Workshop on National Food Consumption, Anthropometry & Physical Activity Survey in India

Measuring nutritional status of children and adults in India in different rounds National Family Health Survey

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Concerns

- Reliable and credible data
- Need of a survey which would be comprehensive in nature dealing with food consumption and dietary intake, anthropometry and physical activity / life style;
- Tool of capturing risk factor of chronic diseases;
- Coverage
- Age group
- NNMB
- NSSO
- …….. NFHS, DLHS, AHS, and IDSP Survey on NCD Risk factors etc.

- National Family Health Survey
  - 1992-93 (NFHS-1)
  - 1998-99 (NFHS-2)
  - 2005-06 (NFHS-3)
  - 2015-16 (NFHS-4)
- Household Questionnaire (HQ)
- Women Questionnaire (WQ)
- Health Questionnaire (HQ)

- HQ assesses nutritional status of children(<4 in NFHS-1, last two children <3 in NFHS-2 and <5 in NFHS-3, women age 15-49 (NFHS-2, NFHS-3), and men age 15-54 (NFHS-3) are assessed.

- The survey included anthropometric component - height and weight only in NFHS-1, height, weight (measured with the help of a scale and a measuring board) and haemoglobin (measured with the help of HemoQue).

- The scale was a solar-powered electronic SECA scale with a digital screen designed and manufactured under the guidance of the UNICEF. The measuring board was specially designed by Shorr Productions for use in survey settings.

- Children younger than 24 months were measured lying down on the board (recumbent length); older children were measured while standing.

- HemoQue is a part of radiometer group by Medical Diagnostic for point of care testing.

Evaluation of nutritional status

- In any large population, there is variation in height and weight; this variation approximates a normal distribution. Use of a standard reference population as a point of comparison facilitates the examination of differences in the anthropometric status of subgroups in a population and of changes in nutritional status over time.

- Until 2006 the most commonly used reference population, which was used in NFHS-1 and NFHS-2, was the U.S. National Center for Health Statistics (NCHS) standard, which was recommended at that time by the World Health Organization (WHO).

- NFHS-3 gives estimates based on a new international reference population released by WHO in April 2006 (WHO Multicenter Growth Reference Study Group, 2006) and accepted by the Government of India.

Evaluation of nutritional status

- However, to facilitate the analysis of changes in nutritional status over time, nutritional status in NFHS-2 has also been recalculated using the new WHO standard.

- The new WHO growth standard adopts a prescriptive approach, describing how healthy children should grow. The new standard is based on children around the world (Brazil, Ghana, India, Norway, Oman, and the United States) who are raised in healthy environments, whose mothers do not smoke, and who are fed with recommended feeding practices (exclusive breastfeeding for the first 6 months and appropriate complementary feeding from 6 to 23 months).

- The WHO growth standard identifies breastfed child as the normative model for growth and development standards, depicts normal early childhood growth under optimal environmental conditions, and can be used to assess children regardless of ethnicity, socioeconomic status, and type of feeding.

Computation of standard indices of physical growth

Three standard indices of physical growth that describe the nutritional status of children are:

- Height-for-age (indicator of linear growth retardation and cumulative growth deficits);
- Weight-for-height (measures body mass in relation to body length and describes current nutritional status);
- Weight-for-age (A composite index of height-for-age and weight-for-height. It takes into account both acute and chronic malnutrition)

Each of the three nutritional status for children indicators is expressed in standard deviation units (Z-scores) from the median of the reference population.

height-for-age

- Z-score below -2 SD from the median of the reference population are considered short for their age (stunted) and are chronically malnourished;
- Z-score below -3 SD from the median of the reference population are considered to be severely stunted which reflects failure to receive adequate nutrition over a long period of time and is also affected by recurrent and chronic illness.

weight-for-height

- Z-score below -2 SD from the median of the reference population are considered thin (wasted) for their height and are acutely malnourished.
- Z-score below -3 SD from the median of the reference population are considered to be severely wasted.

Weight-for-age

- Z-score below – 2 SD from the median of the reference population are classified as underweight.
- Z-score below -3 SD from the median of the reference population are considered to be severely underweight.

