49.9
	2	70.3	81.0	83.7	78.3	49.9
	3	70.3	81.0	83.6	78.3	49.9
	4	70.3	81.0	83.7	78.3	49.9
	5	70.3	81.0	83.7	78.3	49.9
STANDARD BALANCE		70.3	81.0	83.7	78.3	49.9

For testing accuracy, five adults were weighed five times in test balance and once in standard balance.

Three individuals' weight was the same both in test and standard balance (table above).

In two individual there was one reading which was lower by 100grams.

This balance is accurate as only two of the 25 readings showed difference of 100 grams as compared to the standard balance.

TESTING SENSITIVITY OF ELECTRONIC BALANCES

In CAB component of AHS the same balance is used to weigh all persons from neonate to elderly.

Infants and young children who cannot stand by themselves are carried by the mother or care giver.

Mother or care giver carrying the baby is weighed first.

Then the infant is taken by others and the mother or care giver alone is weighed.

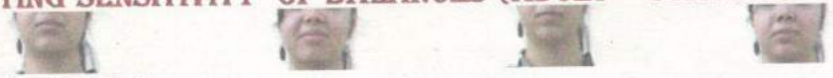
The weight of the baby is computed by subtracting mother's weight from the total weight of mother and the baby.

Accurate measurement of weight of the infant within 100 grams is essential for assessing weight-for-age and BMI-for-age.

Some balances which are accurate while weighing standard weights or weighing adults may not be sensitive upto 100grams when the mother is carrying the baby.

It is therefore essential to test the sensitivity of the balance by making adults carry standard weights and recording the total weight .

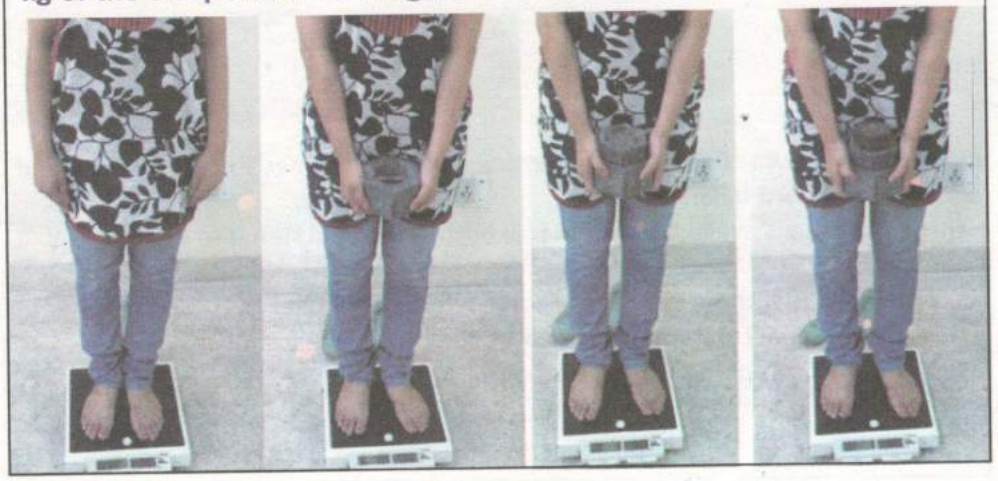
TESTING SENSITIVITY OF BALANCES (ADULT + STANDARD WT)



Weigh the adult.

Weigh the adult carrying 5 kg, 7 kg, and 8 kg.

The combined of adult and the standard weight should be within ± 0.1 kg of the computed total weight.



TESTING SENSITIVITY OF BALANCES (ADULT + STANDARD WT)

TESTING SENSITIVITY OF BALANCES (ADULT + STANDARD WT)

Weigh the adult carrying 8 (5+2+1) kg and 8.5., 8.7 and 8.8 kg as shown in the figures.

The combined weight of adult and the standard weight should be within ± 0.1 kg of the computed total weight.

OTHER PROBLEMS

Digital balances should never be stacked one on the top of the other.

Always remove the battery and store it safely in a dry zip lock bag.

If balance shows low battery or does not switch on - check the battery.

If in doubt about the battery change the battery and then undertake test for accuracy.

CHECKING ACCURACY OF THE DIGITAL WEIGHING MACHINE IN COMMUNITY SETTINGS

Weight is one of the most widely used parameters for assessment of nutritional status. It is therefore essential to ensure accurate recording of weight in nutrition surveys.

Digital weighing machines minimize errors in weighing. Only those balances which were accurate and sensitive are given to survey personnel. But battery drain and other problems could develop in these balances at any time during survey .

The survey team should there fore check the balances for accuracy everyday before weighing the persons

The standard weights have been provided to each team of field investigators for checking accuracy.

In case they are not available on any given day, Department of Weights & Measures certified weights available with local vegetable vendors and/ or provision shops, in urban and rural areas, can be borrowed for a short time to check the accuracy of the balance.

WEIGHING CHILDREN AND ADULTS

Weighing using a digital balance is very easy.

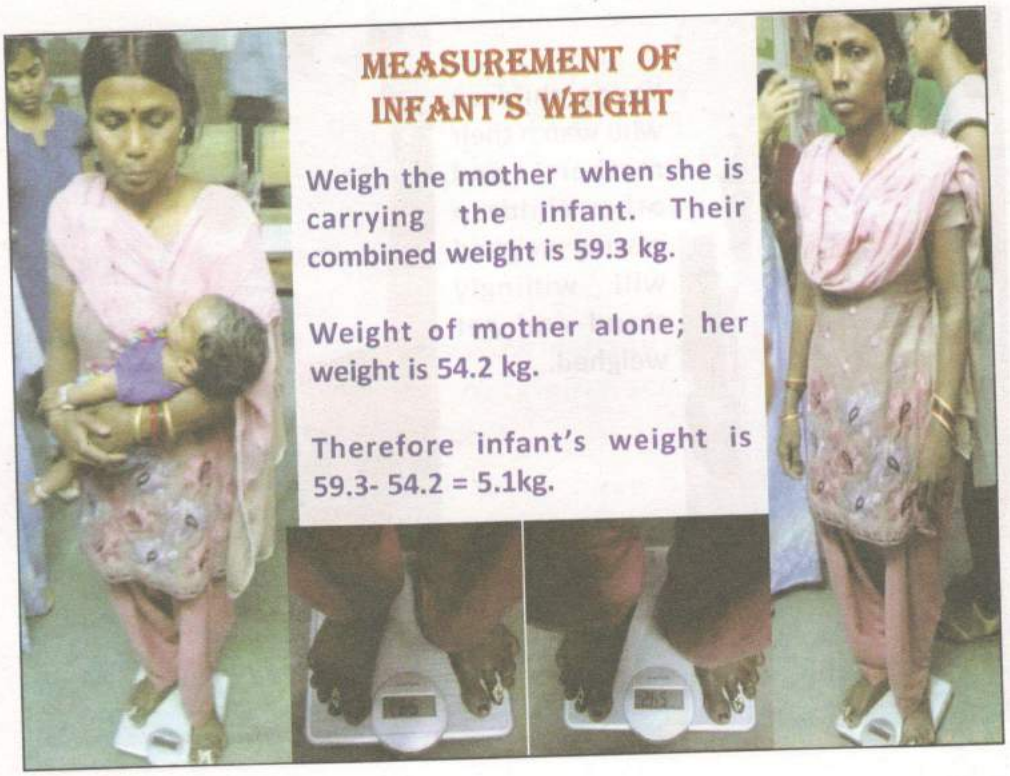
Keep the balance on level ground.

Step on it to switch on the battery.

Tell the person clearly that he/she should stand straight on the digital balance.

Check for compliance.

The pictures show breast-feeding mother, a pregnant women, a child are standing straight on the digital balance in their home settings.

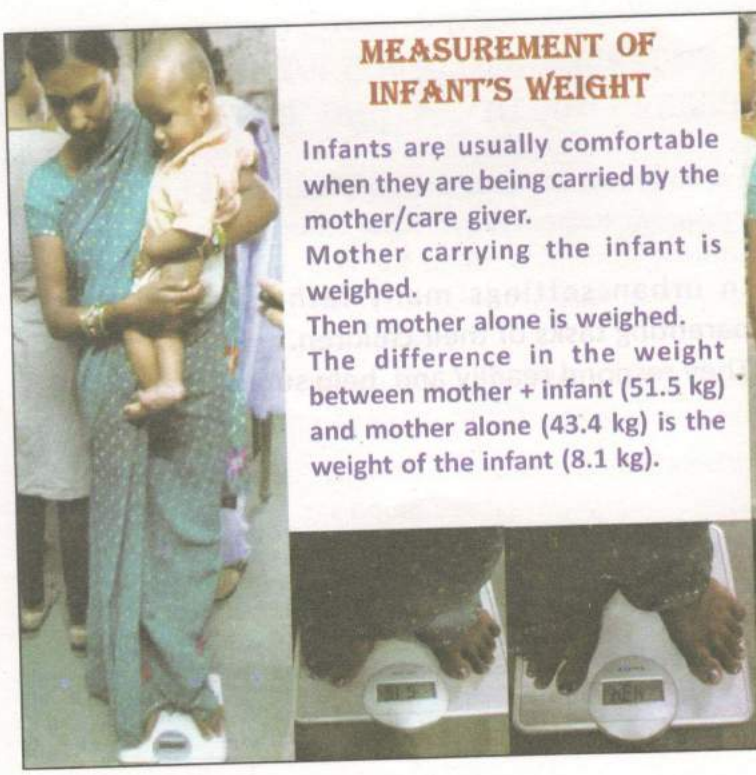


MEASUREMENT OF INFANT'S WEIGHT

Weigh the mother when she is carrying the infant. Their combined weight is 59.3 kg.

