



# MCSP Nutrition Brief

## Community-Based Distribution of Iron-Folic Acid Supplementation: Evidence and Program Implications

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### Background

Globally, anemia affects 29% of pregnant women and 38% of non-pregnant women (Stevens et al. 2013) and is associated with one-fifth of maternal deaths (Black et al. 2008). Anemia puts women at greater risk of mortality, morbidity, postpartum hemorrhage, and poor birth outcomes, including preterm births and low birthweight (Kavle et al. 2008; Rahman et al. 2016).

A secondary analysis of national Demographic and Health Survey (DHS) datasets in 19 African countries found that when pregnant women received at least 90 iron-folic acid (IFA) supplements through antenatal care (ANC), the risk of neonatal mortality decreased by 34% (Titaley et al. 2010; Nisar and Dibley 2014).

The World Health Organization (WHO) recommends daily IFA supplementation (30–60 mg iron, 0.4 g folic acid) initiated as early as possible and continued throughout pregnancy for all adolescent and adult women as a key intervention to reduce the risk of maternal anemia, iron deficiency, and low-birthweight infants (WHO 2012). Despite these benefits of maternal IFA supplementation, many low- and middle-income countries (LMICs) continue to face high anemia rates (Black et al. 2013; WHO, WFP, and UNICEF 2007), which likely also stem from the multifactorial nature of anemia, with malaria and helminth infections (e.g., hookworm) as contributing causes. Interventions delivered at the health facility level, such as IFA supplementation, are not operating at scale in most countries because of lack of demand from health sectors and beneficiaries (e.g., low ANC attendance), limited funding, stock-outs, and ineffective management (Christian et al. 2003; Pokharel et al. 2010; Sharma et al. 2004; Trowbridge and Martorell 2002).

More information is needed on best practices and the most effective strategies to deliver IFA supplementation through community-based channels to complement ANC because access and supply are issues. Key findings from this review conducted by the Maternal and Child Survival Program (MCSP) provide evidence for community-based distribution (CBD) of IFA supplementation as a feasible approach to improve anemia rates in LMICs.

CBD of IFA supplementation is a strategy to provide IFA supplements to women directly through community channels. Examples of these channels include: private pharmacies, community health centers, village health workers, community health workers, community volunteers, or community gatherings for health education sessions.

### What are the Strengths of CBD of IFA Supplementation?

- **CBD of IFA supplementation is a valuable platform to increase awareness and knowledge of anemia and IFA supplementation:** Increased knowledge and coverage of IFA supplementation through provision of messages and counseling on anemia and IFA supplementation through community-based channels was successful within several countries.