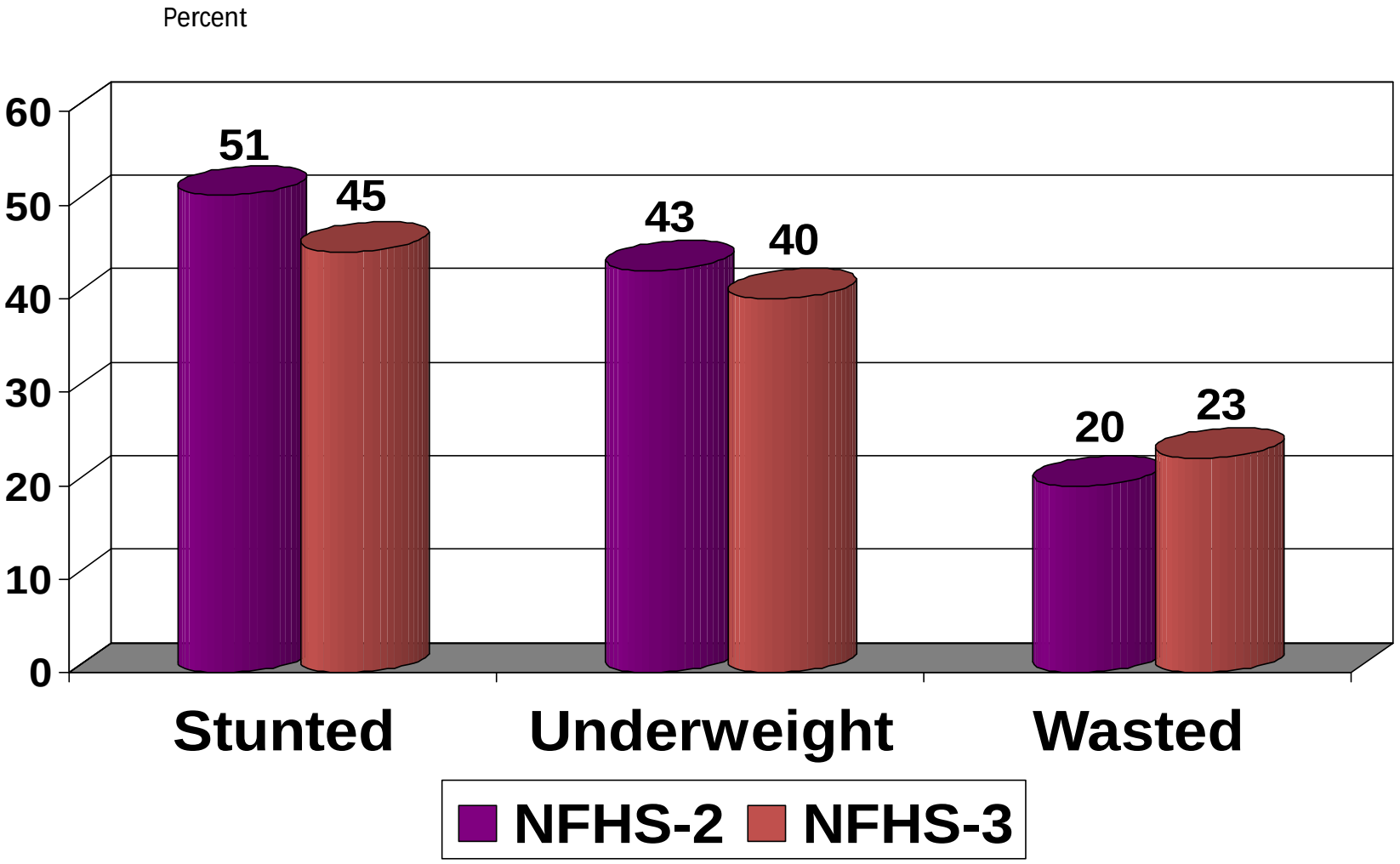
Indicator of nutritional status for adults - body mass index (BMI)

