ANNEXURE-1

NUTRITIONAL ASSESSMENT

A. BODY MASS INDEX: Ancel Keys American Scientist Diet and Health Coined the term "Body mass index" in his paper Published in 'Journal of Chronic Diseases'- July 1972.

The BMI is universally expressed in kg/m2, resulting from mass in kilograms and height in metres.

$$BMI = \frac{\text{weight (kg)}}{\text{height(m)}^2}$$

BMI Categories:

- Underweight = <18.5
- Normal weight = 18.5–24.9
- Overweight = 25–29.9
- Obesity = BMI of 30 or greater

These ranges of BMI values are valid only as statistical categories.

Category	**BMI (Kg/m^2)**	
	From	**To**
Very severely underweight	-	15.0
Severely underweight	15	16
Underweight 16	16	18.5
Normal (healthy weight)	18.5	25
Overweight	25	30
Obese Class I (Moderately obese)	30	35
Obese Class II (Severely obese)	35	40
Obese Class III (Very severely obese)	40	-

B. Basal Metabolic Rate(BMR): minimum amount of energy required by the body to maintain life at complete physical and mental rest in post absorptive state

Several functions within the body occurs at basal condition :

- working of heart and other organs
- conduction of nerve impulse
- reabsorption by renal tubules
- gi motility
- ion transport across membranes

Benedict-Roth method

The volume of oxygen consumed by the subject for a period of 2-6 minutes under basal conditions is determined (E)

• The standard calorific value of one liter of oxygen consumed is 4.825

- Heat produced in 6 min = 4.825*E
- Heat produced in 1 hr = 4.825E*10
- Body surface area (A) = H0.725*W0.425*71.84
- H= height in centimeter square
- W= weight in Kg

BMR = Total heat production in kcal per hour

Body surface area in square meters

Normal values of BMR :

- Adult man: 35-38 cal/sq.m/hr or 1600cal/day
- Adult woman: 32-35 cal/sqm/hr or 1400cal/day

A BMR value between -15% and +20% is considered normal.

C.) CLASSIFICATION OF MALNUTRITION IN CHILDREN

Sr.NO	CLASSIFICATION	DEFINITION	GRADING	CRITERIA
1.	**GOMEZ**	WEIGHT BELOW % MEDIAN OF WEIGHT FOR AGE	MILD (GRADE 1)	75%-90% WFA
			MODERATE (GRADE 2)	60%-74% WFA
			SEVERE (GRADE 3)	< 60% WFA
2.	**WATERLOW**	Z-SCORES(SD) BELOW MEDIAN WEIGHT FOR HEIGHT	MILD	80%-90% WFH
			MODERATE	70%-80% WFH
			SEVERE	< 70% WFH
3.	**WHO (WASTING)**	z-scores (SD) below median WFH	Moderate	-3%</= z-score < -2
			Severe	z-score < -3
4.	**WHO (STUNTING)**	z-scores (SD) below median HFA	Moderate Severe	-3%</= z-score < -2
			Moderate Severe	z-score < -3
5.	**KANAWATI**	MUAC divided by occipitofrontal head circumference	Mild	<0.31
			Moderate	<0.28
			Severe	<0.25
6.	**COLE**	z-scores of BMI for age	Grade 1	BMI for age z-score < -1
			Grade 2	BMI for age z-score < -2
			Grade 3	BMI for age z-score < -3

Abbreviations: BMI, body mass index; HFA, height for age; MUAC, mid-upper arm circumference; SD, standard deviation; WFA, weight for age; WFH, weight for height; WHO, World Health Organization.

Gomez Classification: The child's weight is compared to that of a normal child (50th percentile) of the same age. It is useful for population screening and public health evaluations.
Percent of reference weight for age = [(patient weight) / (weight of normal child of same age)] * 100

Waterlow Classification: Chronic malnutrition results in stunting. Malnutrition also affects the child's body proportions eventually resulting in body wastage.
Percent weight for height = [(weight of patient) / (weight of a normal child of the same height)] * 100
Percent height for age = [(height of patient) / (height of a normal child of the same age)] * 100

