Process Documentation on
NATIONAL IRON PLUS INITIATIVE (NIPI)

TOWARDS AN ANAEMIA-FREE ODISHA
Process Documentation on National Iron Plus Initiative (NIPI) in Odisha
Foreword

It gives me immense pleasure to write this foreword for the process documentation on National Iron Plus Initiative (NIPI) Programme in Odisha undertaken by AIIMS, Bhubaneswar and UNICEF, as desired by Govt. of Odisha.

Anaemia is a significant public health challenge in India. Anaemia is associated with poor birth outcomes in women; poor child survival; poor scholastic performance among children and adolescents; and higher morbidity and mortality among all age groups. High prevalence of anaemia among women and children is a contributing factor to IMR and MMR in Odisha as well as India.

The National Iron Plus Initiative (NIPI) programme launched in 2013 in Odisha, aims to address anaemia among children, adolescents, pregnant women and lactating mothers through IFA supplementation, deworming, Nutrition Health Education (NHE) and counselling on food diversity. The success of this comprehensive anaemia control programme will contribute to better health outcomes for the women and children of the state and help in reducing maternal and child mortality rates. The process documentation aims to review the status of implementation of this critical programme, identify challenges and gaps, and highlight recommendations for improving the quality of implementation of NIPI.

I commend the efforts of Govt. of Odisha in conduction of this study. I also acknowledge the consistent support from UNICEF for successful completion of this study. Faculty and project staff did good work in timely completion of the task. I sincerely hope this document serves as a resource tool for the state to take ahead the anaemia control programme in reach, scale and quality. I am sure this process document of UNICEF will contribute to further strengthening the NIPI programme in Odisha.

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FOREWORD

Anemia is a key condition of under-nutrition that pervades all life stages, especially damaging in children, adolescent girls and pregnant women. Over the last decade, Odisha has done a lot of work to arrest the prevalence of anemia. The latest National Family Health Survey (2015-16) is evidence that a meaningful reduction took place in Odisha in the prevalence of anemia among children and women of reproductive age in the state. There is immediate interest in what Odisha did right to reduce anemia. One thing for sure is that it took strong coordinated efforts from four departments of the Government of Odisha through the National Iron Plus Initiative (NIPI) program.

This process documentation began in 2016 well before data emerged in NFHS-4 of the progress made in controlling anemia in Odisha. It intended to look deep into how NIPI was being implemented - its challenges and barriers - and strengthen anemia control programming in the state based on knowledge. The document today takes on an added interest, a first step into analyzing the ingredients of successful programming that helped reduce anemia and identifying barriers that we need to remove now to further accelerate the reduction of anemia.

I sincerely thank Dr. Vikas Bhatia and his team from AIIMS Bhubaneswar and Dr. Kathleen Kurz, independent consultant, for carrying out this study on the implementation of NIPI programme in Odisha. I thank the Government of Odisha for initiating this documentation with UNICEF.

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Remote Distance far from main roads, and from government attention
Language
Tribal issues and customs
Low education levels

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<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AACP</td>
<td>Adolescent Anemia Control Programme</td>
</tr>
<tr>
<td>ABEO</td>
<td>Assistant Block Education Officer</td>
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<td>ANC</td>
<td>Antenatal Care</td>
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<td>ANM</td>
<td>Auxiliary Nurse Midwife</td>
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<tr>
<td>ASHA</td>
<td>Accredited Social Health Activist</td>
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<tr>
<td>AWC</td>
<td>Anganwadi Centre</td>
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<tr>
<td>AWW</td>
<td>Anganwadi Worker</td>
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<tr>
<td>BDM</td>
<td>Block Data Manager</td>
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<tr>
<td>BDO</td>
<td>Block Development Officer</td>
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<tr>
<td>BEO</td>
<td>Block Education Officer</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>BPM</td>
<td>Block Programme Manager</td>
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<tr>
<td>CDMO</td>
<td>Chief District Medical Officer</td>
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<td>CDPO</td>
<td>Child Development Project Officer</td>
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<td>CHC</td>
<td>Community Health Centre</td>
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<tr>
<td>CRCC</td>
<td>Cluster Resource Centre Coordinator</td>
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<td>DEO</td>
<td>District Education Officer</td>
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<td>DEFF</td>
<td>Design effect</td>
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<tr>
<td>DFW</td>
<td>Director, Family Welfare</td>
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<tr>
<td>DHFW</td>
<td>Department of Health and Family Welfare</td>
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<tr>
<td>DM</td>
<td>District Magistrate</td>
</tr>
<tr>
<td>DMRCH</td>
<td>Deputy Manager Reproductive and Child Health</td>
</tr>
<tr>
<td>DPC-SSA</td>
<td>District Project Coordinator-Sarva Shiksha Abhiyan</td>
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<tr>
<td>DPM</td>
<td>District Programme Manager</td>
</tr>
<tr>
<td>DSWO</td>
<td>District Social Welfare Officer</td>
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<tr>
<td>DWO</td>
<td>District Welfare Officer</td>
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<tr>
<td>ERS</td>
<td>Emergency Response System</td>
</tr>
<tr>
<td>FA</td>
<td>Folic Acid</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<tr>
<td>FRU/DH</td>
<td>First Referral Unit/District Hospital</td>
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<tr>
<td>GKS</td>
<td>Gaon Kalyan Samiti</td>
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<tr>
<td>GoI</td>
<td>Government of India</td>
</tr>
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<td>GoO</td>
<td>Government of Odisha</td>
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<tr>
<td>Hb</td>
<td>Haemoglobin</td>
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<tr>
<td>ICDS</td>
<td>Integrated Child Development Services</td>
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<td>IDI</td>
<td>In-depth interview</td>
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<tr>
<td>IEC</td>
<td>Information Education and Communication</td>
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<td>IFA</td>
<td>Iron and Folic Acid</td>
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<tr>
<td>MCP card</td>
<td>Mother and Child Protection Card</td>
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<tr>
<td>MDM</td>
<td>Mid Day Meal</td>
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<tr>
<td>MoHFW</td>
<td>Ministry of Health &amp; Family Welfare</td>
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<tr>
<td>MHT</td>
<td>Mobile Health Team</td>
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</tbody>
</table>
MHU  Mobile Health Unit
MO I/C  Medical Officer in-charge
MO PHC  Medical Officer Primary Health Centre
NHM  National Health Mission
NIPI  National Iron Plus Initiative
NRC  Nutrition Rehabilitation Centre
NRHM  National Rural Health Mission
OSMCL  Odisha State Medical Corporation Limited
PHC  Primary Health Centre
PIP  Programme Implementation Plan
PLW  Pregnant and Lactating Women
RBSK  Rashtriya Bal Swasthya Karyakram
RDC  Revenue Divisional Commissioner
RI  Routine Immunization
SABLA  Scheme for Empowerment of Adolescent Girls
SC/ST  Scheduled Caste & Scheduled Tribe
SC  Subcentre
SDMU  State Drug Management Unit
SHG  Self Help Group
SIMT  State Integrated Monitoring Team
SMC  School Management Committee
S&ME  School and Mass Education
SNO-MDM  State Nodal Officer, Midday Meal
THR  Take Home Ration
VHND  Village Health and Nutrition Day
WASH  Water Sanitation and Hygiene
WCD  Women and Child Development
WIFS  Weekly Iron and Folic Acid Supplementation
WRA  Women of Reproductive Age
BACKGROUND

The National Iron Plus Initiative (NIPI) is the most ambitious and comprehensive anaemia control programme in the world. Its beneficiaries span life cycle groups from adult women to infants – pregnant and lactating women, adolescent girls and boys in secondary school and adolescent girls out-of-school, pre-adolescent school-going girls and boys in primary school, and young children 6 months to 5 years. To reach them, implementation of NIPI spans three main ministries – Health and Family Welfare in the lead role; Women and Child Development and Education. The components of the programme are the provision of Iron Folic-Acid (IFA) supplementation to boost iron status (shown in the table), the biannual provision of deworming medicine to reduce blood and iron loss from intestinal helminth infections like hookworm, and the promotion of iron-rich diets and of hygiene practices.

Provision of IFA supplementation by life cycle group, ministry and provider

<table>
<thead>
<tr>
<th>Ministry responsible</th>
<th>Children 6mo-3yr</th>
<th>Children 3-5yr</th>
<th>Children in primary school</th>
<th>Adolescents in secondary school</th>
<th>Adolescent girls out-of-school</th>
<th>Pregnant &amp; lactating women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Health, WCD</td>
<td>Health, Education</td>
<td>Health, Education</td>
<td>Health, WCD</td>
<td>Health</td>
<td>Health</td>
</tr>
<tr>
<td>Worker responsible</td>
<td>ASHA at home</td>
<td>AWW at AWC</td>
<td>Teacher at school</td>
<td>Teacher at school</td>
<td>AWW at AWC</td>
<td>Self at home</td>
</tr>
<tr>
<td>IFA supplement</td>
<td>Syrup 2x/week</td>
<td>Syrup 2x/week</td>
<td>Pink tablet 1x/week</td>
<td>Blue tablet 1x/week</td>
<td>Blue tablet 1x/week</td>
<td>Red tablet daily</td>
</tr>
</tbody>
</table>

RATIONALE AND METHODOLOGY

NIPI was inaugurated in 2013. After two years of programme experience, the GoO wanted to investigate how the programme was progressing, and chose to conduct a process documentation in the state. From March to July 2016 a quantitative survey was conducted and blood was drawn for assessment of haemoglobin and anaemia among 4800 beneficiaries and frontline workers, and a set of qualitative interviews was conducted among 170 beneficiaries and officials from the state, district, block, sector and field levels. Within Odisha, four districts were purposively selected to cover a variety of characteristics, including their performance reporting on NIPI – Bhadrak, Jagatsinghpur, Kalahandi and Keonjhar. Blocks were chosen similarly to provide variety – two blocks each in Jagatsinghpur and Keonjhar, and one block each in Bhadrak and Kalahandi. Data for the qualitative interviews were collected until no new information emerged. The different components of NIPI were being phased in gradually, and there was adequate programme experience to document the process among pregnant and lactating women, adolescent girls and boys in secondary school, adolescent girls out-of-school, and children under 5 years (but not WRA or children in primary school). There were far more results that were similar amongst the districts and blocks than different.
RESULTS

Political Commitment and Ownership

Many officials expressed strong political commitment to increasing coverage and strong service delivery of the NIPI programme – from all levels, state to field; all three Departments, Health, ICDS and Education; and all districts. Political commitment and ownership was expressed in different ways - feeling pride in progress made, describing successful ways to mobilise beneficiaries and others, and for senior health officials issuing key government letters or embracing new government strategies.

In some areas, the programme continues to face challenges due to poor community demand and lack of community support, and the importance of community support was highlighted by multiple respondents at various levels. Parents, husbands and mothers-in-law, School Management Committees and community leaders, who were key stakeholders in the promotion of IFA supplementation across the life cycle groups, reported that they supported NIPI. However there is much scope for strengthening engagement with these supportive stakeholders for NIPI programme success.

Planning and Coordination

From the qualitative interviews, it was clear that coordination between the Health and Education Departments had improved greatly since the beginning of NIPI. While the working relationship between personnel of the Health and WCD Departments at all levels was well-established and well-functioning, that between Health and Education was new. At the beginning of the NIPI programme, teachers and Education officials were reluctant to provide the IFA supplements to students, fearing that they would not be able to handle their side effects, and claiming that Health Department personnel should be the ones to distribute tablets. By 2016, however, most reported that they had grown accustomed to providing the IFA tablets and coordination between Education and Health departments had improved. Important to the improved coordination on NIPI was emerging leadership and supportive supervision by Education, as well as Health and ICDS officials at all levels, spearheaded from state.

Microplanning seemed to be carried out well according to reports from the interviews -- RBSK health check-ups and other officials' supportive supervision visits were scheduled and carried out efficiently.

Logistic Management

A key reason the State of Odisha created the OSMCL was to ensure that high quality drugs were procured and supplied, and the procurement and supply chain were streamlined. Supplements and medicine were procured and sent into the supply chain in installments against an annual indent. Although transportation options were almost always available to send supplies to the next level, but most of the times this took 1-2months.

There were no reports of expired medicine being provided to beneficiaries and adherence to formulation was high. If anything, teachers and others had been warned so effectively to watch for the expiration date that they feared giving supplements several months in advance. No reports of substituting supplement formulations, were found at the time of the qualitative interviews.
Training

Most of the respondents had received some form of instruction on NIPI. While district level officials described the instruction as “training”, most block and field level functionaries said they had only received information through regular meetings. Although cascaded training was expected per the guidelines, there were challenges to ensuring that it had actually occurred.

Respondents recommended further training, especially for those implementing the programme at field level like teachers and AWWs. High proportions of field level workers mentioned that they felt the need for more training.

RBSK MHTs – a critical stakeholder in anaemia screening – however mentioned that they had never received specific training on NIPI, but only knew about the programme through discussions in monthly meetings. Other important stakeholders in NIPI implementation who have yet not been covered under organized trainings on NIPI include – district/block pharmacists, SMC members and DWOs/WEOs.

Administration of intervention

Even with strong awareness among service providers on the need to administer IFA tablets to pregnant women, most women seemed to not be getting the full complement of IFA tablets during pregnancy. The focus on getting IFA red tablets daily to women during the 1st six postpartum months is much lower than during pregnancy.

Children 6 months-3 years received their IFA syrup in two different ways. While some children were administered IFA syrup by their mothers at home, with the ASHAs making monitoring visits as recommended, others were administered directly by ASHAs twice per week, especially in cases where ASHAs do not have sufficient IFA syrup bottles to hand over to all mothers.

While coverage under IFA supplementation among adolescents is improving gradually, it drops during vacations for in-school adolescents and was also found to be irregular for out-of-school adolescent girls. Most respondents expressed that more out-of-school adolescent girls would come to the AWC for Saturday sessions if there were more incentives, e.g., a meal was served, or take home rations or eggs were given, or Hb test was done.

Teachers and others in the Education sector in a few areas still fear that giving IFA tablets may cause ill effects among their students, draw media attention, cause black stools, or that the tablets may reach their expiry date and then be dangerous. Their fear sometimes resulted in low compliance among the students and other times the teachers gave tablets to their students despite lingering doubts.

Biannual deworming treatment with albendazole was readily accepted across the age ranges of the NIPI programme, in schools, AWCs and VHND settings. Beneficiaries said that the medicine tasted good, and tablet distribution occurred twice per year. While deworming with albendazole is widely practiced, the promotion of hygiene and dietary practices is accepted but not fully achievable.

Interestingly, in light of their initial reluctance about IFA, teachers did not report being reluctant to provide deworming medicine, which is popular with them and their students. Possible reasons are that the deworming medicine acts rapidly, giving visible relief from the intestinal worms, the tablets tasted sweet, and the medicine is provided only twice each year.
Community awareness and perceptions

Community awareness and knowledge regarding anaemia was low. A major constraint to raising awareness about the importance of reducing anaemia is that most respondents, from state level through to beneficiaries, did not perceive anaemia as a prevalent health issue. Most respondents claimed they did not know anyone who was anaemic. Of those who had heard of anaemia, only 20% could name any symptoms, most commonly giddiness, weakness and tiredness. Even fewer could describe long-term consequences of anaemia like poor scholastic performance. Only 50-62% of beneficiaries interviewed knew of any blood test for anaemia diagnosis. Among those who knew that there was a blood test for anaemia, most said they would prefer visiting a government doctor at a health centre for treatment (85%-95%).

Coverage of IFA supplementation and Prevalence of anaemia

Despite the improving process, reported coverage of IFA supplementation in the previous month from the quantitative survey was generally low, as reported by the beneficiaries or mothers of children under 5 years. Among beneficiaries interviewed, only 38% of adolescent girls, 16% of adolescent boys, 46% of lactating mothers and 52% of under-five children were reported to have consumed IFA tablets/syrup in the previous month. Pregnant women were the only exception with reported coverage that was higher (73%).

Not surprisingly then, the haemoglobin assessment results indicated that anaemia was highly prevalent among women and adolescent girls (68-77%, depending on the beneficiary group). Most were mildly anaemic (39-58%), many were moderately anaemic (7-20%), and only a few were severely anaemic (1-3%). These results were similar to the prevalence in Odisha from the representative sample in the national Annual Health Survey of 2014, except that severe anaemia was lower.

Adverse events

An important aspect of resistance to IFA at the beginning of NIPI was that many associated with the Education Department – teachers, headmasters, SMCs, CRCCs and others – were reluctant to implement a medical intervention. They feared being on the frontline and being perceived as being responsible if students experienced side effects from the IFA, which they thought of as medicine. The situation seemed to have significantly improved since then, reportedly due to a number of special efforts made to combat the resistance to IFA consumption at schools.

Very few cases of adverse events were reported by respondents under the study and the vast majority of respondents in all districts reported that they had not been involved with any NIPI beneficiary who had experienced an adverse effect of IFA or albendazole for which medical attention was required. Although a formal response mechanism mandated by GoO in form of ERS committee exists, this mechanism is perhaps not as effective in the moment as the phone calls and trips to the hospital, but could perhaps play a more formal role in future.

Supportive supervision and Monitoring

The structure for monitoring and supervision is primarily through field sites and reviewing progress during meetings. There was evidence that the visits and meetings occurred, but there was little clarity on the content or quality of the monitoring and supervision and if/what actions were taken...
during or after as a result. The notion of monitoring exists strongly among staff of all three departments, however NIPI has not yet become a monitoring priority.

**Records and reporting**

For the IFA red tablets administered to pregnant women, ANMs report consumption through the HMIS on a monthly basis. Many respondents said that there is no format on which to report consumption of IFA syrup for children under 5, nor are there questions about IFA syrup in the HMIS. IFA consumption is not recorded in the ICDS Monthly Progress Report (MPR), the AWWs main reporting mechanism, a monthly form for tallying other items to discuss in the monthly convergence meetings, and ICDS Supervisors suggest that it be added.

At minimum, data is recorded and reported to show accountability for having distributed the IFA tablets and syrup. Purposes beyond this minimum can help shape the format and frequency of how the data should be reported. There was lack of clarity among respondents on how the reports were being analyzed as there was almost always no feedback from higher levels on quality or accuracy of reports.

**Management of anaemia**

The pallor technique is applied to children once/twice per year by the RBSK team to detect severe anaemia. This technique has reasonable accuracy for detecting severe anaemia, but is not accurate for mild and moderate. As haemoglobin of the children is not assessed and therefore mild and moderate anaemia cannot be detected, this makes implementation of the therapeutic protocols for mild/moderate anaemia difficult. This is also evident from the fact that prescriptions for daily iron to children with mild or moderate anaemia were not mentioned by any group of respondents under the study.

**Social Mobilisation**

Mobilization of the NIPI programme and consumption of IFA, from the state level to beneficiaries, has increased steadily over the 3 years since NIPI was started. IFA consumption was initially not well accepted, but after much effort has improved steadily. This is due to the diligence and persuasion across the Health, Women and Child Development, and Education Departments and coordinated from state, district, block, sector, field and beneficiary levels.

Full ownership of programme, however, is lacking, and IEC initiatives could build enthusiasm for the programme. Sources of information are mostly interpersonal, some radio (Meena), and limited TV and print. Largest gap is that anaemia is invisible – respondents do not think they are anaemic, nor do they know anyone who is, except severe anaemia.

Many respondents from all levels reported that they did not currently have NIPI IEC materials. There had been materials earlier. Many said that some printed NIPI IEC booklets were distributed at the beginning of NIPI – but none more recently.

Four factors due to which beneficiaries were perceived to be hard-to-reach were: remoteness from main roads and government attention, language, tribal customs, and low education level. Engaging with tribal leaders to promote IFA and deworming, diet and hygiene; and development and use of IEC materials in the major local tribal languages are strategies which can support the programme in hard-to-reach areas.
CONCLUSION AND RECOMMENDATIONS

While some key programme components are in place - especially improving coordination among the Health, ICDS and Education departments for the provision of IFA supplements, successful biannual provision of deworming medicine to all beneficiaries, and a well-functioning supply chain of IFA supplements -- coverage of IFA supplementation lags behind. Other components were discovered that could be enhanced to increase the coverage of IFA supplements, as well as to further promote iron-rich diets and hygiene practices, and ultimately reduce the prevalence of anaemia.

Recommendations regarding these components are offered below, with more detailed recommendations available in the last section of this report.

**Strengthen Social Mobilisation**

Significantly enhance NIPI social mobilisation efforts: While initial resistance to IFA supplementation in the schools has subsided, the NIPI programme has a long way to go to reduce anaemia’s invisibility (few beneficiaries think they are anaemic, despite 75% prevalence), to explain its long-term consequences (few understood that anaemia limits scholastic performance, reduces work productivity, and compromises delivery outcomes), and to build enthusiasm for its interventions (for example, recognitions and awards). An enhanced strategy for social mobilization should be developed and include:

- **New Messages** – messages on the following themes could be developed, for example: 75% of the life cycle groups from infancy to adulthood are anaemic; improving iron status throughout the life cycle leads to good long-term outcomes; and IFA is a food supplement, not a medicine, hence few side effects.

- **Enhance efforts to continue promoting iron-rich diets and good hygiene practices.** In the long term, beneficiaries consuming IFA supplements should experience less anaemia. To maintain good iron status, an iron-rich diet should be the norm, starting while they are receiving IFA supplements. Respondents from the qualitative interviews were often not clear what comprised an iron-rich diet. IEC materials and school lessons should be developed to convey diet messages alongside others in the enhanced social mobilisation efforts.

- **New audiences for NIPI messages** – fathers and community leaders could be educated on the benefits of reducing anaemia so they encourage their wives, children and community members to consume IFA supplements and iron-rich diets, and practice good hygiene behaviours.

- **Enlarged messenger role** – RBSK Teams, with medical staff and credibility, and already with a regular presence in schools, could take a larger role in educating parents and school-aged children about how to combat anaemia.

- **Multiple channels** -- beneficiaries and officials should hear about NIPI from numerous sources to reinforce its messages, for example, awards, competitions and events to raise awareness; media to feature NIPI benefits and progress; and new IEC materials.
Strengthen supply-chain for all IFA formulations

- **Making provisions for tracking supply upto sub-district levels through OSMCL software:**
  
  Despite a strong supply chain, respondents did describe few instances of stock-outs of IFA tablets/syrup. At the time of study, two specific stock-outs in field were identified – for IFA Red tablets and IFA syrup. While the major reason for stock-out of IFA red tablets was inadequate procurement by state, in case of IFA syrup, the supply-chain below district level faced disruptions due to delayed/inadequate indenting and supply. Such supply disruptions could be identified and prevented if systems for tracking supply position and distribution upto block level are available through the OSMCL software.

- **Inform pharmacists more about the NIPI programme so that they can understand anaemia and more fully engage with combatting it.**

- **Expand and improve storage space for IFA and albendazole among other essential drugs at district, block and PHCs.**

**Strengthening administration of intervention**

- **Introducing more incentives for out-of-school adolescent girls:** Coverage of IFA supplementation was low among all groups except pregnant women. Adolescent girls out-of-school and in junior college reported having difficulty reaching the AWC every Saturday after a meal to receive an IFA blue tablet. Introducing incentives, like take home rations/meals/eggs or Hb assessments could be considered.

- **Provisioning higher incentives for ASHAs for IFA syrup administration and increasing utilization of the same:** Although incentive has been provisioned for IFA syrup administration by ASHAs at rate of Re.1 per 8 doses for each child, the utilization of this remains poor. One reason reported for poor utilization is that the current incentive is too less.