- Chronic energy deficiency is usually indicated by a BMI of less than 18.5 and a BMI of 25 or above indicates overweight or obesity both for men and women

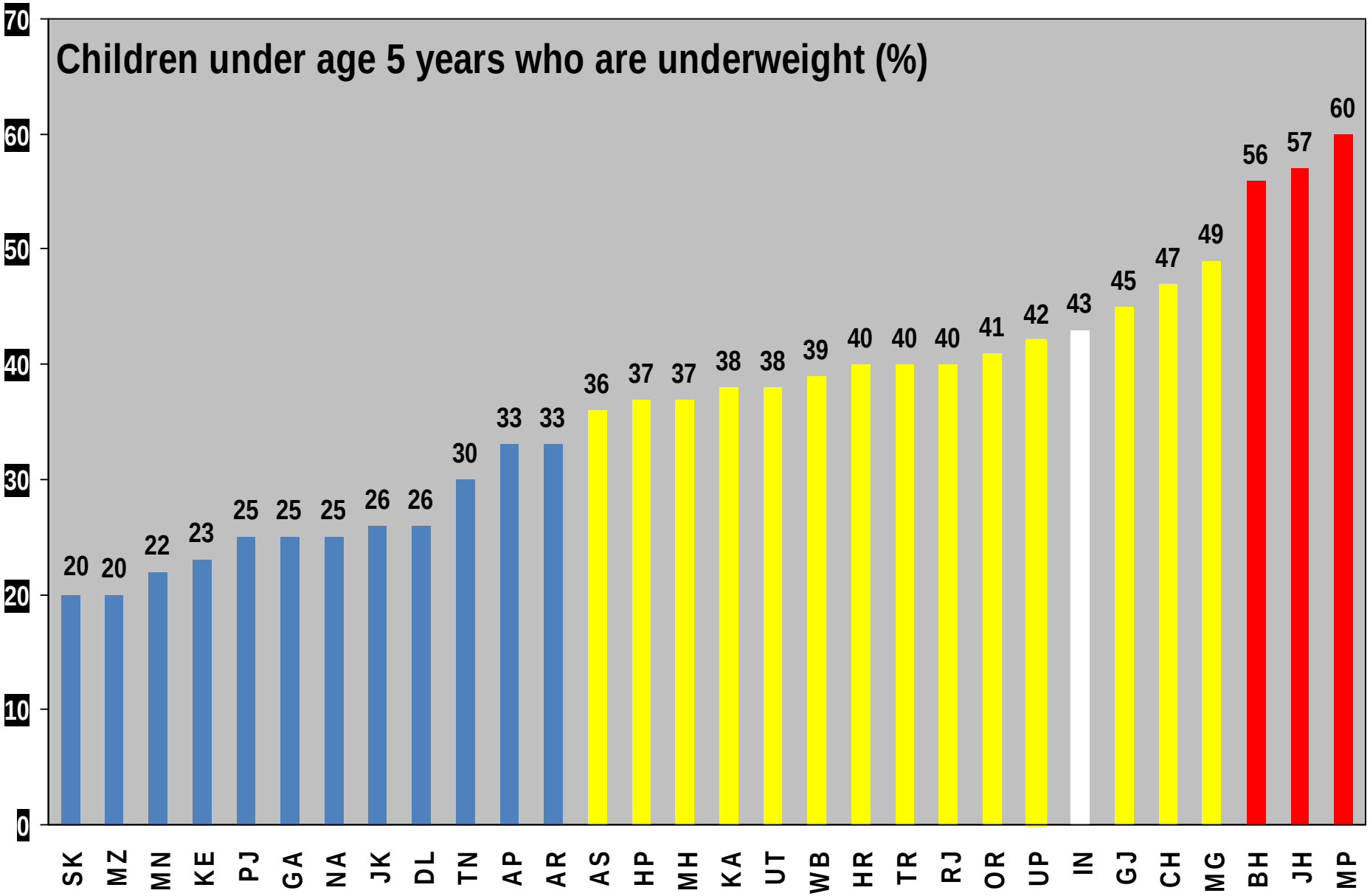
  - NFHS-2 measured for ever married women age 15-49;

  - NFHS-3 measured for both never and ever married women age 15-49, and for men age 15-54.