Wasting = Actual Body Weight X 100
Weight for Height

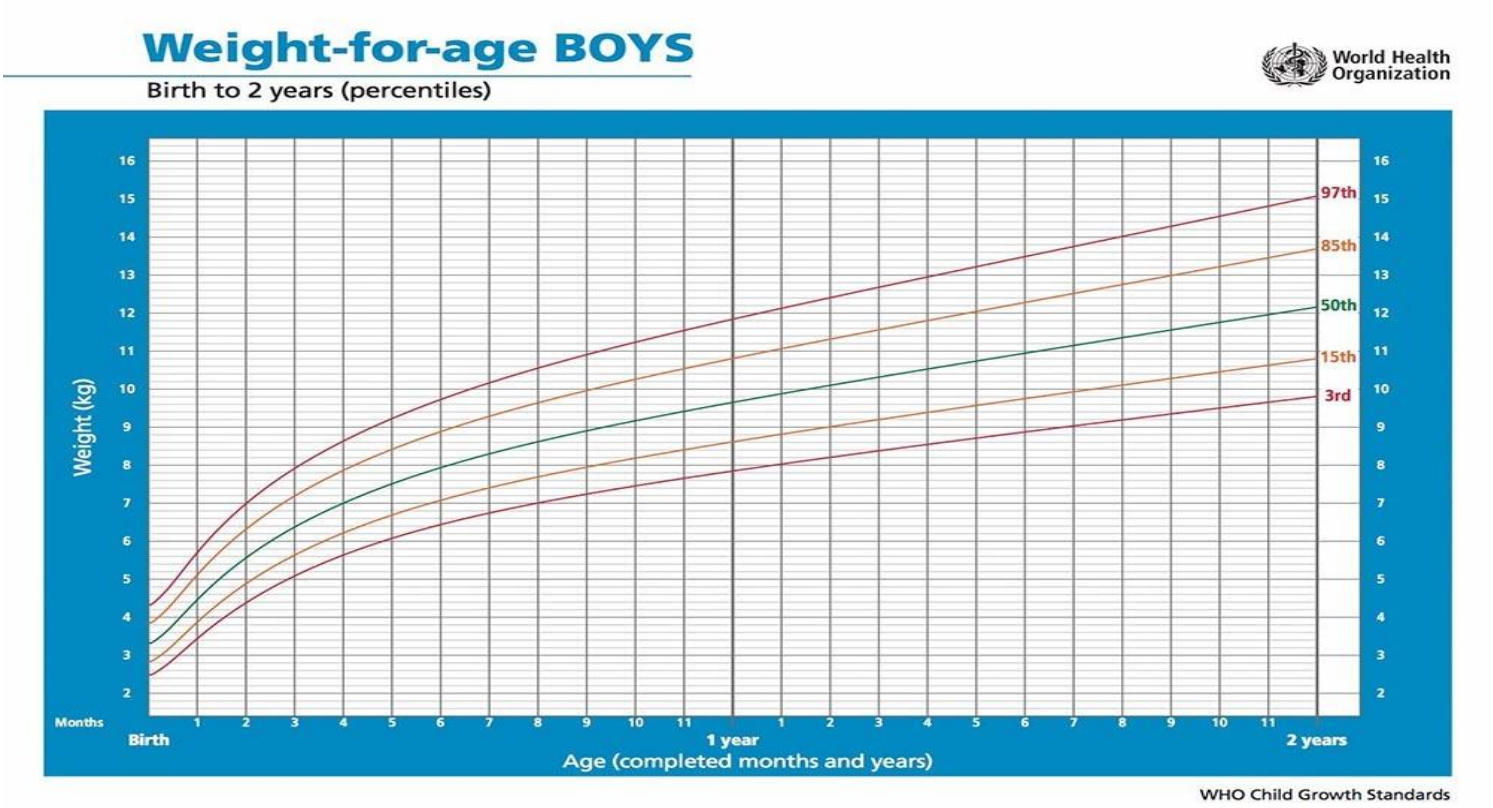
Stunting = Actual Height X 100
Height FoR Age