- **Strengthen messaging around IFA administration among in-school adolescents during vacations:** Multiple respondents from Education department expressed uncertainty over protocols and process of distributing IFA supplements during school holidays. Strengthening messaging and guidance around this is therefore recommended, so as to bring more clarity among programme implementers on guidelines and protocols.

**Strengthening diagnosis and management of anaemia**

- **Make haemoglobinometers available to RBSK Teams to assess students' anaemia status, and develop a strategy to monitor whether haemoglobin levels are improving over time.**
  
  Moderate anaemia is prevalent among adolescents in Odisha and throughout India, but it is difficult to distinguish those with moderate from those with mild or no anaemia under NIPI – only severe anaemia can be distinguished with the skin pallor technique. Making haemoglobinometers available to RBSK Teams so they may determine the degree of anaemia is recommended. Once haemoglobin levels can be assessed, developing a mechanism to provide adequate doses to manage mild/moderate anaemia is recommended. Health check-up and haemoglobin assessment is also recommended for adolescent girls out-of-school.
Strengthening monitoring and reporting

➢ **Sharing feedback on reports:** At all levels, increase the frequency of giving feedback on reports to those submitting it. Make widely available a summary of results comparing district and blocks.

➢ **Review content of NIPI discussion in various meetings:** Although NIPI was reported to be discussed during various district, block/project and sector level meetings, it is recommended that more emphasis be given to reviewing the quality of these discussions. It is further recommended to review whether the participants and frequency of meetings in which NIPI is adequately discussed is sufficient for its monitoring, implementation review and problem solving and also for updating participants.

Strengthening scope and quality of trainings

➢ **Additional special training is recommended for those implementing the programme at community level – teachers, AWWs, ASHAs and ANMs.** It is further recommended to increase the scope of coverage of training programmes on NIPI to include RBSK teams, School Management Committee members, pharmacists and officials from ST&SC development department.

➢ Apart from special trainings for the implementing officials, a more sustainable approach would be to include information on NIPI as part of regular induction/refresher trainings of these various functionaries including teachers, SMCs, FLWs.

➢ As findings showed challenges in organizing and monitoring down-the-line cascade trainings for functionaries below district level, it is recommended that standard audio-videos and resource materials be developed to support these orientations and refresher trainings. Focus on tracking whether the cascade trainings are happening and quality of these trainings needs to be strengthened.

Strengthen efforts to support NIPI implementation in hard-to-reach areas:

➢ **Enhance efforts to further extend the NIPI programme to hard-to-reach areas.** Many cases of health services not reaching hard-to-reach areas were reported, and many potential beneficiaries had not heard of anaemia or received IFA supplements. Having NIPI IEC materials written in the major local tribal languages is also recommended to overcome the language barrier for non-Odia speakers. Furthermore, strengthening the involvement of local village tribal heads in the NIPI programme to minimize local resistance is also recommended.

➢ **Increased incentives for IFA syrup administration in geographically hard-to-reach areas:** There was a general finding that officials considered incentives proposed for ASHAs for administration of IFA syrup to under-three children too low. In hard-to-reach areas with sparsely located populations and difficult terrains, these incentives seemed highly insufficient to motivate ASHAs to monitor IFA administration. It is therefore recommended that the incentives be increased, at least for ASHAs serving in hard-to-reach areas.
ANAEMIA

Anaemia is a widely prevalent disorder affecting over half a billion women of reproductive age (WRA) and over quarter of a billion children under 5 years old worldwide. It is a condition in which red blood cells have fewer haemoglobin molecules than normal, or fewer red blood cells overall, and thus less ability to carry oxygen to tissues in the body. The word anaemia derives from ancient Greek meaning “lack of blood” and blood haemoglobin concentration is the most reliable and commonly used single indicator of anaemia. Iron (“haeme”) is central to the haemoglobin molecule. A worldwide systematic analysis indicated that the global prevalence of anaemia among children under 5 years was 47%, pregnant women 43%, and non-pregnant WRA 33%, while the prevalences in South Asia were much higher: children under 5 years 70% and both pregnant and non-pregnant WRA 53%.

Anaemia causes fatigue and low productivity and adversely affects cognitive and motor development. It contributes to over 100,000 maternal and almost 600,000 perinatal deaths worldwide each year, as well as risk of pre-term delivery and low birth weight in newborns and reduced cognitive development and therefore school performance in children. These in turn lead to social and economic losses, the latter amounting to about 4% of GDP globally.

Iron deficiency from diets poor in iron account for around 50% of anaemia. A study estimated that 25% of all anaemia among children under 5 years and 37% among non-pregnant WRA was due to iron deficiency. Others estimated that 42% of anaemia in children would be amenable to iron therapy.  

4 Ibid WHO, Klemm et al., Stevens et al.
supplementation and 50% in women could be eliminated with iron supplementation.9,10 Beyond diet-based iron deficiency, anaemia is caused by hookworm, malaria and other parasitic and diarrheal infections that cause blood loss, interfere with red blood cells, or limit nutrient absorption, as well as other nutrient deficiencies such as folate, vitamin B12 and vitamin A, and haemoglobinopathies such as sickle-cell.11 These suggest that a multi-faceted approach is needed to reduce anaemia, as in India’s programme to provide iron and folic acid and promote consumption of iron-rich dietary sources, to control hookworm and other helminth infections, and to promote safe water and sanitation for preventing diarrhea and other infections.

A global review of anaemia prevalence among pregnant and non-pregnant women with representative DHS/NFHS data for 24 countries with multiple assessments between 1998 and 2008 indicated that anaemia in women remains a serious public health threat with unacceptably high rates and little progress.12 While the traditional focus of anaemia programmes for women was during pregnancy, an additional focus on non-pregnant women is fruitful because the non-pregnancy period for WRA is longer than pregnancy, allowing time to improve the quality of life as well as to prepare for the first or subsequent pregnancies.

Among the 24 countries in the global review, anaemia prevalence in the mid-2000s among pregnant women was >50% in 13 countries, including India, was 30-49% in 10 countries, and was <30% in only one country (Haiti). In 5 of the 11 countries for which there were multiple haemoglobin assessments between 1998 and 2008, anaemia prevalence actually increased, including a 9% increase in India, while it remained unchanged in 3 countries, and decreased in 3 (Nepal, 32% decrease, Haiti 13%, and Cambodia 8%).

The anaemia prevalence among non-pregnant women in the mid-2000s, while a bit lower than among pregnant women, was also seriously and unacceptably high -- >40% in 14 countries, including India, 20-39% in 9 countries, and <20% in only one (Honduras). In 7 of the 11 countries with multiple haemoglobin assessments, anaemia prevalence actually increased, including a 3% increase in India, while it decreased in the other 4, led by a 30% decrease in Nepal.

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11 Ibid WHO, Stevens et al, Klemm et al

12 Ibid Klemm et al 2011
GOVERNMENT POLICIES AND SCHEMES FOR ANAEMIA CONTROL

To provide context on India’s anaemia control programme, evaluation results from successful country supplementation programmes for pregnant women in Nicaragua and Thailand were reviewed.  

In Nicaragua, country-wide prevalence reduced from 34% to 24% to 11% from 1993 to 2000 to 2003-2005, respectively. In Thailand, prevalence reduced from 40% to 16% and then increased to 26% from 1986 to 1995 to 2003, respectively. Key features of the programmes identified were:

- Awareness raised among children, mothers and officials involved in the programme
- Demand for iron folic acid (IFA) created
- Clear policy in place
- Enjoyed strong political will
- Delivered through high-quality services
- Supplies available
- Active health volunteers in place

India anaemia control policy prior to NIPI

India has had a written national policy to reduce nutritional anaemia and a National Anaemia Control programme. Targets in the 12th Five Year Plan (2012-2017) are to prevent and reduce anaemia among women aged 15-49 years to a prevalence of 28% by 2017 (down from over 50%), and also to reduce anaemia in girls and women by half.  

Prior to NIPI, the strategy described in the Nutritional Anaemia Prevention Programme included IFA supplementation for pregnant women and postpartum/lactating women – 1 tablet daily for 100 days containing 100 mg elemental iron and 500 mcg of folic acid during pregnancy and during lactation (tablets called Folifer). This was a dose similar to NIPI but with a smaller number of tablets (100 rather than 180 during pregnancy) and no specification prior to NIPI regarding different number of tablets for anaemic and non-anaemic women. The programme was implemented through Primary Health Centres (PHCs) and their sub-centres, with female multipurpose workers giving IFA supplements to women and also children 1-5 years old who came to the centres. Anganwadi Workers (AWWs) within the Integrated

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15Ibid Klemm et al 2011
Child Development Services (ICDS) programme assist in distributing iron tablets to children and mothers. The Department of Food in the Ministry of Food and Civil Supplies promoted consumption of iron-rich foods.

There was no national policy on hookworm control prophylaxis for pregnant women, and women who presented at health centres with complaints consistent with intestinal worms would be treated. The National Malaria Control programme had no link to pregnancy care, and women were advised to get a blood smear if they had fever.

Regarding procurement of IFA tablets, the Government of India (GOI) procured reproductive and child health kits that contained 15,000 tablets. The centrally purchased tablets were sent to districts according to their number of sub-centres, and the number was often underestimated. However, due to poor compliance of IFA consumption, stock-outs were rare.

Formative research had identified primary barriers to IFA adherence in pregnancy: inadequate logistics, late and infrequent use of antenatal care (ANC) services, and lack of awareness of the benefits of using ANC services and reducing anaemia. Regarding monitoring, the HMIS format included information on pregnant women registered for ANC, but HMIS reports were either not generated or were of poor quality. Demand generation activities related to maternal anaemia did not exist at the national level, though messages about registering a pregnancy included information on pregnancy care and consuming 100 IFA tablets. Overall, anaemia was not a focused topic.\(^\text{16}\)

In addition to pregnant women and young children, India pays more attention to the health and development of adolescents than other countries, and since 2000 has had programmes that included anaemia control among adolescent girls. A summary of the programmes that address adolescent anaemia before NIPI is shown in Table 1. NIPI seemed to replace the AACP. The Scheme for Empowerment of Adolescent Girls (SABLA) scheme merged the KSY and NPAG schemes and is implemented concurrent to NIPI, in selected districts (in Odisha, Bhadrak and Kalahandi and 7 others).

\(^{16}\)Ibid Klemm et al. 2011.
<table>
<thead>
<tr>
<th>Scheme</th>
<th>Year of Operation</th>
<th>Target group</th>
<th>Services provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koshori Shakti Yojna (KSY)</td>
<td>2000</td>
<td>Adolescent girls 11-18 years</td>
<td>• Knowledge and skills to improve decision making</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Vocational skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Promotion of health, hygiene and nutrition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Encouragement to participate in community activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• IFA supplementation and deworming</td>
</tr>
<tr>
<td>Nutrition Programme for Adolescent Girls (NPAG)</td>
<td>2002-2003</td>
<td>Adolescent girls 11-19 years (&lt;35 kg)</td>
<td>• 6 kg of food-grains/mo/beneficiary, provided quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Nutrition and health education to improve intra-family food distribution patterns</td>
</tr>
<tr>
<td>Adolescent Anaemia Control Programme (AACP)</td>
<td>2000 (Selected districts in Odisha)</td>
<td>Adolescent Girls 10-19 years out-of-school</td>
<td>• Weekly IFA supplementation (WIFS) – 100 mg elemental iron and 500 mcg FA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Albendazole deworming medicine 2x/yr (400 mg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Counselling on iron-rich foods</td>
</tr>
<tr>
<td>SABLA scheme, through the ICDS platform</td>
<td>2011, selected districts</td>
<td>Adolescent Girls 11-18 years</td>
<td><strong>Out-of-school girls 11-18 years</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Take Home Ration (THR) – 5 kg/mo sattu/chhatua</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• IFA supplementation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Health check-up and referral services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Nutrition and health education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Guidance on family welfare, ARSH, child care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Life Skills Education and accessing public services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Vocational training (16-18 year olds only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>In-school girls 11-18 years</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Nutrition and health education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Guidance on family welfare, ARSH, child care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Life Skills Education and accessing public services</td>
</tr>
</tbody>
</table>

17 UNICEF, Addressing Anaemia among Adolescent Girls in Odisha, March 2013
RATIONALE FOR NIPI PROCESS DOCUMENTATION IN ODISHA

The NIPI programme was designed to weave together the previous schemes to control anaemia according to a comprehensive strategy across the life cycles (children under 5 years, young school children, adolescents in and out of school, pregnant and lactating women, and WRA who are not pregnant or lactating). NIPI also incorporates both preventive and therapeutic approaches to controlling anaemia. The guidelines clearly articulate the modalities for and formulations of iron folic acid (IFA) supplementation to be provided to beneficiaries through the life cycle.

When the WIFS portion of the NIPI programme was rolled out in schools and in Anganwadi Centres (AWCs) for adolescent girls out-of-school, many states reported complaints of IFA side effects. Administration of WIFS was suspended after the first dose in Haryana and Delhi. When it was re-launched several months later, UNICEF systematically tracked the complaints over 3 weeks and 3 weekly doses.\(^\text{18}\) The vast majority of those with side effects had not taken their IFA supplement with a meal or snack or with water, and many had chewed their tablet. As the WIFS portion of the NIPI programme went forward, swallowing IFA tablets with food and water were emphasised.

Nearly three years after the launch of WIFS/NIPI and the re-emphasis of taking IFA with food and water, the process documentation was envisioned to investigate in March-May 2016 whether NIPI was being implemented well and in which aspects was there still room for improvement. Odisha was chosen because it was a forerunner of NIPI implementation among the states, and also because the prevalence of anaemia and severe anaemia are very high, deserving attention (Tables 2-3).

Table 2. Prevalence of anaemia in Odisha according to age group and district (AHS 2014\(^\text{19}\))

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Odisha</th>
<th>Keonjhar</th>
<th>Jagatsinghpur</th>
<th>Bhadrak</th>
<th>Kalahandi</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-59 mo</td>
<td>70.8</td>
<td>79.9</td>
<td>76.1</td>
<td>72.3</td>
<td>74.3</td>
</tr>
<tr>
<td>5-9 yr</td>
<td>81.2</td>
<td>93.5</td>
<td>87.2</td>
<td>79.3</td>
<td>78.6</td>
</tr>
<tr>
<td>10-17 yr, male</td>
<td>70.5</td>
<td>82.3</td>
<td>83.3</td>
<td>73.0</td>
<td>67.8</td>
</tr>
<tr>
<td>10-17 yr, female</td>
<td>78.4</td>
<td>89.5</td>
<td>88.1</td>
<td>79.0</td>
<td>81.6</td>
</tr>
<tr>
<td>18-59 yr, female</td>
<td>77.7</td>
<td>88.6</td>
<td>84.3</td>
<td>79.5</td>
<td>76.6</td>
</tr>
</tbody>
</table>


\(^{19}\) Annual Health Survey (AHS). Clinical, Anthropometry and Biochemical (CAB) Factsheet, Odisha section, 2014.
Therefore, the Department of Health and Family Welfare, Government of Odisha, in partnership with UNICEF aimed to review the current implementation status of childhood, adolescent and pregnant and lactating mothers' anaemia components of NIPI in the state, with the purpose of documenting the successes, challenges, bottlenecks, lessons learned and making concrete recommendations for future actions. It is envisaged that the process document will serve as a robust resource and provide an in-depth understanding of the qualitative aspects of the implementation of anaemia control strategies in Odisha, elucidate concrete recommendations and aid replication and scaling up of the intervention within the state and in other parts of the country. In addition, it will help Odisha identify and eliminate flaws in the implementation, decrease costs, better allocate resources, improve the efficiency and overall quality of the Initiative.

**Objectives**

The objectives of the process documentation are to:

1. Document key state and district experiences in implementing the NIPI programme in Odisha, focusing on understanding the procurement process, supply chain and distribution management, coordination among stakeholders, planning, training, social mobilisation and communication efforts, including in response to adverse effects, compliance, and monitoring and supervising the implementation.

2. Document the critical success factors, challenges, bottlenecks and lessons to ensure effective and sustainable programme implementation, including in hard-to-reach areas.

3. Explore the programmatic lapses that can be avoided to improve programme performance.

4. Compile recommendations for future actions to ensure demand generation and high coverage.

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20Annual Health Survey (AHS). Clinical, Anthropometry and Biochemical (CAB) Factsheet, Odisha section, 2014.
NIPI PROGRAMME GUIDELINES

NIPI Operational Guidelines direct the implementation of the supplementation programme as follows and summarised in Table 4.\(^{21}\) The main components are administering the IFA supplements and administering the deworming medicine, the guidelines for which are described below. Two set of behaviours are also related to the NIPI programme: increasing hygienic practices to prevent worms and dietary practices to enhance iron intake. Results on promoting these are discussed in the Social Mobilisation section.

**Administering IFA Supplements**

**Children 6 Months-5 Years**

Guidelines for children 6 months-5 years\(^{22,23,24}\) are: Children are to receive 1ml of IFA syrup containing 20mg elemental iron and 100 mcg of folic acid twice each week in the year, on Tuesdays and Fridays from a 50 ml bottle\(^{25}\) with an auto-dispenser half hour after eating, with Accredited Social Health Activists (ASHAs) or AWWs telling the benefits and warning of minor side effects such as black stools. Auxiliary Nurse Midwives (ANMs) are to demonstrate the dispensing technique and give the first dose, then turn the bottle over to the mother in the case of children 6 mo – 3 yr and to the AWW in the case of children 3-5 yr. IFA syrup is to be given to children 6 months-3 years with support from the ASHA and its consumption noted on the Maternal and Child Protection Card (MCP) card, whereas AWWs are to ensure a supervisory dose of IFA syrup for children 3-5 years, typically after the ICDS meal at the AWC (Women and Child Development (WCD) Guidelines)\(^{26}\). Prophylaxis with iron should be withheld in case of acute illness (fever, acute diarrhea, pneumonia, etc.), severe acute malnutrition, known cases of haemoglobinopathy, or repeated blood transfusions.

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\(^{21}\) Guidelines for Control of Iron Deficiency Anaemia: NIPI, NRHM, 2013

\(^{22}\) Ibid

\(^{23}\) Operational Guidelines for Health Dept. on NIPI Programme, Odisha, 30 November 2015.

\(^{24}\) Operational Guidelines for WCD. Odisha on IFA supplementation with Deworming, 30 November 2015.

\(^{25}\) 50 ml bottles of IFA syrup are called for in the Enclosure to an MHFW letter of 1st October 2014. Previously, according to the 2013 Guidelines for Control of Iron Deficiency Anaemia, 100ml bottles were mandated.

\(^{26}\) Regarding who administers the IFA syrup to children 6 months – 3 years, a DFW letter of April 2014 said that “mother/caregiver is to administer 1 ml IFA syrup to the child and ASHA would facilitate compliance through home visits beweekly” (Directorate of Family Welfare letter, 2 April 2014, Subject Distribution of IFA (blue) large & small tablets and IFA Syrup under Iron Plus Initiative), whereas the more recent Operational Guidelines for Health, 30 November 2015 says only that “ASHA to support for administration” of IFA to this age group but not specifying who administers.
Adolescents 10-19 Years

Guidelines for implementing NIPI among adolescent girls and boys in secondary school are: They are to receive one IFA large blue tablet containing 100 mg elemental iron and 500mcg of folic acid once per week on Mondays by teachers at their schools. Teachers are to consume an IFA tablet each week along with the students. Prophylaxis with iron should be withheld in case of acute illness (fever, acute diarrhea, pneumonia, etc.), severe acute malnutrition, and known cases of haemoglobinopathy or repeated blood transfusions.

During the school holidays tablets will be provided to the students with counseling for consumption at home.

Guidelines for adolescent girls out-of-school (ages 10-19) and girls in junior college (Standards 11-12, ages 16-19) are: Girls 10-19 not in school or in junior college are to receive the same large blue tablet containing 100 mg elemental iron and 500mcg of folic acid once per week on Saturdays by AWWs at the AWC, who also inform about the benefits and warning of minor side effects such as black stools.

Guidelines for Control of Iron Deficiency Anaemia: NIPI, NRHM, 2013
Operational Guidelines for Weekly Iron & Folic Acid supplementation in Schools, Odisha, 30 November 2015 and Operational Guidelines for WCD, Odisha on IFA supplementation with Deworming, 30 November 2015

Implementation of IFA blue tablets to adolescent children in Standards 6-10 were investigated in this process documentation, but not IFA pink tablets to children in Standards 1-5 because the implementation of this component of the NIPI programme was at a nascent stage when the process documentation was conducted. It is hoped that many lessons from implementation among the adolescents could apply to the younger students.
Table 4. Administering IFA supplementation across the life cycle

<table>
<thead>
<tr>
<th>Life cycle &amp; age group</th>
<th>Department responsible for distribution</th>
<th>IFA dose</th>
<th>Frequency of dose</th>
<th>Where taken &amp; stored</th>
<th>Who gives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children 6mo-3yr</td>
<td>Health</td>
<td>1 ml syrup, 20mg elem Fe, 100mcg FA**</td>
<td>2x/wk, Tues/Fri</td>
<td>Home</td>
<td>ASHA supports administration</td>
</tr>
<tr>
<td>Children 3-5yr</td>
<td>ICDS</td>
<td>1ml syrup, 20mg elem Fe, 100mcg FA**</td>
<td>2x/wk, Tues/Fri</td>
<td>AWC</td>
<td>AWW</td>
</tr>
<tr>
<td>Children 5-10yr in school (Std 1-5)*</td>
<td>Education</td>
<td>Pink tablet, 45mg elem Fe, 400mcg FA</td>
<td>1x/wk, Mon</td>
<td>School</td>
<td>Teacher</td>
</tr>
<tr>
<td>Adolescents 10-19yr in school (Std 5-12)</td>
<td>Education</td>
<td>Large blue tablet, 100mg elem Fe, 500mcg FA</td>
<td>1x/wk, Mon</td>
<td>School</td>
<td>Teacher</td>
</tr>
<tr>
<td>Adolescents 10-19yr on school holiday</td>
<td>Education</td>
<td>Large blue tablet, 100mg elem Fe, 500mcg FA</td>
<td>1x/wk, Mon</td>
<td>Home</td>
<td>Self</td>
</tr>
<tr>
<td>Adolescents 10-19yr out-of-school</td>
<td>ICDS</td>
<td>Large blue tablet, 100mg elem Fe, 500mcg FA</td>
<td>1x/wk, Sat</td>
<td>AWC</td>
<td>AWW</td>
</tr>
<tr>
<td>Pregnant Women</td>
<td>Health</td>
<td>Red tablet, 100mg elem Fe, 500mcg FA</td>
<td>Daily</td>
<td>Home</td>
<td>Self</td>
</tr>
<tr>
<td>Lactating Women</td>
<td>Health</td>
<td>Red tablet, 100mg elem Fe, 500mcg FA</td>
<td>Daily</td>
<td>Home</td>
<td>Self</td>
</tr>
<tr>
<td>WRA*</td>
<td>Health</td>
<td>Red tablet, 100mg elem Fe, 500mcg FA</td>
<td>1x/wk</td>
<td>Home</td>
<td>Self</td>
</tr>
</tbody>
</table>

*This life cycle group not reviewed in this report because IFA distribution to them was nascent or had not begun
**At beginning of NIPI programme, IFA syrup was dispensed from 100ml bottles; per guidelines in October 2014, bottles were intended to have only 50ml of IFA syrup
Pregnant and Lactating Women (PLW)

The guidelines for non-anaemic pregnant women are that they should receive daily IFA red tablets for 180 days (1 tablet per day for the 30 days of each month, for the 6 months of the 2nd and 3rd trimesters). They should also take 180 tablets during the first 6 postnatal months of lactation. When women are anaemic (haemoglobin (Hb)<11.0), they should double the daily dose, during pregnancy and during lactation (Ministry of Health & Family Welfare (MoHFW) letter, 19 Nov 201430). If anaemic throughout, this means they would consume a maximum of 720 IFA red tablets, 360 during pregnancy and 360 during early lactation. The guidelines for 180/360 tablets were issued in late 2014 after NIPI began. Beforehand, 100 tablets were recommended during pregnancy and 100 during lactation, 200 each if women were anaemic.