- In **Cambodia**, three different groups of women, including secondary school girls, women working in garment factories near a program site, and women in rural villages showed significant improvements in knowledge about the causes, consequences, and prevention of anemia after implementation of a social marketing and community mobilization program (Kanal et al. 2005).
- In **Vietnam**, a one-year social marketing and mobilization intervention found a significant increase in the percentage of women with awareness that “poor nutrition led to anemia,” that “weekly IFA supplementation could help to prevent anemia,” of the need for “more iron during pregnancy,” and of the role of hookworm infection as a cause of iron-deficiency anemia (Khan, Thanh, and Berger 2005).
- In **India**, registered community-level medical practitioners increased distribution of IFA tablets and provided women with correct information and messages about consuming IFA tablets, which led to an increase in awareness of anemia at the endline survey to more than 90% of women—doubled from baseline figures (49.2%). Knowledge that “taking IFA during pregnancy can prevent anemia” had increased significantly from 12.9% at baseline to 51.5% at the endline survey (Srivastava et al. 2015).
- In other country contexts, such as **Bangladesh, India, and Senegal**, women who received IFA supplementation through community channels relayed how taking IFA tablets had improved health benefits, such as increasing blood volume, leading to fetal nourishment and compensation for blood loss during delivery (Alam et al. 2015; Pal et al. 2013).
- **CBD of IFA supplementation can encourage attendance at ANC:** CBD of IFA supplementation can also be an important mechanism to complement ANC, to encourage early and frequent attendance at ANC, and to achieve the WHO recommendation of at least four visits during pregnancy. Six studies found that CBD of IFA supplementation can increase ANC attendance through community agents encouraging earlier and consistent ANC visits. In Pakistan, Philippines, Nepal, Tanzania, and Thailand, distribution of IFA supplementation through community-based channels, such as community health workers and various women’s social networks, was found to reach a greater proportion of women compared to distribution through ANC (Alam et al. 2015; Nisar et al. 2014; Yekta et al. 2008; Young, Ali, and Beckham 2009).
- **CBD of IFA supplementation can increase compliance and address side effects:** Fourteen of twenty-six studies identified CBD platforms as successful in addressing factors related to compliance, such as maintaining the daily regimen of one pill per day, temporary side effects (e.g., vomiting, nausea, dizziness), and forgetfulness. In addition, eight studies reported high compliance (above 75%) of IFA supplementation when there was a consistent supply of IFA tablets from the community level, either with or without IFA delivered through health facilities (Aguayo et al. 2004; Bharti 2004; Bhutta et al. 2009; Khan, Thanh, and Berger 2005; Lutsey et al. 2008; Phuc et al. 2009; Seck and Jackson 2007; Shivalli, Srivastava, and Singh 2015). Community channels, such as private pharmacies, midwives, and community agents, were more likely to have consistent supplies of IFA tablets compared to clinics and hospitals that faced stock-outs (Garcia, Dato-Barret, and Dizon 2005; Young, Ali, and Beckham 2009). Unavailability of IFA tablets at local health facilities was cited as a barrier to compliance in four articles, and seven articles reported high compliance (above 75%) of IFA supplementation when there was a consistent supply of IFA tablets available to them (Aguayo et al. 2004; Bharti 2004; Bhutta et al. 2009; Khan, Thanh, and Berger 2005; Lutsey et al. 2008; Phuc et al. 2009; Shivalli, Srivastava, and Singh 2015).
- IFA supplement consumption was significantly higher among mothers who received an explanation on IFA supplements from community health workers compared to those who were not provided information by the health worker (Pal et al. 2013).
- In **Senegal**, midwives were a strong motivator for improved IFA supplementation compliance in a program treatment group (86%) versus the control group (48%) because midwives influenced women’s perception that IFA supplementation would improve health and anemia if they took the IFA tablets and encouraged women to take the IFA supplements (Seck and Jackson 2007).

- In **India, Nicaragua, and Tibet**, community health volunteers and other community-level workers delivered supplements and provided clients with follow-up counseling, which helped women understand how to address potential and temporary side effects, such as vomiting, nausea, and dizziness (Dickerson et al. 2010; Mora 2007; Srivastava et al. 2015).
- **Pakistani** lady health workers conducted routine home visits and positively influenced increased consumption of IFA supplements—19% of women residing in program areas consumed 90 or more supplements, compared to only 12% in non-program areas (Nisar et al. 2014).

## What are Barriers that May Influence the Roll-Out of CBD of IFA Supplementation?

- **Advice from influential family and community members:** Four articles on CBD of IFA supplementation included in this review identified advice from influential family members as a barrier to consumption of IFA supplements. In **Iran**, 13% of women surveyed stopped taking pills because relatives told them to stop (Yekta et al. 2008). The Pregnancy and Village Outreach Tibet program entailed counseling and support to address seeking ANC early, antenatal nutrition, micronutrient supplementation, and safe delivery practices (Dickerson et al. 2010), and successfully reduced potentially negative advice from family members.
- **Costs:** Twelve studies reported IFA supplementation was free of cost at either the community level or the health facility level, but only a few assessed the impact of cost on compliance. Senegal et al. (2009) found significantly higher compliance (86%) when midwives distributed free IFA tablets to pregnant women after their initial ANC visit at a health facility, compared with women receiving a prescription to purchase the tablets from a private vendor (48%), indicating that when women are expected to purchase the tablets, compliance may be lessened.
- In **Cambodia**, compliance was higher when supplements were sold to rural village women for US 10 cents for 1 month's supply (four tablets), and peer educators went door to door to educate and promote the supplement in rural villages, as compared to the other two study settings—factories and schools—where IFA tablets were provided free of charge. Compliance was 55% for the schoolgirls, 57% for the factory workers, and 71% for the rural women (Kanal et al. 2005).

## Does CBD of IFA Supplementation Improve Coverage and Reduce Anemia among Women?

Targeting pregnant women and women of reproductive age through community settings demonstrated increased accessibility, high compliance, and reductions in anemia.