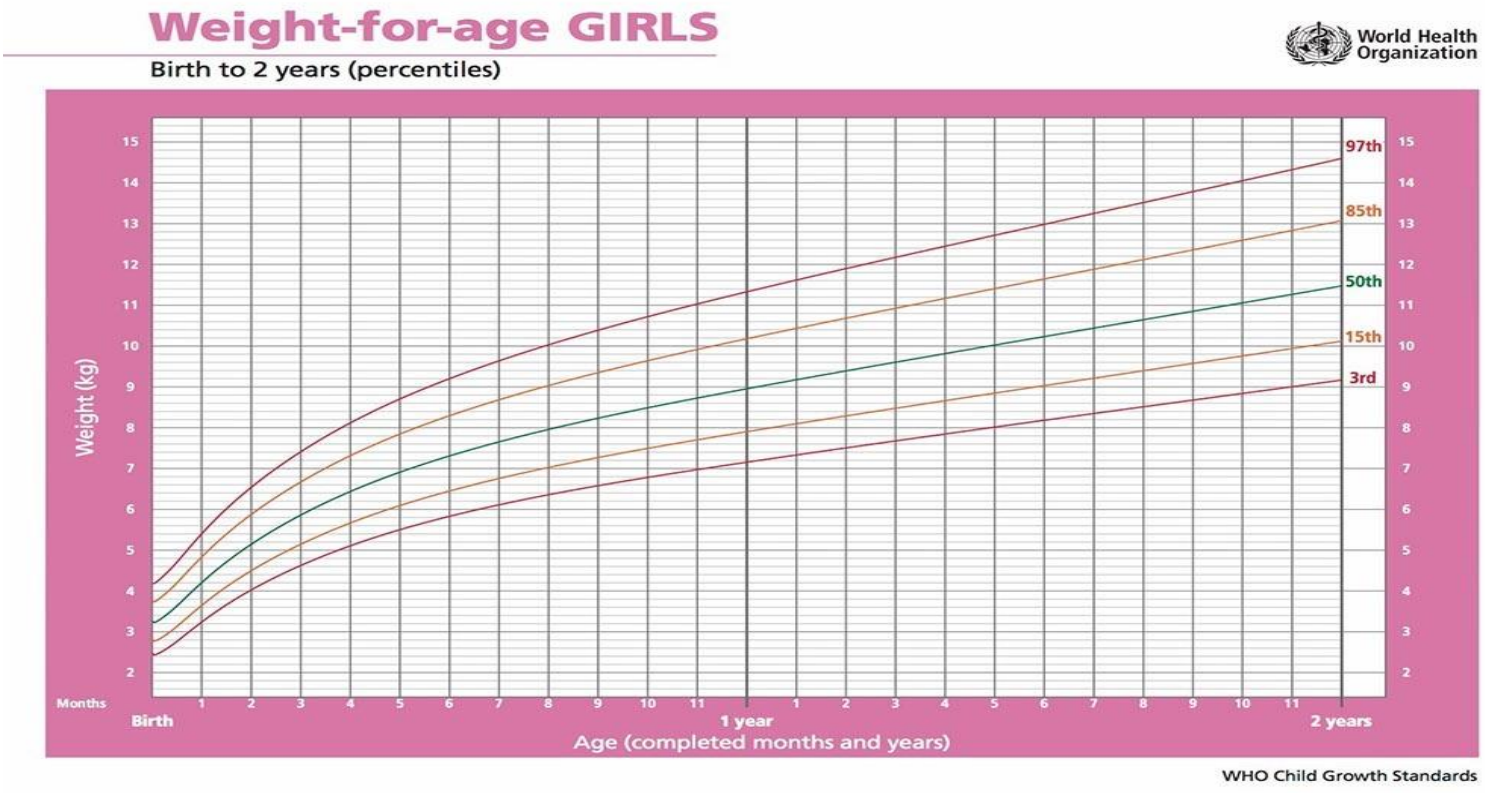
Standard	Stunting	Wasting
Normal	>95%	90>%
Mild	87.5-95%	80-90%
Moderate	80-87.4%	70-79%
Severe	<80%	<70%

Wellcome Classification: evaluates the child for edema and with the Gomez classification system.