Administering Deworming Medicine

As a part of the NIPI programme, albendazole deworming medicine is distributed through the same venues as IFA syrup and tablets, and distributed to most of the same beneficiaries (Table 5). Pregnant and lactating women do not receive albendazole, and young children start being given at 1 yr, not at 6 mo as with the IFA. The doses are given twice per year to all the beneficiaries, six months apart. Beneficiaries receive 400 mg each time, except children 1-2 years old, who receive 200 mg. Children 1-5 years old receive albendazole in syrup form, and others as tablets.

Table 5. Administering albendazole across the life cycle

<table>
<thead>
<tr>
<th>Life cycle &amp; age group</th>
<th>Department responsible for distribution</th>
<th>Albendazole dose</th>
<th>Frequency of dose</th>
<th>Where taken &amp; stored</th>
<th>Who gives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children 1-2yr</td>
<td>Health and ICDS</td>
<td>5ml syrup, 200mg</td>
<td>2x/yr</td>
<td>RI site/ AWC</td>
<td>ANM &amp; AWW</td>
</tr>
<tr>
<td>Children 2-5yr</td>
<td>Health and ICDS</td>
<td>10ml syrup, 400mg</td>
<td>2x/yr</td>
<td>RI site / AWC</td>
<td>ANM &amp; AWW</td>
</tr>
<tr>
<td>Children 5-10yr in school (Std 1-5)*</td>
<td>Education</td>
<td>Tablet, 400mg</td>
<td>2x/yr</td>
<td>School</td>
<td>Teacher</td>
</tr>
<tr>
<td>Adolescents 10-19yr in school (Std 5-10)</td>
<td>Education</td>
<td>Tablet, 400mg</td>
<td>2x/yr</td>
<td>School</td>
<td>Teacher</td>
</tr>
<tr>
<td>Adolescent girls out-of-school</td>
<td>ICDS</td>
<td>Tablet, 400mg</td>
<td>2x/yr</td>
<td>AWC</td>
<td>AWW</td>
</tr>
<tr>
<td>Pregnant Women</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Lactating Women</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>WRA*</td>
<td>Health</td>
<td>Tablet, 400mg</td>
<td>2x/yr</td>
<td>Home</td>
<td>ASHA</td>
</tr>
</tbody>
</table>

*This life cycle group not reviewed because IFA distribution was nascent or had not yet begun by March-May 2016.

Indenting, Supply Chain And Reporting

Summarised from the same set of Operational Guidelines as referenced above, the following are the recommended channels for supply chain, and reporting IFA consumption within the NIPI programme. These are compared to the channels and mechanisms in practice as reported by respondents in Results sections.

Indenting

Health officials' indenting compiled across field level into sector and across sectors into block was described in the NIPI guidelines as:
IFA red tablets for PLW and
IFA syrup and albendazole syrup for children 6 months-5 years (1-5 years for albendazole):

ANM ➔ LHV ➔ MO I/C ➔ CDMO ➔ DFW (copy to MD-NHM) ➔ SDMU

ICDS officials' indenting compiled across field level into sector and across sectors into block was described in the NIPI guidelines as:
IFA large blue tablets and albendazole tablets for out-of-school adolescent girls:

AWW ➔ ICDS Supervisors ➔ CDPO ➔ DSWO (copy to MO I/C)

Education officials' indenting compiled across field level into sector and across sectors into block was described in the NIPI guidelines as:
IFA large blue tablets and albendazole tablets for in-school adolescent girls and boys:

Headmasters ➔ CRCC ➔ BEO ➔ DEO (copy to BPM) ➔ SNO-MDM (copy to CDMO)
➔ DFW (copy to MD-NHM) ➔ SDMU

Supply Chain

Health officials' NIPI guidelines for their supply chain per formulation are:
IFA red tablets for PLW and IFA syrup for children 6 months – 5 years:

SDMU ➔ CDMO/Dist Pharm ➔ MOIC ➔ ANM ➔ ASHA (for Ch <3)
And ANM ➔ AWW (for Ch 3-5 yr)

ICDS officials' NIPI guidelines for their supply chain per formulation are:
IFA large blue tablets tablets for out-of-school adolescent girls:

SDMU ➔ CDMO/Dist Pharm ➔ MOIC ➔ CDPO ➔ ICDS Sup ➔ AWW

Education officials' NIPI guidelines for their supply chain are:
IFA large blue tablets tablets for in-school adolescent girls and boys:

\[ SDMU \rightarrow CDMO/\text{Dist Pharm} \rightarrow MOIC (\text{copy to DEO}) \rightarrow CRCC (\text{copy to BEO}) \]

\[ \text{Headmasters (copy to BEO)} \]

**Reporting**

Health officials' NIPI guidelines for reporting are to compile across field level into sector and across sectors into block as follows:

IFA red tablets for PLW IFA syrup for children 6 months-5 years:

\[ ANM \rightarrow LHV \ MO I/C \rightarrow CDMO (\text{copy to DSWO}) \rightarrow DFW (\text{copy to MD-NHM}) \]

ICDS officials' NIPI guidelines for reporting are to compile across field level into sector and across sectors into block as follows:

IFA large blue tablets for out-of-school adolescent girls only:

\[ AWW \rightarrow ICDS Sup \rightarrow CDPO \rightarrow DSWO (\text{copy to MO I/C}) \rightarrow WCD Director \rightarrow (\text{copy to CDMO}) \rightarrow DFW (\text{copy to MD-NHM}) \]

Education officials' NIPI guidelines for reporting are to compile across field level into sector and across sectors into block are two-fold, as follows. The first line through the levels in the Education Department was the only guidelines as of November 2015\(^{31}\), and the second line through the levels of the Health Department was added via a DFW letter of December 2015\(^{32}\).

IFA large blue tablets for in-school adolescent girls and boys:

1) Headmaster \rightarrow (Health Worker Male added Dec 2015) \rightarrow CRCC \rightarrow BEO \rightarrow DEO (copy to MO I/C) \rightarrow SNO-MDM (copy to CDMO) \rightarrow DFW (copy to MD-NHM), as well as

2) Headmaster \rightarrow Health Worker Male \rightarrow MO I/C \rightarrow CDMO \rightarrow DFW

**Training**

The guidelines for cascade training/capacity building are outlined in the Health Operational Guidelines\(^{33}\) and specify the following trainings:

- a one-day orientation for district officials of four departments (Health, WCD, S & ME, and ST/SC Development) in-person facilitated by state health officials

---

\(^{31}\) Operational Guidelines for Weekly Iron & Folic Acid supplementation in Schools, Odisha, 30 November 2015

\(^{32}\) Directorate of Family Welfare letter, 7 December 2015, Subject: Involvement of HW(M) and RBSK Mobile Health Teams(MHTs) in strengthening National Iron Plus Initiative (NIPI) intervention in Odisha.

\(^{33}\) Operational Guidelines for Health Dept. on NIPI Programme, Odisha, 30 November 2015.
➢ a one-day orientation for block officials of the four departments in-person or via training DVD facilitated by district officials

➢ orientation through monthly meetings and the training DVD for sector/cluster personnel by block officials and for frontline workers and headmasters by sector personnel

➢ orientation at school for teachers, School Management Committee (SMC), PTA, and the school ANM by headmasters

**Monitoring**

The monitoring expectations are also listed in the Health Operational Guidelines -- from officials from the state to the sector/cluster level in terms of visits per geographic unit (e.g., district, block) per month to AWCs and schools (but visits to Village Health and Nutrition Daysettings (VHNDs) and homes are not listed)(Table 6). The Health Department is responsible for monitoring WCD and Education sites, whereas WCD and Education are responsible to visit sites only in their department. Monitoring checklists are available for the visits for each level and regarding both AWCs and schools.

**Table 6. Guidelines for monitoring the NIPI programme from state to sector/cluster levels**

<table>
<thead>
<tr>
<th>Level</th>
<th>Department</th>
<th>Persons monitoring</th>
<th>Frequency of monitoring (# visits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td>Multiple</td>
<td>SIMT with DHFW, SNO-MDM &amp; SC/ST Nodal Officer</td>
<td>10 districts/mo to see 2 AWCs &amp; 2 schools ea</td>
</tr>
<tr>
<td><strong>District</strong></td>
<td>Health</td>
<td>ADMO-FW, DPM, DMRCH, Asst Mng ASHA, DPHCO, ADPHCO, DPHNO, RBSK Team</td>
<td>4 block-visits/mo to see 4 AWCs, 4 S&amp;ME schools, and 2 SC/ST schools across the 4 blocks</td>
</tr>
<tr>
<td></td>
<td>WCD</td>
<td>DSWO, Programme Officer</td>
<td>4 block-visits/mo to see 8 AWCs</td>
</tr>
<tr>
<td></td>
<td>Education S&amp;ME</td>
<td>DEO, DPC-SSA</td>
<td>4 block-visits/mo to see 8 schools</td>
</tr>
<tr>
<td></td>
<td>Education SC/ST</td>
<td>DWO, ADWO</td>
<td>4 block-visits/mo to see 2 schools</td>
</tr>
<tr>
<td><strong>Block</strong></td>
<td>Health</td>
<td>MO I/C, BPM, PHEO</td>
<td>2 sector/cluster-visits/mo to see 2 AWCs, 2 S&amp;ME and 1 SC/ST schools</td>
</tr>
<tr>
<td></td>
<td>WCD</td>
<td>CDPO</td>
<td>2 sector-visits/mo to see 4 AWCs</td>
</tr>
<tr>
<td></td>
<td>Education S&amp;ME</td>
<td>BEO</td>
<td>2 clusters/mo to see 4 schools</td>
</tr>
<tr>
<td>Sector/Cluster</td>
<td>Education S&amp;ME</td>
<td>BEO</td>
<td>2 clusters/mo to see 4 schools</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>-----</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Education SC/ST</td>
<td>Welfare Extension Officer</td>
<td>2 clusters/mo to see 2 schools</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector/Cluster</th>
<th>Health</th>
<th>LHV, MPS</th>
<th>2 field visits/mo to see 4 AWCs, 4 S&amp;ME and 1 SC/ST schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCD</td>
<td>ICDS Supervisors</td>
<td>2 field visits/mo to see 8 AWCs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector/Cluster</th>
<th>Education S&amp;ME</th>
<th>CRCCs</th>
<th>2 field visits/mo to see all schools in their cluster</th>
</tr>
</thead>
</table>

**Therapeutic Approach to Anaemia Reduction – Treatment, Referral and Follow-up**

The therapeutic approach complements the supplementation approach to make higher amounts of IFA available to those throughout the life cycle who are anaemic according to their degree of anaemia – mild, moderate, severe (Tables 7-9). Therapeutic treatment is daily, with follow-up every 14 days or month, and referral to the First referral unit/District Hospital (FRU/DH) in the cases of severe anaemia and if anaemia is not corrected in 2-3 months of daily treatment.

The limitation to this therapeutic approach is that Hb concentration is only assessed among pregnant and lactating women, or if children and adolescents are taken to a health centre for an assessment. A health centre visit for mild or moderate anaemia is unlikely. School children and adolescents are only assessed in school by a visual assessment of pallor, which detects only severe anaemia. And children 6 months–5 years are not routinely assessed.
**Table 7. Management of anaemia based on haemoglobin levels in children 6 months – 10 yr**

<table>
<thead>
<tr>
<th>Hb level</th>
<th>Treatment</th>
<th>Follow-up</th>
<th>Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Anaemia</strong></td>
<td>For children 6 mo-5 yr, 20 mg elemental iron and 100 mcg folic acid (FA) 2x/week</td>
<td>For children 5-10 yr, 45 mg elemental iron and 400 mcg FA 1x/week</td>
<td></td>
</tr>
<tr>
<td>(&gt;11 g/dl for ch 6mo-5yr; &gt;11.5 g/dl for ch 5-10yr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild Anaemia</td>
<td>3 mg iron/kg/day for 2 mo</td>
<td>ANM follows up every 14 d Hb reassessed after 2 mo</td>
<td>If Hb not responded in 2 mo, refer to FRU/DH with physician</td>
</tr>
<tr>
<td>(10-10.9 g/dl for Ch 6mo-5yr; 11-11.4 g/dl for Ch 5-10yr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moderate Anaemia</strong></td>
<td>3 mg iron/kg/day for 2 mo</td>
<td>ANM follows up every 14 d Hb reassessed after 2 mo</td>
<td>If Hb not responded in 2 mo, refer to FRU/DH with physician</td>
</tr>
<tr>
<td>(7-9.9 g/dl for Ch 6mo-5yr; 8-10.9 g/dl for Ch 5-10yr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Severe Anaemia</strong></td>
<td>Refer urgently to FRU/DH**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(&lt;7 g/dl for Ch 6mo-5yr; &lt;8 g/dl for Ch 5-10yr)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*adapted from Guidelines for Control of Iron Deficiency Anaemia: NIPI, National Rural Health Mission (NRHM), 2013

**See the Guidelines for detailed assessment and treatment at the FRU/DH in the case of severe anaemia

**Table 8. Management of anaemia based on haemoglobin levels in adolescents 10-19 years**

<table>
<thead>
<tr>
<th>Hb level</th>
<th>Treatment</th>
<th>Follow-up</th>
<th>Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Anaemia</strong> (&gt;12 g/dl)</td>
<td>100 mg elemental iron and 500 mcg FA 1x/week</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mild Anaemia</strong> 11-11.9 g/dl</td>
<td>60 mg/ day elemental iron for 3 mo</td>
<td>Follow-up every month; Hb reassessed after 3 mo</td>
<td>If Hb not responded in 3 mo, refer to FRU/DH with physician</td>
</tr>
<tr>
<td><strong>Moderate Anaemia</strong> 8-10.9 g/dl</td>
<td>60 mg/ day elemental iron for 3 mo</td>
<td>Investigate; Follow-up every 14 days; Hb reassessed after 3 mo</td>
<td>If Hb not responded in 3 mo, refer to FRU/DH with physician</td>
</tr>
<tr>
<td><strong>Severe Anaemia</strong> &lt;8 g/dl</td>
<td>Refer urgently to FRU/DH**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*adapted from Guidelines for Control of Iron Deficiency Anaemia: NIPI, NRHM, 2013

**See the Guidelines for detailed assessment and treatment at the FRU/DH in the case of severe anaemia
Table 9. Management of anaemia based on haemoglobin levels among pregnant and lactating women*

<table>
<thead>
<tr>
<th>Haemoglobin level</th>
<th>Level of facility</th>
<th>Therapeutic regimen</th>
</tr>
</thead>
</table>
| 9-11 gm/dl        | Sub-centre Signs and symptoms (generalised weakness, giddiness, breathlessness, etc.) Clinical examination (pallor eyelids, tongue, nail beds, palm, etc.) Confirmation by laboratory testing | **Hb level between 9-11 gm/dl**  
- 2 IFA tablets (1 in the morning and 1 in the evening) per day for at least 100 days (at least 200 tablets of IFA).  
- Hb levels should preferably be reassessed at monthly intervals. If on testing, Hb has come up to normal level, discontinue the treatment.  
- If it does not rise in spite of the administration of 2 tablets of IFA daily and dietary supplementation, refer the woman to the next higher health facility for further management. |
| 7-9 gm/dl         | PHC/CHC           | **Hb level between 8-9 gm/dl**  
- Before starting the treatment the women should be investigated to detect the cause of anaemia.  
- Oral IFA supplementation as for Hb level 9-11 gm/dl. Hb testing to be done every month.  
- Depending on the response to treatment same course of action as prescribed for Hb level between 9-11 gm/dl.  
- Before starting the treatment the woman should be investigated to diagnose the cause of anaemia.  
- Injectable IM iron preparations (parenteral iron) should be given if iron deficiency is found to be the cause of anaemia.  
- IM iron therapy in divided doses along with oral folic acid daily if women do not have any obstetric or systemic complication; repeat Hb after 8 weeks. If the woman has become non-anaemic, no further medication is required: If Hb level is between 9-11 gm/dl, same regimen of oral IFA prescribed for this range.  
- If women with Hb between 7-8 gm/dl comes to PHC/CHC in the third trimester of pregnancy, refer to FRU/MC for management. |

*Table adapted from the Integrated Management of Maternal and Newborn Health (IMMNH) guidelines.
<table>
<thead>
<tr>
<th>Haemoglobin level</th>
<th>Level of facility</th>
<th>Therapeutic regimen</th>
</tr>
</thead>
</table>
| <7 gm/dl          | FRU/DH/MC         | **Multiple dose regime**  
|                   |                   | Intramuscular (IM)-Test dose of 0.5 ml given deep IM and woman observed for 1 hour. Iron dextran or iron sorbitol citrate complex given as 100 mg (2 ml) deep IM in gluteal region daily. Recommended dose is 1500-2000 mg (IM in divided doses ) depending upon the body weight and Hb level.  
|                   |                   | If parenteral iron therapy is contraindicated e.g. in CHF, H/O allergy, asthma, eczema: Haemochromatosis, liver cirrhosis, rheumatoid arthritis and acute renal failure etc, refer the woman to FRU/MC |
|                   |                   | **Hb level between 5-7 gm/dl**  
|                   |                   | • Continue parenteral iron therapy as for Hb level between 7-8 gm/dl. Hb testing to be done after 8 weeks  
|                   |                   | • If the woman becomes non-anaemic, no further medication is required: If Hb level is between 9-11 gm/dl, same regimen of oral IFA prescribed for this range  
|                   |                   | • Depending on the further response to treatment same course of action as prescribed for Hb level between 9-11 gm/dl  
|                   |                   | **Hb level less than 5 gm/dl**  
|                   |                   | • Evidence for injectable IV sucrose preparation: under Randomised Control Trial of GOI  
|                   |                   | • Immediate hospitalisation irrespective of period of gestation in hospitals where round-the-clock specialist care is available for intensive personalised care and decision for blood transfusion (packed cell transfusion) |

* Source: Guidelines for Control of Iron Deficiency Anaemia: NIPI, NRHM, 2013
The process documentation team conducted 170 interviews in March, April and May 2016 among officials and frontline workers at state, district, block, sector/cluster and field levels and among NIPI beneficiaries. To achieve variation in responses, hence as full a set of information on how NIPI was being implemented, process documentation and survey data were collected in four districts -- Keonjhar, Jagatsinghpur, Bhadrak and Kalahandi. The quantitative survey team conducted 4809 survey interviews from April to July 2016 in the same 4 districts.

**STUDY DESIGN**

**Selection of Districts**

To understand the scenario of Odisha as a whole, it was decided to take one district from each Revenue Division, so that the regional variation would be well documented. As per the AHS 2012-13, districts of Odisha were ranked by taking the average percentage of consumption of IFA by mothers (mothers who consumed IFA for 100 days or more) and children (Children, aged 6-35 months, who received IFA tablets/syrup during last 3 months). One district from each Revenue Division, which poorest performance on these indicators was selected for the process documentation. In order to understand the variations among good performing and poor performing districts, the best performing district as per AHS 2012-13 was selected as the fourth district under the study. Thus, the following four districts were selected for the process documentation:

1. Bhadrak District from Central Division
2. Keonjhar District from Northern Division
3. Kalahandi District from Southern Division
4. Jagatsinghpur District as best performing district in the state

**Selection of Blocks**

Within the selected districts, one good and one badly performing block were purposively selected. This was done based on inputs from District Collectors, CDMO/ADMO and district officials from other line departments.

To achieve variation in data collected within districts for the process documentation, two blocks each were chosen and interviews conducted in Keonjhar and Jagatsinghpur Districts (Harichandanpur 10-18 March 2016 and Banspal 26-29 April in Keonjhar District, and Raghunathpur 7-12 April and Kujang 18-21 April in Jagatsinghpur District). The documentation team was also prepared to conduct interviews in two blocks each in Bhadrak and Kalahandi, but limited to one block because no new information was being gleaned from interviews (Bhandari Pokhari Block in Bhadrak District and Lanjigarh Block in Kalahandi District).
In some cases, someone in a position was interviewed once, but deemed not to have much of a role in NIPI or much information about it, and so was not interviewed in all districts or blocks, e.g., Block Data Manager (BDM), Programmer midday meal (MDM), Medical Officer Primary Health Centre (MO PHC), PHC Pharmacist, and private pharmacist. For the others, an effort was made to interview the persons or groups in the positions in each district and block.

On occasion during an FGD, one participant was asked if the team could ask additional questions individually, as an IDI, either because they spoke up knowledgeably during the FGD, or because they did not say much in the group but seemed to have different opinions, e.g., a teacher, a CRCC, and an AWW.

In-depth interviews (IDIs), focus group discussions (FGDs) and observations were the qualitative techniques chosen for the process documentation. Officials at state, district and many at block level were interviewed individually during IDIs. Groups of sector/cluster officials, field workers and beneficiaries were interviewed during FGDs. In addition, observations were made of records of IFA distribution at VHNDs, AWCs and schools, as well as the actual distribution of IFA at VHNDs and schools.

