

INTERVENTIONS TO TACKLE NUTRITIONAL PROBLEMS OF PUBLIC HEALTH IMPORTANCE

Dept of
COMMUNITY
MEDICINE

Objectives ...

- ▣ Malnutrition related problems
- ▣ Other nutritional problems
- ▣ Direct interventions
- ▣ Indirect interventions
- ▣ Community nutrition programmes

NUTRITIONAL PROBLEMS IN INDIA

- ▣ PROTEIN ENERGY MALNUTRITION
- ▣ LOW BIRTH WEIGHT
- ▣ XEROPHTHALMIA
- ▣ NUTRITIONAL ANEMIA
- ▣ IODINE DEFICIENCY DISORDERS
- ▣ FLUROSIS
- ▣ LATHYRISM
- ▣ OBESITY
- ▣ CARDIO VASCULAR DISEASES
- ▣ DIABETES
- ▣ CANCER

PROTEIN ENERGY MALNUTRITION

- ▣ PEM refers to the deficiency of energy and protein in the body.
- ▣ 1-2% of preschool children in India suffer from PEM.



MAIN CAUSES OF PEM

- ▣ Inadequate intake of food both in quantity and quality
- ▣ Infections (Diarrhea, Respiratory infections, measles, intestinal worms)

CLINICAL FORMS OF PEM

- ▣ MARASMUS
- ▣ KWASHIORKER

Marasmus



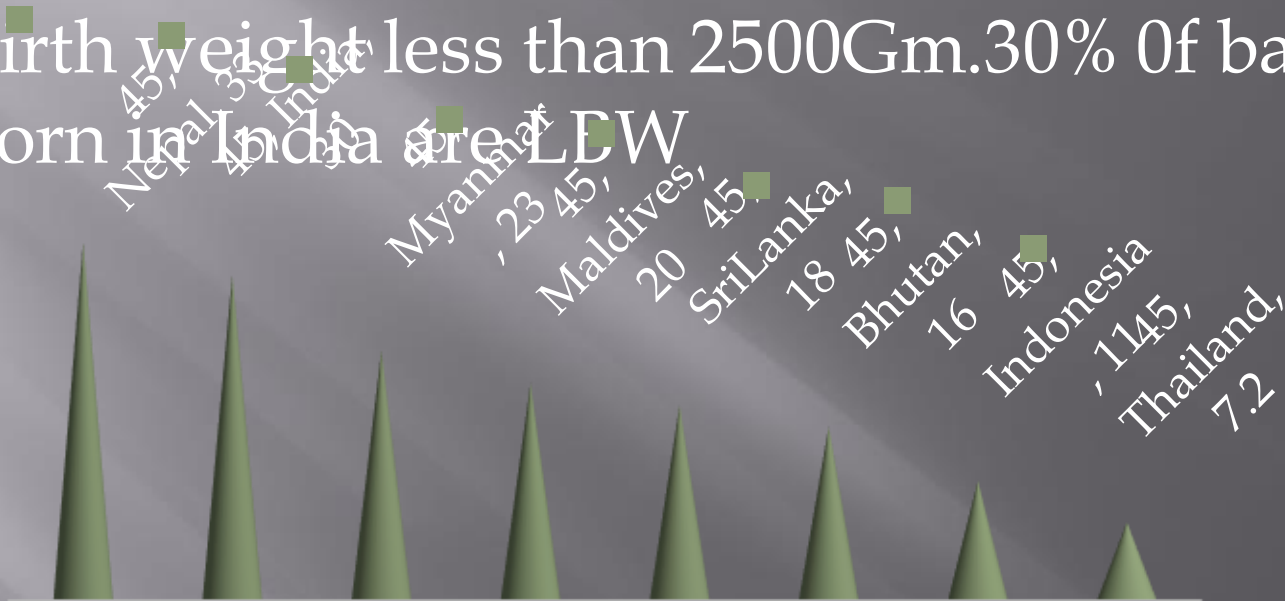
Kwashiorkar



LOW BIRTH WEIGHT

- Birth weight less than 2500Gm. 30% of babies born in India are LEW

PER CENT



Causative factors

- ▣ Maternal malnutrition and anemia.
- ▣ Illness and infections during pregnancy,
- ▣ High parity,
- ▣ Close birth intervals