Weight for Age (Gomez)	With Edema	Without Edema
60-80%	kwashiorkor	undernutrition
< 60%	marasmic-kwashiorkor	marasmus

GROWTH CAHRT





ANNEXURE -2

SOCIO-ECONOMICAL CLASS

A).Prasad classification : (1961)

Social class	Per Capita Income of family
I	100 and above
II	50-99
III	30-49
IV	15-29
V	Below 15

B). Modified Prasad's Classification : (1991)

C.F.(Correction Factor) = $\frac{\text{C.P.I (ALL India CPI) X 4.93}}{100}$

C.P.I.=Consumer Price Index (7.59% in January 2020)

C). Kuppuswami Classification :

No.	EDUCATION	Score	OCCUPATION	Score	INCOME (Rs.)	Score
1.	Professional Degree, Post Graduate	7	Professional	10	2000 and above	12
2.	Graduate	6	Semiprofessional	6	1000 to 1999	10
3.	Post Highschool diloma	5	Clerical, shop owner, farm owner	5	750 to 999	6
4.	High school	4	Skilled woker	4	500 to 749	4
5.	Middle school	3	Semiskilled worker	3	300 to 499	3
6.	Primary school or literate	2	Unskilled worker	2	101 to 299	2
7.	Illiterate	1	Unemployed	1	100 and below	1

Maximum total : 29.

Achieved score:

Total points	Social class
26 – 29	I
16 – 25	II
11 – 15	III

5 – 10	IV
Below 5	V

D). Pareek's Classification :

Components	Score	Components	Score
Caste		**Social participation**	
Schedule Caste	**1**	None	**0**
Lower Caste	**2**	Member of one organization	**1**
Artisan Caste	**3**	Member of more than one organization	**2**
Agriculture Caste	**4**	Office holder in such an organization.	**3**
Prestige Caste	**5**	Wide public leader	**4**
Dominant Caste	**6**	**House**	
Occupation		No house	**0**
None	**0**	Hut	**1**
Labourer	**1**	Kutcha house	**2**
Caste occupation	**2**	Mixed house	**3**
Business	**3**	Pucca house	**4**
Independent profession	**4**	Mansion	**5**
Cultivation	**5**	**Farm power**	
Service	**6**	No draught animals	**1**
Education		1-2 draught animals	**2**
Illiterate	**0**	3-4 draught animals	**4**
Can read only	**1**	5-6 draught animals	**6**
Can read and write	**2**	**Material possessions**	
Primary	**3**	Bullock cart	**0**
Middle	**4**	Cycle	**1**
High School	**5**	Chairs	**2**
Graduate	**6**	Radio	**3**
And above	**7**	Mobile phone	**4**
Land		Television	**5**
No land	**0**	Refrigerators	**6**
<1 acre	**1**	**Family member**	
1-5	**2**	**Up to 5**	**2**
5-10	**3**	**> 5**	**1**
10-15	**4**		
15-20	**5**		
≥ 20	**6**		

Gradding:

Grade	Category	Score on scale
I	Upper class	> 43
II	Upper middle class	33-42
III	Middle class	24-32

IV	Lower middle class	13-23
V	Lower class	<13

ANNEXURE -3

NUTRITIONAL REQUIREMENTS

A). Classification of consumption units according to various work professions (NIN-HYDRABAD)

LIFE STYLE	MALE	FEMALE
Sedentary	**1.0**	**0.8**
	Teacher, Tailor, Barber, Executives, priest, Retired personnel, Land lord, Postman etc.	Teacher, Tailor, Executives, Housewife, Nurse, etc.
Moderate	**1.2**	**0.9**
	Fisherman, Basket maker, Potter, Goldsmith, Agricultural worker, Carpenter, Mason, Rickshaw puller, Electrician, Fitter, Turner, Welder, Industrial Laborer, Coolly, Weaver, Driver, etc.	Servant maid, coolly, Basket maker, weaver, Agricultural worker, Bidi-maker, etc.
Heavy	**1.6**	**1.2**
	Stone cutter, Black smith, mine worker, wood cutter, Gang man, etc.	Stone Cutter.

For male/female below 21 yes of age.			
Age Group	**C.U. required**	**Age Group**	**C.U. required**
1-3 yrs.	**0.4**	7-9 yrs.	**0.7**
3-5 yrs.	**0.5**	9-12 yrs.	**0.8**
5-7 yrs.	**0.6**	12-21 yrs.	**1.0**

B.) Availability of Energy and Nutrients per 100 grams. (According to Text book of P&SM K Park)

No.	Food Item	Kcals	Protein	Fats	Carbohydrate
1.	Cereals	**350**	**12**	**2**	**70**
2.	Pulses	**350**	**20**	**3.5**	**57**
3.	Vegetables	**35**	**3**	**0.5**	**12**
4.	Milk	**117**	**6.5**	**4.3**	**5**
5.	Sugar and Jaggery	**400**	**0.2**	**---**	**85**
6.	Ghee and Oils	**900**	**---**	**100**	**---**
7.	Meat	**110**	**21.4**	**3.6**	**---**
8.	Eggs	**125**	**13.3**	**13.3**	**---**