**SAMPLING**

*Qualitative survey*

For the process documentation, respondents were purposively chosen to provide information on the planning and implementation of NIPI from a variety of perspectives – state, district, block and sector/cluster officials, field workers, other stakeholders like fathers, and beneficiaries. There were 170 respondents – 12 state officials, 27 district, 32 block, 16 sector/cluster, 49 field workers, and 34 beneficiaries – with district officials chosen evenly across the four districts, and block and sector officials, field workers, and beneficiaries chosen evenly across the six blocks (Tables 10-15). According to the three Departments jointly implementing NIPI, the most respondents were associated with the Health Department’s implementation (70), the second largest group associated with the Education Department (55), and the smallest group from the ICDS Department (35), as well as 10 others.
### Table 10. State-level Respondents for Process Documentation (all IDIs)

<table>
<thead>
<tr>
<th>Title</th>
<th>State</th>
<th>Sub-total state</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State-Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HFW Principal Secretary</td>
<td>X</td>
<td>8</td>
</tr>
<tr>
<td>NHM Joint Technical Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSMCL (MD, GM Logistics, IT Manager e-Aushadi)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NIPI Consultants to UNICEF/GOI</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>State-ICDS</strong></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>WCD Commissioner-cum-Secretary</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Joint Secretary ICDS</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>State-Education</strong></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>S&amp;ME Secretary</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SNO MDM</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Sub-total State</strong></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

### Table 11. District Respondents for Process Documentation (all IDIs)

<table>
<thead>
<tr>
<th>Title</th>
<th>Keonjhar</th>
<th>Jagatsinghpur</th>
<th>Bhadrak</th>
<th>Kalahandi</th>
<th>Sub-Total District</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>District-Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDMO</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>DMRCH a/o DPM</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td>Dist Pharmacist</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td><strong>District-ICDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSWO a/o PO</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>District-Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEO</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>3</td>
</tr>
<tr>
<td>DPC-SSA</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>DWO</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>3</td>
</tr>
<tr>
<td>Programmer MDM</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM-Collector</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>4</td>
</tr>
<tr>
<td>Zila Parishad member</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Sub-Total District</strong></td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>27</td>
</tr>
</tbody>
</table>
Table 12. Block Respondents for Process Documentation (IDIs and FGDs)

<table>
<thead>
<tr>
<th>Title</th>
<th>Harichandanpur</th>
<th>Banspal</th>
<th>Jagatsinghpur</th>
<th>Kujang</th>
<th>Bhadrak Bhandari Pokhari</th>
<th>Kalahandi Lanjigarh</th>
<th>Sub-Total Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block-Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO I/C (IDI)</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BPM (IDIs)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>5</td>
</tr>
<tr>
<td>RBSK Team (FGDs)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Block Pharmacist (IDI)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>BDM (IDI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Block-ICDS</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CDPO (IDI)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>6</td>
</tr>
<tr>
<td>Block-Education</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>BEO a/o ABEO (IDI)</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Sub-Total Block</td>
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<td>4</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 13. Sector/Cluster Respondents for Process Documentation (FGDs and IDIs)

<table>
<thead>
<tr>
<th>Title</th>
<th>Keonjhar</th>
<th>Jagatsinghpur</th>
<th>Bhadrak Bhandari Pokhari</th>
<th>Kalahandi Lanjigarh</th>
<th>Sub-Total Sector/Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector-Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO PHC AYUSH (IDI)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHC Pharmacist (IDI)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector-ICDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICDS Supervisors (FGDs)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cluster-Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRCC (IDIs) (FGDs)</td>
<td>X</td>
<td>X</td>
<td>2</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sub-Total Sector/Cluster</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>2</td>
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Table 14. Field Level Respondents for Process Documentation (FGDs, IDIs and observations)

<table>
<thead>
<tr>
<th>Title</th>
<th>Keonjhar</th>
<th>Jagatsinghpur</th>
<th>Bhadrak</th>
<th>Kalahandi</th>
<th>Sub-Total Field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Harichandanpur</td>
<td>Banspal</td>
<td>Raghunathpur</td>
<td>Kujang</td>
<td>Bhandari Pokhari</td>
</tr>
<tr>
<td><strong>Field-Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANMs (FGDs)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ANM in school (IDI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ASHAs (FGDs)</td>
<td>X*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Private Pharmacist (IDI)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VHND Obs (obs)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Field-ICDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWWs (FGDs) (IDI)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>AWC Records (obs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Field-Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers (FGDs) (IDI)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Headmaster (IDI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>SMCs (FGDs)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>School Records/IFA distribution (obs)</td>
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<td>X</td>
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<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Fathers (FGDs)</td>
<td>2</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td><strong>Sub-Total Field</strong></td>
<td>11</td>
<td>7</td>
<td>9</td>
<td>8</td>
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</tr>
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</table>

*ASHA Facilitators
Table 15. Beneficiaries for Process Documentation (all FGDs)

<table>
<thead>
<tr>
<th>Title</th>
<th>Keonjhar</th>
<th>Jagatsinghpur</th>
<th>Bhadrak Bhandari Pokhari</th>
<th>Kalahandi Lanjigarh</th>
<th>Sub-Total Benef’s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Harichandanpur</td>
<td>Banspal</td>
<td>Raghunathpur</td>
<td>Kujang</td>
<td></td>
</tr>
<tr>
<td><strong>Beneficiaries-Health</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>PLW</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mother w. ch &lt;5 yr</td>
<td>2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Beneficiaries-ICDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent Girls Out-of-School</td>
<td>2</td>
<td>X</td>
<td>X</td>
<td>2</td>
<td>X</td>
</tr>
<tr>
<td><strong>Beneficiaries-Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent Girls in School</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>2</td>
<td>X</td>
</tr>
<tr>
<td>Adolescents Boys in School</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td><strong>Sub-Total Beneficiaries</strong></td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>4</td>
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</tbody>
</table>

Quantitative Survey

A line list of all the subcentres from within the selected 8 blocks in 4 districts was prepared. From this were selected 50 sub-centres using probability proportionate to size (PPS) sampling method. Figure 1 shows the distribution of samples selected for the facility survey and the stakeholder interviews.
Figure 1. Sample selection and size for the quantitative study

- **CHC-8** (@ 2 blocks/District)
- **PHC-24** (@ approx 2 sectors per block)
- **Sub-centre-50** (@ approx. 2 SC per sector)

From each selected sub centre, stakeholders were chosen for beneficiary and provider interviews as shown below:

- VHND sites - 48 (@ approx. One per sub centre)
- Schools - 99
  - AWC - 90 (@ approx. 2 per sub centre)

Additional stakeholders:
- AWW-245
- ASHA-235
- ANM-39
- Pregnant women-786
- Women 15-45y-800
- Lactating mother-788
- Adolescent Girls-800
- Adolescent Boys-800
For choosing respondents within each sub-center, the sample of 800 was divided among 50 subcentres, 16 respondents in each subcentre. For eg. if there were eight villages in a subcentre, two girls from each village were chosen. For random selection, a bottle was spun at the center of the village to determine the direction in which to walk. Households were checked until one with an adolescent girl in residence was encountered. If there were more than two persons in the same house, KISH method was used to select one of these randomly and the next adjacent house was visited to recruit the second respondent. This process was repeated for adolescent boys and WRA, whereas pregnant and lactating women were chosen randomly from the line list available from the frontline worker of that village.

**PREPARATORY ACTIVITIES**

The team reviewed a broad range of background documents and national/state level letters outlining aspects of the NIPI programme. In addition, a state inception meeting was held on 8 March 2016 in Bhubaneswar to launch the NIPI process documentation. Representatives of District Collectors and Chief District Medical Officers (CDMOs) from the four districts provided district context on anaemia and implementation of the NIPI programme to date.

**RECRUITMENT AND TRAINING OF DATA COLLECTORS**

Data collectors had either a Master’s degree in public health or in social work. A 6-day phase-wise training was provided to them in qualitative and quantitative methods through workshops, group works, and field exposure. Data collectors were taught cluster sampling methods, techniques for qualitative and survey-based interviews, Hemocue 201 for Hb estimation, and Epidata entry software for data entry. Supervisory visits were made to retain quality throughout the data collection period.

**DEVELOPMENT AND PRETESTING OF INTERVIEW QUESTIONS AND TOOLS**

Questionnaires for the quantitative survey were prepared by the research team, translated in the vernacular, and validated in the field. Separate questionnaires were developed for adolescent girls,
adolescent boys, WRA, pregnant and lactating women, and frontline workers. Facility survey formats for various platforms of delivery of IFA interventions and treatment of anemia like health centres, schools, and VHND were also developed and implemented.

**ETHICAL APPROVAL AND INFORMED CONSENT**

The process documentation protocol was approved by the ethical committee of AIIMS Bhubaneswar. Informed consent was taken from all the study participants. Confidentiality was maintained. All those detected with anemia were advised to visit the nearest health centre or AIIMS for further management.

**DATA COLLECTION AND QUALITY ASSURANCE**

*Qualitative Survey*

For the process documentation, the plan for one day’s interviews was made the evening before as part of the review of that day’s interviews. As often as possible, the plan would include officials/frontline workers from the Health, ICDS and Education Departments, as well as beneficiaries. Once the plan was complete, the documentation team would visit or phone officials to arrange appointments and to give criteria for focus group participants to be invited.

IDIs were conducted in private with respondents, usually in offices, sometimes outside in a private setting. FGDs were conducted among a group of similar people, i.e. without their service providers, their supervisors or elders in the community who could influence their responses. Groups were planned to be a maximum of 12 people, and sometimes grew to 15. If a group was initially not homogeneous enough or was too big, FGD facilitators politely asked some to leave, explaining the purpose and method of the FGD. IDIs and FGDs were held for a maximum of 60 minutes. Observations were typically arranged by one person at the VHND, AWC or school. Pictures of records were taken and notes on actual service delivery were made.

FGDs were conducted primarily in Odia, sometimes in Hindi if the FGD facilitator did not speak Odia, and occasionally in a tribal language. IDIs were conducted primarily in Hindi or Odia, sometimes in English.

Interviews were conducted up to four days per week. Typically two teams would each conduct 3-4 interviews (combination of FGDs and IDIs) in a day. Several days were devoted to interviewing state officials because they were in Bhubaneswar, some distance from the districts. Similarly, days were devoted to interviewing districts officials in the district headquarters town. Sometimes days were devoted to interviewing block officials and sometimes block officials were interviewed on the same day as officials and workers at sub-centre/cluster, frontline and beneficiary interviewees, depending on the distances between locations.

Every evening at the end of interview days, the team of interviewers met to review results and list questions that emerged to be asked during future interviews. Also discussed in the review setting were how to follow-up on and resolve any responses that lacked credibility – for example, any
respondents suspected of giving the “right answer” or the answer respondents thought the interviewers wanted to hear – as well as responses that seemed to differ markedly among interviewees.

**Quantitative Survey**

The quantitative survey comprised of two portions, the facility survey and stakeholder interviews.

**Facility Survey**

The following were interviewed: Medical Officer in-charge (MO I/C) or Block Programme Managers (BPMs) at Community Health Centres (CHCs), MO PHCs, ANMs at subcentres, headmasters or nodal teachers at schools, AWWs in AWCs, ANMs at VHND sites. Also observations were recorded using facility checklists prepared in the department.

**Stakeholder Interviews**

As per the sample size calculations for cross-sectional studies, assuming prevalence of anemia as 50%, DEFF of 2 and 4% non-response, the sample size should be 800 each for 4 beneficiaries namely adolescent boys and girls, and pregnant and lactating women. In addition, 800 WRA were chosen as eventually the programme would be rolled out among them and since 50% reduction in anemia in WRA is also one of the nutritional targets to be achieved globally by 2025 compared to anaemia prevalence in 2011. The ANMs of selected sub-centres and ASHA/AWW of selected villages were approached within the subcentre for interviews using a pretested and semi-structured interview schedule. Hemocue 201 was used to estimate Hb levels of adolescent girls, boys, WRA, pregnant and lactating women, and frontline workers.

**Quality Assurance**

The members of the survey team were trained in conducting interviews, handling HEMOCUE 201, and using EPIDATA for data entry. Supervisory visits were paid by the investigators frequently to identify errors and take early corrective actions. At the end of every day debriefing meetings were held among the survey staff to manually check the proformas for any missing data and collect it the next day from the respondents, and trouble shoot as needed.

**DATA CLEANING, ENTRY, AND MANAGEMENT**

For the qualitative survey, most interviews were tape recorded and the electronic audio file labelled with date, time, position (e.g., Block Programme Manager, ASHAs, teachers), and place and type of interview (FGD, IDI or observations). Records about each interview were made each data collection day in an Excel file to manage the data. Sets of interview files were sent for transcription and translation into English, and as they were processed, the file name was retained. Initially, notes were taken of IDIs by two rapporteurs instead of recordings, and the notes written up and cross-checked by the interviewers during the evenings of data collection. This proved to be too time-consuming, however, and after the first block of interviews, all were recorded.
For the quantitative survey, Epidata 3.1 was used for data entry. Checks were built in to avoid errors while entering the data. After completion of data entry, Excel files were examined for any missing data or incorrect entries and verified against records.

**DATA ANALYSIS**

**Qualitative Survey**

The English translated transcripts were entered into the Nvivo qualitative research software programme. All the interview text was read and coded (highlighted and marked) according to the 15 main topics of the interviews (Box 1). Some text was coded for multiple topics, as relevant.

Text on each topic was read and analyzed, categorizing quotes and notes of emerging themes and searching for variations among the levels from state to beneficiaries, among the Health, ICDS and Education Departments, and according to other variables. The analysis was largely descriptive, reviewing text by theme for patterns, consistencies and inconsistencies. When required for clarity, responses by category were counted, though reported only as “most”, “many”, “some” because the respondents were purposively chosen, or were therefore not representative of the larger population. Material for report sections was distilled from the detailed analysis text. All coding and analysis was conducted by one team member.

The title and district/block of each person was noted with their quote or note, but not used as specifically in the write-up of analysed results to protect confidentiality.

The order of districts and blocks was varied when reviewing coded material from respondents for each topic. Since more quotes and information were inevitably used from coded material from the first block reviewed, with repetition in successive blocks, this ensured that no one block dominated material contributed to the results.

<table>
<thead>
<tr>
<th>Box 1. Topics for Qualitative Coding and Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFA administration &amp; compliance</td>
</tr>
<tr>
<td>Social mobilisation</td>
</tr>
<tr>
<td>Procurement &amp; supply chain</td>
</tr>
<tr>
<td>Diagnosis, treatment, referral</td>
</tr>
<tr>
<td>Supportive supervision &amp; monitoring</td>
</tr>
<tr>
<td>Adverse effects &amp; emergency response</td>
</tr>
<tr>
<td>Recording &amp; reporting</td>
</tr>
<tr>
<td>Coordination - government</td>
</tr>
<tr>
<td>Coordination - stakeholders</td>
</tr>
<tr>
<td>Deworming &amp; other programme components</td>
</tr>
<tr>
<td>Training</td>
</tr>
<tr>
<td>Political commitment</td>
</tr>
<tr>
<td>Microplanning</td>
</tr>
<tr>
<td>Hard-to-reach areas</td>
</tr>
<tr>
<td>Distribution</td>
</tr>
</tbody>
</table>
The nature of the qualitative and quantitative data collection was different and complementary, the qualitative seeking to describe the perceptions of the respondents about the NIPI programme and its implementation, and the quantitative seeking to count the extent of certain outputs and outcomes. The qualitative and quantitative results are largely reporting on separate findings, but they are compared when they report on similar variables or topics.

**Quantitative Survey**

Data were analyzed using Microsoft Excel. Continuous data was summarized using mean (SD) and Median (IQR), and categorical data was presented as frequencies.
1. POLITICAL COMMITMENT AND OWNERSHIP

Many officials and frontline workers expressed strong political commitment to increasing coverage and strong service delivery of the NIPI programme – from all levels, state to field; all three Departments, Health, ICDS and Education; and all districts. Presented below are the types of comments made by respondents indicating political commitment to the NIPI programme by Department, followed by a few comments indicating lack of political commitment, for contrast. Comments tended to fall into categories of feeling pride in progress made, describing successful ways to mobilise beneficiaries and others, and for senior health officials issuing key government letters or embracing new government strategies.

HEALTH

Three senior health officials mentioned the programme clarity that can result from a government-issued letter or strategy. An Odisha State Medical Corporation Limited (OSMCL) official said that a “Letter has been sent from Commissioner cum Secretary, S&ME Department to each District Education Officer (DEO) and Block Education Officer (BEO) for monitoring the program at school for betterment of NIPI function at school.” A DMRCH described that political commitment can be built sometimes by just getting the paperwork straight so people feel comfortable. “We talked on report [in convergence meeting]. We talked on 100% implementation… There will be one letter sent for report collection”. And a district health official said that: “Now the government of Odisha is going to have a new programme… to facilitate the reduction of IMR-MMR, a strategy has been developed. Kalahandi is one of the districts. And one of the most important interventions is the strengthening of VHND sites.”

Several sets of ASHAs showed their ownership through their pride of progress of their work in the communities. One group of ASHAs said: “Many changes took place after the posting of ASHAs. ASHAs make the maximum home visits. Even children call us to go to their houses. Now nobody is interested for more than 2 children. I have joined for 7 years and since my joining I have not seen a maternal death. We don't have home delivery at all now.”

BPMs, ANMs and ASHAs spoke of the hard work and accomplishments from mobilizing participation in NIPI throughout their communities. A BPM said about teachers that: “At some places they don’t cooperate. Most of the time when we go to school, we find that maximum 10% teachers don't cooperate. We have to sensitize them. They say that guardians will not agree. Consuming these medicines may create some harm. We mobilise them by telling that we are here, keep our number and call us if there is any requirement. We tell them that the CHC is here to support you”. A group of ANMs said: “According to case we provide counseling. We are trying in different ways to make them understand. We are doing it nonstop to just involve them in the process.” Another group
of ANMs praised ASHAs in their mobilizing role: “If the programme is running in the periphery, then it’s due to ASHA workers. They obey whatever we tell them… We are not able to give time in all the villages… They are calling and informing us if anything happened to any pregnant lady or any child. We follow up the cases through them. We do everything through them.”

**ICDS**

The comments of several at ICDS were from block, sector and frontline worker level, expressing pride of progress of their work in the communities. A Child Development Project Officer (CDPO) said that: The AWWs “have never been reluctant in doing any work for ICDS or health. They resist other works given to them by the block or from outside. But they have never complained about any work related to ICDS or health.”

One set of AWWs talked of the progress they have seen over the years, and sentiment that could perhaps be promoted to generate excitement and further commitment: “At that time mothers used to hide their children. When we used to go for measuring weights, they would hide the child. Even if we go house to house to do it, they would say no the child is not at home. They used to hide. But now they come to VHND program with their own will to weight the child, and they come like we go to visit someone they dress up so much. They used to not even take TT properly. Now when it has not even been 2-3 months, they come and ask us to make their entry. Sir, is not that our VHND’s result?”

**EDUCATION**

The political commitment from Education officials is tinged with the flavor of having recently been persuaded to take up the mantle of Education’s role in NIPI. The recent conversion is a recurring theme in the interviews, i.e., “We were opposing earlier, but we are not opposing now…” Comments from the state, district, block, and cluster levels emphasised the importance of mobilizing beneficiaries to participate in NIPI. A state Education official said that the state and district level functionaries those who are responsible for the implementation of the programme were not convinced. So a capacity building programme was planned for them by Government with support of UNICEF. This has changed their outlook towards the programme. In general, NIPI ownership among Education department officials has improved gradually, he said, with 50% of the districts reporting; teachers administering the tablets, and reporting and maintaining records also. He also said the factors responsible are the training programme, constant monitoring, and Video conference chaired by the Commissioner of S&ME.

A DEO in another district also described mobilising participation: “With the persuasion and instruction of state nodal officer we conducted timely meetings with the BEOs and we had also taken it positively in CRCC meetings. Initially I had observed that programme was not being implemented properly but now it is effectively being implemented and is going on in all the blocks.”
Also a BEO said about mobilising NIPI participation: “There was resistance. Slowly we have managed it. This has been done under the chairmanship of the Block Development Officer (BDO). Medical Officer of our block was there. We called him… Gradually the awareness has been increased. We are conducting two meetings at cluster level. Review is done at CRCC level. We discussed about the practical problems for which the programme was not properly implemented. We used the material of the conference held in Bhubaneswar… Actually in our state the status is low. There is more possibility of anemia for all families, they may be rich or poor. After knowing this we have created awareness. My block and district was one of the defaulters in providing reports. But last year we have been able to give the reports. Now the programme is running smoothly. Almost all schools are being covered.”

In addition, a CRCC talked about mobilising efforts to increase participation in NIPI: “The block meeting with the school teachers regarding iron and folic acid supplementation happens every month in two shifts. Every shift has nearly 100 plus teachers. They discuss with school headmasters and block MO PHCs regarding various issues like Swachha Bharat Abhiyan, iron tablet and syrup supplementation, and midday meal….”

A DEO and a set of teachers also showed pride in their efforts to expand NIPI participation. The DEO said: “Whenever MDM meetings were conducted in the district, there will be BEOs, DEO and CRCC members, then we will discuss there. I will tell them that ‘if it is being provided in all the districts and there aren’t any complaints anywhere about children feeling dizzy or anything then why don’t we give and why should we be backward. Our district should also move ahead.’ I told them this repeatedly.” And teachers expressed that: “We have a feeling that these are our children and they should grow. Health is strongly associated with education. How they can study if they will not stay healthy? With this mentality we give the medicine. We are responsible.”

LACK OF POLITICAL COMMITMENT

There were also officials who expressed lack of political commitment to increasing coverage and strong service delivery of the NIPI programme – from senior levels, state to cluster; and from all the districts. The type of comments were about Education Department’s reluctant participation in NIPI, as well as one about lack of community support and one about lack of general support.

A DC described that teachers are apprehensive and also have poor clarity regarding the program. So the program is not running well in schools. For the program to run smoothly, the teachers need to be more proactive. But they do not want to take risk. A BEO also complained that NIPI “is a new program. They attach S&ME Department with the Health Department to carry out this program. At state and district level we were verbally told about it, but there was no training for teachers… Hence the technicalities of the program were not properly defined.” And a group of CRCCs said bluntly: “A teacher’s duty is to teach. Teacher’s duty is not to make all the things correct.”

Finally, a general lack of political commitment was expressed by a CDPO who said that the NIPI programme had no political encouragement or political involvement behind it.
2. PLANNING AND COORDINATION

Explored in this section are elements of the convergence among the Departments of Health, WCD and Education (including ST/SC Development) to carry out the NIPI programme in health care sites, AWCs and schools; as well as coordination with programme stakeholders whose support is crucial to allow NIPI beneficiaries – from young children to school children to women – such as parents, husbands and mothers-in-law, SMC and other community leaders, and NGOs. Finally, the planning conducted by central NIPI implementers is described – mostly by RBSK Teams (Rashtriya Bal Swasthya Karyakram), several by ASHAs/AWWs, and one each from a teacher and a BPM.

COORDINATION AND CONVERGENCE AMONG GOVERNMENT DEPARTMENTS

Leadership is required for successful coordination and convergence across Health, WCD, Education and ST/SC Development Departments with respect to NIPI, and the respondents in Odisha described leadership for NIPI convergence in a variety of forms at the various levels. At all levels, the Health Department takes the role of and is seen as the lead agency for NIPI.

Several of the state level officials reported that they thought inter-departmental convergence was good at their level. Three state-level coordination meetings had been held and minutised in the previous year, they said. They were concerned that it was not as good at district or block level. Some mentioned the importance at district and block level of issuing state guidelines under joint signature from the multiple departments involved in NIPI, especially Health’s signature with Education’s as a way to raise the importance of implementing NIPI in the schools. The letter launching the NIPI programme was sent under joint signature. Additional letters were sent in 2014 and 2015 under joint signature as small programme changes were made and communicated to staff (see letters referenced throughout this report).

There were divergent views about monitoring, with some WCD officials preferring to leave the main responsibility for monitoring NIPI with the Health Department, while some Education officials preferred to receive more information from the reporting exercises (indenting, supplies, and consumption) to be able to monitor Education’s progress on NIPI to a greater extent.

Leadership at the district level for coordination and convergence on the NIPI programme varied among the districts, as described by district officials across the four districts. Block convergence is not necessarily consistent with district convergence and so issues from both are presented.

Noted at the onset is that convergence between the Health and ICDS Departments on NIPI is strong in all four districts at all levels after years of coordinating and having complementary objectives, and thus will not be described in detail. With NIPI, coordination is also required with the Education Department, and most of the issues that emerged from the respondents are related to this new partnership.
Mentioned explicitly by a CRCC, and implicitly by other respondents about the NIPI programme in all four districts, is that the RBSK role of Health staff visiting schools to conduct health screening of students is by design a Health-Education convergence mechanism.

**District Level**

In two districts, respondents described good coordination and convergence at district level.