Weight of mother alone; her weight is 54.2 kg.

Therefore infant's weight is 59.3- 54.2 = 5.1kg.



MEASUREMENT OF INFANT'S WEIGHT

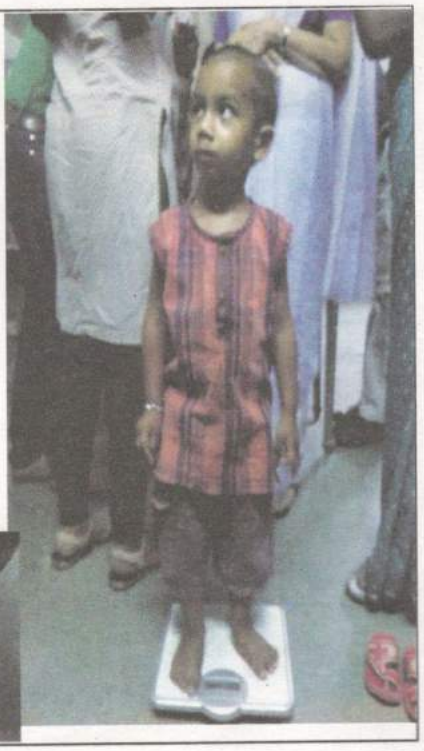
Infants are usually comfortable when they are being carried by the mother/care giver.

Mother carrying the infant is weighed.

Then mother alone is weighed.

The difference in the weight between mother + infant (51.5 kg) and mother alone (43.4 kg) is the weight of the infant (8.1 kg).

Young children who watch their mothers and other children getting weighed will willingly stand and get weighed.



In urban settings many fathers share the parenting tasks of their children.
They respond readily and help survey teams.

MEASURING BLOOD PRESSURE USING AUTOMATED DIGITAL BLOOD PRESSURE MONITOR

Traditionally blood pressure is measured using mercury manometer. Physicians get adequate training in measurement of BP using the mercury manometer and stethoscope.

In the hands of trained physicians mercury manometer remains an excellent instrument for obtaining accurate and replicable measurement of blood pressure.

However in recent years there have been concerns about environmental hazards posed by use of mercury and a tendency to look for alternative instruments for measuring blood pressure.

The aneroid blood pressure monitors have been used in many health care setting for the last few decades but remains the second choice for trained physicians.

MEASURING BLOOD PRESSURE USING AUTOMATED DIGITAL BLOOD PRESSURE MONITOR

Automated digital blood pressure monitors are the preferred instruments for use when persons with hypertension monitor their BP and seek medical care when it is not under control or paramedical persons with limited training are given the responsibility of measuring blood pressure in health and nutrition surveys.

Automated digital blood pressure monitor is fully automated and monitor provides the systolic, diastolic blood pressure and pulse rate reading.

In CAB survey, British Hypertension Society validated brand of digital blood pressure monitors are being used.

Unlike other instruments used in the CAB survey individual BP monitors are not tested for accuracy against the standard BP apparatus, because the procedure is cumbersome and is considered redundant as these machines have been validated by the manufacturer and certified by BHS for clinical use.

PROCEDURE FOR MEASURING BLOOD PRESSURE USING AUTOMATED DIGITAL BLOOD PRESSURE MONITOR

Insert the air plug into the air jack.

The instrument should be on a level with the heart of the person whose BP is to be measured.

Put the person's arm through the cuff loops.

Position the cuff correctly: the bottom edge of the cuff should be 1 or 2 cm above the elbow.

Marker (arrow under tube) is centered on the middle of inner arm.

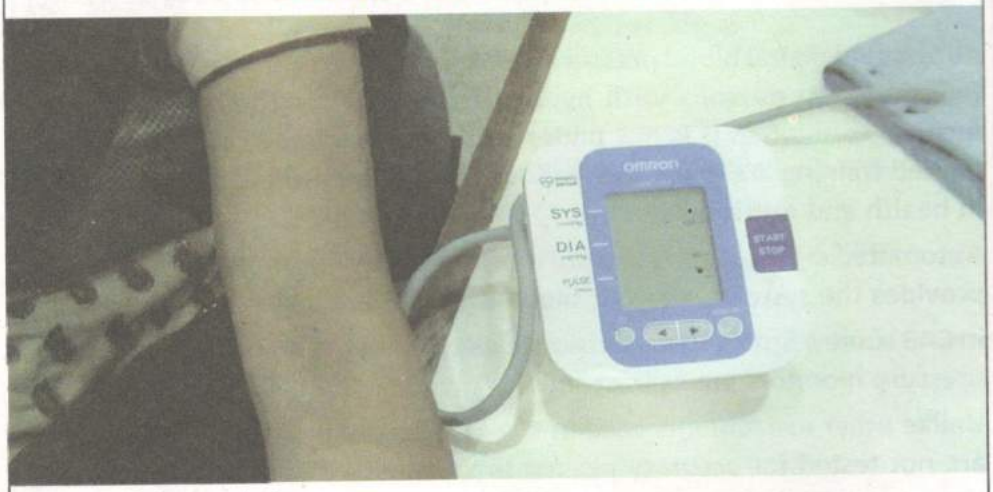
Close the Velcro fastener when the cuff snugly encircles upper arm.

Press the START / STOP button.

Note down the reading of systolic, diastolic pressure, pulse rate.

Take the reading again five minutes later and note the readings.

PROCEDURE FOR MEASURING BLOOD PRESSURE POSITIONING OF THE ARM

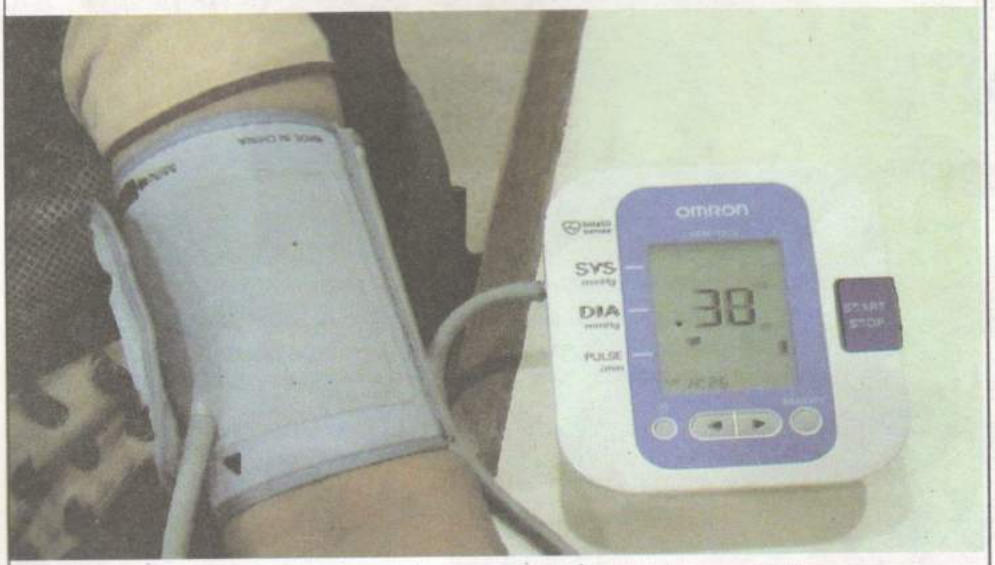


Person sits on a chair.
Left arm is comfortably resting on the table.
The heart, the left arm and the digital BP apparatus are in the same horizontal plane.

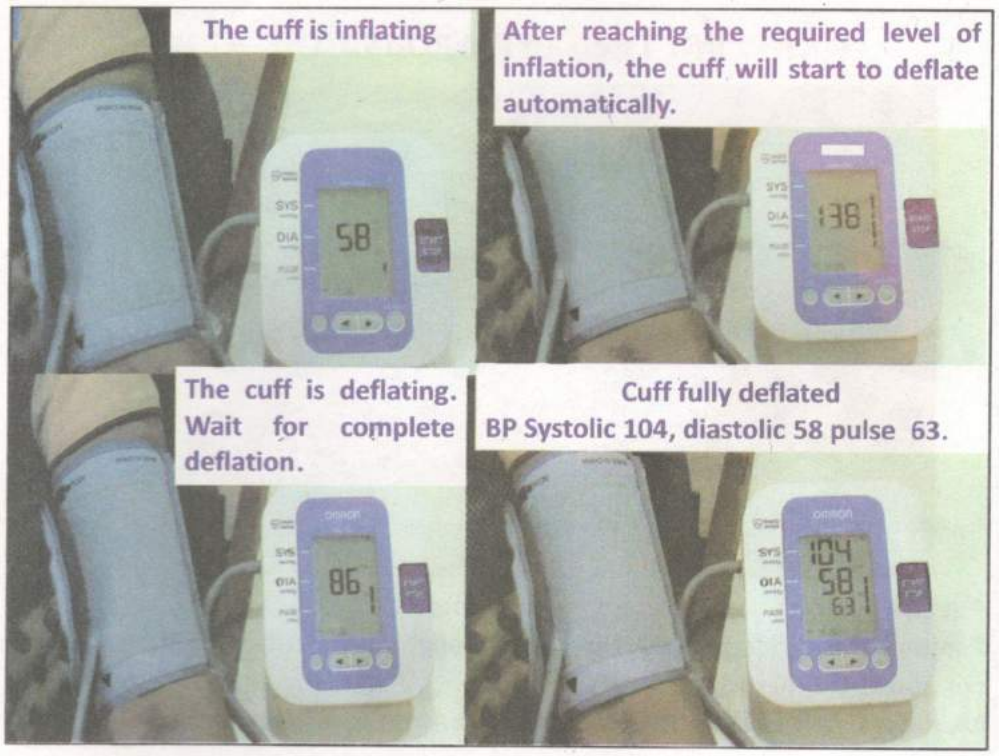
WRAPPING THE CUFF AROUND THE ARM

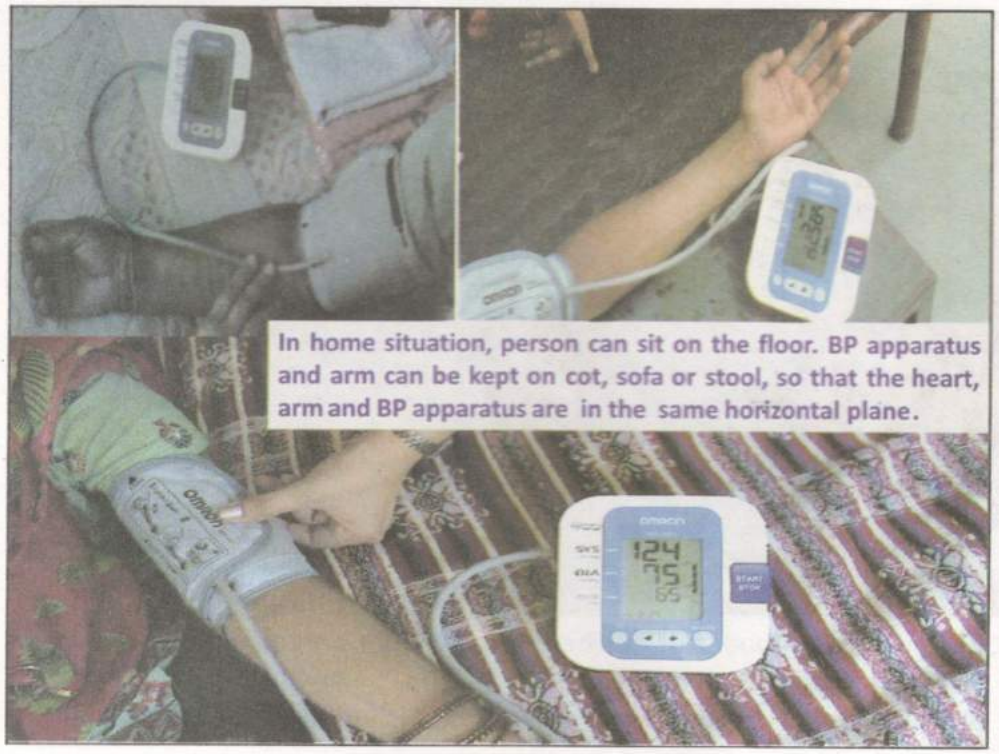
Put the person's arm through the cuff loops.
Position the cuff correctly: the bottom edge of the cuff should be 1 or 2 cm above the elbow.
Marker (arrow under tube) is centered on the middle of inner arm.

BP MEASUREMENT



Cuff of the BP apparatus has been snugly wound round the upper arm and the velcro fastened.
Start button has been pressed and the cuff is inflating automatically.


The cuff is inflating
After reaching the required level of inflation, the cuff will start to deflate automatically.
The cuff is deflating. Wait for complete deflation.
Cuff fully deflated
BP Systolic 104, diastolic 58 pulse 63.


In home situation, person can sit on the floor. BP apparatus and arm can be kept on cot, sofa or stool, so that the heart, arm and BP apparatus are in the same horizontal plane.

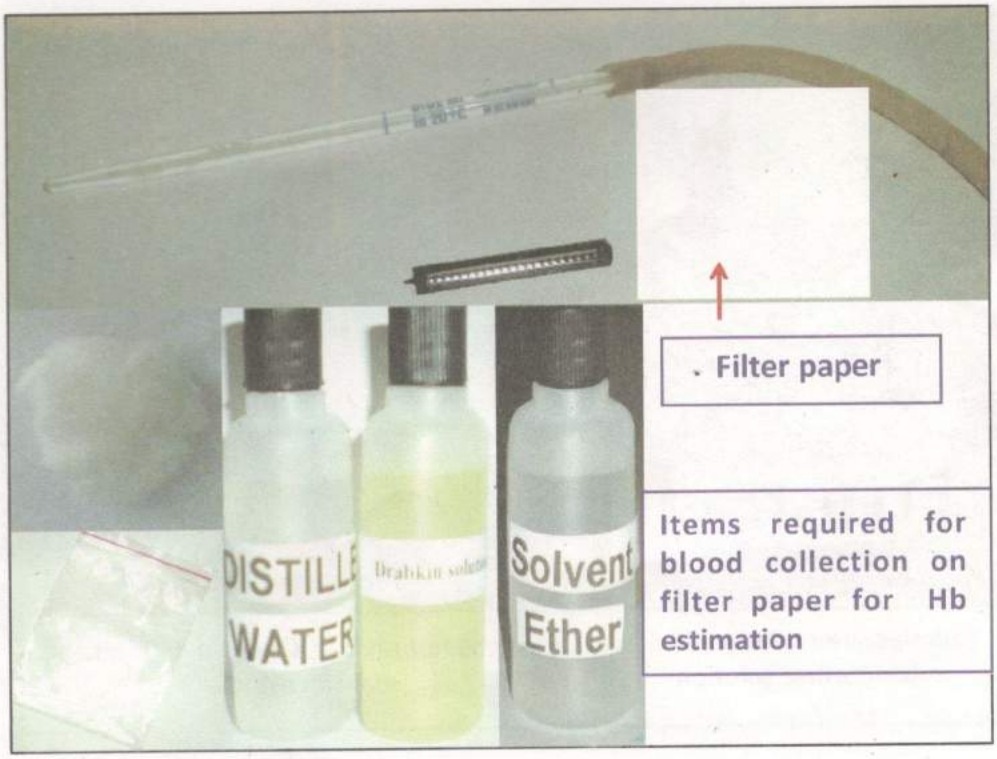
COLLECTING BLOOD FOR HB ESTIMATION

Collection of blood is very simple and easy.

However it is essential to ensure uniformity in the procedure for collection of samples and adopt appropriate quality control procedures to ensure optimal sample collection.

The following items are required for blood collection for Hb estimation

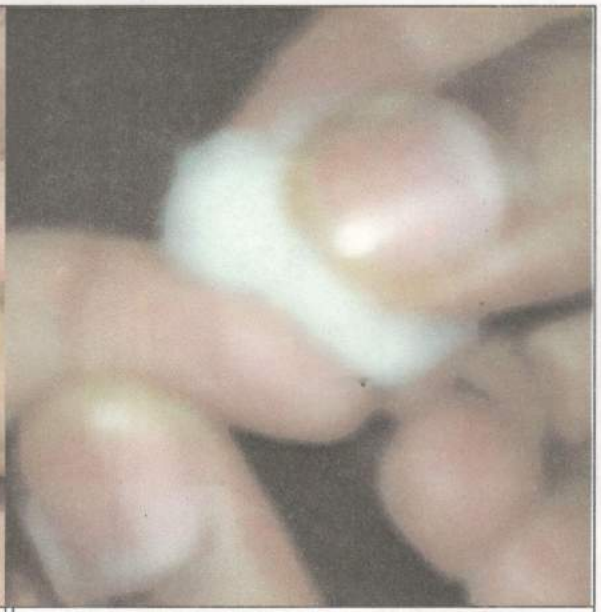
- Ether and cotton - to wipe the finger;
- Lancet for pricking finger;
- 20 µl pipettes for blood collection;,
- Filter paper for collection of blood spot and pencil to number the filter paper for identification; and
- Drabkin's solution and distilled water to rinse the pipette, and ether to dry the pipette after collection of the sample.



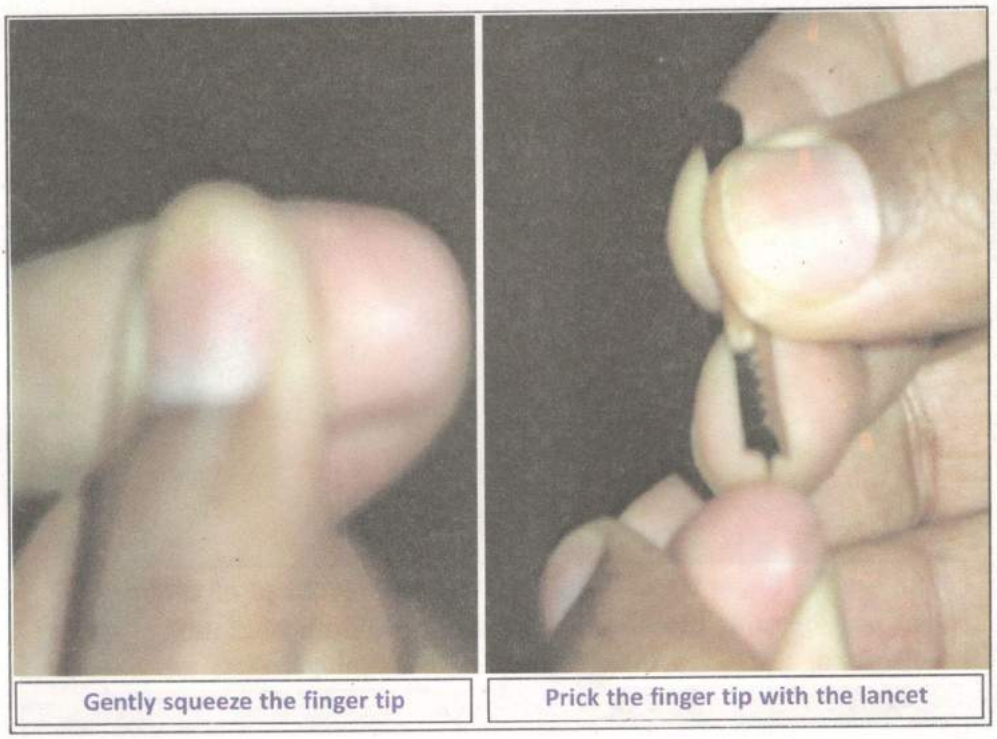
Items required for blood collection on filter paper for Hb estimation

If the blood sample is to be collected on the filter paper, alcohol/ spirit, should not be used for wiping the finger. Ether should be used for wiping the finger.
Alcohol denatures proteins.
If alcohol is used for wiping finger and then blood is collected on filter paper, the blood spot will not elute fully.