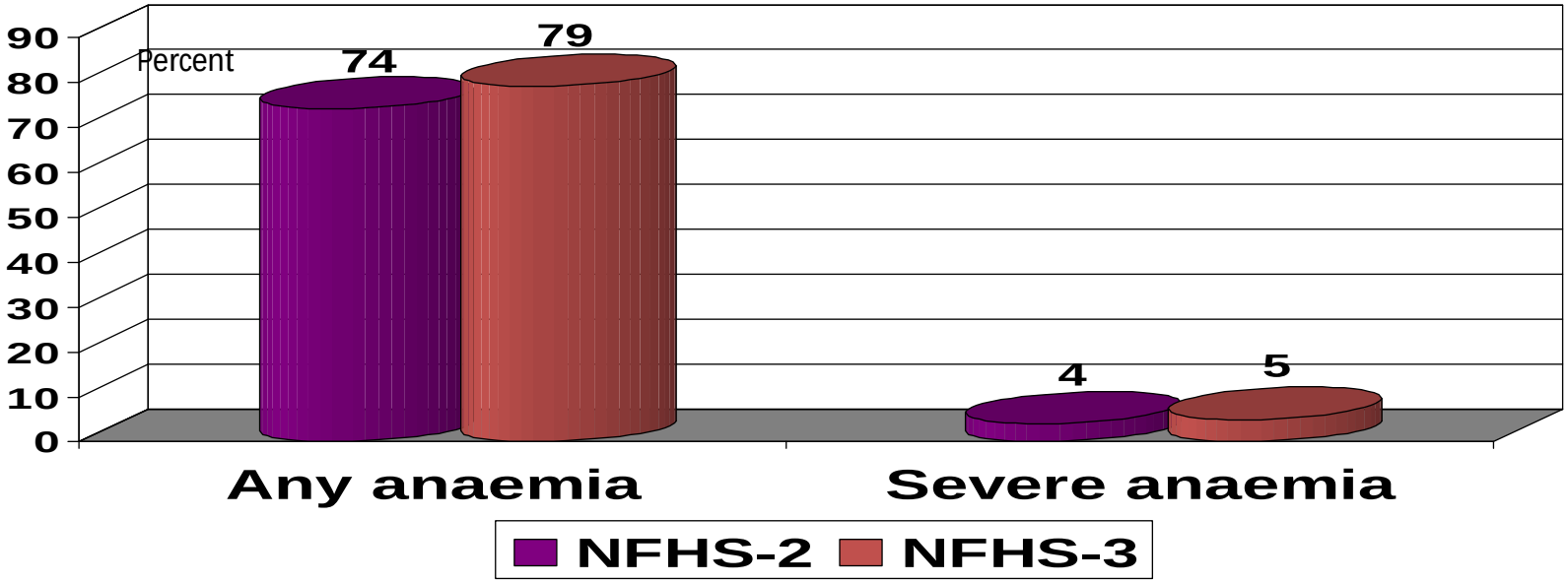
Results: Undernutrition in Children <3 years



