

# Reducing Anemia Prevalence in Pregnant Women

APPLYING QUALITY IMPROVEMENT APPROACH TO IMPROVE COMMUNITY LEVEL HEALTH AND NUTRITION SERVICES



## OVERVIEW

Substantial evidence suggests that community-based interventions are an important platform for improving healthcare delivery<sup>1</sup> and that timely testing and appropriate management of anemia can improve health and nutrition outcomes. Although anemia prevalence is high in India's Bihar state, detection and adequate management of anemia in pregnant women remain weak, resulting in poor pregnancy and newborn outcomes. This case study describes a successful pilot supported by Alive & Thrive India (A&T) in one of the blocks in Bodh Gaya in Bihar's Gaya district, applying the point of care continuous quality improvement (POCQI) approach for strengthening community-level management of anemia in pregnant women. After the rollout of the pilot, the proportion of mild to moderately anemic pregnant women receiving and adhering to the therapeutic treatment increased from zero to 70% in the target population. Also, the percentage of mild and moderately anemic pregnant women in the target population declined from 65% in June 2022 at baseline to 18% in October 2022.

1 Lassi ZS, Kumar R, Bhutta ZA. "Community-Based Care to Improve Maternal, Newborn, and Child Health." In: Black RE, Laxminarayan R, Temmerman M, et al., editors. *Reproductive, Maternal, Newborn, and Child Health: Disease Control Priorities, Third Edition (Volume 2)*. Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2016 Apr 5. Chapter 14. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK361898/> doi: 10.1596/978-1-4648-0348-2\_ch14.

The pilot is part of the ongoing work by A&T with government medical colleges, allied hospitals and secondary-level healthcare facilities in Uttar Pradesh and Bihar states to strengthen and improve the quality of facility-based maternal, infant and young child feeding nutrition (MIYCN) service delivery using POCQI approach. Positive results encouraged A&T to explore possibilities of using quality improvement (QI) methods to improve service delivery at the community level.

## ADAPTING THE QI APPROACH TO COMMUNITY-LEVEL SERVICE DELIVERY

The team from A&T engaged with the district health and Integrated Child Development Services (ICDS) officials of Gaya to partner on piloting the intervention for improving the quality of community-based health and nutrition service delivery. Gohti Health Sub-Centre (HSC) in Bodh Gaya was selected as the location for the pilot in consultation with the local government. The pilot used methods and processes from the WHO-endorsed POCQI approach (Figure 1). The POCQI model offers a new paradigm, beyond the often-followed approach of providing clinical training to health workers with the assumption that knowledge deficit is the primary cause of poor performance and inadequate quality of care.<sup>2</sup> POCQI combines capacity building with a targeted solution-based approach to address the underlying factors of a key problem and uses the existing systems and resources.



*The QI team at Gohti HSC: From left to right—Ms Susheela Kumari (Auxiliary Nurse Midwife), Ms Renu Kumari (Anganwadi worker), Ms Sangeeta Premi (ASHA facilitator), Ms Umeshwari Devi (ASHA-accredited social work activist), Ms Reeta Kumari (Sevika) and Ms Soni Kumari (ASHA).*

<sup>2</sup> World Health Organization Regional Office for South-East Asia. 2020. [Improving the Quality of Care for Mothers, Newborns and Children in Health Facilities Facilitator Manual, Version 3.](#)



## CAPACITY BUILDING

In June 2022, QI and MIYCN experts from A&T conducted training sessions in Bodh Gaya on QI methods and maternal anemia for accredited social health activists (ASHAs), ASHA facilitators, Anganwadi workers (AWWs), ICDS supervisors, and auxiliary nurse midwife (ANM) along with a sensitization session for block level health and ICDS officials. Topics included maternal anemia, guidance on prophylactic measures of iron and folic acid (IFA) supplementation and counselling for compliance, regular testing of haemoglobin (Hb) levels at community-based antenatal care sessions during Village Health Sanitation and Nutrition Day (VHSND), as well as therapeutic management and follow-up of mild to moderate and severely anemic women.

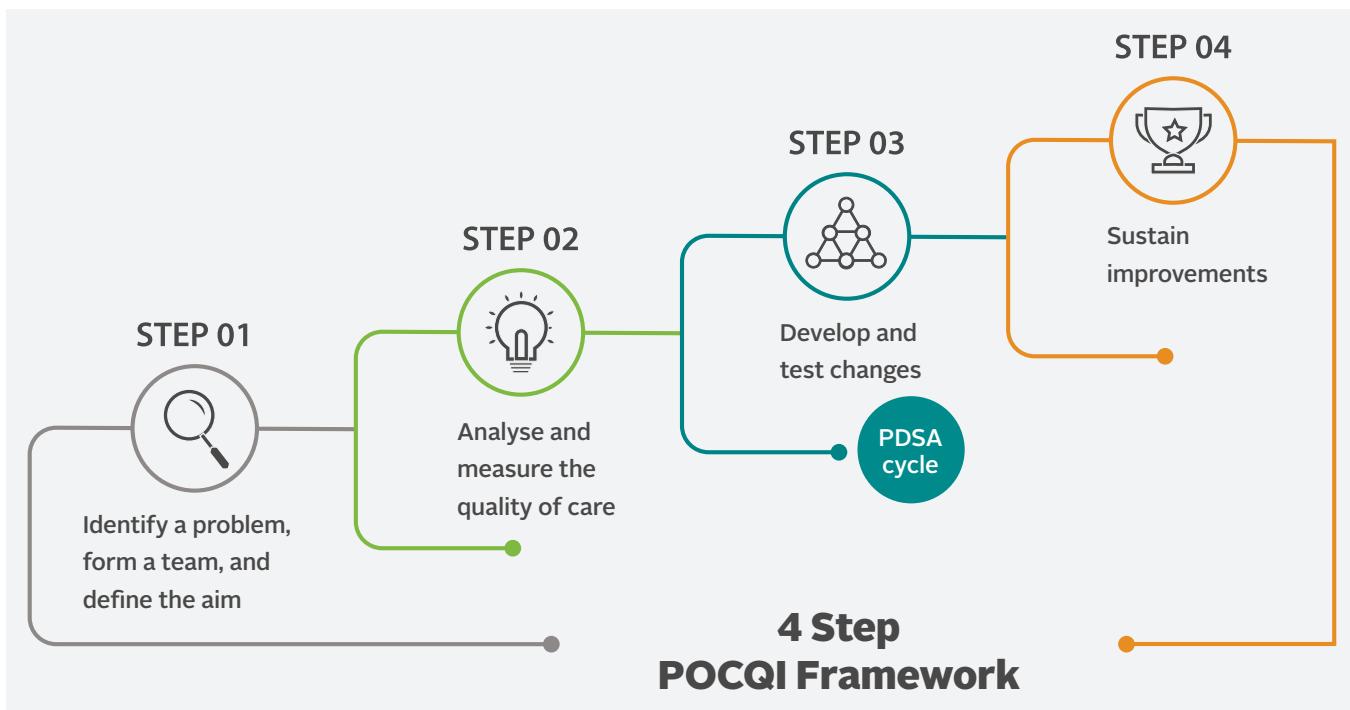


FIGURE 1: POCQI QUALITY IMPROVEMENT FRAMEWORK—THE PLAN-DO-STUDY-ACT (PDSA) CYCLE IS APPLIED DURING STEP 3

### 1. TEAM FORMATION & ESTABLISHING THE AIM

A QI team consisting of seven members was formed at Gohti HSC. The team included Susheela Kumari (team leader and ANM), Dr Manoj Kumar (medical officer in charge), Ms. Rubi Kumari (Mukhiya of Shekhwar Gram Panchayat), Ms. Poonam Kumari (supervisor), Ms. Sangeeta Premi (ASHA facilitator), Ms. Soni Kumari (ASHA) and Ms. Renu Kumari (AWW). The team was entrusted with the responsibility of integrating QI processes into the existing government systems and supporting other frontline workers to adopt the processes. The QI team selected two aims for the pilot over the time period of July–October 2022:

- Reduce mild to moderate anemia in pregnant women by 50%
- Reduce the prevalence of severe anemia in pregnant women by 100%

### 2. PROBLEM ANALYSIS & MEASURING GAPS

In June 2022, Hb testing at the HSC showed that 17% of the pregnant women tested had mild anemia, 81% had moderate anemia, and 2.2% severe anemia. A comprehensive problem analysis was conducted by the QI team with support from experts of A&T and revealed a set of underlying factors for anemia prevalence among pregnant women.