C.) CONTENT AND ENERGY OF INDIAN FOOD

No	Food Item	Gms.
1.	Roti (S/M/T)*	15/25/35
2.	Rotla (S/M/T)*	75/100/150
3.	Bhakhri (S/M/T)*	25/35/50
4.	Khichdi	200
5.	Bread	15
6.	Curd (1 cup)	100
7.	Rice (1 cup)	100
8.	Dal (liquid-1 cup)	50
9.	Dal (thick- 1cup)	100
10.	Tomato (mod. 1)	100
11.	Onion (mod. 1)	50-60
11.	Coffee1 cup(150ml)	98 Kcals
12.	Tea 1 cup (150 ml)	79 Kcals
13.	1 tea spoon full	5 gms.
14.	1 table spoon full	15 gms.
***S=Small/ M=Medium /T=Thick**		

D.) ENERGY OUTPUT OF FOODS

Food Item	Kcals.	Prot.	Fats	Carbo.
Cereals	350	12	2	70
Pulses	350	20	3.5	57
Vegetables	35	3	0.5	12
Milk	117	6.5	4.3	5
Sugar and Jaggery	400	0.2	-	85
Ghee and Oils	900	-	100	-
Meat	110	21.4	3.6	-
Eggs	125	13.3	13.3	-

ANNEXURE -4

NATIONAL IMMUNIZATION SCHEDULE FOR INFANTS, CHILDREN AND PREGNANT WOMEN (VACCINE-WISE)

VACCINE	WHEN TO GIVE	DOSE	ROUTE	SITE
FORE PREGNANT WOMEN				
Tetanus Toxoid(TT) & Adult Diphtheria(Td)-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT/Td-2	4 weeks after TT-1	0.5 ml	Intra-muscular	Upper Arm
TT/Td-Booster	If received 2TT doses in a pregnancy within the last 3 years	0.5 ml	Intra-muscular	Upper Arm
For Infants				
Bacillus Calmette Guerin (BCG)	At birth or as early as possible till one year of age	0.1 ml(0.05 ml until 1 month age)	Intra-dermal	Left Upper Arm
Hepatitis B- Birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of mid thigh
Oral Polio Vaccine (OPV-0)	At birth or as early as possible within the first 15 days	2 Drops	Oral	Oral
OPV 1,2, & 3	At 6 weeks, 10 weeks, &14 weeks (OPV can be given till 5 years of age)	2 Drops	Oral	Oral
Pentavalent 1,2, &3	At 6 weeks, 10 weeks, &14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid thigh

Pneumococcal Conjugate Vaccine(PCV)	Two primary doses at 6 and 14 weeks followed by booster dose at 9-12 months.	0.5 ml	Intra-muscular	Antero-lateral side of mid thigh
Rotavirus (RVV)	At 6 weeks, 10 weeks, &14 weeks (can be given till one year of age)	5 drops	Oral	Oral
Inactivated Polio Vaccine (IPV)	Two fractional dose at 6 and 14 weeks of age	0.1 ml ID	Intra dermal two fractional dose	Right upper arm
Measles Rubella (MR) 1st Dose	9-12 months.(Measles can be given till 5 years of age)	0.5 ml	Sub-cutaneous	Right upper arm
Japanese Encephalitis (JE-1)	9-12 months.	0.5 ml	Sub-cutaneous	Left upper arm
Vitamin A (1st dose)	At 9 completed months with measles-rubella	1 lakh IU	Oral	Oral
For Children				
Diphtheria, Pertussis & Tetanus (DPT) booster-1	16-24 months	0.5 ml	Intra-muscular	Antero-lateral side of mid thigh
MR 2nd Dose	16-24 months	0.5 ml	Sub cutaneous	Right upper Arm
OPV Booster	16-24 months	2 drops	Oral	Oral
JE-2	16-24 months	0.5 ml	Sub cutaneous	Left Upper Arm
Vitamin A(2nd to 9th dose)	16-18 months. Then one dose every 6 months up to the age 5 years.	2 lakh IU	Oral	Oral
DPT Booster-2	5-6 years	0.5 ml	Intra-muscular	Upper Arm
TT/Td	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm