

Reduction of anaemia



In *The Lancet Global Health*, Gretchen Stevens and colleagues¹ update of global, regional, and national trends in haemoglobin concentration and levels of anaemia emphasises both the massive extent of the problem, and its very slow rate of improvement. About 30% or more of women and children younger than 5 years are affected by the disorder—nearly 800 million people. Anaemia has improved by only 0.2–0.3 percentage points per year in the past two decades. By comparison, child underweight, affecting nearly 20% of children, has declined at an average of almost 0.6 percentage points per year.² The trend rates are such that, globally, women's anaemia would take about 60 years or more before the prevalence rates of 15% noted in high-income regions are achieved; in south Asia, this rate would take more than a century to reach, and in for example central and west Africa, it would take more than 150 years. The global problem

is not resolving as part of normal socioeconomic development.

Assessment of the causes of anaemia suggests likely future trends, and needs for additional interventions. Gross national income and consumption of meat are significantly (and independently) associated² with anaemia prevalences, so that countries transitioning to higher income and more diversified diets that include more animal products and fruits and vegetables might decrease anaemia prevalence. The exception is when diets exclude meat, which notably includes many of the estimated 300 million women in India, of whom about 50% have anaemia. Indeed, rapid improvements have been documented at the national level (eg, 1–3 percentage points per year in Thailand and Vietnam³ and Nicaragua⁴), ascribed more to improvements in diet and infectious disease than to direct supplementation, although supplementation was widely implemented.

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	Target groups	Health			Agriculture extension services	Education (schools)	Social protection (CCTs)
		Community health volunteers, mobilisation, and follow-up	Health services	Campaigns and child health days			
IFA supplementation*	Pregnant women (daily), preconception (weekly)†, adolescent girls (menstruating; weekly)	Mobilisation	Through ANC, counselling, and supplies	Counselling and supplies	NA	Provide	Potential for condition in CCTs
Helminth control (6-monthly)	Pregnant women, children (6–59 months), adolescent girls	Mobilisation	Through ANC, in routine care	Counselling and supplies	NA	Provide	..
Malaria prevention and control	Households	Mobilisation, bednets	Prophylaxis, bednets	Bednets	NA	Promotion	..
Fortified supplementary foods	Pregnant women, children (6–59 months)	Mobilisation	Supply	Screening, and if needed, provision	NA	NA	Potential for supply route for supplementary food distribution
Delayed cord clamping	Birth	NA	In institutional delivery and with trained birth attendants	NA	NA	NA	NA
Education and counselling to increase iron intake through diet	Preconception, pregnant women, children (6–59 months)	Mobilisation	In routine care, in ANC, and through growth monitoring	NA	Counselling	Health and nutrition education might be included in curricula	Include topics in public education sessions when these are condition in CCTs
Promotion of consumption of fortified complementary foods	Households	Mobilisation	In ANC, growth monitoring	NA	Counselling
Home-based fortification‡	Children (6–59 months), pregnant women	Mobilisation plus supplies	In routine care, growth monitoring	NA	NA
Promote animal source foods through household production	Households	Mobilisation	..	NA	Advice, supplies

CCTs=conditional cash-transfer programmes. IFA=iron-folic acid. ANC=antenatal care. NA=not applicable. *Multiple micronutrients containing iron are soon likely to replace iron-folate in many cases; however, formal guidance from WHO is yet to come. †When indicated. ‡Guidance not yet available on use of home-based fortification during pregnancy.

Table: Processes for implementation at scale of interventions to prevent or treat anaemia

For the millions of poor individuals who live in stagnant conditions of poverty, which are exacerbated by high food prices and unemployment, not much will change unless deliberate measures are taken. Implementation of effective direct intervention programmes, such as supplementation with iron (as iron and folic acid or multiple micronutrients), fortification of staple foods or condiments, and disease control (notably malaria and deworming), is urgently needed. The effectiveness of these solutions is well established and the effects are large relative to the slow rate of anaemia's decline, showing a missed opportunity.⁵ The challenge is how to implement these programmes on a wide enough scale, with well-known methods (table).⁴

For supplementation, the key issues are how to develop and sustainably support the relevant systems and platforms. The table shows options for implementation of interventions.⁶ Timely participation in antenatal care is restricted, and even for participating countries, supplies of supplement are rarely sufficient. Incentives are essential for use of antenatal care, including improvement of quality of services through conditional cash-transfer programmes and counselling, and overhaul of supply logistics, from central stores to health posts, is a prerequisite.^{6,7} Community-based health and nutrition programmes are operational in many countries⁸ and are mainly aimed at children, but could readily include women. Other opportunities are through family planning, child health days, and cash-transfer programmes. To address child anaemia, provision of suitable iron sources as drops or in multiple micronutrient powders is needed. Interventions to combat child marriage and early pregnancy, and to increase birth intervals, will contribute to the reduction of anaemia.

Iron fortification of staple foods (especially wheat) has contributed to the reductions in anaemia prevalence reported in high-income regions. Fortification in low-income countries has expanded: the Flour Fortification Initiative reports that 76 countries now have mandatory flour fortification, and 31% of the world's wheat flour is fortified.⁹ Rice is the staple food in most of Asia, and thus for nearly half the world's population. Many such individuals are vegetarian and have high rates of anaemia. However, rice is not yet widely fortified, and substantial technical issues demand increased investment in research, both for added iron and biofortification.

Fortification of widely used condiments, such as soy sauce and fish sauces, has also begun, notably in China. In countries where populations rely on wheat, additional benefit to anaemia can now be expected; populations that consume mainly rice might have to wait.

Infectious and parasitic diseases cause about half the anaemia burden. Stevens and colleagues¹ estimate that iron-amenable anaemia was about 50% in non-pregnant and pregnant women, and 42% in children in 2011. In addition to the contributions of malaria, schistosomiasis, hookworm infection, and HIV, which Stevens and colleagues list as causes of low haemoglobin concentrations, presence of *Helicobacter* species should perhaps be added as an emerging issue.¹⁰ Improved sanitation and disease control can be expected to make a substantial contribution to anaemia reduction, again especially in transition countries in which diet and disease control are likely to improve in parallel.

Direct interventions are needed, especially for the poorest populations, and these can improve health and nutrition even when underlying causes remain important. Moreover, these improvements enhance human capital, and can contribute to a virtuous cycle by fostering economic development, which in turn enhances the health and nutrition of women and children. A step in the right direction is the specific attention to maternal anaemia as a problem of importance in the US Global Health Initiative's Feed the Future programme.¹¹ Now that the World Health Assembly has proposed a target of 50% reduction in anaemia in women by 2025, the necessary resources and policy priority will hopefully be directed towards this pervasive but under-recognised problem.

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