**TABLE 1: IDENTIFIED ISSUES AND PROBABLE SOLUTIONS SUGGESTED BY THE SERVICE PROVIDERS**

Problems Identified	Suggested Solutions
Insufficient intake of iron-rich food	Regular and structured individual and group counselling of beneficiaries and their families, addressing individual needs and challenges
Inadequate iron & folic acid (IFA) consumption	
Lack of awareness about iron-rich food items	
Inadequate counselling	
Irregular supply of IFA supplements at the sub-centre level	Ensure adequacy of IFA stocks
No supply of deworming tablets	Ensure Albendazole is supplied
Deworming of pregnant women was not a routine practice	Institutionalize the practice of deworming as prescribed by guidelines in the Anemia Mukht Bharat (AMB) program
Lack of awareness among frontline workers on the management of mild to moderate and severe anemia	Build the capacity of frontline workers to detect and treat mild to moderate and severe anemia
Frontline workers did not have access to easy-to-follow protocol-based guidance on anemia management	Develop and distribute easy-to-use anemia management protocol as per AMB guidelines for frontline workers
Lack of awareness about referral sites among service providers and pregnant women	Provide information about referral sites— community health centres (CHCs), first referral units (FRUs) and district hospitals

The auxiliary nurse midwives decided to do online supply requests in advance for IFA tablets required for the whole month, based on the number of registered pregnant women at the HSC. A&T also prepared easy-to-follow protocols for the management of mild to moderate anemia and severe anemia based on the AMB guidelines for frontline workers. To address the gaps in awareness among beneficiaries, counselling, testing and treatment were prioritized through changes in processes at the CHC

### Developing a Measurement and Reporting System

The QI team met weekly to report on the application of processes, review data on Hb levels among pregnant women, and discuss any challenges in the initial month. In subsequent months, the team met once a month as the processes became more set.

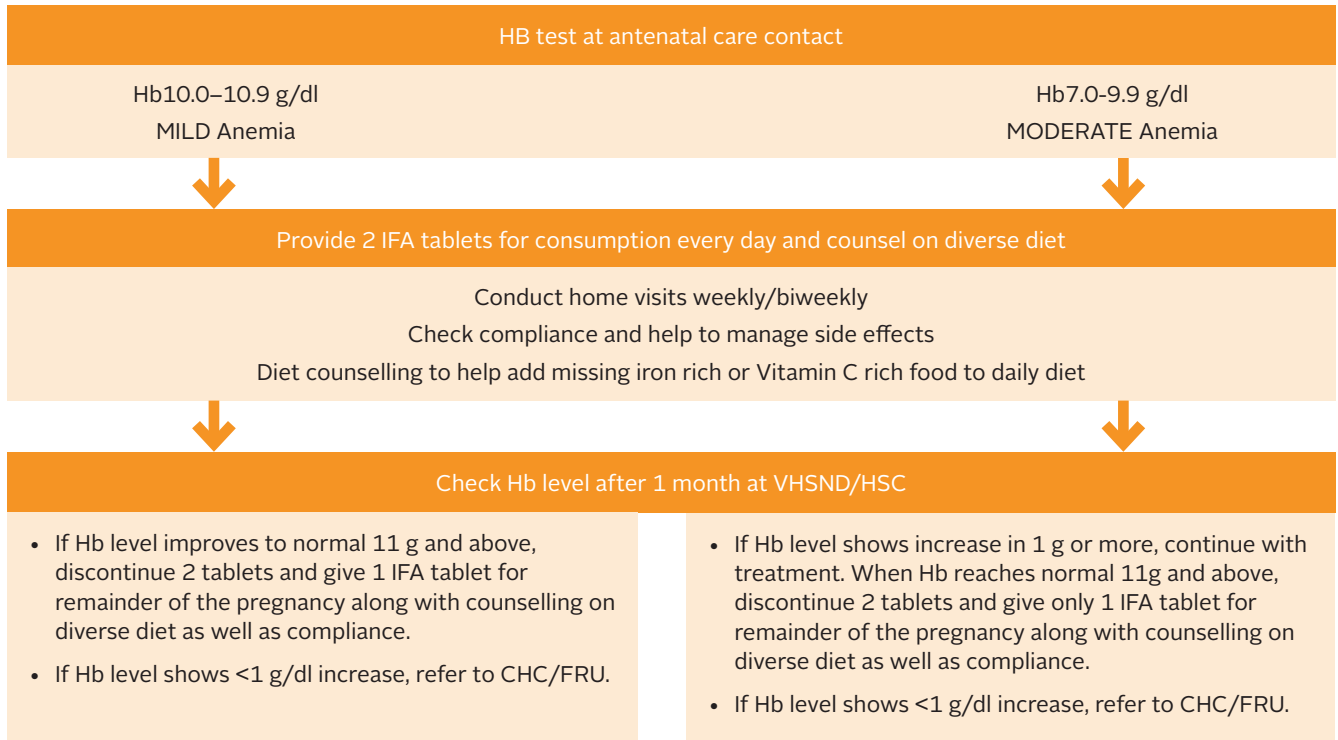
## 3. THE INTERVENTION

### Planning

The QI team, with the help of experts, planned the following changes to existing processes:

1. Hb testing of all pregnant women at antenatal sessions during VHSND for timely detection of mild, moderate, and severe anemia in pregnant women; severely anemic pregnant women to be referred to CHC/FRU and follow-up tests for mild to moderately anemic women to review progress and response to treatment.
2. Regular counselling of women using counselling materials such as flip charts and flash cards during VHSND, community-based events, and home visits.
3. Data-driven identification of anemic pregnant women, provision of therapeutic doses of IFA and referrals as per the degree of anemia, close supervision, and follow-ups of at home and community-based events.
4. Using treatment protocol based on AMB guidance for anemia management including timely referrals of severely anemic women.

## Doing the tests:



The following tests were completed in different settings.

### 1. Timely Testing

- a. Health service providers conducted Hb-testing of all pregnant women at antenatal sessions during VHSND to identify the degree of anemia and record the results. They conducted repeat tests for women with mild to moderate anemia as per AMB guidelines.

### 2. Counselling

- a. Intensive counselling sessions were conducted for identified anemic pregnant women and their family members during home visits.
- b. Structured group counselling sessions for pregnant women were conducted during Godhbharai Diwas.
- c. The topics covered the consumption of diverse nutritious food items including locally available iron and Vitamin C-rich food, adherence to a prescribed number of IFA tablets and other prescribed treatments for anemia as well as the importance of repeat antenatal check-ups including Hb for improved mother and newborn health.



Counselling of anemic pregnant women by auxiliary nurse midwife.

### 3. Data-Driven Identification

- Data on the Hb levels of pregnant women attending VHSND was recorded and used to identify the degree of anemia. Follow-up tests were ensured for mild to moderately anemic women to track progress and response to treatment based on changes in Hb level.
- Treatment plans were developed as per the degree of anemia detected during tests.
- Follow-ups were conducted with women having mild to moderate anemia to ensure intake of adequate and diverse diet including locally available iron-rich food, adherence to the therapeutic dose of IFA tablets and repeat Hb test.
- Severely anemic women were referred for further treatment with steps to ensure referral care was followed.

Register maintained for recording Hb levels of pregnant women during the pilot.

### 4. Treatment of mild to moderately anemic and severely anemic pregnant women

- Locally contextualized easy-to-use protocols based on AMB program operational guidelines were developed and provided to the frontline workers.
- Intensive counselling was done for all categories of anemic women to avail treatment services including regular Hb testing, improve their diet and consume the required therapeutic dose of IFA tablets and for severely anemic women, referral services to CHC were facilitated.

### Study

- Regular testing and data-driven tracking of women helped customize counselling and reach the right target population to ensure IFA consumption and awareness of optimal dietary practices.
- Counselling during home visits was found to be most effective and dietary intake of women showed improvement, especially in cases of families with a higher socio-economic status.
- Follow-ups with anemic women with mild and moderate anemia and checking IFA strips during home visits to ensure compliance with IFA tablets helped in improving intake of IFA.