- **Nicaragua** increased IFA supplementation coverage among pregnant women to over 80% and experienced a substantial decrease in anemia prevalence through the use of community-based distributors who provided counseling and follow-up to pregnant women (Mora 2007).
- A trial of improved practices (TIPs) methodology in **India** increased positive perceptions of IFA supplementation, IFA supplement uptake, and dietary practices and reduced prevalence of anemia by half in the TIPs group, whereas prevalence increased by 2.4% in the control group (Shivalli, Srivastava, and Singh 2015).
- In **Senegal**, CBD of iron supplements and implementation of monthly healthy pregnancy promotion sessions delivered via community volunteers improved accessibility and significantly reduced anemia from 85% to 55% between baseline and endline in a positive deviant intervention group, which was significantly different from the control group not receiving the positive deviant approach (Ndiaye et al. 2009).
- In **Vietnam**, weekly IFA supplementation and four monthly deworming tablets were distributed through the existing health structure, where all women of reproductive age collected IFA tablets from village health workers each month. At three months follow-up, anemia levels were reduced to 5.9%, and after 12 months, anemia levels were further reduced to 4.5% (Casey et al. 2009).

- A community-based program in **India** reported a significant overall decrease in anemia between baseline and endline from 72.6% to 50.7% through the use of registered medical practitioners at the community level to provide women with information, tablets, and messaging about consuming IFA tablets (Srivastava et al. 2015).

## Do Countries have Policies that Recognize and Address Barriers to CBD of IFA Supplementation?

An analysis of 25 LMICs' policies was conducted (see Table 1 for Ending Preventable Child and Maternal Deaths<sup>1</sup> and Feed the Future<sup>2</sup> countries). Country-level guidance and policies on CBD of IFA supplementation is uncommon. Although all countries analyzed identified the prevalence of anemia among women of reproductive age as an issue in the populations, only 10 listed interventions related to IFA supplementation during pregnancy. Moreover, although six listed community-level actions related to anemia, none addressed CBD.

**Table 1. Low- and middle-income countries with policies, strategies, and guidelines that address barriers to community-based distribution of iron-folic acid supplementation (denoted by “x”)**

Countries	CBD of IFA supplementation	Address anemia for WRA/ pregnant women	Community-level actions to address anemia	IFA supplementation during pregnancy	Address issues of access to IFA supplementation
Afghanistan*		X			
Bangladesh*±		X	X	X	X
Burma*		X			
Chad		X			
DRC*		X			
Ethiopia*±		X			
Ghana*±		X	X	X	X
Guinea		X		X	X
Haiti*±		X			
India*		X			X
Indonesia*		X	X	X	
Kenya*±		X		X	X
Lao PDR		X			
Liberia*±		X	X	X	
Malawi*±		X		X	X
Mali*±		X			X
Nepal*±		X	X	X	X
Niger		X			
Nigeria*		X		X	
Pakistan* <sup>3</sup>	X	X	X		X
Rwanda*±		X		X	X
Sierra Leone		X			
Tanzania*±		X			
Yemen		X			
Zimbabwe		X			

\*Ending Preventable Child and Maternal Deaths country; ±Feed the Future country; WRA: women of reproductive age.

<sup>1</sup>USAID Maternal and Child Health programs focus on 25 countries that represent more than 70% of maternal and child deaths. The 25 priority countries were chosen based on the magnitude and severity of maternal and child deaths, country commitment, USAID Mission capacity, and potential opportunity to integrate programs and leverage investments.

<sup>2</sup> Feed the Future, the U.S. Government's global hunger and food security initiative, supports country-driven approaches agricultural sectors to grow enough food to sustainably feed their people.

<sup>3</sup>This policy refers only to the Sindh National Nutrition Policy.

## Programmatic Considerations

- **National level**
  - Include CBD of IFA supplementation in policy and strategic documents in countries with community-level interventions
- **Community level**
  - Strengthen mechanisms for CBD to increase access for women in communities
  - Strengthen linkage to the health facility level to encourage ANC attendance
  - Provide and strengthen training for community workers on IFA supplementation and maternal anemia, especially on benefits, side effects, and the importance of compliance
  - Promote behavior change communications through key messages and counseling to increase both demand and compliance to IFA supplementation and include key influential family members in outreach
  - Ensure consistent supplies and logistics system
- **Data gaps**
  - Lack of data on compliance, program coverage, and anemia in CBD of IFA supplementation programs
  - Lack of information on cost of CBD and logistics constraints (e.g., bulk of pills, addition to community health worker workload)
  - Lack of information on IFA supplementation programming to address adolescent anemia at scale

## Conclusion

CBD of IFA supplementation can be an approach that increases access and coverage of IFA supplementation at the community level. In countries where anemia rates are high and community-level interventions are part of government policy, CBD can be a valuable addition to anemia programming.

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