XEROPHTHALMIA (DRY EYE)

- ▣ Xerophthalmia is most common in children aged 1-3 years

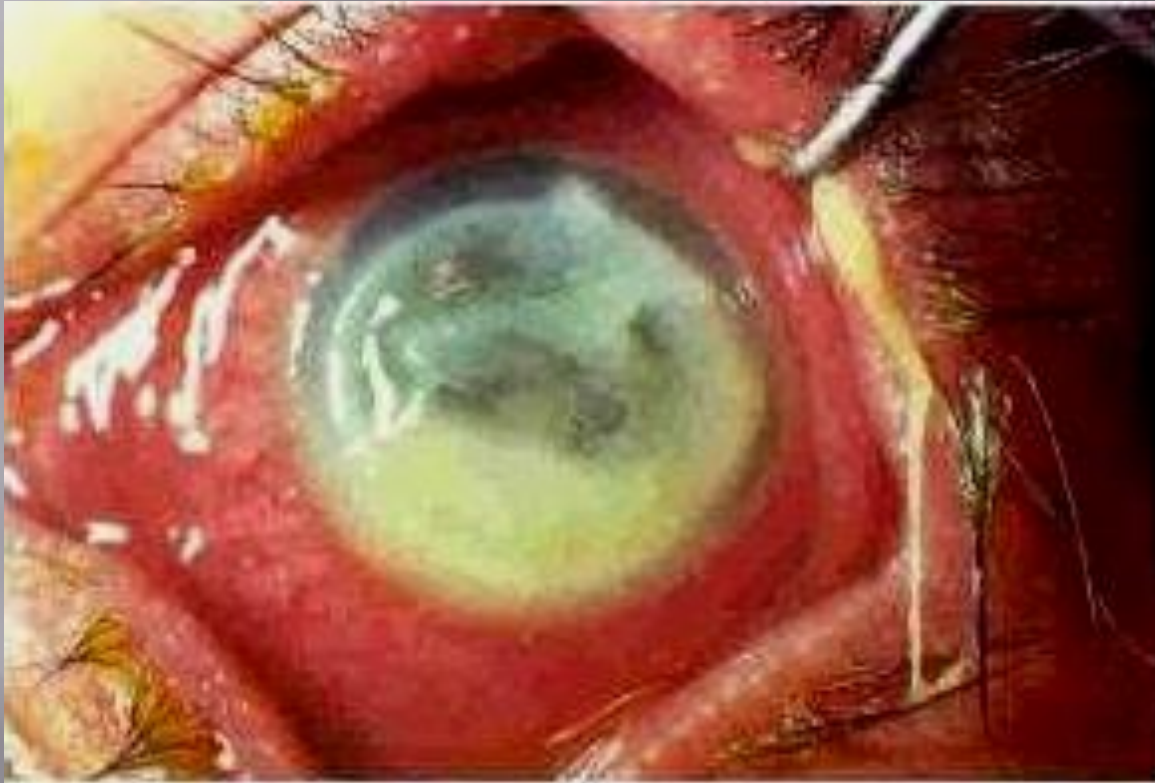


Bitot's Spots

- Collection of dried epithelium, micro organisms etc. forming shiny grayish white spot on the cornea
- A sign of Vitamin A deficiency