### Act

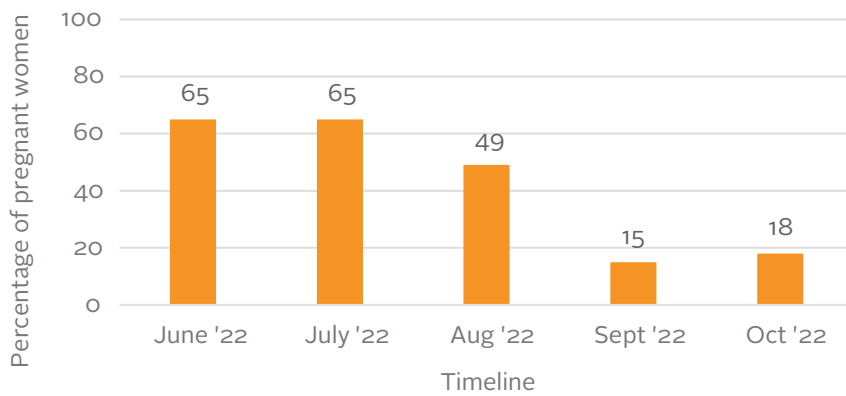
During the test phase, it was observed that most of the changes worked well, and frontline workers showed willingness to adopt and implement changes after the initial test phase. Since the changes were found to be feasible, the QI team and other service providers decided to continue with the changed processes.

### Outcomes and Results

The proportion of mild to moderately anemic pregnant women consuming the recommended sixty tablets increased from zero to nearly 70% after the rollout of the pilot. At the baseline, 17% of pregnant women tested for mild anemia and 81% for moderate anemia. Overall, the percentage of mild and moderately anemic pregnant women in the target population declined from 65% in June 2022 at baseline to 18% in October 2022. By November 2022, all of the pregnant women had normal Hb levels. During the same period, the percentage of severely anemic women fell from 2.2% at baseline to zero.

“The training helped us to understand how we can differentiate between mild, moderate and severe anemia based on Hb levels in pregnant women. It also focused on important messages to give, including messages on deworming.”

– Auxiliary Nurse Midwife, Gohti HSC



**GRAPH 1: TIME SERIES GRAPH REPRESENTING PERCENTAGE OF MILD AND MODERATELY ANEMIC PREGNANT WOMEN (JUNE 2022–OCTOBER 2022)**

Aside from data, anecdotal evidence showed positive improvements during and after the pilot.

### What Worked Well?

- The joint training of health and nutrition service providers on the QI approach, maternal anemia and testing techniques provided a holistic understanding of processes and the ‘how’ of applying them.
- The measurement and reporting mechanisms integrated with the health systems improved accountability.
- Improved supervision and Hb testing helped to provide timely assistance to the pregnant women with mild to moderate anemia.
- Regular data collection on all registered pregnant women and their Hb level were maintained in registers by auxiliary nurse midwives.

### Challenges

- The frontline workers are often deployed for other duties during local festivals and in response to state- and district-level requirements.
- In some of the cases, it was difficult to convince the families of pregnant women of the significance of regular check-ups and IFA consumption.

## 4. SUSTAINING THE CHANGES

The processes introduced did not need additional resources, rather these were layered on the existing government systems to ensure sustainability. After the positive outcomes of the pilot, the local government has agreed to scale the intervention in the block and subsequently plans to scale up the intervention across the district. With the capacity enhancement undertaken as part of the pilot, the auxiliary nurse midwives discontinued the use of Hb testing strips and procured a digital haemoglobinometer for testing of Hb of pregnant women as per AMB guidelines.

“We have seen positive results in some of the cases. For example, the Hb level of Pinky Kumari, was just 8g/dl when we first tested her. We advised her to include locally available iron-rich food and eat the prescribed IFA tablets. During home visits, we also checked on the IFA strips to ensure she was taking her IFA tablets. Subsequently, her Hb level increased to 11g/dl”.

– Accredited Social Health Activist, Gohti HSC



Photo credits: Abhijit, Sushila Kumari, and Anumeha Verma



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