Results: Children's Nutritional Status by State in NFHS-3



Anaemia among Children Age 6-35 Months



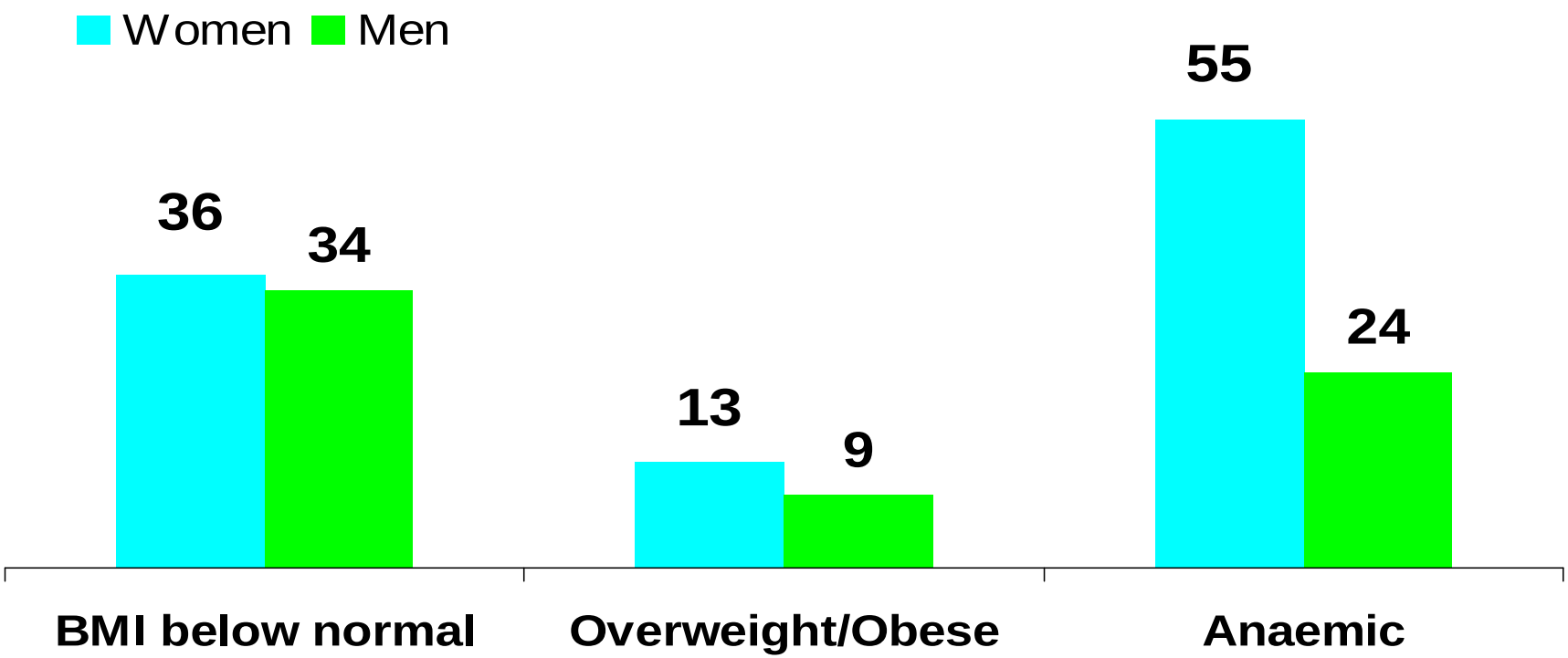
Anaemia prevalence >70% among children 6-59 months	**AP, Bihar, Chhattisgarh, Haryana, Jharkhand, Karnataka, MP, UP**
Anaemia prevalence <50% among children 6-59 months	Goa, Kerala, Manipur, Mizoram

Children with anaemia among girls (69%), boys (70%);

Urban (63%), Wealthiest households (56%), Children whose mother's have 12+ years of education (55%);

Nutritional Status of Adults

Percent of women and men age 15-49



NFHS-3, India, 2005-06

Comprehensive National Nutrition Survey (CNNS) about 113000 (anthropometry) and half for biological testing <19

Nutritional Indicators included in the existing and planned survey

	NFHS-4 (2014-15)	AHS (2014)	DLHS-4 (2014)	CES (2009)	NNMB† (2012)
Anthropometry	▪ Height ▪ Weight	▪ Height ▪ Weight	▪ Height ▪ Weight		▪ Height ▪ Weight
IYCF Practices	▪ Breastfeeding ▪ Complementary Feeding	▪ Breastfeeding ▪ Complementary Feeding	▪ Breastfeeding ▪ Complementary Feeding	▪ Breastfeeding ▪ Complementary Feeding	▪ Food consumption ▪ Nutrient intake
Anaemia	▪ Hemoglobin	▪ Hemoglobin	▪ Hemoglobin		▪ Clinical deficiency symptoms

Preschool Children

Thanks ...