KERATOMALACIA



57 percent of preschool children have
sub-clinical Vitamin A deficiency

Bilateral Blindness



Risk factors

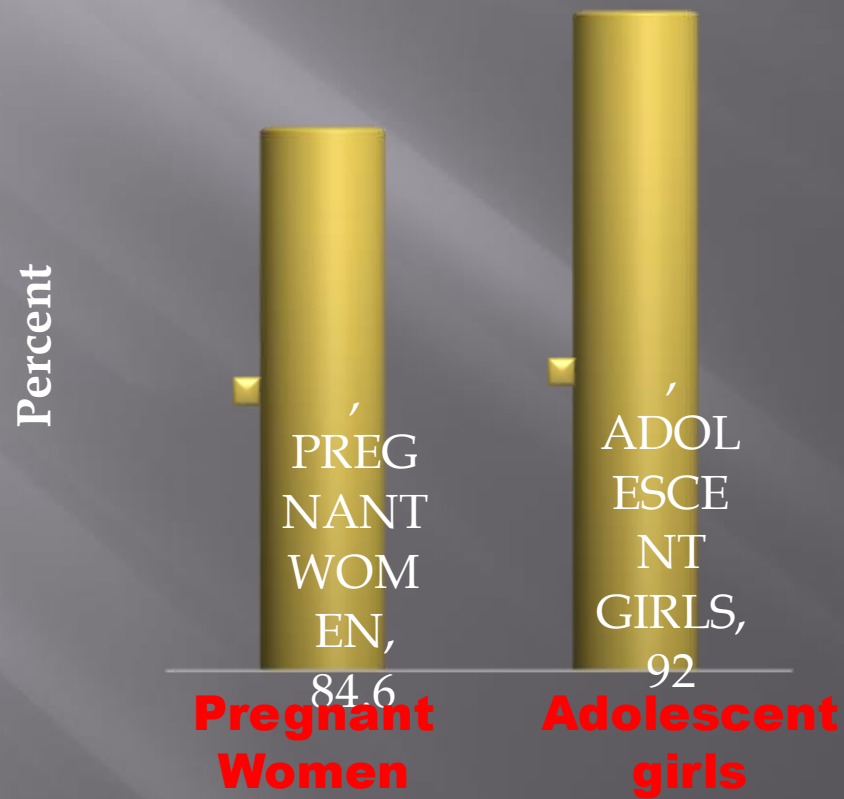
- ▣ Ignorance
- ▣ Faulty feeding practices
- ▣ Infections
- ▣ Diarrhea
- ▣ Use of skimmed milk (totally devoid of vitamin a)

NUTRITIONAL ANEMIA

- ▣ A Condition in which the Hb content of blood lower than normal as a result of a deficiency of one or more essential nutrients
- ▣ Primarily due to lack of absorbable iron in the diet



ANAEMIA IN FEMALES IN INDIA



Causes of Iron deficiency anemia

- ▣ Inadequate intake of iron
- ▣ Poor bioavailability (only less than 5 percent is absorbed)
- ▣ Excessive loss of iron (menstruation, rapid pregnancies, hookworm infestations, other illnesses)

75 percent of preschool children suffer from iron deficiency anemia

IODINE DEFICIENCY DISORDERS (IDD)

- ▣ IDD refers to a spectrum of disabling conditions arising from an **inadequate dietary intake of iodine**.
- ▣ IDD affects the health of humans from fetal stage to adulthood

Iodine deficiency is endemic in 85 percent of districts

IODINE DEFICIENCY DISORDERS (IDD)

- ▣ Endemic Goiter
- ▣ Cretinism

Endemic Goiter

- Also called Derbyshire Neck
- Goiter belt – Himalayan region
- Common among girls than boys



Cretinism

Severe form of IDD
Occurs during fetal stage



FLUROSIS

- ▣ Occurs due to consumption of excessive amount of fluorine through drinking water
- ▣ Two types of flurosis

Dental Flurosis

Skeletal flurosis

Dental flurosis



Skeletal flurosis



LATHYRISM

- ▣ Disease occur by consuming large quantities of **Lathyrus sativus** (Kesari dhal)
- ▣ Lathyrism in human is referred as Neurolathyrism



LATHYRISM

- ▣ It contains a toxin called Beta oxalyl amino Alanine (BOAA)
- ▣ Lathyrus Kesari Dhal) is good source of protein.