In two of these districts, respondents reported that the Collector is actively organising meetings with the district heads of department, and the district department officials appreciate the effort. A district education official said that the working relationship between Health and Education was not effective before 2016, “but those problems are gone because district administration…is directly involved now. So the coordination is now developed in between Health and Education departments.” The ST/SC development department district official, however, reports not having been called to a convergence meeting with people from the Health and ICDS Departments.

In the remaining two districts, leadership at the district level is less apparent and a number of issues have emerged. As one health official described, “There is a monthly meeting in the ICDS and health at the district level under the chairmanship of the Collector. But in all honesty, the district education is absent.” A partial explanation for lack of education participation at the monthly convergence meetings is that district and block officials have the convergence meeting together, and the standing time for the multi-department convergence meeting conflicts with a standing meeting of block and sector education officials. In fact, a new district education official reported that he had started to attend himself and usually sent the Science Supervisor to convergence meetings to discuss NIPI, and a district health official concurred that education officials had attended meetings in the previous 4-5 months.

**Block Level**

At the block level in one district, in contrast to the district level there, coordination with the Education Department was hardly mentioned, only the high level between Health and ICDS, reported by officials of both. One district health official said that while the multi-department convergence is occurring at the district level, “but at the block and sector levels hardly they are getting the opportunity to meet and review the issues.” Coordination and convergence seems to be going well at the block level in another district, similar to the district level there, with regular block convergence meetings of three departments.

In the other two districts, several respondents who were block health and education officials were disparaging about coordination and convergence within the two depts., both due to irregular block convergence meeting and participation from Education department not happening always.
COORDINATION WITH STAKEHOLDERS

Supportive stakeholders are critical for NIPI programme success. Stakeholders can block implementation within households or at the grassroots if they do not agree with the programme objectives or do not understand them, or they can support implementation, encouraging consumption of IFA and albendazole tablets and enhancing dietary diversity and WASH behaviours. The key stakeholders identified in the analysis of interviews for the NIPI process documentation are parents of children taking IFA and albendazole syrup and tablets, husbands and mothers-in-law of pregnant and lactating women, and SMCs and community leaders. Only four NGOs were mentioned by respondents in Harichandanpur and Banspal blocks in Keonjhar District and in Kujang block in Jagatsinghpur District, with very few details given, and with anaemia only being addressed by one.

Parents

Most of the parents across the four districts who responded about their children receiving IFA syrup or tablets were supportive, encouraging their children to consume it. Many interviewees involved in the school administration of IFA tablets said that support of NIPI by parents was crucial, even if passive support, e.g., adolescents in school and adolescent girls out-of-school saying that their parents had no objection to their children taking IFA tablets.

Building support among parents is crucial to NIPI success, as examples from AWWs, CRCCs, RBSK Teams and BEOs indicate. One set of AWWs said that earlier mothers were concerned about black stools and vomiting among their young children, but “now they have understood”. One CRCC described a situation in which parents thought tablets given at school were inferior to tablets from a health clinic, but he convinced them otherwise. One RBSK Team described that they take the initiative to hold coordination meetings with parents after the student health screenings in each school. In addition, a district education official described that all BEOs in the district have initiated discussion and conducted meetings with parents and teachers at school and block level. They reported that initially the program was accepted by only 20% of parents, but gradually now 70% parents have accepted it. They found that the most effective technique was providing a forum for parents who accepted IFA tablets for their children to talk with those who did not.

School children are often at the frontline of building that support, as this typical description by adolescents conveys: “We tell our father that we have taken tablet at school. My father asks why this tablet is given. I tell that it is given for anemia. Then he tells it is good to take it.” A CRCC reiterates this point: “The students inform in detail to their parents regarding the iron tablets given to them. The parents who are aware of the importance of IFA appreciate it and those having no knowledge also happily accept the programme.”

Among parents, fathers deserve special mention for future outreach efforts. During several focus groups, the interview team found fathers of adolescent girls easy to engage with on a variety of
topics. While they did not know much about anaemia, they told what they knew, and asked questions to learn more. In one group, fathers said frontline workers like AWWs, ASHAs and ANMs never counsel them regarding anaemia and the importance of IFA and albendazole, only the mothers of their children.

Several respondents told about parents who were not yet fully supportive of IFA distribution to their children in schools. One group of adolescent girls out-of-school said simply that some of their parents say not to take the tablets. Field staff use situations of lesser parental support to try to persuade about IFA tablets. One set of AWWs said that adolescent girls “are going to do labour work, loading and unloading work. They do not come on Saturday. They are called but they only come in the evening. We tell their parents that you are sending your child to work and she is not able to eat tablet.” One RBSK member said: “Parents do not agree easily for referral if there is severe anemia. When we detect any child with severe anaemia we ask the teachers to call their parents. In the AWC we also interact with parents if there is some problem. We cannot help if parents do not agree. If someone has problem we call the parents and talk to them. We tell them about the facilities and convince them to go.”

Husbands and mothers-in-law

Like the parents, most of the husbands and mothers-in-law across the four districts who responded about their wives and daughters-in-law receiving IFA tablets were supportive, encouraging them to consume it. Women told that they tell their husbands about the iron tablets, and the husbands support. A woman in another focus group said that her husband and her mother-in-law both support her taking IFA tablets at home, saying they are good. Another set of women said: “Our in laws never discouraged us to take the tablets.” One pregnant woman said that her husband and mother-in-law reminded her to take her IFA tablets when she forgets, and that her mother-in-law is also consuming IFA. AWWs in another district said that mothers-in-law are also asking for IFA tablets for themselves, saying that they feel weak.

Along the same lines, AWWs told that “Some mothers-in-law are cooperating and asking us to convince the pregnant women.” AWWs also told about husbands who come to the AWCS to see what the AWWs are doing: “They ask why the fieldworkers are always calling… three times a month. We answer that we have VHND, meeting, food distribution etc.”. Interestingly, AWWs also talked of their husbands support for their work in promoting the IFA and other VHND services: “Yesterday my husband went to call the adolescent girls. Our husbands are doing half of our work. They keep the record and maintain it. We cannot work if they don't support. If you will call suddenly they bring us with the bike. They give us advice.”

Several mentioned a common theme expressed throughout the process documentation, that there had been misperceptions, but now those days are gone. ASHAs described that “Earlier husbands had no idea about IFA tablets and syrup. Now everybody knows.” A CDPO told a similar story: “Mostly the program is accepted across the block. Earlier there was this superstition that these tablets make
mothers fat, delivers only girl child etc. But now those days are gone. Everybody is accepting the tablets.” Also, in a discussion with an ANM, ASHA and AWW, they were unequivocal that the husbands are very co-operative, supportive and involved. Mothers-in-law and husbands are also very cooperative when health-related services are to be delivered. Increasingly, fathers are more interested in the AWC services, ensuring that family members come to AWC for food and medicines. A few decades earlier, there were families in which males did not cooperate, did not allow children or women to come to AWCs, but now everyone co-operates, and respects the workers too. They said that if you go to remote tribal areas, especially among the Juang and Munda, men do not cooperate with AWW or allow family members to take services from VHND or AWC. However, when they mix with non-tribal communities, they slowly start accepting the importance of services and accessing them.

Building support among husbands and mothers-in-law is crucial to NIPI success, as with parents, and examples indicate how frontline workers approach increasing it. One group of AWWs said that “Some mothers [in-law] are telling that the child in the womb will be big. It will be difficult to give birth. We tell them that this is not true.” Regarding a role for husbands, a pregnant woman told that “When my test result came back 7, the ASHA asked my husband why he was not reminding me to take tablets. Now he keeps asking me.” Also regarding husbands, an ASHA Facilitator said: “If a wife does not take the medicine, then husband will have to understand the benefits of the tablets and tell her to eat it. He will also observe whether his wife is eating the medicines or not. There are many husbands who come to us if any problems occur. We discuss with the husbands and make them understand after pregnancy registration.”

A couple of respondents also told about husbands who were not yet fully supportive of IFA distribution to their wives. A set of ICDS Supervisors reported that “The major problem in our area is that husbands are drinking so much of alcohol. They even forcibly use the Mamata money [given for full antenatal, delivery and postnatal care]. They are also creating disturbances in VHND and threatening their wives to come out of the session.” And a set of ANMs reflected that not all yet give their full support, saying that a few husbands/mothers-in-law still believe in myths about IFA and ask their wives/daughters-in-law to not consume them at all.

**SMC and Community Leaders**

A variety of community leaders were mentioned as potential contributors to continued NIPI success, though they were only mentioned as key potential supporters once or twice – the SMC, the *sarpanch*, village tribal heads (*mukhiya*), self-help groups (SHGs), and the RBSK Teams. (The role of RBSK Teams in promoting NIPI was mentioned more frequently.)

Regarding the role of SMC in NIPI, groups of SMCs in two districts and a set of CRCCs in another described that the interaction of the teachers with this committee is organized monthly. At their meetings, they discuss issues like school infrastructure, quality of MDM, quality of teaching, teacher vacancy, school environment, and water and sanitation services, but NIPI is rarely on their agenda.
(sometimes nothing health-related is on the agenda). They know about NIPI informally from the headmaster, and because members of the SMC who are parents hear from their children receiving tablets at school. If they knew more, SMC members would support it strongly, according to the CRCCs, because IFA, albendazole and the anaemia education would benefit their children as well as raise school achievement. Others confirmed that NIPI was not on the SMC agenda.

Regarding the sarpanch, a CDPO commented on his interest in all programmes, including NIPI: “Whichever program is going on in the village, the sarpanch will definitely know the entire programme.” And an MO I/C recommended that the sarpanch and BDO be involved more in NIPI to build community understanding and support for the programme.

Regarding SHG, ICDS Supervisors suggested their support for NIPI would also be helpful: “SHG Members are the main leading persons in the society. Main thing is that if they would realise the problem of not taking iron tablets, it would be helpful.” A CDPO concurred: “The mothers’ in the SHG group should be involved in this so that they can work along with the workers to make it better.”

Regarding further RBSK involvement to increase support for the NIPI programme, a group of RBSK members spoke about this, acknowledging their key role of representing the Health Department in schools for health screening and promotion. They said the ground reality is that they cannot meet SMC members and parents. When they go to the teachers, they are teaching in their classes, so they meet the headmaster and try to inform and convince him about fully implementing NIPI, but they cannot do more given their schedule.

**MICROPLANNING**

The microplanning process was described by 4 RBSK Teams, 3 sets of ASHAs or AWWs, one teacher and one BPM.

**RBSK Teams**

One RBSK team talked of their 300 schools: “We have prepared microplan. We have divided the schools. As per that we go to that school. One school is visited once in a year. We have two teams…. One team is going to one area. Our planning is that we will go to AWC twice in a year and school will be visited once in a year.” They have a format for their microplan, recently updated. For informing the schools: “Cell phone number is there. We bring cluster-wise school list and the numbers of CRCCs from BEO. We inform about our plan to the CRCC and CRCC informs the teachers.” AWC is closed by 12pm, while school extends to 4pm, so we plan accordingly. “In our area there is always flood and cyclone, so some schools or AWCs remain unchecked.” Also, “If there will be epidemic then as per MO I/C instruction we go to that place in our vehicle. Sensitising for dengue takes three months. When the school was closed we screen children only in AWC.”

Another team gave additional information related to their planning: “We have two doctors. We have to screen 90 children per day. According to the strength of the AWC, we are able to visit one or two
centers in a day. In school we usually screen 120-150 students per school.” To inform “We give copy of microplan to BEO and CDPO. They inform schools and AWCs or sometimes we inform them over phone. We tell ASHA to inform AWC. We visit residential school quarterly once. We visit other schools once in a year. We go to AWC once every six months. The contact numbers of the schools are available with us. We contact them earlier. In the sector meeting we tell ASHA to inform them. We have many unreachable areas.

A third RBSK team added: “If it is Anganawadi programme we reach at 8am and start at 9am. In schools we stay from 10am to 4pm. We have three divisions. We make microplan. If it is in the school we will do screening of 150 students. If we do in AWC then we do for 90 children.” They also know how to build in flexibility, when deviations occur: “Actually in every month we make advance tour plan. We go to that particular center as per the date given. Suppose the school has examination then there is a deviation. Suppose there is rainy season, some special occasion is there in that case there is deviation. We try to make it up on another date.” A fourth team also stressed that they call ahead to schools and AWWs so that they can request the headmaster and AWW to encourage every student and young child to be present on that day.

ASHAs and AWWs, and Teachers

One group of ASHAs described their planning in terms of a typical couple of days: “I have 80-85 children. I visit all of those children's houses and meet their mothers to ask them to come the next day to get their children weighed. And will also meet those who are pregnant or lactating mothers and ask them to come. I reach the VHND by 10am at the AWC. Next day we will stay with didi till 2 pm, to do all the work. Telling the weights of the children, how much did that child weigh, how much did this child weigh, we oversee everything.” One group of AWWs described much the same, and added: “On the day before the VHND we prepare a list of how many children we have and who will take which dosage. That list would be here in the VHND register.” The other group of ASHAs concurred with these descriptions.

A teacher described her planning process as the following: “When the stock comes I receive and calculate that in how many weeks it will be consumed and how much will be left and I keep the leftover stock in a proper place. I maintain a register in which I write the stock consumed and left during each week.”
3. LOGISTICS MANAGEMENT

In this section the reports from interviewees about the processes of indenting and procuring IFA tablets and syrup and albendazole are reviewed, as well as the management of their supply chains, and distribution at field level. Indenting and supply chain results are divided by IFA formulation and life cycle stage where appropriate. This section also includes findings on the time interval between receipt of last IFA stock and its distribution to next level in the supply chain. Recommendations are offered in the final section of the report. See key messages in Box 2.

INDENTING OF IFA AND ALBENDAZOLE

Indent Numbers Based on Population Estimates

According to several District Pharmacists and state OSMCL officials, the Family Welfare section of the Health & Family Welfare Department at state level prepares the indent orders based on a formula of population estimates and dosages. This is the method for indenting “programme” drugs such as IFA large red/blue and small pink/blue and syrup.

ICDS and Health officials at field, sector and block positions in all four districts reported that they sent indents that included their requirements of IFA and albendazole based on their population counts – number of students enrolled at the beginning of the school year and head counts of out-of-school adolescent girls and children 6 months-5 years in villages. To systematise the counts of children 6 months-5 years and adolescent girls out-of-school, the AWWs conduct a household survey twice each year. One BPM mentioned that the survey list of children 6 months-5 years is used for numerous purposes – eg, vaccinations and vitamin A. Regarding the number of students estimated,

Box 2. Key Messages
(Logistics Management)

- IFA is procured through a good system, still in the process of being fully implemented. The single manufacturer model, however, allows vulnerability to a stock out if the IFA or albendazole product does not meet quality control standards, and a multiple manufacturer model or other strategy should be considered.
- The protocols for indenting IFA tablets and syrup and albendazole also seem strong, and are implemented consistently with only a few exceptions.
- The IFA and albendazole supply chain is managed well and consistently -- with only transport limitations -- and adherence to formulations is high.
- The degree of sharing information and stocks to avoid shortages and stock outs is impressive at a local field level, and could be expanded throughout the state, using the electronic supply chain software at block and district levels.
one DMRCH noted that enrollment can be considerably higher than the number of children attending on any given Monday to receive IFA blue tablets, so surplus is generated.

The population estimates and indents of required IFA and albendazole supplies are used to allocate supply as it gets divided at the district level and distributed through block to sector to field to beneficiaries. One Block Pharmacist had a supply of IFA blue tablets delivered without a corresponding indent from Education, and described the difficulty of not knowing how to divide it among the clusters and schools. In addition, ANMs told us that they calculate the requirement/indent for pregnant and lactating women, since most are anaemic and being encouraged to take 2 IFA red tablets per day, as 360 during pregnancy and 360 during lactation. Another group assumed 80% needed 360 tablets and 20% needed 180, and accounted for more women getting pregnant during the year of the indent. MO I/Cs reported that they added a 10% buffer to the estimate they compiled at block level.

**Frequency of Indenting**

The vast majority of interviewees reported that they indented once per year for IFA tablets and syrup and, while they mentioned it less frequently, they tended to report annual indenting for albendazole as well. Annual indenting was reported to occur among officials in all 4 districts, at all levels from field to district, and from all 3 departments (Health, ICDS and Education). The indenting reports still tended to come slowly from Education Department, said one district Health official. Annual indenting throughout the levels from field to district matches the annual indent and procurement that the state places with a company for the IFA and albendazole supplies, as the OSMCL officials described. There were a few exceptions to annual indenting -- some officials reported that they indented 2 times per year (every 6 months), and they came from all districts and from a variety of levels (MO I/C, Block Pharmacist, ICDS Supervisors, AWWs and CRCCs). Only a few said otherwise – a CDPO and ANM said they indented 4 times per year (every 3 months), and one set of ANMs said they indent whenever their stock is gone.
**People Involved in the Flow of Indenting**

There was much consistency among the interviewees as they described their indenting process. Their descriptions were consistent across the four districts and across the levels of officials from field to district, with only a few exceptions.

Health officials' indenting compiled across field level into sector and across sectors into block was described by respondents who were involved as:

IFA red tablets for PLW:

\[ \text{ANM} \rightarrow \text{MO I/C} \rightarrow \text{Block Pharmacist (with ASHA input into ANMs indent)} \]

IFA syrup\(^{34}\) and albendazole syrup for children 6 months-5 years (1-5 years for albendazole):

\[ \text{ANM} \rightarrow \text{MO I/C usually (see also ICDS indenting IFA syrup)} \]

ICDS officials' indenting compiled across field level into sector and across sectors into block was described by respondents who were involved as:

IFA large blue tablets and albendazole tablets for out-of-school adolescent girls:

\[ \text{AWW} \rightarrow \text{ICDS Supervisors} \rightarrow \text{CDPO} \rightarrow \text{MO I/C (with copy to DSWO)} \]

IFA syrup and albendazole syrup for children 6 months - 5 years:

\[ \text{AWW} \rightarrow \text{ICDS Supervisors} \rightarrow \text{CDPO} \rightarrow \text{MO I/C, with copy to DSWO (followed in 1 district)} \]

(see also Health indenting IFA syrup)

Education officials' indenting compiled across field level into sector and across sectors into block was described by respondents who were involved as:

IFA large blue tablets and albendazole tablets for in-school adolescent girls and boys:

\[ \text{Headmasters} \rightarrow \text{CRCC} \rightarrow \text{BEO} \rightarrow \text{BPM (copy to DEO)} \]

(and as one ABEO mentioned: Headmasters \(\rightarrow\) CRCC \(\rightarrow\) ABEO \(\rightarrow\) BEO \(\rightarrow\) BPM)

Total indent compiled at block level across Health, ICDS and Education Departments, then compiled across blocks into district and across districts to the state was described by respondents who were involved as:

\(^{34}\) Only 100 ml bottles of IFA syrup was mentioned during the interviews. 50 ml bottles were mentioned by a state level Consultant as a replacement to the 100 ml bottle to reduce chances of expiry, but they did not seem to be operational in households and AWCs at the time of the process documentation except by one group of ANMs in Keonjhar.
IFA red and large blue tablets and syrup, and albendazole tablets and syrup:

- MOIC/BPM (with help from Block Pharmacist) → CDMO (with help from District Pharmacist) → “State” (DFW → OSMCL)

The practice of indenting as described above varies only slightly from the operational guidelines for indenting, as described in the Background section on Indenting:

**For the Health Department:**

- LHV’s are not involved in the practice of indenting as per the guidelines, rather ANMs pass their indent to the MO I/C
- Bhadrak uses the ICDS workers and officials to indent for IFA syrup and albendazole syrup whereas the other 3 districts use the Health workers and officials, as per the guidelines
- The Block Pharmacist assists the MO I/C to prepare the indent, and the District Pharmacist assists the CDMO

**For the ICDS:**

- The CDPO compiles the indent for the MO I/C (copy to the DSWO) in practice, instead of the opposite, the CDPO should compile it for the DSWO (copy to the MO I/C) as per the guidelines

**For the Education Department:**

- The BEO compiles the indent for the BPM (copy to the DEO) in practice, instead of the opposite, the BEO should compile it for the DEO (copy to the BPM) as per the guidelines
- The indent is sent to the Health Department officials at the block level in practice, instead of passing from the BEOs to the DEOs to the State Nodal Officer for Midday Meal (SNO-MDM) and being sent to the Health Department at the state DFW level as per the guidelines

At field and sector level the indent is prepared by hand. Starting at the block level the indent is entered online, but the Block Pharmacists report that they also maintain a hand-written copy in case computers do not work from lack of internet or electricity.

The exceptions to the typical flow of the indent process described above are that:

- Sometimes the MO I/C’s representative comes to BEO’s office to collect the student numbers for the indent
- Sometimes the DEO reported being involved to assist the BEOs send their indent to the BPM
- Once in a district it was mentioned that the ANMs’ indent passed through the hands of the Sector supervisors or PHC before being sent to the MO I/C.
PROCUREMENT OF IFA AND ALBENDAZOLE

Managing the Procurement -- OSMCL and Drug Companies

A key reason the State of Odisha created the OSMCL was to ensure that high quality drugs were procured and supplied, and the procurement and supply chain were streamlined. It was created in August 2013, started in 2014, and filled its first purchase order in May 2015. Haemoglobinometers can also be purchased through OSMCL -- the first tender was awarded in Dec 2015 and Haemoglobinometers supplied in Feb 2016.

IFA and albendazole are purchased annually according to the following steps, as described by OSMCL state officials. Based on calculations done at state level as reported in the Indenting section, the Director of Family Welfare (DFW) shares an indent with the OSMCL, following which the OSMCL prepares a tender (about 10 days required), floats it online and receives technical bids (21 days), compiles the bids (around 15 days) and presents to the tender evaluation committee comprised of the corporation members, special members, representatives from state medical colleges, DFW, representatives from health department, finance department expert and others.

Once bids have been evaluated according to the technical criteria, OSMCL identifies the manufacturer with the lowest financial bid. Usually OSMCL negotiates the rate with more than one manufacturer, in case the manufacturer who is awarded the contract fails to deliver the supply of drugs. The tender is then awarded to one manufacturer and the purchase order with required quantities is placed for order. The manufacturer submits the letter of intent within 7 days, and supplies the drugs within 60 days. In case they are unable to supply within 60 days, 1% per week is charged as liquidated damage as per the penalty clause.

The next step according to the OSMCL officials is to check Quality Control of the drugs. The manufacturer distributes IFA and other drugs to the districts (37 locations including 30 district headquarters, 3 medical colleges, a central warehouse and others), and then these centers send 3 sets of random samples back to OSMCL to be tested for dosage and quality at accredited laboratories across the country (Bangalore, Hyderabad, Chennai, Kolkata, Himachal Pradesh and elsewhere). This period of “quarantine” while drugs are tested takes 15-30 days according to OSMCL and confirmed by a District Pharmacist. Only after the quarantine are the drugs declared online as “activated” and distributed within the district. If the drugs do not meet quality control standards, they are not activated, and shortages in the field can occur, as described below for the Supply Chain.

Indents, purchase order, quality control and supply chain information is entered online in the e-Aushadhi system (Figure 2), overseen by OSMCL’s IT Manager in Bhubaneswar. The e-Aushadhi online system was started as part of an operational research on e-governance system in India across 12 states including Odisha. The supply system is still being streamlined by OSMCL.

OSMCL pharmacists are gradually replacing District Pharmacists and OSMCL officials reported that they have contributed several vehicles at district and block level to ease previous transportation
constraints along the supply chain. OSMCL has most of the system in place, but not yet the monitoring and tracking mechanism to track supply and utilization of drugs at field level.

The manufacturer should supply 2-3 batches of IFA and albendazole in a year. According to OSMCL state officials and district pharmacists, supplies have been delayed since the start of NIPI, but all have eventually been delivered. Manufacturers are supposed to supply stock within 60 days. They can extend for up to 28 days twice along with deductions in payment (A 1% per week deduction in payment for the first extension and a 1.5% per week deduction for the second.) If the company does not deliver after 116 days, the order can be cancelled. However, there have been instances when stock for routine medicines was supplied after 116 days.

**Warehouse Maintenance**

The conditions of the SDMU warehouses were typically inadequate – not enough space, racks, ventilation, or refrigeration. OSMCL is gradually upgrading them, including refrigerator for those drugs that require cold storage condition, but currently space is still severely limited. The OSMCL District Pharmacist in one district said that storage space could be rented outside if needed. The District Pharmacist in another said that even the new OSMCL warehouse does not have the ventilation and air conditioning as it should, and that other storehouses have done it better.
Nonetheless, a Block Pharmacist was looking forward to his new warehouse with ventilation, temperature control, sufficient space, and racks so no boxes of medicine would be stored on the ground.

**Adherence to Formulations**

Since there are a variety of IFA formulations for the different beneficiaries of the NIPI programme, and therefore the chance that someone could be given a stronger dose than intended, adherence to formulation has been stressed. The interviews revealed a high degree of adherence, with only two examples of substitution. In 2014 one group of ASHAs gave IFA syrup to pregnant women when IFA red tablets were not in stock (lower dosage of iron and folic acid). They reported that the women did not like the taste of the syrup and would not take it, and then the IFA red tablets became available. In 2015 there were no IFA blue tablets at the AWCs for out-of-school adolescent girls, and so they instead received tablets from ASHAs at VHND sessions (presumably IFA red, same dosage of iron and folic acid).

**SUPPLY CHAIN MANAGEMENT**

**Stock outs**

A great number of interviewees reported that they had never experienced a stock out – across the four districts, across the levels of officials from field to district, and including almost all the beneficiaries who were asked. Many had the impression that the supply was generally good.

There were minor exceptions and one major exception. The following reports are examples of minor shortages or those that occurred long ago:

- **Albendazole**—From reports in two districts, a BEO said that there were no stock outs of IFA large blue amongst the students but occasional ones of the deworming medicine, and a block pharmacist and a CRCC reported that albendazole ran out in the middle of a distribution (though the CRCC said they gathered more from sub-centres and ANMs and finished distributing the albendazole within 15 days).

- **IFA large blue for ICDS out-of-school adolescent girls**—In two districts, ICDS Supervisors and other ICDS officials reported shortages of IFA large blue for out-of-school adolescent girls: in two blocks they reported that blue tablets were missing for 4-5 months in 2015, in another block they reported not being available for 10 months until the date of interview in April 2016, and importantly a group of adolescent girls in one block reported they only got IFA tablets at the Saturday morning programme only once; while in another district college girls were taking IFA large blue from an AWC on Saturdays whereas the ICDS official thought (possibly incorrectly) that they should be receiving them from their colleges.

- **IFA large blue in schools**—From reports in three districts, a CRCC reported that there were no IFA large blue tablets in one cluster for the first year of NIPI, a DEO said there had been no IFA
blue in the schools of one block for two months, an ANM in a SC/ST school said they had no stock at the moment, and a CRCC said IFA large blue sometimes had short expiry.

- In addition, supplies at the PHC– Reported in one district, a MO PHC and PHC Pharmacist explained that they had indented for 10,000 IFA red tablets, but did not receive any, since the PHC was not a priority destination for programme drugs like IFA and albendazole.

- A stock out of IFA syrup seemed to occur in three districts in early 2016. ASHAs, AWWs and ANMs reported no IFA syrup for 2-4 months (eg, an ANM in one block reported no new stocks during their interviews in March-May 2016 since her last delivery on 15 November 2015). In the midst of the shortage, health workers in one district said that they had received some extra bottles with expiration dates within 2 months, which they used, but only for those months. Women in one of these districts also reported that they had not received IFA syrup for their young children.

A major stock out of IFA red tablets was occurring at about the same time. Health officials and workers from the field level to the district reported no stocks of IFA red for 2-4 months. A Block Pharmacist in one district reported a full 7 months between deliveries (October 2015 to May 2016) that usually came 2-3 times per year, whereas in another district the span between zero balance and the next delivery of red tablets was only ½ month. This stock out was reported in all four districts. Interestingly as regards demand for IFA, one ANM recounted that “educated people” with low government IFA supply had gone to buy their own. One District Pharmacist explained that his IFA red tablets were quarantined for 8 months, June 2015 to February 2016, while another said his was quarantined 3½ months, both well beyond the 45-60 day expected time.

**Frequency of Receiving Supply**

The OSMCL officials reported that while they indent for and purchase drugs and supplies once each year, they receive them in 2-3 installments throughout the year, e.g., 30%, 30% and 40% depending on the requirements and availability of storage space at warehouses. Most officials at district, block, sector and field level reported receiving their supplies about 2 times per year.

There were a few exceptions to how officials described receiving their installments, and also how quickly they can be received. One CRCC said they receive IFA large blue tablets 1 time per year and another 4 times per year. Two ANM said they receive IFA red tablets 4 times per year. Few SC/ST teachers said they receive IFA large blue tablets 1 time per year.

Despite this exception, the reports seem to fit the pattern of passing installments from district to block to sector to field, sometimes entirely (e.g., the District Pharmacist, Block Pharmacist, CDPO and ICDS Supervisors, and AWWs all having reported receiving their supply 2 times per year) and sometimes in part (e.g., the Block Pharmacist reported receiving his supply 2 times per year and the ANMs 4 times per year).
Regarding how quickly stock is conveyed once the OSMCL has received the procurement from the manufacturer and after the Quality Control tests, a few elements of timing emerged. At all levels, actors try to separate and distribute stock to the next level 1-3 days after receiving it themselves. For example, a Block Pharmacist in Bhadrak, a BPM in Jagatsinghpur, and a CDPO in Keonjhar said they sent out drugs to the next level in 1-3 days. Also at all levels, actors take advantage of coming to a central place for regular meetings in order to transfer supplies. For the CRCC, however, it can take up to one month to reach all schools in the cluster with the stock due to limited transportation.

**Installments and Methods for Preventing Stock Outs**

When those who distribute IFA and albendazole to beneficiaries, as well as those tasked with monitoring their stock, feel they are short on supplies, they use several options to try and avoid a stock out. The first and most obvious is to receive one’s indent in installments that are smaller than the original indent. That a subsequent installment will be delivered at some point in the indenting period is well understood throughout the supply chain. As one Block Pharmacist explained: “Requirement could be more, but as per the availability of drug, they send accordingly.” An AWW reflected the same understanding, saying that if they have adequate, they will give the indent amount and if not then they will give in installments. Thus, when stocks are low and the next installment has not come as soon as expected, the first option is to ask for it. This request for installment is also referred to as an “indent”, though it is an indent within the original indent.

A second option is to ask for supplies from those who keep buffer stocks. One Block Pharmacist explained that they like to keep a buffer stock in case of a stock out in the field, though so much of the programme drugs are passed in their entirety to the field workers and schools, it is not clear that they pharmacists have buffer stocks. In one district, however, the PHC Pharmacist, who is not directly in the supply chain for the programme drugs, manages to procure IFA large blue tablets and syrup in addition to IFA red to have as a buffer and to treat PHC patients. A CRCC there said: “If no one able to give, we bring it from PHC.”

A third option, commonly practiced and mentioned in all 4 districts and at all levels from field to district, is the informal, local sharing of supply. The request for additional stock is made in the regular meetings and by phone. One ICDS Supervisor explained that when syrup stocks were low, they shared among AWCs shifting from one with stock of syrup bottles to those where bottles were needed. Information about stocks is also shared regularly. As another ICDS Supervisor said: “We tell them before the stock gets over. So we have the stock always. And in the sector meeting also it is reviewed as to who is having how many tablets for how many days and likewise who has less comes to office and takes the required amount, so there is no stock out.” Moving stock is even done preventively -- an ASHA described that they move extra bottles from one sub-centre to another as they pile up, without thinking that they are addressing a future stock out.

While this system works well, it has largely been limited to the local level. A fourth option, therefore, is sharing across the state, more broadly and systematically. There was only one cross-district
example cited – the Pharmacist in a district was asked by another district. They used the “drug transfer” interface of OSMCL's e-Aushadi portal where overstocks can be matched with stock outs within the state. This will allow the systematic sharing of stocks during a stock out that goes well beyond sharing at a local level, but requires either access to computers and the internet in the sectors and the field, or a systematic way to gather stock information from the sectors and field to enter at block level at the CHCs.

Monitoring is central to all these options. While teachers, headmasters and other officials in the Education Department did not describe sharing of IFA blue tablets and albendazole across schools or clusters, they do have widespread and systematic monitoring of IFA stocks by the CRCCs and RBSK Teams (and RBSK Teams also monitor IFA syrup stock in AWCs). Monitoring of IFA stocks across all the formulations could be even more widespread, as BEOs, DEOs, DSWOs and others expressed an interest in knowing the progression of the stock and where the shortages and overstocks emerge.

**People Involved in the Flow of Supply**

There was full consistency among the interviewees as they described their parts of the supply chain process. Their descriptions were consistent across the four districts and across the levels of officials from field to district. The only exceptions were variations introduced to relieve a constraint, usually involving limitations in transporting the IFA and albendazole supplies.

**Health** officials described their supply chain per formulation as:

IFA red tablets for PLW:

- CDMO/Dist Pharm ➔ CHC Pharm/MOIC/BPM ➔ ANM
- And an added step in Banspal block, Keonjhar, MO I/C ➔ sector/PHC ➔ SC/ANM

IFA syrup for children 6 months-5 years

- In Keonjhar, Jagatsinghpur and Kalahandi (but not Bhadrak):
  - CDMO/Dist Pharm ➔ CHC Pharm/MOIC/BPM ➔ ANM ➔ ASHA (for Ch <3)
    - And ANM ➔ AWW (for Ch 3-5 yr)
  - And an added step in Banspal block, Keonjhar, MO I/C ➔ sector/PHC ➔ SC/ANM

**ICDS** officials described their supply chain per formulation as:

The people involved in the supply chain for albendazole were not mentioned often by interviewees, but presumably the deworming medicine is sent to ANMs, CDPOs and CRCCs alongside the IFA formulation as per the age group.
IFA large blue tablets tablets for out-of-school adolescent girls:

   CDMO/Dist Pharm → CHC Pharm/ MOIC/BPM → CDPO → ICDS Sup AWW

In the block in Kalahandi, the IFA blue is picked up at the CDMO office by the CDPO, skipping the CHC because they cannot make the delivery.

In Kujang block, Jagatsinghpur, the CDPO requests that the MO I/C not send the IFA blue supply to their office, but instead that the MO I/C to send to the sub-centre/ANMs, who then give to the AWWs.

IFA syrup for children 6 months-5 years

   In Bhadrak only:

   CDMO/Dist Pharm → CHC Pharm/ MOIC/BPM → CDPO → ICDS Sup AWW (for Ch 3-5)
   And AWW → ASHA (for Ch <3)

   The reason for IFA syrup going through the ICDS instead of the ANM channel in Bhadrak is not known, but a Block Pharmacist there said “We can’t give [syrup] to the ANMs”.

Education officials described their supply chain as:

IFA large blue tablets tablets for in-school adolescent girls and boys:

   CDMO/Dist Pharm → CHC Pharm/ MOIC/BPM → (BEO ) CRCC Headmasters

   Sometimes in Kalahandi and Bhadrak, the BEOs are added to the supply chain to deliver supplies to the CRCCs instead of the CHC Pharmacist.

The primary supply chain paths reported above matched those laid out in the NIPI guidelines, with the only exceptions being more officials involved in the block in practice (CHC Pharmacist and BPM in addition to MO I/C) and less copying to Education officials in practice, compared to the NIPI guidelines.

Transportation in the Flow of Supply

According to interviewees from all 4 districts, from all levels from district to field, and from all 3 departments (Health, ICDS and Education), vehicles are available at a number of levels, so the transportation of the supplies from district to field generally flows well and in a timely fashion. The interviewees reported that the District Pharmacists and Block Pharmacists have vehicles, including some new ones allocated by OSMCL. The District Pharmacist transported medicines to CHC/Block Pharmacists in three districts while the Block Pharmacists pick up medicines from the District Pharmacist in fourth district. The District can only transport programme medicines, like IFA and albendazole in the NIPI programme, as far as the CHC at block level, whereas the District can
transport non-programme medicines to PHCs and SCs. Block Pharmacist vehicles, though, can and do transport further, as do CDPO vehicles in one district and BEO vehicles in two districts. RBSK-MHU (Mobile Health Unit) vehicles are also used to transport supplies in one district, though they are not used for this purpose in other districts.

A District Pharmacist described a major delivery of supplies, including IFA and albendazole, to its 12 blocks. Three persons go in the vehicle for a delivery, 1 driver and 2 attendants. There are 12 blocks and it can take 20-25 days, including holidays, to deliver a full installment of meds. If a block is big, then perhaps 2 vehicles (or 2 trips) will be needed to deliver all the meds. The 3 people can go to more than one block in a day, depending on the requirements and space in the truck.

In addition to vehicles specifically for transporting medicines and supplies, ANMs, AWWs and headmasters from the 4 districts reported picking them up when they came to a central place for regular meetings.

CRCCs probably have the most notable constraints that slow the flow of supplies after they receive their delivery from their block. First, the CRCC is often visiting schools and is not at the CRC to receive shipments that others bring. In one district it was found that the CHC Pharmacist may deliver to a headmaster at a lead school in the cluster instead of directly to the CRCC, and in another district the CRCC signs ahead of time and the delivery can be made to the CRC without them there. Once at the CRC cluster point, a school staff member typically comes to pick up the IFA blue tablet and albendazole supplies from the CRCC. The headmaster may also come to get them, especially if the supply arrives close to a regular meeting time at the CRC. In either case, the CRCC is the one responsible to distribute the supplies to the schools within their cluster, and they may deliver supplies to the schools on bike during their monthly visit, if needed, or seek assistance from the Health Workers Male (HWM).

**Timeline in the Flow of Supply**

The discussions with various district and block health functionaries, especially pharmacists, provided an insight on the time intervals during flow of supply of IFA stock from district to block CHC and from block CHC to CDPO/CRCC/SC.

At the district level, every new installment of supply takes a minimum of 2 months, in most cases 3-4 months, before it gets distributed to block CHCs. This was found to be the case for all formulations of IFA tablets and IFA syrup. The main reason for this time lag was the wait for quarantine clearance for new batches of supply. Most pharmacists said that, after a sample is sent for testing, it takes a minimum of one month, and usually two months, for any new batch to get activated. Most pharmacists showed their dissatisfaction with the time taken for quarantine clearance and one district official mentioned that the sample of red IFA they sent on 26th Dec 2015 was cleared as late as 15th April 2016. The shelf life of IFA stock at the time of distribution to CHCs was found to be in range of 1 year 1 month to 1 year 8 months.
At the block level, every new installment of supply takes a minimum of 10 days, in most cases 1-2 months, before it gets distributed to CDPO/CRCC/SC. This was found true even in situations where officials were aware of the low stock availability of a particular IFA formulation at field level. Although most pharmacists said they try to distribute the stock as soon as they receive it, a period of 1-2 months usually passed before any stock could be distributed down the line. Three instances were found when the stock received at block level was distributed to SC/CDPO/CRCC after almost 4 months. The shelf life of IFA stock at the time of distribution from CHCs was found to be in range of 6 months to 1 year 7 months. While in most cases, the shelf life at the time of distribution to field was at least 1 year, one instance was found when a stock was supplied with shelf life of only 6 months.

**Expired Supply**

There were hardly any reports from the interviewees about having expired stock. When there was, several mentioned that it was clear they should return it instead of throwing it away. “The district gave strict instruction to all not to distribute expired medicine to avoid any complications”, said a district education official. A block official confirmed that this happened. “If IFA is expired, schools inform us and they give back to us. They shouldn't dispose of expired tablets themselves, only give back to us so we can check and can record.” However, in one district it was found that some of the schools just throw expired tablets away.
4. TRAINING

The guidelines for cascade training/capacity building are elaborated in the Background, and they set a framework for cascaded training. Described below are respondents' perceptions about how they were trained, whether they thought they or other NIPI actors should have additional or refresher training, and whether they thought they were expected to cascade training down to the next level, e.g., MO I/C and BPMs to ANMs.

Health, ICDS and Education staff and field workers were instructed about NIPI in a variety of ways, as described below. Orientation and sensitization on NIPI is being done majorly through dedicated trainings at district and block level, and through meetings at sector and field levels. Although cascaded training was expected per the guidelines, several findings showed that there were challenges to ensuring that cascaded training actually occurred.

HEALTH

District Health Officials said that refresher trainings at district level are conducted with dedicated funding from the Programme Implementation Plan (PIP) each year at state level. One DMRCH said he attended NIPI orientation from the state two times in 2014-2015, then came and oriented in the district for WCD and senior people of the block.

BPMs in one district said they were trained by the District Programme Manager (DPM) and DMRCH at the start of NIPI. Other BPMs in that district confirmed that block health officials discuss NIPI at sector and monthly meetings with ANMs. Most RBSK teams reported that no special NIPI training had been provided, but anaemia was sometimes discussed in district/block review meetings. An MO I/C also described his NIPI training differently, saying that he did not receive any, and says that the “Method of training is just verbal to improve the skill.” He also implied that he does not provide much training to ANMs, only telling them the symptoms of anaemia.

ANMs in three districts said they were trained on IFA administration in 2013-2014 before the programme started. Since then they reported receiving no additional training, but they discuss at sector meetings. A group of ASHA Facilitators reported being trained on iron syrup distribution by BPM during a sector meeting. In addition, according to ASHAs in another district, ANMs were

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**Box 3. Key Messages (Training)**

- All respondents received instruction on NIPI
- Some described the instruction as “training” while some said they had only received information through regular meetings
- Respondents recommended further training for those in the Education Department
- While extensive trainings are not recommended, strategic and targeted ones would be useful.

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35 Operational Guidelines for Health Dept. on NIPI Programme, Odisha, 30 November 2015.
trained at block level in 2015, and then they trained the ASHAs at a sub-centre meeting on how to give IFA syrup and other aspects of the NIPI programme. ASHAs in one district reported that they were trained in NIPI as part of a 5-day session on a variety of topics, 6-7 modules covered, likely their induction training. It included video about breathing problems in anaemic children and about anaemic women. There is not training on iron, they say, rather that they learn on-the-job about IFA syrup from the ANMs.

ICDS

A DSWO said that training on anaemia had been given to them through the SABLA programme, being conducted in 9 districts. A CDPO reported a regular meeting as training, saying that they receive training twice each month with the CDMO in the district, and that they discuss there. Another CDPO said they had received training from an MO I/C on iron and albendazole.

ICDS Supervisors reported that there had been no earlier training, but there had been NIPI orientation in the block in the previous month – medical team (MO I/C, BPM, RBSK Team) had given the training to field level workers (AWWs and ASHAs). Also, the ANMs are trained, and the AWWs learn from them by seeing them give syrup at VHNDs. Some ICDS Supervisors also reported receiving a 2-day training on adolescent anaemia control in 2012 before NIPI as a training-of-trainers, but no training recently.

EDUCATION

Both state and district level officials agreed that it was difficult for them to ensure that NIPI trainings percolated down from DEOs, BEOs and ABEOs to headmasters and teachers, though, the official agreed, headmasters and teachers need to be oriented.

District Welfare Officers (DWOs) across districts reported having never been trained on NIPI and anaemia control interventions. Two DEOs reported that all DEOs and BEOs in Odisha had received training in Bhubaneswar. He said that he held a similar workshop in his district with BEOs and Assistant Block Education Officers (ABEOs). He added that the CRCCs and headmasters were provided with “CDs to show with a projector” [training DVD] to teach about the NIPI programme, but he said that “I am not sure to what extent it has been done.” Instead, he said, CRCCs learn about NIPI through the BEO monthly meetings and that CRCCs meet with the BEO and ABEO regularly.

Education officials in one district said that CRCCs and headmasters were called to hospital for a 1-day training at the block level before the National Deworming Day. The training included information on IFA in addition to deworming.
SMCs in three districts said that they did not receive training about the iron tablet, but learned about NIPI from the headmaster and through meetings at schools. One SMC expressed dissatisfaction on their understanding of NIPI by saying: “We are the tribal people. There is no training for us...We are not told enough.” A general finding was that through school, the SMC gets training on a variety of topics, mostly management, not health, and so there is a platform on which NIPI information could be added.

Most teachers said they did not receive training but their CRCC told them about the IFA side effects. They added that “When it became regular practice, there was no need for training. If there was any problem, we could ask them.”

**DO STAFF AND WORKERS THINK THEY SHOULD GET TRAINED FURTHER?**

The most common reply to this question when it was directly solicited was a simple yes, but without elaboration or conviction, e.g., “Yes more training would be good” or “Training is always needed, no matter how much one knows.” In the quantitative portion of the NIPI process documentation, high proportions of field level workers also answered that they felt the need for more training (81% of 37 ANMs, 79% of 219 ASHAs, and 83% of 233 AWWs).

In addition, a group of ICDS Supervisors elaborated that “Training is required… but more than that practical exposure is required...like, ANM didi should come, ASHA should come, beneficiaries should also come...then after one day verbal training they should go to the medical and things can be demonstrated to them.” Also, an RBSK Team thought all teams should receive more training, including about their role in NIPI, since the teams screen and refer as needed but do not treat.

In one case only, an education official responded about training in a way that reflected educationists' early resistance to NIPI and to giving IFA supplements in school – he said he was not interested in training because it is a teacher's duty to teach, and IFA administration should be done by ASHAs or medical or AWWs.
5. ADMINISTRATION OF THE INTERVENTION

This section reviews results from the qualitative study on administration of the IFA supplements, then quantitative results on coverage, knowledge and providers and also on the prevalence of anaemia among adolescent and adult beneficiaries. It then reviews additional qualitative results on the recording and reporting mechanism for IFA supplements and albendazole, on the diagnosis, treatment and referral of anaemia patients, and on the emergency response preparation for adverse events.

ADMINISTRATION OF IFA SUPPLEMENTS

PLW -- Health Department

As described in the Background section, guidelines specify that non-anaemic pregnant women should receive daily IFA red tablets for 180 days (1 tablet per day for the 30 days of each month, for the 6 months of the 2\textsuperscript{nd} and 3\textsuperscript{rd} trimesters). They should also take 180 tablets during the first 6 postnatal months. When women are anaemic (Hb <11.0), they should double the daily dose during pregnancy and during lactation. If anaemic throughout, this means they would consume a maximum of 720 IFA red tablets, 360 during pregnancy and 360 during early lactation. Tablets were commonly described as being dispensed to pregnant women monthly – 30 at a time if not anaemic and 60 at a time if anaemic, occasionally 50 tablets given twice was reported if ANMs thought the total to be given was 100.

