FAQ #3

What recommendations can be made on the frequency (daily or weekly) of iron supplementation for the prevention and treatment/control of anemia?

- Daily iron supplementation is the preferred approach for the treatment as well as for the prevention of iron deficiency anemia.

- The conventional policy on daily iron/folate supplementation for treatment and prevention of iron deficiency anemia in pregnant women, infants, and young preschool-age children should not be changed.

- In general, intermittent (e.g., weekly) iron supplementation is not as efficacious as daily supplementation; however, it remains one of the available approaches for prevention, not treatment, of iron deficiency and anemia in groups other than pregnant women (e.g., older children and adolescents, women of childbearing age), but only in situations where high compliance can be expected.

- Because of the multiple etiology of anemia in developing countries (e.g., iron and other nutrient deficiencies, malaria, hookworm and other endemic diseases) the expected effectiveness of iron supplementation, either daily or intermittent, on anemia is contingent upon the extent to which iron deficiency contributes to anemia in a given setting. Supplementation with iron (folate) alone may not be effective in correcting nutritional anemia, since it may address only part of the problem concerning nutritional deficiencies.

- Perhaps more important for program effectiveness than the frequency of iron supplementation are many practical program implementation problems. Particularly important are those related to securing a continuous supply and distribution of supplements to the target population; training, support, and motivation of health workers; and appropriate counseling and other effective measures to encourage compliance. Poor compliance in weekly supplementation will have greater negative impact on effectiveness than in daily dose regimens.

Policy and program implications of the question

This question is often raised because of the generally disappointing results from daily iron supplementation as the most frequently used program intervention for prevention and control of anemia. High expectations were generated by intermittent supplementation as a lower cost, presumably easier to implement and equally efficacious approach. It was then hypothesized that intermittent (e.g., weekly) supplementation would be as efficacious as daily administration and would have fewer side effects and encourage compliance, thus making it potentially more effective programmatically. These expectations tended to divert attention from the need to address many practical implementation issues that are key to effectiveness of any iron supplementation approach. A number of studies were designed and carried out in the 1990s to compare the apparent efficacy or effectiveness of intermittent (weekly or biweekly) and daily supplementation with iron for the control of iron deficiency anemia and anemia in developing countries.

A review and analysis of experience from 24 studies, and secondary analysis of 14 of them, was recently completed by a technical group headed by Dr. George Beaton. The study addressed questions concerning the relative and absolute efficacy of daily and intermittent iron supplementation and concluded that

- both daily and weekly iron supplementation were efficacious under favorable conditions;
- daily supplementation is significantly more efficacious than weekly under almost all conditions examined;
- the subjects enrolled in weekly supplementation were 33 percent more likely to exhibit residual anemia than those enrolled in the daily supplementation regimens;
- if there were differences in side effects, they did not overcome other effects substantially to render weekly dosing more efficacious;
- if the duration of dosing is cut short (e.g., by low compliance) neither daily nor weekly supplementation should be expected to achieve full potential impact;
- in summary, it is the total intake of iron, more than the mode of administration, that is the determinant of hemoglobin response;
- it was also concluded that the anemia response to iron may be limited by other etiological factors, such as other nutrient deficiencies and endemic diseases.

Summary guidelines

When properly implemented, iron supplementation can be effective in both the treatment and prevention of iron deficiency anemia. Its impact on overall anemia would be contingent upon the relative contribution of iron deficiency to the etiology of anemia in the target population. Daily iron supplementation is more efficacious than weekly supplementation and is always indicated to treat anemia. In pregnant women replacement of daily supplementation with weekly is contraindicated. Weekly supplementation may be recommended for anemia prevention, but only when high levels of compliance can be secured. Perhaps more important than frequency is the establishment of effective supplement supply and distribution systems and measures to ensure high levels of compliance, which are key to program effectiveness.

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1. Beard JL. Effectiveness and strategies of iron supplementation during pregnancy. Am J Clin Nutr 000;71(suppl):1288S-94S.
2. Beaton G and McCabe GP. Efficacy of Intermittent Iron Supplementation in the Control of Iron Deficiency Anaemia in Developing Countries. An Analysis of Experience. The Micronutrient Initiative (MI), Ottawa, Canada. First printing May, 1999.
3. Galloway R and McGuire J. Determinants of compliance with iron supplementation: supplies, side effects or psychology ?. Soc Sci Med 1994; 39(3):381-90.
4. Sloan NL, Jordan EA, Winikoff B. (1995). Does iron supplementation make a difference ? MotherCare Project. John Snow Inc. Arlington, Virginia.
5. Stoltzfus R and Dreyfuss ML. (1997) Guidelines for the Use of Iron Supplementation to Prevent and Treat Iron Deficiency Anaemia. International Nutritional Anemia Consultative Group (INACG), Washington DC.
6. Van den Broek NR and Letsky EA. Etiology of anemia in pregnancy in south Malawi. Am J Clin Nutr 2000;72(suppl):247S-56S.
7. Viteri F. Iron supplementation for the control of iron deficiency anemia in populations at risk. Nutr Rev 1997;55:189-203.
8. Walter T, Olivares M, Pizarro F. Munoz C. Iron, anemia and infection. Nutr Rev 1997;55:111-24.
9. Yip R. Iron supplementation during pregnancy. Is it effective ? Am J Clin Nutr 1996; 63:853-855.