Dampen the cotton with solvent ether solution

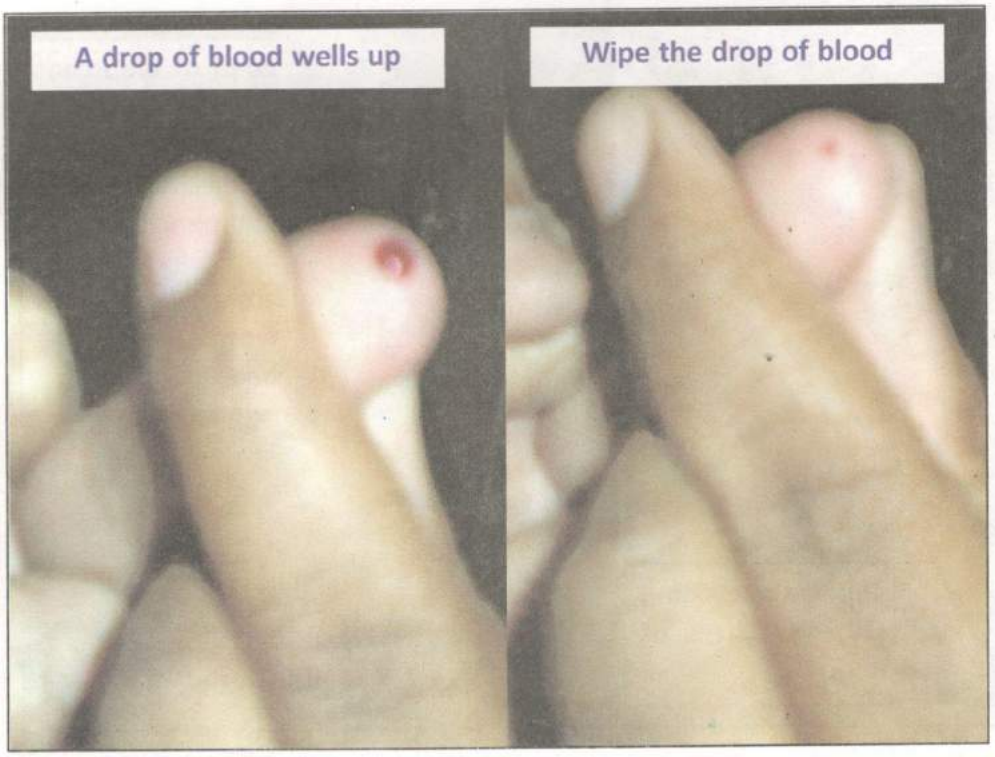


Wipe the left middle finger tip with ether soaked cotton



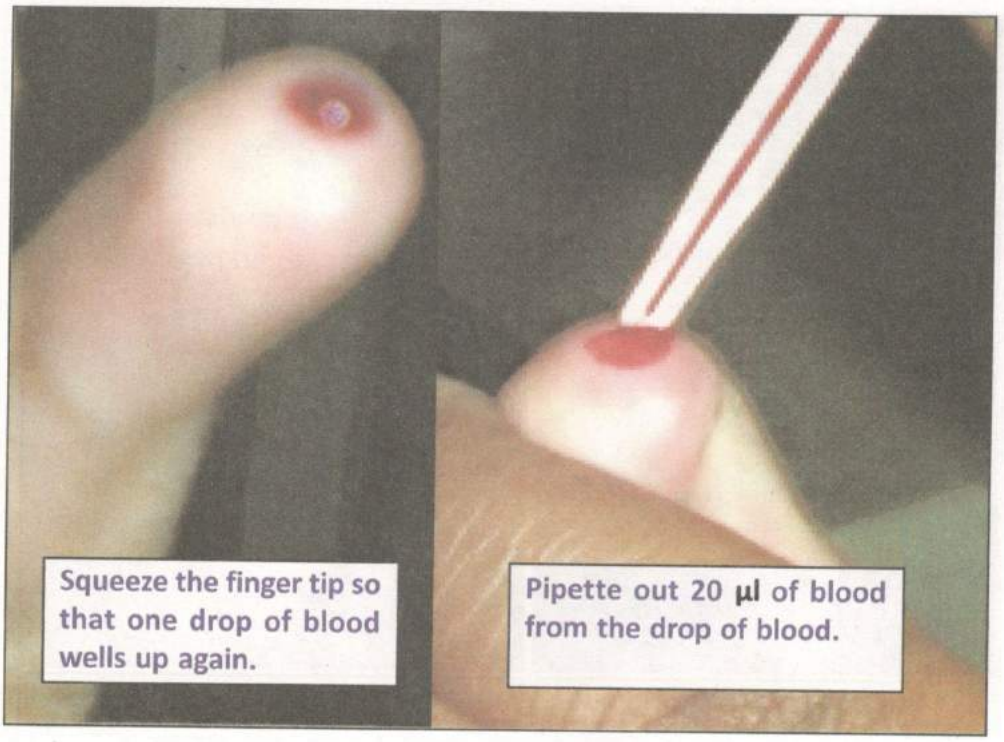
Gently squeeze the finger tip

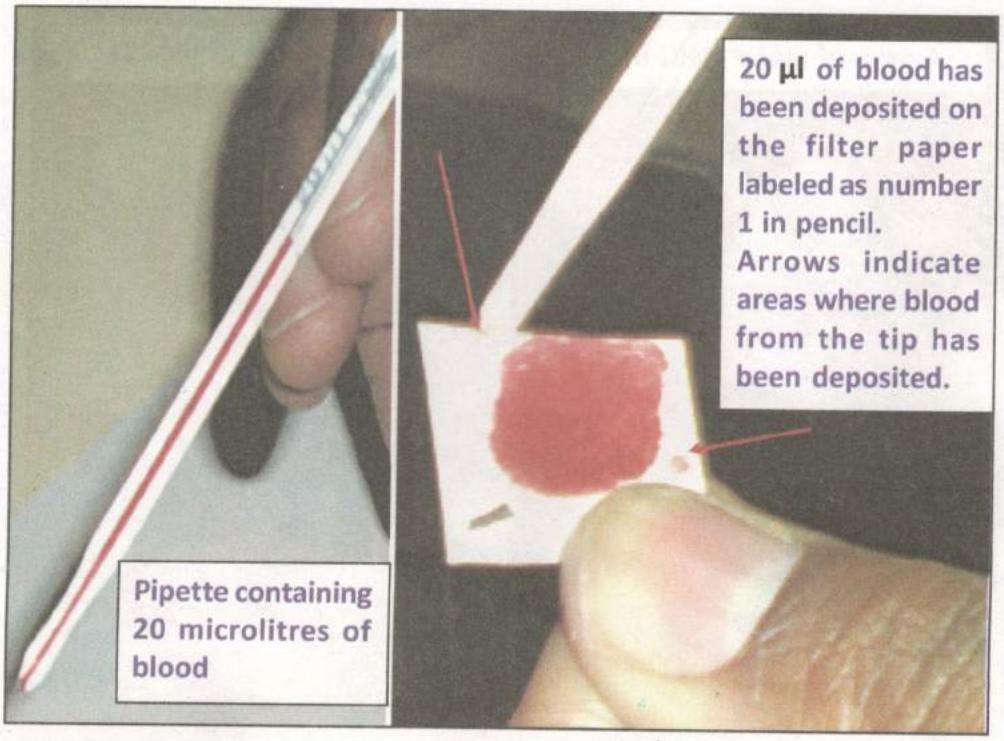
Prick the finger tip with the lancet

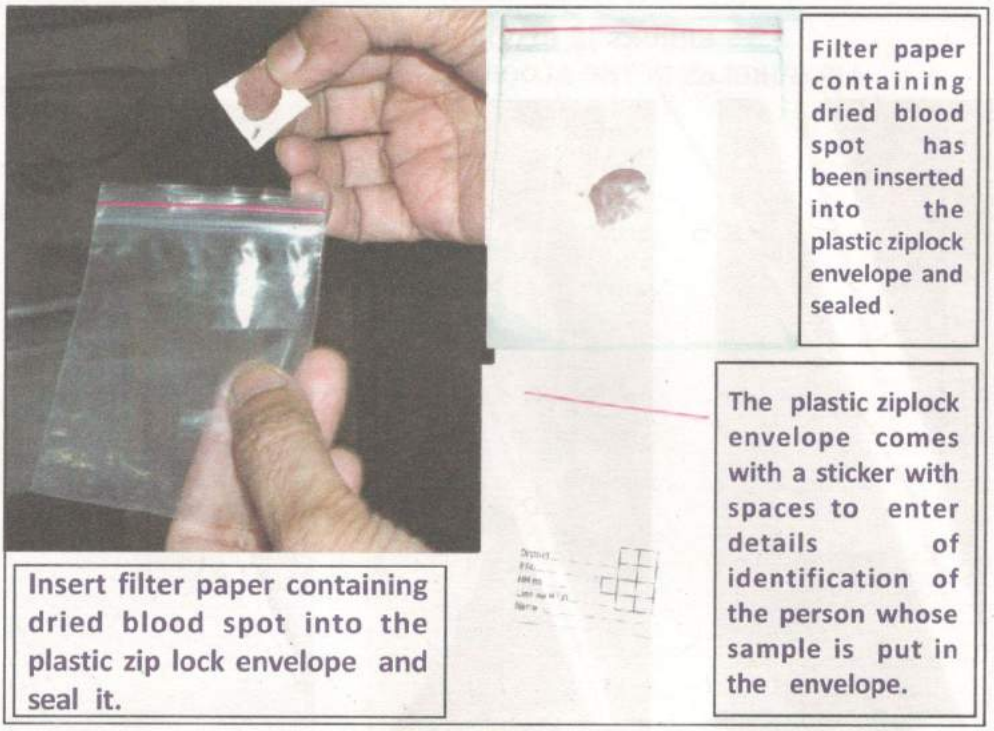


A drop of blood wells up

Wipe the drop of blood


Squeeze the finger tip so that one drop of blood wells up again.
Pipette out 20 µl of blood from the drop of blood.

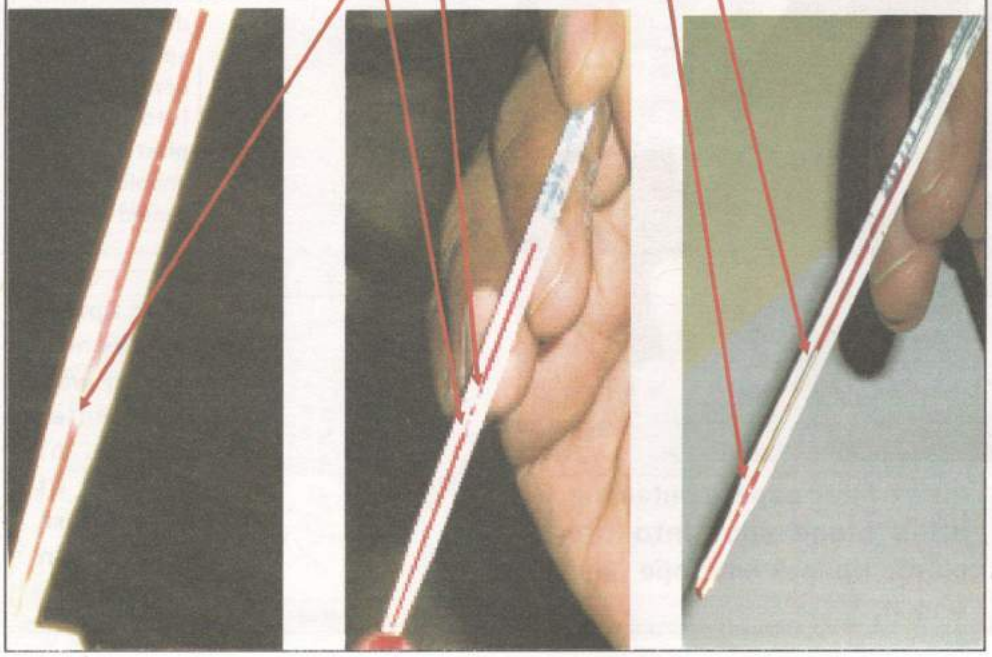

Pipette containing 20 microlitres of blood
20 µl of blood has been deposited on the filter paper labeled as number 1 in pencil.
Arrows indicate areas where blood from the tip has been deposited.


Insert filter paper containing dried blood spot into the plastic zip lock envelope and seal it.
Filter paper containing dried blood spot has been inserted into the plastic ziplock envelope and sealed .
The plastic ziplock envelope comes with a sticker with spaces to enter details of identification of the person whose sample is put in the envelope.

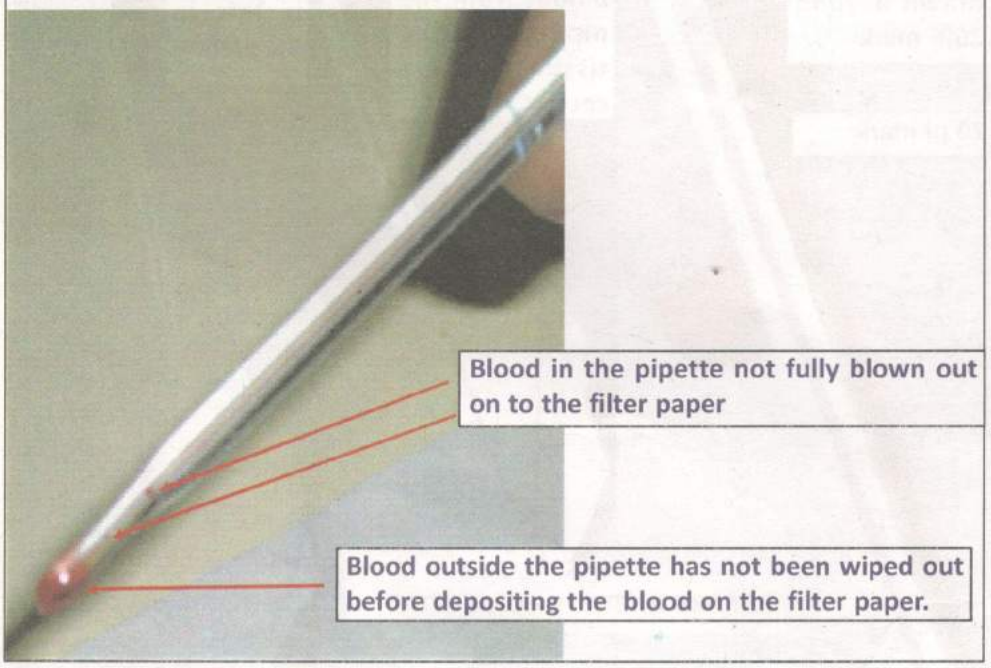

Blood has been drawn beyond 20µl mark
20 µl mark
Removing excess blood from the pipette using tissue paper/ cotton
Only 20 µl is left in the pipette
ERRORS IN BLOOD COLLECTION

ERRORS IN BLOOD COLLECTION

AIR BUBBLES IN THE BLOOD COLUMN IN THE PIPETTE



ERRORS IN BLOOD DEPOSITION ON FILTER PAPER



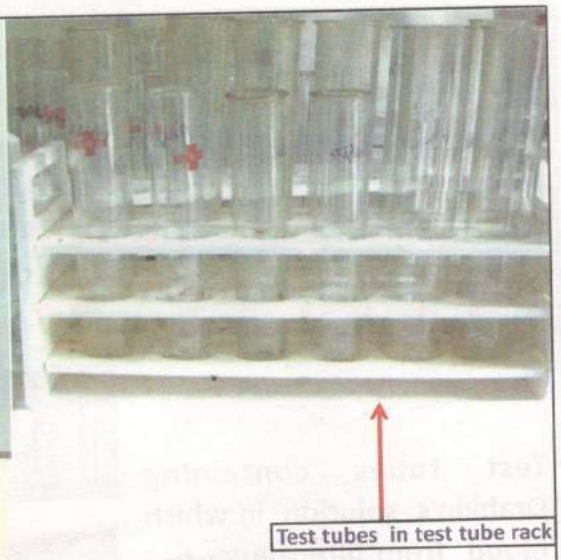
CLEANING AND DRYING THE PIPETTE

As soon as blood is deposited on the filter paper, rinse the pipette twice with Drabkin's solution and blow out into tissue paper/ cotton.