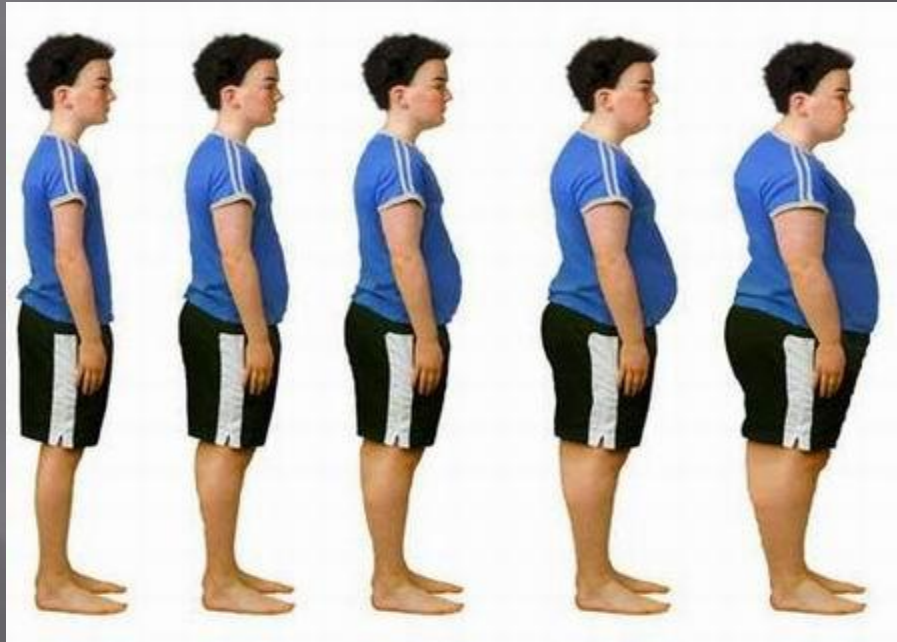
OBESITY

- ▣ Most Prevalent form of malnutrition
- ▣ Abnormal growth of adipose tissue due to enlargement of fat cells(Hypertrophic),Increase in no. of fat cells (hyperplasic)or Combination of both

