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PREVENTION OF MICRONUTRIENT DEFICIENCIES

Micronutrient malnutrition is a term commonly used to refer to vitamin and mineral nutritional deficiency diseases. Diets which lack adequate amounts of essential vitamins and minerals lead to such diseases.
Micro nutrients

Minerals- Macro and Micro minerals
Vitamins- Water soluble and Fat soluble
The body contains about 24 minerals, all of which must be provided by the diet.
Vitamins

Vitamins are very important for life. It is also very important for everyone to live, but we need it in small amounts. vitamins - A, B, C, D, K.
MICRO NUTRIENT DEFICIENCIES

Iron deficiency anaemia

2 billion people – over 30% of the world’s population – are anaemic

In developing countries every second pregnant woman

40% of preschool children are estimated to be anaemic

Iron deficiency anaemia is aggravated by worm infections, malaria and other infectious diseases such as HIV and tuberculosis.
- Vitamin A deficiency,
- often in association with protein-energy malnutrition, principally affects preschool children.
- It is estimated that almost 250 million children in developing countries are at risk, of whom at least 2.8-3 million are clinically deficient.
- Iodine deficiency disorder is also widespread, with 1500 million people in the world at risk.
- Zinc deficiency
PREVENTION

- Increase intake
- Control infection
- Improve nutritional status
Approaches for tackling micronutrient deficiency

Short term strategies
- Food Supplementation
- Nutrient Supplementation

Long term strategies
- Food based strategies
  - Dietary diversification
  - Home gardening
- Fortification as a preventive approach
  - Bio fortification
- Nutrition and Health Education
- Improving Sanitation
Micronutrient malnutrition usually occurs when diets lack variety.

Short-term interventions have a role in providing specific target groups with vitamin and mineral supplements at certain times.

Only food-based approaches can prevent micronutrient deficiencies in a sustainable manner for most of the population.
Benefits of Food-based Strategies

➢ prevention and control of micronutrient deficiencies
➢ cost-effective and sustainable.
➢ adapted to different cultural and dietary traditions and locally feasible strategies.
➢ they are broad-based, aiming to improve the overall quality of the diet of a population, they can address multiple nutrient deficiencies simultaneously.
➢ amounts of nutrients consumed are within normal physiological levels, the risk of toxicity is minimized
Plan of Action for Nutrition

- Assess the extent of micronutrient malnutrition and develop a national prevention policy based on the distribution, cause and severity of deficiencies and resources available to overcome them.

- Accelerate efforts to eliminate micro nutrient deficiencies within the target period.

- Promote breastfeeding and other sustainable food-based approaches that encourage the production and consumption of micronutrient-rich foods. Processing and preservation techniques that conserve micronutrients should be promoted when micronutrient-rich foods are available only on a seasonal basis.
Use micronutrient supplementation on a short-term basis to reinforce dietary approaches in severely deficient populations.

Supplementation should be directed at women of reproductive age, infants and young children, the elderly, refugees and displaced persons and should be phased out as soon as food-based strategies enable adequate consumption of micronutrients.

Promote food fortification when existing food supplies fail to provide adequate levels of micronutrients in the diet. Iodisation of all salt for human and livestock consumption is the most effective long-range measure for correcting iodine deficiency.

Ensure that nutrition education programmes promote the consumption of micronutrient-rich foods and provide information on food preparation, nutritional value and other factors that affect micronutrient status.
Support research on the role of micronutrients in health and disease, factors affecting the bioavailability of nutrients in food, indigenous methods of food preparation and processing that affect micronutrient availability and improvement of techniques to assess and correct micronutrient deficiencies.

Develop sustainable institutional capacities and human resources for the contra and prevention of micronutrient deficiencies, including the training of professionals, non-professionals and community leaders.

Consider establishing a national committee to coordinate micronutrient deficiency control activities, with authority, legislation and infrastructure that resect national commitment to overcoming the problem.

