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Perspective
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# Anemia : the same old disease; can we ever conquer it in India

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Anemia is most prevalent human morbidity. In spite of various government nutritional supplementation programmes we are not able to reduce this morbidity significantly.

**Keywords:** Anemia, Iron supplementation, IFA tablet

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# Introduction

The Lancet Global Health 2013 raised more questions than ever before regarding the global aspect of anemia [1]. About 30% or more of women and children younger than 5 years are affected by the disorder globally (nearly 800 million people)[1].

The trend rates are such that, globally, women's anemia would take about 60 years or more before the prevalence rate of 15% noted in high-income regions are achieved; in south Asia, this rate would take more than a century to reach, and in central and west Africa, it would take more than 150 years[1].

Looking at the figures there was a buzz among the policy makers all around the world in disbelief and they started questioning if it all we gained anything in the last couple of decades.

The WHO Global Database on anemia for 1993–2005, covering almost half the world's population, estimated the prevalence of anemia worldwide at 25 per cent [2].

Although the prevalence of anemia is estimated at 9 per cent in countries with high development, in countries with low development the prevalence is 43 per cent [3].

In absolute numbers anemia affects 1.62 billion people globally with about 293 million children of preschool age, 56 million pregnant women, and 468 million non-regnant women estimated to be anemic [2]. Children and women of reproductive age are at maximal risk. Globally 47% of children younger than 5 years, 42% of pregnant women and 30% of non-pregnant women aged 15–49 years are anemic [3].

Africa and Asia account for more than 85 per cent of the absolute anemia burden in high-risk groups. Anemia is estimated to contribute to more than 115,000 maternal deaths and 591,000 perinatal deaths globally per year [4].

India is one of the countries with very high prevalence of anemia in the world (Table-1). Almost 58 per cent of pregnant women in India are anemic and it is estimated that anemia is the underlying cause for 20–40 per cent of maternal deaths in India.

India contributes to about 80 per cent of the maternal deaths due to anemia in South Asia [5].

Nutritional anemia is a major public health problem in India and is primarily due to iron deficiency.

The National Family Health Survey-3 (NFHS-3) data suggests that anemia is widely prevalent among all age groups, and is particularly high among the most vulnerable; nearly 58 per cent among pregnant women, 50 per cent among non-pregnant non-lactating women, 56 per cent among adolescent girls (15–19 years), 30 per cent among adolescent boys and around 80 per cent among children under 3 years of age (Table-2) [6].

**Table 1. Prevalence of anaemia in India and neighbouring countries.**

| Country | Proportion of population with anaemia (Hb <11 g/dl) | Public health problem |
|---|---|---|
| Bangladesh | 47.0 | Severe |
| Bhutan | 80.6 | Severe |
| India | 74.3 | Severe |
| Nepal | 78.0 | Severe |
| Pakistan | 50.9 | Severe |
| Sri Lanka | 29.9 | Moderate |
| Source: WHO Global Database on Anaemia [2]. | | |

**Table 2: Prevalence of anaemia among different age groups in India.**

| Age groups | Prevalence of anaemia (%) |
|---|---|
| Children (6–35 months) | 79 |
| Children (6–59 months) | 69.5 |
| All women (15–49 years) | 55.3 |
| Ever married women (15–49 years) | 56 |
| Pregnant women (15–49 years) | 58.7 |
| Lactating women (15–49 years) | 63.2 |
| Adolescent Girls | |
| 12–14 years | 68.6* |
| 15–17 years | 69.7* |
| 15–19 years | 55.8 |
| Source: National family health survay-3. | |

*National Nutrition Monitoring Bureau Survey (NNMBS), 2006.

# Etiology of Anemia [6]

The commonest causes of anemia in developing countries, particularly among the most vulnerable groups (pregnant women and preschool age children), are nutritional disorders and infections.

Hence the causes of anemia could be segregated as nutritional and non-nutritional, underscoring the etiological importance of dietary deficiency as the major causative factor.

01. Iron deficiency
    - Decreased intake.
    - Increased iron loss (adolescent girls)
    - Increased iron requirement (in pregnancy, lactation, children)
02. Vitamin B12 and Follic acid deficiency.
03. Helminthic infestations.
04. Malaria
05. Thalassemia, sickle cell anemia and other hemolutic disorders.
06. Chronic diseases.

## Existing policies and strategies

A National Nutrition Policy was adopted in 1993, with the objective of operationalising multi-sectoral strategies to address the problem of under-nutrition/malnutrition. Based on this, the National Plan of Action on Nutrition 1995 laid out the sectoral Plan of Action for 14 Ministries and Departments of the Government of India. A National Nutrition Mission has been set up to address nutrition issues through a mission mode approach under the oversight of the Ministry of Women & Child Development (MWCD). One of the goals for the 12th Five Year Plan is to reduce anemia in girls and women by 50 per cent [6].

01. Supplementation intervention by Ministry of Health and Family Welfare (MoHFW) [6].
    - Children up to 5 years: 20 mg elemental iron and 100 microgram folic acid per ml of liquid formulation and age appropriate de-worming for 100 days in a year.
    - Children 6-10 years: 30 mg elemental iron and 250 microgram folic acid per child per day for 100 days in a year.
    - Adolescent girls (10-19 years, recently introduced): Weekly does of 100 mg elemental iron and 500 microgram folic acid with biannual de-worming.
    - Pregnant and lactating mothers- 100 mg elemental iron and 500 microgram folic acid for 100 days during pregnancy and 100 days post partum.
02. ICDS Scheme of Ministry of Women & Child Development (MWCD) [6] - supplementary nutrition is provided to pregnant and lactating women at the rate of Rs.5 per day per woman. This is meant to provide 600 Kcal and 18–20 grams of protein. Children in the age group 0–6 years receive supplementary nutrition, immunization, preschool education, etc.
03. Mid day Meal programme- Supplementary food is provided to primary school children through National Programme of Nutrition Support to Primary Education [6].
04. SABLA scheme of Ministry of Women & Child Development (MWCD) - where supplementary nutrition is provided to adolescent girls in the form of take home rations (THR), or hot cooked meals. Under SABLA, each adolescent girl will be given at least 600 calories and 18-20 grams of protein and the recommended daily intake of micronutrients, at Rs 5 per day per beneficiary for 300 days a year [6].

Even though supplementation of diet with iron and folic acid (IFA) has been a part of Government of India programming for over three decades, NFHS data shows that the levels of IFA intake remain low. For example, less than 20 per cent of women below 20 years took IFA supplements, and only 22 per cent of pregnant women reported consuming IFA for 90 days or more when they were pregnant.

There are significant challenges in reaching the at-risk population as well as improving compliance. Taking cognizance of ground realities discussed above the Ministry of Health and Family Welfare took a policy decision to develop the National Iron+ Initiative [6].

This initiative will bring together existing programmes (IFA supplementation for: pregnant and lactating women and; children in the age group of 6–60 months) and introduce new age groups.

Thus National Iron+ Initiative will reach the following age groups for supplementation or preventive programming:

- Bi-weekly iron supplementation for preschool children 6 months to 5 years.
- Weekly supplementation for children from 1st to 5th grade in Govt. & Govt. Aided schools.
- Weekly supplementation for out of school children (5–10 years) at Anganwadi Centres.
- Weekly supplementation for adolescents (10–19 years).

- Pregnant and lactating women.
- Weekly supplementation for women in reproductive age.

A conscious effort has already been made under WIFS (Weekly Iron and Folic acid Supplementation) programme to position the supplementation positively in order to reach out to both boys and girls and ensure compliance.

IFA tablet has been made blue ('*Iron ki nili goli*') to distinguish it from the red IFA tablet for pregnant and lactating women.

The campaign has been built around benefits of IFA supplementation and healthy eating.

The scope of this communication campaign will be enhanced to address all target segments.

# Future approaches

01. **Dietary diversification-** Dietary diversification is encouraging the consumption of micronutrient rich foods like dark green leafy vegetables, lentils and vitamin C rich fruits – which is available but are underutilized by the deficient population.

As iron is low in cereal and tuber-based diets, the addition of legumes can slightly improve the iron content of those diets. Adding a small portion (50 g) of meat, poultry, or fish will increase the total iron content as well as the amount of bio-available iron. The consumption of ascorbic acid along with the food rich in iron will enhance absorption.

02. **Food fortification-** Food fortification refers to the addition of micronutrients to processed foods. The major staple food of the community like rice, wheat and dal should be fortified by some means.
03. **Supplementation-** Food supplements are highly concentrated vitamins and minerals produced by pharmaceutical manufacturers in the form of capsules, tablets or injections and administered as part of health care or specific nutrition campaigns. These must be available amply to the target population at no or low cost.
04. **Revised Government strategy-** The initiated policies have to be continued with great vigor, at all the levels of health care. New approaches must be taken into account to cover wider population.

# Conclusion

The war against anemia has just begun. So we should not be harassed losing some initial battles. We must continue to fight hard. Medical and paramedical fraternity can bear the torch but the policy makers, politicians and NGOs must work relentlessly to achieve the common goal.

If we can immunize all the under 5 population of our country and declare India polio free then why can't the adult population be prevented from anemia. Finally poverty and illiteracy has to be addressed definitely before we dream of anemia free India.

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