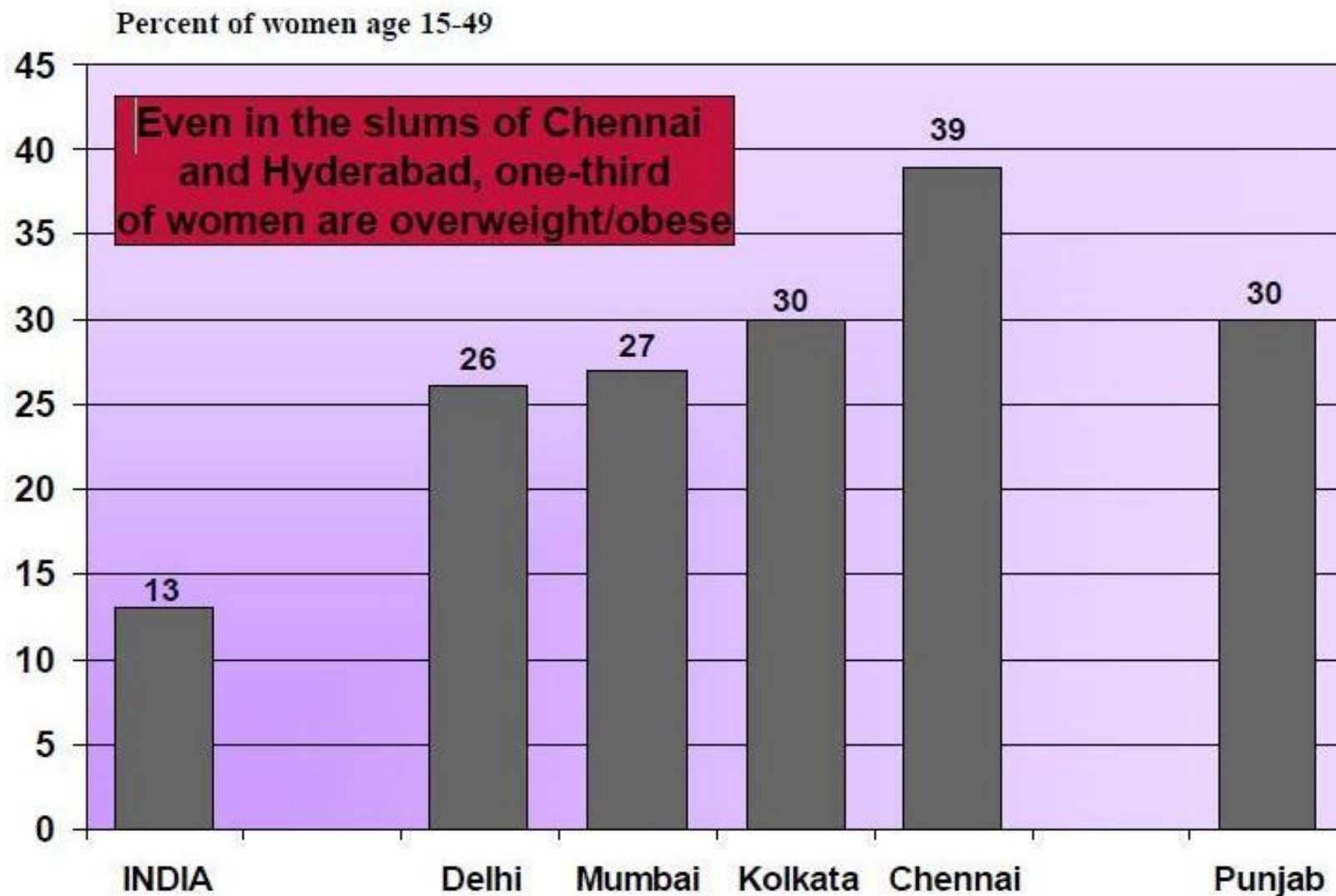


OBESITY

- ▣ Obesity - When the body weight is 20% more than the desirable weight.
- ▣ Over weight - When the body weight is between 10-20% more than the desirable weight



Overweight/Obese Women



CANCER

80 % of cancer due to environmental factors

- ▣ Dietary fat – positive correlation with Colon cancer, breast cancer
- ▣ Dietary fiber – Risk of colon cancer is inversely related
- ▣ Micro nutrients – Lack of Vitamin C & Vitamin A arise the risk of stomach cancer and lung cancer.
- ▣ Food additives – Saccharin, cyclamate, Coffee, aflatoxin associated with bladder cancer
- ▣ Alcohol – liver cancer, Rectal Cancer

OTHER ASSOCIATED NUTRITIONAL PROBLEMS

- Natural calamities and Nutrition:-
Here worst affected groups are the landless agricultural labourers, artisans, craftsmen and non-agricultural labourers in that order.
- Market Distortion & Disinformation:- famines are caused not only by real decline in food availability but also by a sudden erosion of purchasing power of the marginal groups who compulsively depend on the market (landless labourers etc.)

Contd...

- ❖ Urbanisation:

The children of urban slum dwellers and of the urban informal sector are nutritionally the most fragile of all groups. Uncertainty of income and the absence of informal nutritional support systems within society place them on the very edge of survival.

- ❖ Regional and occupational specificities :

The nutritional imbalance of hill people engaged in very strenuous labour, the special nutritional problems of some categories of Industrial Workers and migrant workmen are other examples which need a detailed and specific response.