Earlier guidelines for IFA administration among pregnant and lactating women recommended a lesser number of tablets -- 100 during pregnancy and 100 during lactation, 200 each if women were anaemic. In three out of the four districts, more respondents (mostly ANMs, ASHAs, women and BPMs) were aware that 180/360 tablets should be given to women during pregnancy, whereas in one district more respondents thought that 100/200 should be given.

Distribution and Consumption of IFA Tablets by Pregnant Women

For the 6-month period of the 2\textsuperscript{nd} and 3\textsuperscript{rd} trimesters of pregnancy, some ANMs and ASHAs 1) reported correctly that the number of tablets to be consumed was 180 or 360 if anaemic, but others did not, 2) mentioning the old dose of 100/200 tablets, or 3) mentioning that women would take tablets for less than 6 months, or 4) falling short of 180/360 due to miscalculations.

Women frequently reported taking two tablets per day during pregnancy, and they reported starting early at the beginning of the 4\textsuperscript{th} month of pregnancy (after most register their pregnancy in the 1\textsuperscript{st} trimester), yet most women did not report consuming 180/360 tablets. The number of daily tablets and the time women started taking them are not the limiting factors in their total consumption of tablets during pregnancy. The main gap seems to be in getting enough tablets to women throughout the 6 months of the 2\textsuperscript{nd} and 3\textsuperscript{rd} trimesters and ensuring their compliance.
Possible reasons for the total number of tablets not reaching 180/360 could be: 1) periods without IFA consumption between one set of tablets and the next, 2) distribution of tablets limited to 3-4 months instead of 6 or to 100/200 tablets instead of 180/360, and/or 3) women do not consume IFA tablets regularly – pregnant women admitted forgetting to take, and not taking, though they may be telling the ASHA otherwise. Further clarifying the guidelines, the monitoring, and the promotion of 180/360 tablets during the 6 months of the 2nd and 3rd trimester is warranted, with fieldworkers being encouraged to give the full amount and the sector, block and district officials reinforcing that they should and reducing any constraints in implementation.

Another way for women to get 180/360 tablets during pregnancy is to ask for more as soon as they finish their previous packet. This was only mentioned once by an ASHA -- “We are giving in VHND; if it is over, they are asking for more” – but it was not confirmed in any group of PLW or mothers. Thus asking for more IFA tablets is probably not a common practice. This reflects that the demand from community for IFA tablets remains poor, which in turn identifies the gaps in improving community awareness on importance of IFA tablets. It is therefore warranted that awareness among PLW on importance of regular consumption of IFA tablets be built. This can gradually strengthen demand and women will then inform FLWs when they are nearly at the end of their supply of tablets.

**During Lactation, Low Emphasis on IFA Consumption**

The focus on getting IFA red tablets daily to women during the 1st 6 postpartum months (double dose if anaemic, as in pregnancy) is much lower than during pregnancy. Several health officials expressed what BPMs in one district said: “For pregnant women, the programme goes well. After delivery it goes slow. The people have less practice. During pregnancy, ASHA is there to monitor. That is why it is a success.” Several sets of AWW and ASHA fieldworkers indicated the same, saying that generally women are enthusiastic to take IFA during pregnancy, but not after delivery during early lactation, and one group was specific about the perceived reason, saying “They hesitate to eat the medicines with a fear that their milk may get dried up.”

Lactating women in two districts said they did not receive any IFA tablets for lactation, whereas those in two other districts said they received IFA tablets at delivery to take during lactation. Fieldworkers painted a similar picture about women getting tablets in some areas and not getting in others. In another district, ICDS Supervisors said that women would be given IFA tablets during lactation only if they were still anaemic and until the anaemia was gone, while AWWs there said anaemic women would be given just for one month after delivery, and ASHAs there said “Lactating women had not yet been given IFA.”

**Children 6 months-3 years --- Health Department**

**Who Administers the IFA Syrup?**

The most comments about this age group and IFA syrup were about whether the mother or the ASHA administered the syrup to the children, and who kept the syrup. Children 6 months-3 years
received their IFA syrup on Tuesdays and Fridays after meals in several different ways: 1) from their mothers at home with the ASHAs visiting homes to check that it was given; or 2) directly from ASHAs when ASHAs visited their homes twice per week; or 3) from ASHAs at AWCs, where they call mothers and children to receive all at once, then visit the rest at their homes. The guidance suggests only that the ASHA should support consumption by the youngest children, which leaves open all these options. In most cases, the bottle is stored with the mother at the children’s homes. There was no resistance reported from parents or others to their children 6 months-3 years receiving IFA syrup. In one district where respondents told that mothers gave the IFA syrup to their children and ASHAs visit their homes to check, thinking that the guideline was more rigid, an MO I/C said “Though the guideline says the ASHA should give”, it is not possible for them to reach all the children twice each week.”

Some of the variation in who administers IFA syrup to children, seen in different blocks and districts, may have come from workload – one ASHA said she had 115 children 6 months-3 years and would not be able to reach all unless she called them to the AWC. Some of the variation may have come from variations in available IFA syrup stock with ASHAs. Giving mothers the responsibility of administering IFA syrup, with ASHAs playing a supervision and handholding role would only be possible if ASHAs had sufficient number of bottles (one per child) to hand over to all mothers. In one area, mothers reported that they gave the syrup to their children every day (instead of just twice per week), indicating the importance of the ASHA monitoring administration at home.

There did not seem to be advice from frontline workers or Health/WCD officials about action to be taken for a missed dose of syrup amongst children 6 months-3 years. One group of women said: “And if we forget giving then we tell didi [ASHA] that we have not given and we are forgetting, and she asks why we didn’t give…” but she doesn’t mention taking the missed dose on another day. In the other categories of children and adolescents, frontline workers know how to advise about missed doses.

**Incentive to ASHA for administering IFA syrup in homes**

ASHAs are supposed to be “suitably incentivized“ for providing or directly supervising the provision of IFA syrup to children 6 months-3 years twice each week\(^{36}\). The incentive is meant to be Re. 1 for 8 visits per child (over one month). In comparison to other incentives for ASHAs, several district health officials commented that the Re. 1 incentive for 8 home visits per child per month was too small and should be raised.

Most of the respondents across all four districts, all levels from district to field, and in the Health and ICDS Departments agreed that ASHAs have never received this incentive. Many (from a number of levels, e.g., a DMRCH and BPM) confirmed that ASHAs are supposed to receive this incentive. One BPM concluded that “There is an official communication, but no mechanism has been decided to

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\(^{36}\) Guidelines for Control of Iron Deficiency Anaemia: NIPI, NRHM, 2013.
work on it.” Only two group of ANMs in two districts made it sound like the incentive was being given to ASHA, saying: “The ASHAs maintain records in written format. They give a voucher. We check the ASHA diary.”

**Children 3-5 Years -- ICDS**

As reported by many, AWWs give IFA syrup to children 3-5 years on Tuesdays and Fridays at the AWC after the daily ICDS feeding, as laid out in the guidelines. They store IFA syrup bottles for the children at the AWC, in one case describing that bottles were dedicated to children, and in another case that separate bottles were not maintained for each child. AWWs give from the auto-dispenser, which is well-liked because of the ease of dispensing exactly 1ml of syrup to the children. There was no resistance reported from parents or others to their children 3-5 years receiving IFA syrup.

While the qualitative data collection could not quantify IFA coverage, one comment suggested that not all children 3-5 years received the syrup. ANMs in one district said: “But some children are going to Sishu Mandir. How will they get? Their guardians are demanding...that they want a bottle for their home and they will administer it at home.... But we cannot give. If government will order then we will give.”

If an IFA syrup dose was missed on a Tuesday or Friday, AWWs, ICDS Supervisors, mothers and others reported alternatives. Children could receive after the next day's ICDS hot cooked meal, or they could receive at home by an ASHA or an AWW.

**Adolescent Girls out-of-school (10-19yrs) -- ICDS**

As a DSWO summarized about the Saturday sessions: The adolescent girls come every Saturday to the AWC after eating at home. From 2pm to 5pm an interactive session is organized every Saturday. At the beginning of this session, adolescent girls are given IFA tablets which they consume under supervision, per the NIPI guidelines. In the session under the SABLA programme, counselling on health and life skills is also provided. Weight and height are measured for BMI calculation. “They are eating. It has become a practice.... They are telling that they feel active. Their menstrual cycles have become regular. Those who have black stool, are being assured by other girls saying that nothing worse will happen.” One set of girls, however, is not as positive, saying that they do not like the taste and smell of the IFA tablets, and it makes them nauseous. They are only taking because of being forced by parents.

The main reasons many respondents cited for adolescent girls out-of-school not attending on Saturdays are that they live far from the AWC and they have responsibilities at home. For junior college girls, the reason is different. Since they take classes on Saturday, they can only reach the AWC afterward by 4pm and with an empty stomach. Girls who come to the AWC under this circumstance tend to take their tablets home and consume after a meal, while others girls do not come to the AWC.
The alternatives for getting IFA tablets to those who do not attend the session, as cited by the respondents were that: 1) AWWs would make a home visit to girls who had not attended a Saturday session and give them a tablet, 2) ASHAs would make a home visit to give them a tablet, along with home visits to PLW or children U3, 3) girls could come to the AWC another day of the week to receive a tablet, and 4) tablets would be sent home with other Saturday participants.

In non-SABLA districts most respondents also expressed that more girls would come to the Saturday sessions if there were more incentives, e.g., a meal was served, or take home rations or an egg were given. “There is nothing for adolescent girls, that’s the problem”, said an ICDS Supervisor. Respondents also reminisced that the programme for adolescent girls at the VHND was better – they would receive overall health checkup and haemoglobin assessment, in addition to receiving the IFA tablets and an interactive counselling session.

**Adolescents11-19 – WIFS -- Education Department**

The most comments on implementing the NIPI programme were heard about adolescent students consuming IFA blue tablets at school. While the Health and WCD Departments have been promoting IFA consumption or similar efforts for many years, and had coordinated on them together, the Education Department was new to implementing such programming in 2014, and in many blocks and clusters, was resistant to dispensing tablets, which they saw as the work of health officials. Much of the resistance has dissipated in the two years of implementation before the process documentation began, though some were still nervous. As one teacher expressed: “In 2014-2015 it was not a success. We did not force the children to consume IFA tablets. In the last years we have got habituated. From 2015-2016, the programme implementation has been going well.”

**Basic Implementation**

A BPM said that a blue booklet was sent to each school in 2014 with information about administering NIPI in the schools. He told teachers that IFA is not a medicine, rather a food supplement. The BPM, numerous CRCCs and other educators consistently reported that children are to take IFA blue tablet on Mondays right after the MDM provided in Standards 6-8, and a tiffin meal packed from home in Standards 9-10, since those in Standards 9-10 do not receive the MDM. One set of teachers said they distributed tablets on Wednesdays because they had found that attendance was highest on Wednesdays. Also, school children bring their own water, and take plenty with the IFA tablet, because there are water problems at the schools. IFA blue tablets are not provided to junior college students (Standards 11-12) at the junior colleges, he said, but these girls can receive their tablets by attending the sessions for adolescent girls on Saturdays at the AWC alongside out-of-school girls. Additionally, a CRCC reported that they tell headmasters and teachers not to give IFA tablets to any children who are sick, and teachers also reported that they do not give an IFA tablet to any student who is sick.
Most groups of adolescent girls and boys confirmed that they are given IFA tablets every Monday after the MDM and that their consumption is recorded. They reported that the IFA tablets are blue and the deworming medicine they take twice each year is white – they swallow the IFA tablet with water and do not chew it. One group of adolescent girls revealed that IFA tablets were not being distributed in their school. Few other adolescent groups, who said IFA tablets were being distributed in schools and that they were consuming these, however, were unable to describe the colour of IFA tablets. These groups did describe the colour and process of taking albendazole tablets, which seemed to be more popular across respondents and across districts, compared to IFA tablets.

In a residential school with some day scholars, a headmaster explained that students who board receive IFA tablets after the prayer session and 10am meal at the hostel, whereas the day scholars receive them after the MDM at 1 pm. ANMs distribute the tablets in a residential school.

Teachers in some schools try to give dietary and hygiene counselling in addition to giving the IFA tablets and albendazole. “We tell them that, besides tablet you should also eat health foods regularly. Take nutrients in home. Only taking tablet will not work. You need to eat proper diet also. Along with taking albendazole, you also have to make sure you wear sandals when you go to the latrine and wash your hands properly with soap.”

If a student misses taking an IFA tablet on a Monday, many respondents said they would be given the next day at school. Only one set of boys and one set of teachers said that a tablet would be sent with a friend to deliver in the afternoon at the person’s house with instructions to take after dinner.

**How IFA Tablets are Distributed at School**

While all schools give IFA blue tablets every Monday, there are variations on who is responsible for organising the distribution, who distributes the tablets, and where they are given within the school. Regarding the responsibility, in most S&ME schools there is a nodal teacher or coordinator organising the WIFS programme (and another for WIFS Junior among the children in Standards 1-5), but in one school the teachers shift the tasks among themselves and the headmaster is responsible for oversight. In residential schools, an ANM assigned to the school is the one responsible.

**Are Teachers Consuming IFA?**

Results were mixed on whether the teachers consumed IFA in front of their students. One set of teachers who reported on this from a school said that they always eat in front of the students. Three sets of CRCCs also commented – one said the teachers they oversaw ate the tablets, another said that at first they were reluctant, but now they like to take, and the third saying that the students would not take the tablets unless and until their teachers took. In one area, even the SMC, a group of parents and some teachers who assist with school management issues and can oversee events like IFA distribution, reported taking IFA tablets on the Monday they were at school. However, all the
groups of adolescents who reported on this topic said they had never seen their teachers take an IFA tablet.

**Consumption by Students in 9th-10th Standard**

Students in Standards 9 and 10 do not receive a MDM in school, but they receive IFA blue tablets on Mondays. There are several different times that these students are given the tablets so that they are not consuming on an empty stomach, which has the chance of causing dizziness. Many reported that they give or receive the tablet soon after arriving at school, after the prayer class, having eaten at home ahead of time. The teachers worry about giving tablets to students on an empty stomach, and so always check that they have eaten at home before giving. Interestingly, in one school, a trust brings additional lunch food, so that all students are offered food at lunch time. As an adolescent boy there explained, they receive MDM when there is surplus, and there is always surplus. Finally, in one case of day scholars at a residential school, the IFA tablet is given to the students on Mondays to take home and consume in the evening.

**School Holiday**

Results from the 4 districts (6 blocks) were reviewed against the guideline for the major school holidays in May and June that the tablets are to be provided to the students with counseling for consumption at home\(^{37}\). There was not a consistent practice of giving tablets during the school holidays. One to seven respondents in each block gave information about IFA during the holidays – adolescent girls and boys, teachers, headmaster, CRCCs, RBSK Teams, and others. Almost all respondents in one district told that they gave or received tablets for the school holidays, while in another district almost all said they did not give or receive, and in the other districts the responses were mixed. More clarity on guidelines and implementation of IFA consumption during the school holidays is recommended.

Interestingly, the AWW and ASHA were involved in the distribution of IFA tablets during the holidays in two areas. In one district, a group of school-going girls said they were receiving blue tablets on Saturdays at the AWC from AWWs, and that if they did not attend an AWW would visit them at their home to give the tablet. In another area, a CRCC said and an ASHA confirmed that the schools handed over tablets for the school holidays to the ASHAs or AWWs near the students’ homes for distribution on Mondays. The ASHAs said they kept the tablets with them, and watched the students consume the tablet in front of them on the Mondays during the school holiday.

**Fears and Low Compliance Still Exist**

Teachers and others in the Education sector in a few areas still fear that giving IFA tablets may cause ill effects among their students, draw media attention, cause black stools, or that the tablets may reach their expiry date and then be dangerous. Their fear sometimes resulted in low compliance

\(^{37}\)Ibid, Operational Guidelines for WIFS in schools.
among the students and other times the teachers gave tablets to their students despite lingering doubts. Comments expressing fear came most frequently from three blocks, but they were expressed in all areas.

The most classic and common comments about fear of the IFA tablets were, fortunately, about fear resolved. For example, one set of school-going adolescent girls estimated that at the beginning of the NIPi programme only 10 out of 71 students took the tablets, but gradually everyone began to consume, seeing the others take. In another example, a CRCC described: “No one was eating in the 1st year. The stock was just thrown out. Means we hide it, put in sacks and buried it in the ground. We told teachers to throw it. Why, because again 'News Fuse' will come. Don’t throw outside, bury it. So it couldn’t work out in the first year, coverage was very less, only 30% students ate it. It is working in the 2nd year – it is 90-95% now.”

Fear was expressed in the following ways:

- **Teachers** – “We give them the tablet to eat, then we give them water to drink. Still there remains a fear in the mind. The children may fall into some problem.”
- **RBSK Team** – “In this block children do not go to school or AWC everyday. Even if they come, they do not eat medicine regularly. They are afraid about side effects and they do not eat tablets out of this fear.”
- **SMC** – “Teachers are not willing to take the risk. They get afraid to give. We returned albendazole. In the TV it was told that children suffered due to albendazole. Then immediately they stopped.”
- **BPM** – “But some teachers are reluctant to take risks along with the program guidelines. Like they fear some discrepancies may happen with medicine distribution. Because we get regular news about ill effects of medicines and we had cases here about the side effects of medicines. Hence they were scared.”
- **RBSK Team** – In some schools they are giving after MDM. In all schools it is not given. They are not ready to take the risk. Headmaster is telling like this… We want to complete the medicine before one or two months of the expiry. It is dangerous to eat in the last month.”
- **Teachers** – “We have no problem. We are doing the job well. We only get afraid when there is expiry in medicine. We give after checking the expiry date.”

And the following statements emerged about students not always taking IFA blue tablets on Mondays at school:

- **CRCC** – Due to their fear, teachers do not insist that all the students will consume it. They are only giving to those who ask for it.
- **RBSK Team** – “Around 60% of schools are giving medicine, rest 40% are not.”
- **Adolescent girls and boys** – Four sets of adolescents who were interviewed or referred to could not identify the colour of the IFA tablets they claimed to be taking. After the formal recording of one group’s interview, girls admitted that they had never been given the IFA tablets.
Adolescent boys – One set of boys estimate that half of the boys they knew threw their tablets away through the window each week, and some also threw away their albendazole tablets.

RBSK Team – One team said that there is resistance to IFA tablets in schools throughout the block, with perhaps 60% not taking.

DPC/SSA – Without giving a reason, the DPC/SSA estimated that only 30-40% of students are taking the IFA in his district.

Two sets of adolescent students told of tricks used to pretend to take the IFA tablets. The girls said that in an earlier Standard, there were four students who did not want to take, so they would keep the tablet in their mouth, then spit it out later. The boys had a longer list of ways to pretend: put the tablet in one hand and pretend to take it with the other, put under the tongue or beneath the teeth and spit out when away from the teacher, and swallow it but then invoke a gagging reflex shortly afterward.

While a few respondents still requested that medical staff distribute the IFA tablets in schools, as many had at the beginning of the NIPI programme, several more were requesting more involvement by the Health Department. For example, one set of teachers said they would like for health staff to visit their school on occasion. This would give credibility to the NIPI efforts and convince the parents. Indeed, this is the kind of effort reported that persuaded teachers, parents and other community members that the benefits of IFA and albendazole were great and the possible side effects manageable in areas where the programme has high coverage.

**QUANTITATIVE SURVEY: COVERAGE, KNOWLEDGE, PROVIDERS**

Reported in this section are results of the quantitative survey conducted during the NIPI process documentation exercise in Odisha April-July 2016. Interviews of beneficiaries – adolescent boys, adolescent girls, pregnant women, lactating women, and WRA – and of frontline workers – ANMs, ASHAs and AWWs -- were conducted to investigate the coverage of and compliance to NIPI interventions, beneficiaries' health seeking behaviour with regard to anaemia detection and treatment, and the preparedness of health facilities to diagnose and treat anaemia. Hb levels were assessed using Hemocue 201, and compared to WHO cut-offs to estimate anaemia prevalence\(^\text{38}\).

**Knowledge of Symptoms**

Respondents were asked whether they had heard the term anaemia. Those who answered positively were then asked how they would know if they had this condition (symptoms). Less than

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20% of these respondents reported knowing the symptoms of anaemia (Figure 3), despite the NIPI programme's intention that this be taught at all levels. The beneficiaries as well as the frontline workers, felt that the most common manifestations of anaemia were giddiness, weakness or tiredness.

Hardly any beneficiaries or frontline workers, however, related poor scholastic performance with anaemia. A higher proportion of frontline workers had knowledge of anaemia symptoms than the beneficiaries. There was not much difference among beneficiaries in the proportion with correct knowledge.

**Figure 3. Knowledge of clinical presentation of anaemia among beneficiaries and frontline workers**

<table>
<thead>
<tr>
<th>Health-seeking Behaviour</th>
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<tbody>
<tr>
<td>Respondents were asked for one thing they would do if they felt anaemic. Regarding health-seeking behaviour, 36% - 48% of respondents said they would inform either their parents, if adolescents, or their husbands, if PLW, when they suspected anaemia-related symptoms (Figure 4),</td>
</tr>
</tbody>
</table>
suggesting parents and husbands are key targets for Information, Education and Communication (IEC) on anaemia. Even more respondents said that they would seek treatment.

**Figure 4. Preferred health-seeking behaviour of beneficiaries with anaemia-related symptoms**

Beneficiaries' preferred providers are shown in Figure 5. Those who said they would seek treatment were asked who they would seek it from. The vast majority said they preferred a government doctor in a health centre (86-97%), while only a few said they preferred a private doctor (2-9%). The reported median distances of these government centres are around 5km from their residences (2-10 km), while the offices of private doctors were even further, around 8 km (1-22km). Very few reported preferring frontline workers like ASHA, ANM, or AWW (5-6%).

Frontline workers were asked how they would respond if their clients approached them with signs and symptoms of anaemia. Most said they would give an IFA tablet (48-54%); 38% of ANMs and 6% of ASHAs and AWWs said they would conduct a Hb test; and the rest of the ASHAs and AWWs said they would refer these people to health centres (34-40%).
**Haemoglobin Assessment: Knowledge and Coverage**

Only 50-62% of beneficiaries interviewed knew of any blood test for anaemia diagnosis. Among those who reported they would seek treatment for anaemia-related symptoms, however, a higher proportion knew (73%-82%). Among those who knew that there was a blood test for anaemia, most said they would prefer visiting a government doctor at a health centre for treatment (85%-95%).

Of those who sought Hb testing in the last six months, the majority were pregnant women -- 55% were pregnant women, 37% lactating mothers, 9% adolescent girls, 4% adolescent boys, and 9% other WRA.

**Facilities: Equipment and Stocks**

In sub-centres managed by ANMs, 82% had a functional Sahli’s hemoglobinometer for the purpose of diagnosing anaemia. However, when pregnant women were tested, the test was conducted at VHNDs, and very few were done at sub-centres (average 37 per month per sub-centre, with 21% not conducting any Hb tests). The overall standard of care was difficult to assess, e.g., quantity of IFA tablet prescribed, referral status of anaemic patients, response to treatment, and attempts to rule out other causes of anaemia at sub-centre level, since only 26% of sites had anaemia referral registers. Also, none of the sites had IEC material on display. Regarding stocks, 41% of sub-centres had a stock of IFA syrup, 63% had IFA tablets, and none had iron injections at the time of survey. This is not surprising given that the sub-centre is not designed to handle many referrals, and the ANMs based at the sub-centres see pregnant women and other beneficiaries at the VHNDs.
The PHCs reviewed in the survey had even less equipment and stocks of IFA available than the sub-centres. Only 41% of PHCs had an allopathic doctor available to provide care, and only 5% had laboratory technicians available for blood diagnostic services. None of the PHCs had a functional haemoglobinometer. Regarding stocks, none had any stock of IFA syrup, only 8% had IFA tablets for treatment purpose, and only 5% had iron injections available at the time of the survey. Barely 4% PHCs had records of anaemia patients being referred out for further treatment and same number had some IEC material related to anaemia on display in the premises. Anaemia diagnosis was made in only about 2.7% of OPD patients during the previous month as per the OPD registers. This is consistent with results from the qualitative study in which no beneficiary mentioned being referred to the PHC for anaemia treatment.