Ensure that the nutrient content of food used for emergency food aid meets micronutrient standards and, to the extent feasible, that such food is culturally acceptable.
Increasing small-scale production of micronutrient-rich foods

- Small-scale-community vegetable and fruit gardens
Small-scale gardening projects have proven successful when the following resources are available:

- irrigated land or nearby access to water,
- seed for locally adapted plants with high germination rates,
- capital or credit for purchasing inputs and meeting other costs,
- training (e.g., through agricultural extension) if there is inadequate existing knowledge of how to grow and care for crops produced in local agro-ecological conditions and soils,
- adequate time or available labor,
- access to the knowledge and technology needed to provide fencing as required,
- access to markets and storage or preservation techniques,
- ability to withstand drought conditions and
- knowledge of and access to soil improvement techniques and pest control measures.
School-based gardening programmes

children tend to be more open than adults to the adoption of new ideas. School-based programmes can reduce micronutrient malnutrition

- promoting consumption of fruits and green leafy vegetables,
- teaching students how to establish and maintain home gardens,
- introducing students to food preparation and storage techniques,
- providing nutrition information and encouraging adolescent girls to adopt more healthful dietary habits before their first pregnancy and
- enhancing the status of and students' interest in agriculture and nutrition as future occupations.
Planning community gardening programmes

If planned and designed with a good understanding of local circumstances, gardening is an effective food-based approach to improving micronutrient status.

**Targeting**

- Resources should be directed towards areas where the overall or seasonal shortage of micronutrient-rich foods is most severe.

**Choice of crops**

- Local food habits should be predominant considerations in the selection of crops to promote.
- Programmes should be capable of adaptation to local soil and climate conditions and to the perceived needs of the local community.
Community participation

- Resource-poor households will be more motivated to participate in programmes that are focused on the needs of people who have little or no access to land.
- Empower local populations, enhancing their self-confidence and belief that problems can be solved through community efforts.
- Women are often more interested than men in working in such community projects.
Programme monitoring

- Continuous programme monitoring is important to ensure that activities are carried out as planned and to ascertain if a project's objectives are attained and to determine how well vegetable production is progressing.
- germination rate (seed quality, soil moisture and fencing),
- crop density (spacing and amounts planted of various types),
- absence of weeds,
- crop growth (height and healthy appearance) and
- crop color (nutrient sufficiency).
Increasing commercial production of micronutrient-rich foods

- Horticultural products
- Oil seeds
- Palm oil
- Small animal, poultry and fish production
- Beverages
- Natural nutrient supplements
Maintaining micronutrient levels in commonly eaten foods

- Improving food storage and preservation
- Improving food safety
- Better food preparation in the home
- Plant selection and breeding to increase micronutrient levels
Fortification is the addition of nutrients at levels higher than those found in the original or comparable food.

Key Elements of Successful Food Fortification Programme

- Policy Support
- Feasibility and Safety
- Multiple Sector Involvement
- Economic and Marketing Incentives
- Information, Education and Communication
- Monitoring of Micronutrient Levels
- Sustainability
- Food Regulatory System
Steps in Developing a Fortification Strategy

- Determine the micronutrient status of the population
- Identify patterns of consumption of potential food vehicles among key target groups.
- Choose an appropriate food vehicle and fortificant.
- Establish the stability and acceptability of the fortified vehicle.
- Assess the bioavailability of the micronutrient from the vehicle in the appropriate dietary setting.
- Undertake a controlled field trial.
- Implement a regional or national fortification programme.
Key Players in Fortification Programmes

To be successful, fortification programmes require the active collaboration of five key groups.

- **The scientific community**, which has identified both the problem of micronutrient malnutrition and a possible solution - fortification of a variety of foods.

- **National governments**, which must provide the regulatory framework and administrative support for the implementation of fortification programmes.
Consumers, who need to be educated about the benefits and low cost of food fortification to create a demand for fortified products to which the food industry must respond.

International and bilateral aid agencies, which may play a coordinating role and also provide initial funding for fortification programmes.

The food industry, which has the ability to create economically viable fortified products that are affordable, safe and wholesome.
Selection of food vehicles

- is consumed by a sizable proportion of the population, including members of lower income groups and other people who are likely to be at risk of micronutrient malnutrition;
- can be distributed widely to reach key target groups throughout the country;
- is consumed in fairly constant amounts (so that fortification levels can be accurately calculated);
- is inexpensive;
- can be processed in units large enough to permit controlled fortification;
- has no objectionable change in taste, appearance or color after fortification;
- retains appropriate levels of the nutrient (preferably heat-stable) after further processing or cooking; and
- is not consumed in amounts that would present a risk of consumption of toxic levels of the fortificant.
Communication strategies

**Using communication strategies to increase consumption of micronutrient rich foods**

- Communication channels, e.g., radio/television, print media and interpersonal communications.
- IEC – Approach
- Community-level discussions
- Interpersonal communication should be emphasized when complex behaviour change is being promoted.
Lets join hands to make our country free from hidden hunger.
Not all of us can do great things, but we can do small things with great love.

THANK YOU