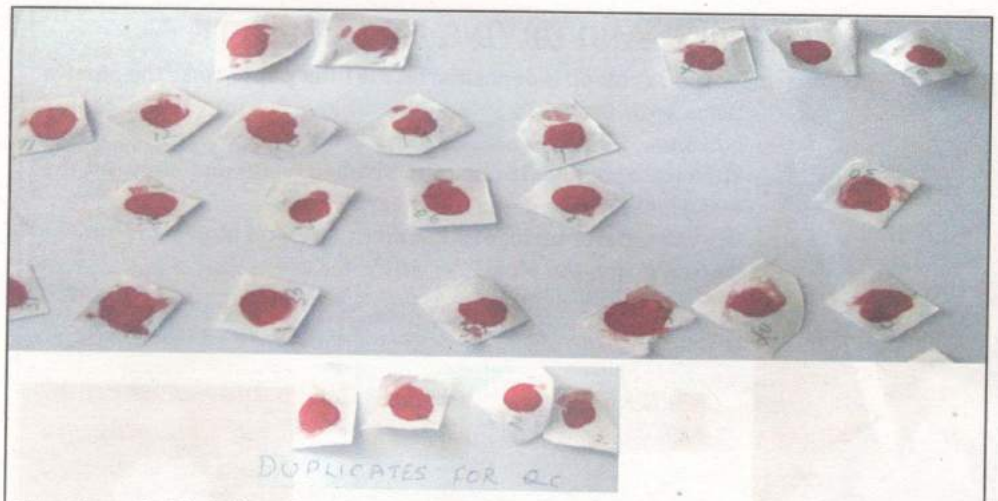
Then rinse the pipette twice in distilled water and blow out the water onto tissue paper/cotton.

Dry the pipette by pipetting ether twice and blowing it out.

Once it is dry, the pipette is ready for use.



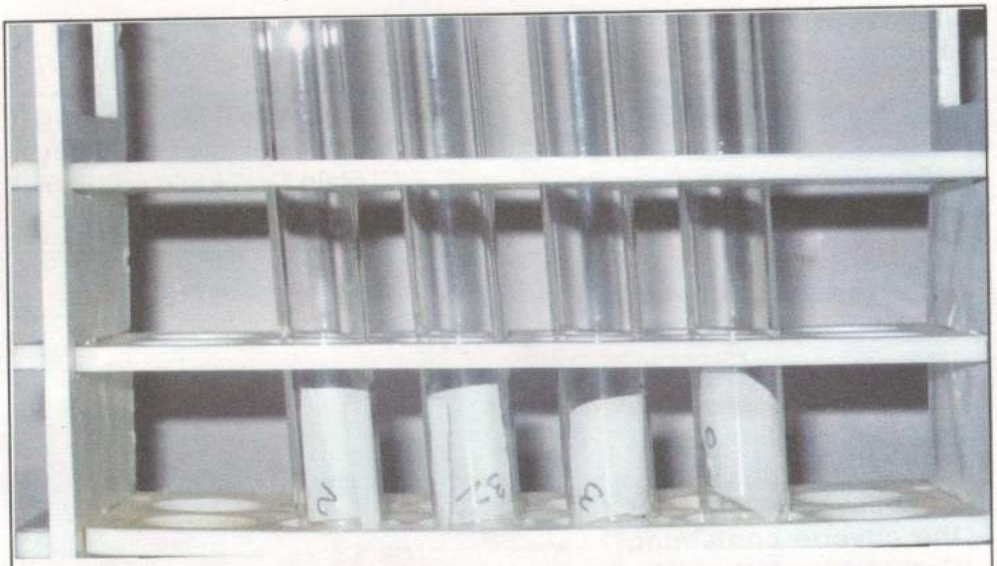
HB ESTIMATION FROM DRIED BLOOD SPOT BY CYANMETHAEMOGLOBIN METHOD



Numbered dried blood spots containing **20µl** of blood are removed from their plastic covers, placed on a white sheet.
Identification data checked with the sticker on the envelope and Schedule II (the lab data sheet).
They are the put in labeled test tubes containing 5ml Drabkin's solution; in 20 minutes the blood spots fully elute into the solution.

Test tubes containing filter papers from which blood spot has been fully eluted.

Test tubes containing Drabkin's solution in which blood from filter paper has been fully eluted.



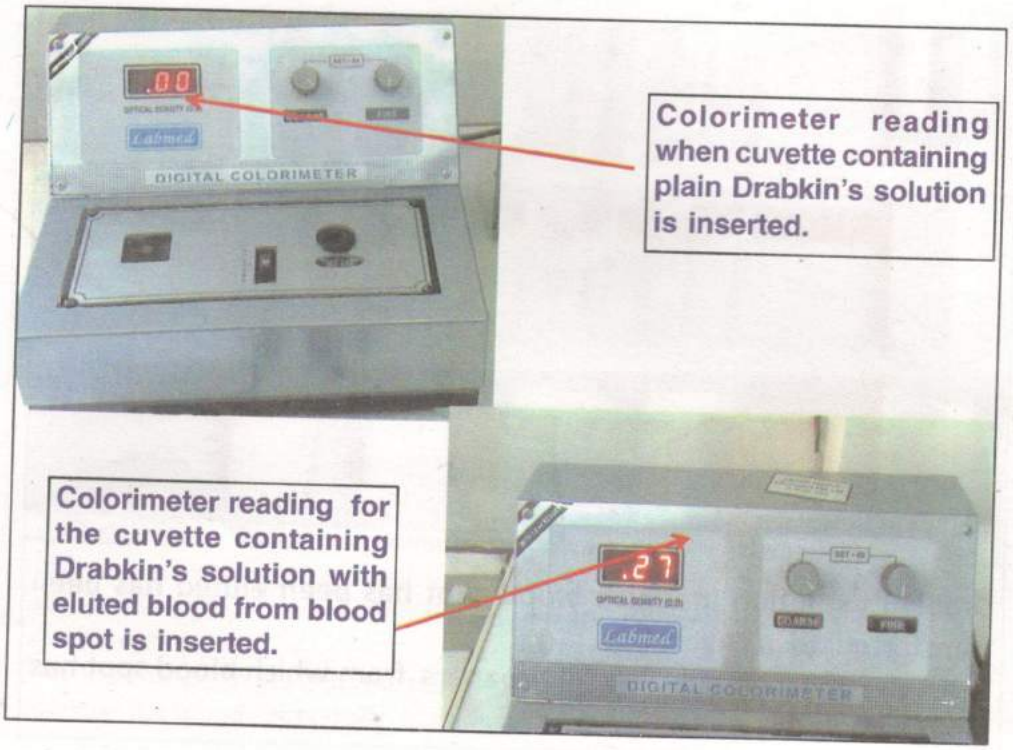
Drabkin's solution in which blood spot has been eluted has been transferred to a cuvette.
Test tube now contain clear filter papers from which blood spot has been completely eluted.

Colorimeter

Hb standard

Cuvette with Drabkin's solution (Blank).

Cuvette with Drabkin's solution in which blood spot has been eluted.



MEASUREMENT OF BLOOD GLUCOSE USING GLUCOMETER

It is well recognised that the colorimetric/spectrophotmetric estimation of plasma glucose using glucose oxidase method is the gold standard for glucose estimation.

However, in survey settings there are major problems in separating plasma and reaching plasma for glucose estimation to a lab within a short time. Many diabetic persons find it difficult to go all the way to the lab for repeated blood sugar estimation and find it expensive to get someone from the lab to come and collect the blood for blood glucose estimation repeatedly.

Glucometer has come in to vogue as the option under these circumstances.

Even though glucometer estimation of blood glucose is not as accurate and reliable as plasma glucose estimation using spectrophotometer, it has been chosen for CAB component of AHS because plasma glucose estimation by colorimetry is not possible under survey conditions.

PROCEDURE FOR BLOOD SUGAR ESTIMATION

This glucometer is for use in CAB component of AHS The instrument is switched on by pressing the switch.