INTERVENTIONS

A. DIRECT INTERVENTION – SHORT TERM

1. Nutrition Intervention for specially vulnerable groups:

- ▣ Expanding the Safety Net:- The Universal Immunization Programme, oral Rehydration Therapy and the Integrated Child Development Services (ICDS) have had a considerable impact on child survival.
- ▣ Fortification of Essential Foods:- Essential food items shall be fortified with appropriate nutrients. eg, salt with iodine and/or iron.

- ▣ Popularisation of Low Cost Nutritious Food:-
low cost nutritious foods from indigenous and locally available raw material shall be intensified.
- ▣ Control of Micro-Nutrient Deficiencies amongst vulnerable Groups:-
Deficiencies of Vit A. , iron and folic acid and iodine among children, pregnant women and nursing mothers shall be controlled through intensified programmes.

B. Indirect Policy Instruments: Long Term Institutional & Structural Changes:-

- ❑ Food Security: to ensure food security, a per capita availability of 215kg/person/year of foodgrains needs to be attained.
This requires production of 250 million tonnes of food grains per year and buffer stocks of 30-35 million tonnes in order to guard against exigencies such as flood and droughts .

▣ Improvement of Dietary pattern through Production and Demonstration:

1. By promoting the production and increasing the per capita availability of nutritionally rich foods.
2. The production of protective food crops such as vegetables, fruits, milk, meat, fish and poultry shall be augmented.
3. Preference shall be given to growing foods such as millets, legumes, vegetables and fruits .

▣ Public Distribution System:

1. Ensures availability of essential food articles such as coarse grains, pulses and Jaggery, besides rice, wheat, sugar and oil, conveniently and at reasonable prices.
 2. Distributes to the public, particularly to those living below the poverty line, not only in urban areas but throughout the country.
 3. For this purpose, encouragement shall be given to the consumer cooperatives and fair price shops shall be opened.
- ▣ Land Reforms: Implementing land reform measures so that the vulnerability of the landless and the landed poor could be reduced.

- ▣ Basic Health and Nutrition Knowledge:
Nutrition and health education concepts shall be effectively integrated into the school curriculum as well as into 211 nutrition programmes.
- Prevention of Food Adulteration:
Strengthened by gearing up the enforcement machinery.
- ▣ Nutrition Surveillance: The NNMB/NIN of ICMR needs *to be strengthened so that periodical* monitoring of the nutritional status of children, adolescent girls, and pregnant and lactating mothers below the poverty line takes place through representative samples and results are transmitted to all agencies concerned.

- ▣ Community Participation: The active involvement of the community is essential not only in terms of being aware of the services available to the community but also for deriving the maximum benefit from such services by giving timely feedback necessary at all levels.

- ▣ Monitoring of Nutrition situation:

This is the responsibility of the National Institute of Nutrition/NNMB who in turn may involve the ,National Institute of health and Family Welfare, Central Health Education Bureau, Home Science, Medical Colleges and NGOs.

Community nutrition programmes

INTEGRATED CHILD DEVELOPMENT SERVICE (ICDS) SCHEME

- ▣ Integrated Child Development Service (ICDS) scheme was launched on 2nd October, 1975 (5th Five year Plan) in pursuance of the National Policy
- ▣ For Children started in 33 experimental blocks
- ▣ Success of the scheme led to its expansion to 2996 projects by the end of March 1994.

Beneficiaries

1. Children below 6 years
2. Pregnant and lactating women
3. Women in the age group of 15-44 years
4. Adolescent girls in selected blocks

Objectives

- ▣ 1. Improve the nutrition and health status of children in the age group of 0-6 years
- ▣ 2. Lay the foundation for proper psychological, physical and social development of the child;
- ▣ 3. Effective coordination and implementation of policy among the various departments
- ▣ 4. Enhance the capability of the mother to look after the normal health and nutrition needs through proper nutrition and health education.