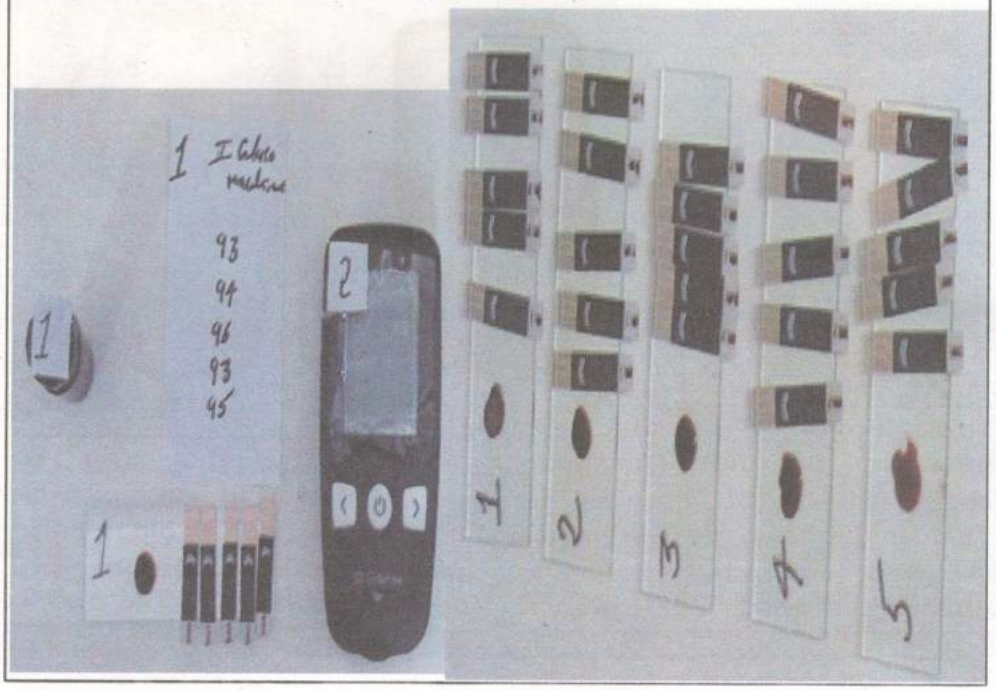
After switching on the Glucometer, the symbol for the strip will appear on the screen as seen in picture.

After the strip is inserted correctly a symbol for blood drop will appear on the screen.

Put the edge of the strip on the drop of blood on the slide or from a finger prick. The blood will get drawn up due to capillary action.

Blood sugar reading will appear in about 5 seconds.

TESTING ACCURACY OF GLUCOMETERS



TESTING ACCURACY OF GLUCOMETERS (GLUCOSE MG/DL)									
Blood sample 1		Blood sample2		Blood sample 3		Blood sample 4		Blood sample 5	
No.	glucose	No.	glucose	No.	glucose	No.	glucose	No.	glucose
1	100	1	72	1	77	1	77	1	75
2	101	2	73	2	76	2	77	2	73
3	93	3	62	3	74	3	68	3	73
4	100	4	74	4	78	4	84	4	74
5	99	5	71	5	80	5	79	5	76
Spectro photo meter	96		62		76		67		73

The difference in the blood glucose values between quintuplicates in glucometer and between spectrophotometer and glucometer is less than 20 mg /dl.

Therefore this glucometer is accurate enough for use in the CAB component of AHS.

ESTIMATION OF BLOOD GLUCOSE USING GLUCOMETER IN CAB COMPONENT OF AHS

For the CAB component of AHS, blood sugar estimation has to be done on an empty stomach after an overnight fast (Fasting blood sugar).

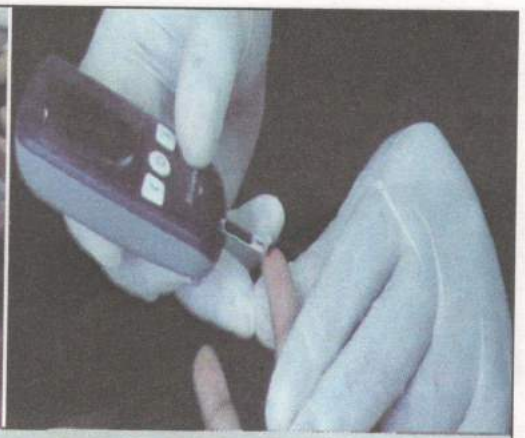
It is expected that the survey team would undertake all the measurements/ estimations for CAB for about 14 households (about 70 persons) in one day.

Every day the team should inform all the members of the households who are above 18 years of age that fasting blood sugar estimation will be done next day; they should have dinner by 8PM and on next day they should not eat or drink anything as soon as they get up.

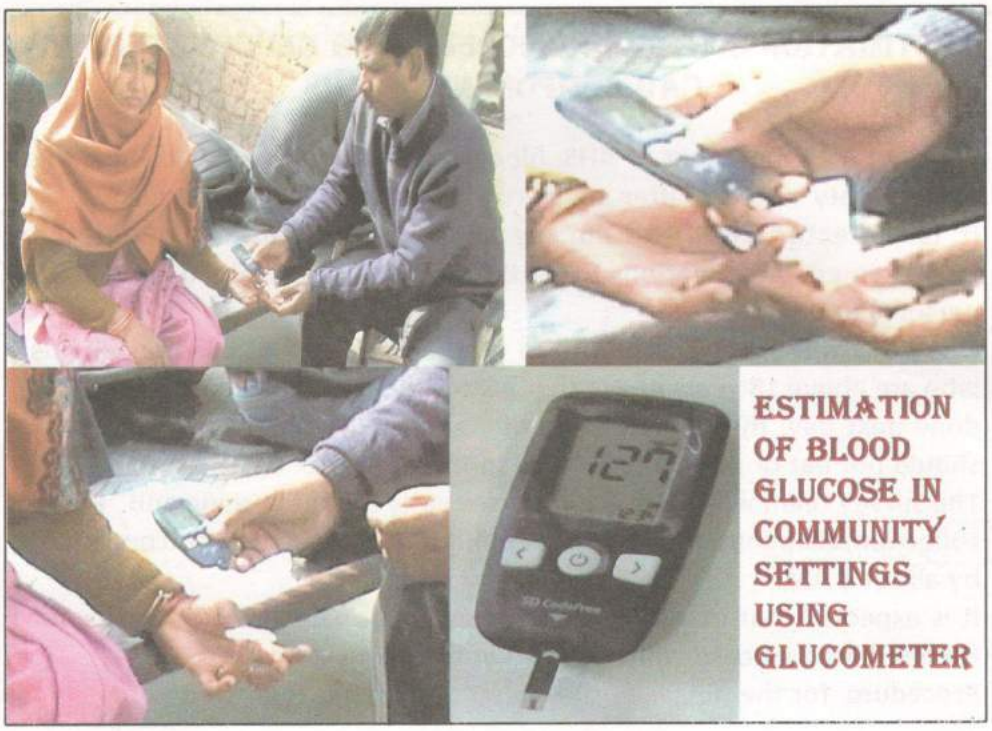
The survey team will reach their houses early in the morning and blood collection/examination for both Hb and blood sugar will be completed by about 8 AM.

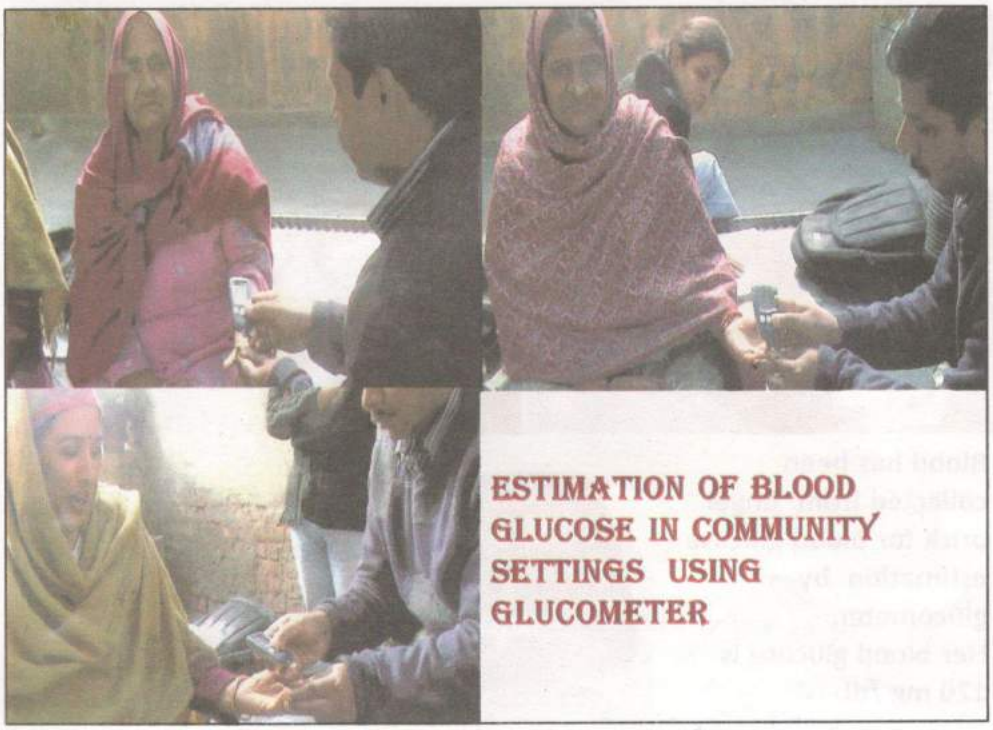
It is expected that in most of the survey participants blood samples for Hb and blood glucose will be drawn in the same sitting.