The Package of services provided by ICDS

- ▣ 1. Supplementary nutrition, Vitamin-A, Iron and Folic Acid,
- 2. Immunization,
- 3. Health check-ups,
- 4. Referral services,
- 5. Treatment of minor illnesses;
- 6. Nutrition and health education to women;
- 7. Pre-school education of children in the age group of 3-6 years, and
- 8. Convergence of other supportive services like water supply, sanitation, etc

VITAMIN A PROPHYLAXIS PROGRAMME(1970)

- ▣ Programme launched by Ministry of H&FW
- ▣ Component of National programme for control of blindness.1968,1976
- ▣ Single massive dose of oily preparation of Vitamin A containing 200000 IU orally to all preschool children in the community every 6 months through peripheral health workers

PROPHYLAXIS AGAINST NUTRITIONAL ANAEMIA

- ▣ Launched by Govt.of India during 4th five year plan
- ▣ Distribution of iron and folic acid tablets to pregnant women and young children (1-12 years)
- ▣ Iron fortification - Fortification of salt with iron
- ▣ Control of parasite and nutrition education

SCHEME FOR ADOLESCENT GIRLS (KISHORI SHAKTI YOJNA)

- ▣ A scheme for adolescent girls in ICDS was launched by the Department of Women and Child Development, Ministry of Human Resource Development in 1991.
- ▣ Targeted All adolescent girls in the age group of 11-18 years

SCHEME FOR ADOLESCENT GIRLS (KISHORI SHAKTI YOJNA)

common services

1. Watch over menarche,
2. Immunization,
3. General health check-ups once in every six-months,
4. Training for minor ailments,
5. De-worming,
6. Prophylactic measures against anemia, goiter, vitamin deficiency, etc., and
7. Referral to PHC. District hospital in case of acute need.

IODINE DEFICIENCY DISORDER PROGRAMME

- ▣ Launched in 1962
- ▣ Focuses on
- ▣ Use of Iodised Salt – Replace of common salt with iodised salt, Cheapest method to control IDD
- ▣ Use of Iodized tablets – iodine tablets administered to school children (not widely accepted)
- ▣ Use of Iodized oil – 1ml Injection of Iodized oil to those suffering from IDD, Oral administration as prophylaxis in IDD severe areas
- ▣ Mass communication – Public awareness through mass media and public health programmes

MID-DAY MEAL PROGRAMME

- ▣ Also known as School lunch programme
- ▣ Programme in operation since 1961



Mid Day Meal programme Recommendations

- | | |
|-----------------------|------------------|
| ▣ Cereals | 75gm/ day/ child |
| ▣ Pulses | 30 |
| ▣ Oils and fats | 8 |
| ▣ Leafy vegetables | 30 |
| ▣ Non leafy vegetable | 30 |

Intervention for Lathyrism

Removal of toxin

- ▣ Steeping method
 - ▣ Soaking the pulse in hot water for about 2 hours and the soaked water is drained off completely
- ▣ Genetic Approach
 - ▣ Development of low toxin varieties of Lathyrus
- ▣ Banning the crop
 - ▣ The Prevention of food adulteration act in India has banned Lathyrus in all forms

Prevention of Fluorosis

- ▣ Keep the drinking water fluorine level below 1mg/lit
- ▣ Defluoridation of water using Nalgonda Technique (Flocculation, Sedimentation & filtration)
- ▣ Prevent use of fluoride toothpaste in areas of endemic fluorosis

National Rural Health Mission 2005-2012

- ▣ Reduce the infant mortality rate (IMR) and the maternal mortality ratio (MMR)
- ▣ To have universal access to public health services
- ▣ Prevent and control both communicable and non-communicable diseases, including locally endemic diseases
- ▣ To have access to integrated comprehensive primary healthcare
- ▣ Create population stabilization, as well as gender and demographic balance
- ▣ Revitalize local health traditions and mainstream AYUSH