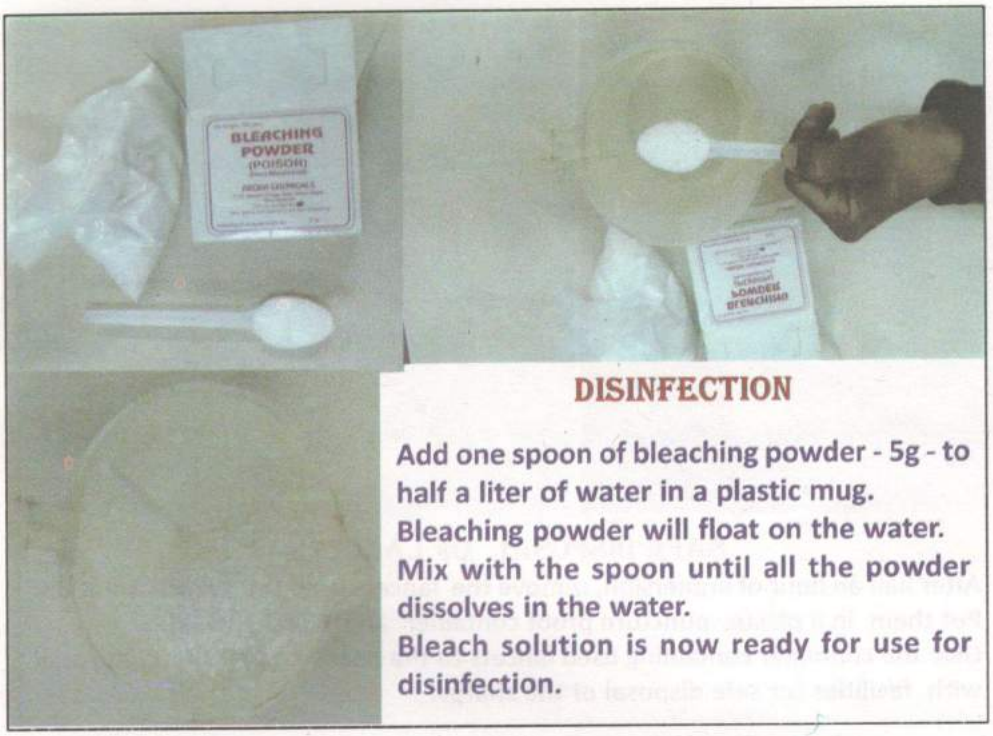
Procedure for the finger prick is described under Hb estimation.



Blood has been collected from finger prick for blood glucose estimation by glucometer.
Her blood glucose is 120 mg /dl


ESTIMATION OF BLOOD GLUCOSE IN COMMUNITY SETTINGS USING GLUCOMETER


ESTIMATION OF BLOOD GLUCOSE IN COMMUNITY SETTINGS USING GLUCOMETER

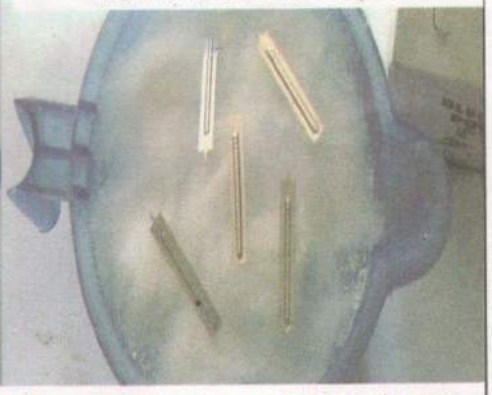


DISINFECTION

Add one spoon of bleaching powder - 5g - to half a liter of water in a plastic mug.
Bleaching powder will float on the water.
Mix with the spoon until all the powder dissolves in the water.
Bleach solution is now ready for use for disinfection.

Bleaching powder in mug of water

Used cotton and lancets immersed in well mixed bleach solution



Cotton immersed in bleach solution

DECONTAMINATION OF MEDICAL WASTE

Immerse used cotton swabs, glucose strips and lancets in bleach solution for at least half an hour for decontamination.
Remove the lancets and keep them in puncture proof plastic containers.
Cotton and other waste can be disposed locally.

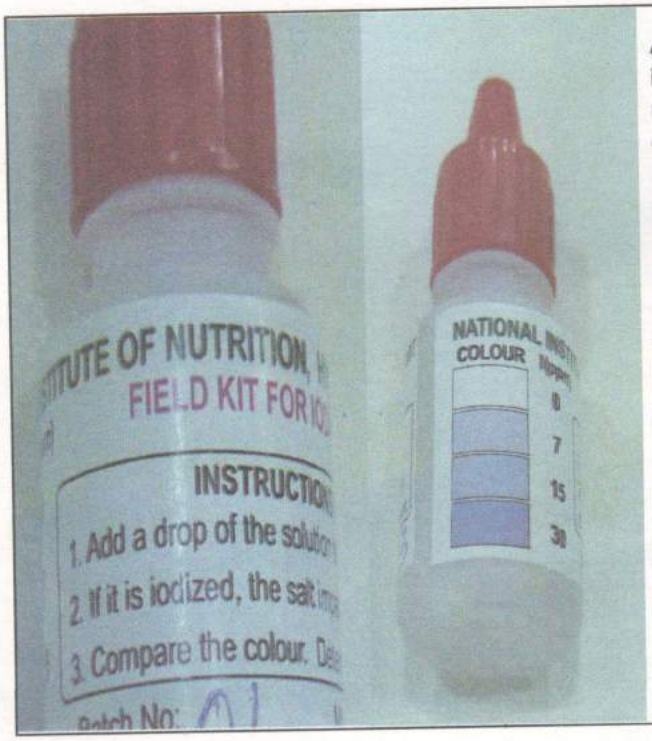
SAFE DISPOSAL OF LANCETS

After half an hour of immersion, remove the lancets from the bleach solution.
Put them in a plastic puncture proof container and close the lid.
Give the container containing used lancets to the nearest government hospital with facilities for safe disposal of the sharps.

DISPOSAL OF DECONTAMINATED WASTES

Dig a small pit.
Pour decontaminated cotton swabs, used glucose strips and the bleach solution into the pit.
Cover the pit with mud so that all the waste material is buried.

CHECKING HOUSEHOLD SALT FOR IODISATION



A simple test for presence of iodine in salt is done during many surveys with a variety of kits.

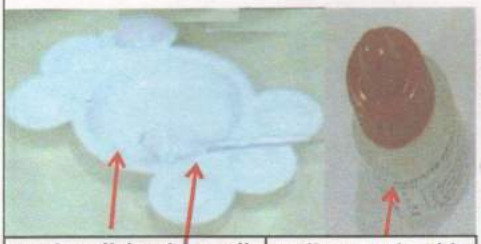
Use of single reagent kits are preferred for the surveys.

The single reagent semi-quantitative kit developed by the National Institute of Nutrition is shown in the picture.

On adding a drop of the reagent, non-iodised salt does not show any color change while iodised salt shows colour change depending upon the amount of iodine present.

The reading should be done immediately after adding the drop.

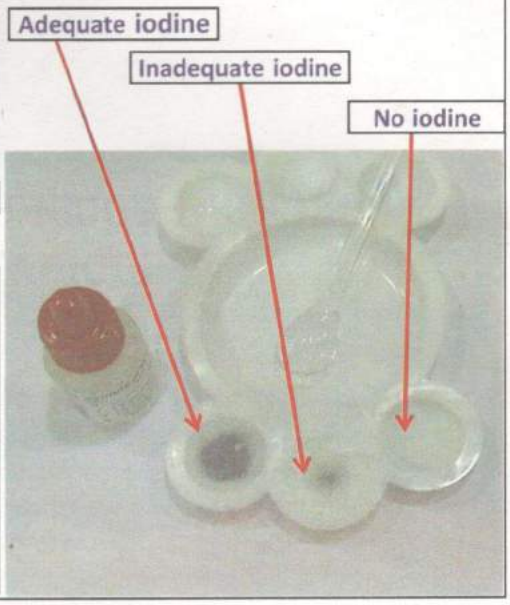
CHECKING HOUSEHOLD SALT FOR IODISATION



Testing dish with wells | Iodine testing kit

Spoon for taking salt

Put a small amount of household salt for testing in the wells.
Add one drop of reagent on the salt.
If salt contains adequate iodine (15 ppm or more) it will turn deep blue.
If it contains inadequate iodine (<15 ppm) it will give a lighter color.
If salt contains no iodine it will remain white.



ENSURE REGISTRATION OF EVERY BIRTH & DEATH

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