CHCs, on the other hand, had more equipment, but their stocks were low. Most centres (88%) had a functional Sahli’s hemoglobinometer. Regarding stocks, only 25% of CHC facilities surveyed had stock of IFA syrup, but this is consistent with reports from the qualitative study that all IFA syrup in the supply chain was passed down to the ANMs for distribution to young children by the ASHAs and AWWs. Also, only 75% had stocks of IFA tablets. Although there had been a nearly state-wide shortage of IFA red tablets for a number of months prior to the qualitative interviews, all stocks should have been replenished by the time of the quantitative survey, including to 100% of CHCs.

**Coverage of IFA Supplements and Reasons for Low Coverage**

Coverage of IFA supplementation was estimated among adolescent and adult beneficiaries and frontline workers. Among beneficiaries interviewed, 38% of adolescent girls, 16% of adolescent boys, 73% of pregnant women, 46% of lactating mothers, and 52% of under-five children were reported to have consumed IFA tablets/syrup in the previous month.

The most common reasons cited for not consuming IFA tablets among adolescent boys and girls who did not consume them were being on school holiday and that they were not informed (Figure 6). Given the many respondents from the qualitative study who reported they did not receive IFA tablets during the school holidays, and given that during one of three months of the quantitative survey (June) the school-going adolescents would have been on school holiday for the previous month (May), it is not surprising that about one-third of the students cited school holiday as a reason for not consuming IFA tablets. The “not informed” reason for not consuming IFA tablets, on the other hand, could have a variety of meanings among the students. Interestingly, the girls gave the reason of disliking the taste of IFA tablets more than the boys (17 vs. 4%). The “fear of side effects” reason for not consuming IFA seemed surprisingly low compared to the fears frequently mentioned in the qualitative study, and yet it is consistent with the teachers and other education officials being the more fearful ones compared to the students themselves.

Pregnant and lactating women who reported not consuming IFA tablets also cited “not informed” as the most common reason for not consuming them (Figure 7), while mothers of children under five who did not consume the IFA syrup cited “not informed” (45%), house not being covered by the AWW (17%), child does not attend AWC (6%), or refused syrup (5%) as reasons for their child not receiving it.
Frontline workers reported on the beneficiaries they were responsible to supply with IFA syrup and tablets (Figure 8). Women mostly received IFA supplements from ASHAs (60%), but also from the AWWs who frequently helped at VHNDs and home visits (23%, Figure 6). ASHAs frequently said they were the ones who were supposed to give IFA to women (60%), and so did the AWWs (23%).

In addition, 51% of AWWs said they were ones to give IFA to school-going adolescent girls, which was surprising because the NIPI guidelines indicate that teachers should be the ones providing IFA at school. Some of the girls may have been reporting that they were provided IFA tablets during school holiday by AWWs, but this is unlikely to explain the full 51%, since adolescents are supposed to be given IFA at school beforehand and take it at home on their own during the weeks of the holiday.
Frontline Worker Knowledge of IFA Dosages

Frontline workers were asked the dosage of IFA to be given to each of the beneficiary groups under NIPI (Figure 9). Knowledge tended to be low. Only about 50% of AWWs knew the dosage of the beneficiaries to whom they administered, children 3-5 years old and adolescent girls who had dropped out of school, and even lower among adolescent girls in college (about 30%). Similarly, only about 50% of ANMs and ASHAs knew the dosage for young children 6 months-3 years old, though their knowledge of dosage was higher about the dosages for pregnant and lactating women (77-84%).
Stocks

ASHAs and AWWs were surveyed about their availability of IFA supplements according to beneficiary. In most cases, only a small proportion thought stocks were adequate. Among ASHAs, stocks of IFA syrup for children under 3 years were adequate according to 15% of them in Kalahandi ranging up to 49% in Keonjhar. Stocks of IFA tablets for PLW were adequate according to 27% of them in Kalahandi ranging up to 81% in Keonjhar.

Among the AWWs, stocks of IFA syrup for children 3-5 years were adequate according to 4% of them in Kalahandi ranging up to 45% in Bhadrak. Stocks of IFA blue tablets for adolescent girls out-of-school were adequate according to 13% of them in Kalahandi ranging up to 64% in Jagatsinghpur. And stocks for girls in junior college were adequate according to 4% of AWWs in Kalahandi up to 36% in Jagatsinghpur.

QUANTITATIVE SURVEY: PREVALENCE OF ANAEMIA

Anaemia was high among all beneficiary groups and frontline workers whose Hb was assessed in the survey (Figure 10, blood samples were not drawn from young children). Among beneficiaries, it was most prevalent among lactating mothers (77%), followed by WRA (71%), pregnant women (69%), and adolescent girls (68%). Among the frontline workers, anaemia was most common
among ASHAs (69%), followed by AWW (62%), and ANMS (53%). Anaemia may be less prevalent among pregnant women than among lactating and non-pregnant, non-lactating WRA due to the many years of providing IFA tablets to pregnant women, but their prevalence is still unacceptably high. Fortunately, the prevalence of severe anaemia is low (1-3%), but the prevalence of moderate anaemia (7-20%) and of mild anaemia (39-58%) is very high. These prevalence estimates are consistent with the number of PLW women, frontline workers and other officials who reported during the qualitative study taking a double dose of IFA tablets during pregnancy following Hb assessment indicating anaemia. They are also consistent with a number of respondents saying that they hardly ever see a case of severe anaemia. It is notable that the prevalence of anaemia among adolescent boys is not far behind that of adolescent and adult women.

Figure 10. Prevalence of anaemia among beneficiaries and frontline workers
Prevalence is also shown by district and the five main beneficiary groups (Figure 11). Among the districts, anaemia is most prevalent in Keonjhar (75-87%), but only a bit lower and similar amongst the other district-beneficiary groups in Jagatsinghpur, Bhadrak and Kalahandi (57-81%). Among the beneficiary groups taken together, anaemia prevalence is similar. Among the individual beneficiary-district groups, anaemia was of the lowest prevalence, but still high, among pregnant women in Jagatsinghpur (57%) and of the highest prevalence among lactating women in Keonjhar (87%).

**Figure 11. Prevalence by district and type of beneficiaries**

These prevalence estimates compare similarly to anaemia and severe anaemia data reported in the 2014 Annual Health Survey, despite using different methods for assessing haemoglobin (see Tables in Background section).

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DIAGNOSIS, TREATMENT, REFERRAL, FOLLOW-UP AND PERCEPTIONS OF PREVALENCE

Information on this topic is divided first by life cycle – children, who are addressed largely through the screening work of the RBSK Teams, and women, who are addressed largely during VHNDs. Under each life cycle section are described how the RBSK or VHND mechanism works on anaemia, how the mechanism educates its beneficiaries, how it refers those who may be anaemic, and how anaemia is detected. A brief section showing the perceptions about anaemia prevalence is presented, as well as recommendations. See Box 4 for key messages.

Children 0-6 Years and Adolescents --- RBSK

This section covers predominantly the young children who are screened by the RBSK team at the AWC and adolescents in school who are screened by the RBSK team at schools. There were only a few comments on the adolescent girls out-of-school being screened by the AWWs, as specified in the guidelines, and these are featured in this section.

How RBSK Works on Anaemia in Schools

RBSK Teams from the six blocks in which interviews were conducted as well as several CRCCs told us the following about their work screening children in secondary schools for any health conditions. If fully staffed, each team is composed of one male doctor, one female doctor, one nurse/ANM and one pharmacist. A block typically has 2 or 3 teams. Odisha state has 640 teams. A team can screen up to 150 students per day (or up to 90 children at an AWC). Adolescents not attending school are not screened. If students are absent on the day the RBSK team visits, a teacher can send for them at their homes so they can be checked by a doctor. Due to vacant positions, one of the RBSK teams covered under the study was composed of only a doctor and a nurse, and they could only screen 75 students per day (and 45 at an AWC).

Box 4. Key Messages (Diagnosis)

- Hb concentration is not tested among young children, school children or adolescents out-of-school, only among pregnant and perhaps lactating women; instead the visual pallor technique is used, which detects only severe anaemia.
- Without assessing Hb concentration, it is difficult for RBSK Teams and AWWs to follow GOI NIPI Guidelines for treatment of mild and moderate anaemia among all children, 0-18 years.
- Recommendations are to expand the education role of the RBSK, upgrade the Hb assessment method from the pallor technique to an Hb test, perhaps a field-based haemoglobinometer to identify all anaemic children in AWCs and schools, and also screen adolescent girls who are out of school.

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40 Implementation of IFA blue tablets to adolescent children in Standards 6-10 were investigated in this process documentation, but not IFA pink tablets to children in Standards 1-5 because the implementation of this component of the NIPI programme was at a nascent stage when the process documentation was conducted. It is hoped that many lessons from implementation among the adolescents could apply to the younger students.
Students are screened for 38 conditions, and children in the AWCs for 30 conditions. Adolescent students get additional questions about menstruation and puberty. One team described the 4D’s: “In our screen we have defects of birth, deficiency, disease and developmental review.” RBSK Teams do not conduct any laboratory tests, but look for clinical signs. They have 27 medicines with them to treat a limited set of conditions they find among the students and young children – fever, cough and cold, and skin diseases. According to a Block Pharmacist, there is no guideline or rule about which medicines the RBSK Teams can use for treating children when they screen. He gives medicines to the RBSK Teams when they ask for them. The Teams are demanding a greater number of medicines. “CDMO sir last time instructed me to give them more paediatric medicines.” All other serious illnesses or conditions are referred elsewhere, mostly to the CHC. The teams screen at schools 5 days each week and conduct a referral day on the 6th, transporting students and young children referred during the week to the referral center.

The three teams in one block serve 269 schools, including residential schools, and 292 AWCs. According to guidelines and the RBSK Teams themselves, they visit S&ME schools once per year, SC/ST schools four times per year, and AWCs two times per year. Many respondents think that RBSK Teams visit S&ME schools twice per year. One team described how they organise themselves to screen at so many schools and centers, saying that whenever they visit a school or AWC, they inform the HM or AWW in advance of the date and time. Usually, when they visit a school they reach there by 10am and stay till 4pm. For AWCs, they reach by 8am.

Another role of the RBSK Team is to respond to a report of adverse effects from IFA. Occasionally, in schools with complaints from parents and hesitation from teachers, RBSK gives the IFA supplements to students in schools they visit on a Monday, the IFA distribution day in schools. They seek to be accessible in the schools, giving the headmasters and teachers their mobile numbers. If there is any medical emergency, they can call and the RBSK can facilitate transportation for the student and teacher to the CHC.

In addition, MHU Teams were mentioned during interactions at Kalahandi and Keonjhar/Harichandanpur SC/ST residential schools. They preceded RBSK Teams, but still served the residential schools. In Kalahandi, a BPM reported that his block had 3 RBSK Teams and 2 MHU Teams. According to an ANM posted at a residential school, the MHU Team visited every two months, more frequently than RBSK Teams visit currently. In addition, they give a physical examination, give medicine as needed, and if a child is seriously sick, they refer for medical care, coming back to the school another day to transport the child, along with the ANM, to a CHC or elsewhere as needed.

How RBSK Works at the AWC

ICDS Supervisors in one area reported that families are told the day ahead of time that RBSK will be at the AWC next morning. Children 6 months to 5 years are screened twice per year similar to the students in school, including anaemia detection with pallor technique. If they have a serious condition, they are referred to the CHC or district hospital, if a less serious condition then to the PHC.
The RBSK Team discusses with ICDS Supervisors and AWW how to tell the mothers about keeping children clean and well fed. They provide transportation to the health centre for the child and a parent on referral day. ICDS Supervisors in another area said they appreciate the RBSK Team because they give a lot of support, including screening and transportation for referrals.

**Adolescent Girls out-of-school – Limited Reports of Screening for Anaemia**

Anaemia and Hb testing for adolescent girls out-of-school was mentioned only a couple of times. A district health official in Keonjhar said that they have been tested for Hb in selective cases when there are clinical signs of anaemia, though was not specific about where this testing would occur. ANMs in Jagatsinghpur reported that, though not in the protocol, they also perform Hb blood tests on adolescent girls, whom they knew well from the *Kishori Shakti Yojana (KSY)* programme for adolescents, before it was ended. Adolescent girls in Keonjhar who were out-of-school said that a few of them had had their Hb tested at the CHC and several more as part of a survey that came through their village. One in Jagatsinghpur reported that she had her Hb tested at a health fair. While girls being tested for Hb seemed to be the exception, ICDS Supervisors in Keonjhar described the normal method for them at AWCs on Saturday, having the pallor of their eyelids, nails, skin and palms observed by AWWs.

**Education by the RBSK**

RBSK officials and teams and a CRCC from several districts described the following about education on anaemia and other health topics during their visits to schools. The RBSK teams are instructed to do some counseling and awareness campaign on anaemia after the screening at each school and AWC. At the end of their exams, the RBSK Team talks with the headmaster and the CRCC, if present, for about half hour at school, and check the hygiene around the MDM cooking site. Then they call a meeting with the teachers and students. And sometimes after exams in the S&ME schools, people from the community are gathered and the RBSK Team explains what they do, medicines they give, about the major illnesses like malaria, dengue, diarrhea, also iron and handwashing, and how to teach their children of these. In the residential schools, we talk with the students about these things. They reported that this was not possible in the AWCs to parents of the young children presenting for screening, but the reason was not provided.

While education by the RBSK was not mentioned much, it holds promise in addressing the low level of awareness and urgency surrounding the treatment and prevention of anaemia among children. It is appreciated by one group of adolescent school boys in Jagatsinghpur. When asked what the RBSK doctor does at the school, adolescent boys replied first that “…he teaches. We ask questions and he answers.” Even when they talked about the screening, they said that the doctor explained about the common diseases, taking advantage of moments to educate. One RBSK Team in Keonjhar went further to recommend that the RBSK training role be expanded and formalized.
Referrals — Choices

Blood transfusions are mentioned most often as the action that would be taken if a child was referred for anaemia. It was not reported as occurring often, but it was the referral action that respondents knew about. For example, an RBSK Team in Keonjhar said that during a referral for anaemia, the child will receive an Hb test. They will be told their Hb concentration, and should tell it to the teacher who gives them IFA at school. If the Hb concentration is 7 or 8, they said, the child will be given a blood transfusion. Parents’ reaction to their child getting a blood transfusion varied, according to field workers. In one case of an anaemic child, the parents avoided a blood transfusion by taking the child from the hospital early, and he remains weak to this day, despite warnings to get more medical help. In another case, the parents wanted and got a transfusion, despite obstacles.

There was an exception to reporting blood transfusion as the only action following referral. An SMC in one district described that if the RBSK Team suspects a child is anaemic but not in need of a blood transfusion, they can make a referral for an Hb test at the CHC (or from a private practice) and write a prescription for additional IFA tablets. The SMC was the only interviewee group to report referral and prescription for daily IFA.

Two issues stand out from the interviewee responses. First, prescriptions for daily iron to children with mild or moderate anaemia were hardly mentioned, despite it being the therapeutic protocol from the GOI NIPI Guidelines (see Tables in Background section). Second, haemoglobin of the children is not assessed and therefore mild and moderate anaemia cannot be detected, which makes implementation of the protocol nearly impossible. The pallor technique is applied to children twice per year by the RBSK Team to detect severe anaemia. This technique has reasonable accuracy for detecting severe anaemia\(^1\), but is not accurate for mild and moderate\(^2\).

Transport for Referrals

There were a number of responses that were specific to how children get transported to a health center for referrals. Interviewees who talked about transport were RBSK Teams in all four districts, teachers in two, and a BPM group and a group of adolescent beneficiaries. Transportation is critical for a successful referral — some teachers said that without transportation, students are unlikely to get checked at the CHC. The default transport for students and young children screened by RBSK teams is the RBSK team itself. They assign one day each week to transport any children/adolescents

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\(^2\) Butt et al., ibid.;
referred during the week to the nearest CHC. If the CHC doctors cannot diagnose and/or treat the students' conditions, then the BPM or CHC staff takes the students to the district hospital. An ASHA typically accompanies the RBSK team during referrals, sometimes a teacher. Sometimes the ASHA accompanies a child/adolescent to the CHC on her own, in which case she uses public transportation and accesses conveyance money. And sometimes the parents take their own child to the CHC with a referral slip from the RBSK team.

**Anaemia Detection and HB Testing**

An RBSK Team explained that they detect anaemia among students by looking for pallor in the eyelids, nails and skin, and by hearing from the child that they experience head reeling and weakness. Teachers even reported knowing the symptoms, and would sometimes check the colour of a student's lower eyelid, though they are quick to add that they are not trained in health.

An RBSK Team member explained that the pallor detection method is confusing, leaving them guessing whether students have moderate anaemia, which is not detected by the method, that may require more than weekly supplementation. They recommended that teams become enabled to perform haemoglobin tests among the students and young children on whom they conduct health screenings. A district health official summarized by saying: “Estimation of haemoglobin for all eligible beneficiaries is not happening.” Another RBSK Team recommended that a new technique is needed for diagnosis of anaemia -- a field-based haemoglobinometer.

For Hb testing issues that apply to children as well as women, see the Women's section on Hb testing and anaemia detection.

**Pregnant and Lactating Women-- VHND**

**How VHND and home visits work for anaemia**

A range of health and ICDS actors from all 4 districts at block and field level described the basic information about how the VHND works to reduce anaemia among pregnant and lactating women (CDPOs, MO I/C, BPM, ANM, ASHA and AWWs). At monthly VHND sessions, ANC, post-natal care and child health check-ups are done for pregnant and lactating (post-natal) women and children. The ANMs give a talk on a health topic, treat common illnesses, and give IFA syrup to preschool aged children and IFA tablets to pregnant and lactating women. Pregnant women are encouraged to come for 4 ANC visits, though most women report that they come only for two. The ASHAs find out in their community who is newly pregnant and encourage them to attend the subsequent VHND.

Many report that blood pressure and Hb are tested at the VHND session as well as at CHCs. Hb concentration of pregnant women is recorded in their MCP card and in the ANM’s register. The ANMs said that if a pregnant or lactating woman has an Hb of less than 7, the ANM refers her (and
also asks her to take 2 IFA tablets per day). If the Hb is between 7 and 11, they say, women are given a double daily dose of IFA, and if >11, they are given a single daily dose.

**Education and Counseling**

Although education and individual counseling during VHND sessions were mandated, there were few comments around this. ICDS Supervisors reported that women will come to VHND for the exam, but about half leave without participating in the education session. Regarding individual counseling, the process documentation team observed an ANM counseling a first trimester pregnant woman.

A specific counseling message by an ANM to pregnant women in one district was explained by an AWW there. She said the ANM would explain the diagnosis and treatment of anaemia to pregnant women as: children are born with sufficient blood to sustain themselves for initial few months and the iron tablets provided compensate for the amount of blood the child will take from her. By explaining to women in a simple way, the AWW said, women were convinced to consume the IFA tablets.

**Referrals**

A DMRCH reported that only severe anaemia cases are referred for treatment, and there have been more cases detected and referred than before the NIPI programme began. An ICDS official said that if anaemia is severe in a pregnant woman or in a young child screened at a VHND session, she or the child could be referred to the CHC (and if the family cannot afford, they can be taken directly to the district hospital in which case they would be provided transportation). Another ICDS official said that when a woman was referred, an ASHA would accompany her. A MO-PHC said that there were no referrals from the ANM to the PHC. People come directly to the PHC for health care, but if a referral is given, it is to the CHC or district hospital or NRC.

If referral for severe anaemia was made, the most common treatment protocol that health staff mentioned was blood transfusion. Also in one district, one pregnant woman was taken by an ASHA to the health centre in town for an ultrasound, an Hb test and a sickle cell test when she was 4 months pregnant, and she received calcium tablets.

What stands out from these responses is that the clinic-based actions (parenteral and IV) and close monitoring of pregnant and lactating women laid out in protocol from the GOI NIPI Guidelines (see Tables in the Background section) were not reported by the interviewees.

On the other hand, an ANM in a district who assesses Hb during each of a pregnant woman’s 4 ANC visits, saw 2 women with severe anaemia (Hb <8). She referred them to the district hospital for blood transfusion but they did not go. Regarding follow-up, an ANM reported that after being treated at the district hospital, they would continue to monitor women and tell them to take 2 IFA tablets each day.
Haemoglobin Testing and Anaemia Detection

There were several differing reports about whose Hb was tested. Frontline workers said that pregnant women get their Hb assessed at VHND, but not adolescent girls (The GOI NIPI Guidelines suggest that pregnant and lactating women should have a blood test for their Hb level, but adolescent girls at AWCs or at schools should be examined with the pallor technique only). There was hardly any mention of AWWs examining the adolescent girls out-of-school for pallor.

There was also discussion about the number of times pregnant women were tested for Hb. A number of health officials and workers spoke of 4 ANC visits as the target, while the GOI NIPI Guidelines state that for women with mild anaemia (concentration of 9-11), “Hb levels should preferably be reassessed at monthly intervals”. An ANM informed that protocol required Hb of women to be tested 3 times during pregnancy, at the 12th, 14th and 32nd weeks of gestation. Most pregnant and lactating women interviewed reported that they had had an Hb test only twice during their pregnancies, and none reported having more than two.

An AWW said that the ANM she worked with usually tried to bring her instrument every time to VHNDs. It had not been working for 6-7 months, but then recently started working again in the month before her interview. While broken, she had asked the pregnant women to get the Hb test elsewhere (e.g., CHC), bring her the result, and then she would distribute to them IFA tablets and tetanus toxoid immunization. Further, a BPM in Jagatsinghpur said that if the haemoglobinometer breaks, a new one can be purchased in Cuttack, but the district does not have a purchase contract, and the state does not supply. Actually, the state can only supply in bulk as per the annual supply plan.

Hb testing is also available at the CHC for any patient who might present with weakness suspected from anaemia, said a BPM. Other potential testing locations were also explored. At sector level, the MO-PHC explained that although there is a provision for a laboratory in PHCs, no laboratory was currently functional in his PHC. Also, though IFA tablets and syrup were supposed to be available at the PHC, none were in supply on the day the MO was interviewed, only folic acid tablets were available. Hence, the PHC was not a referral place for anaemia, but only the CHC and district hospital.
**Private Doctors**

Another player for diagnosis and treatment beyond the government system is the private doctors. So comments are extracted to describe in a small way the role of private doctors in ANC. An AWW said: “Some women do visit private doctors because Gynecologist doctor is not here in our PHC. People come here first and after being checked up at VHND they visit the private doctors. We inform them to tell the doctor not to write additional iron tablets because IFA tablets are being distributed at VHNDs and therefore it is not necessary to purchase these tablets.”

**Perceptions of Anaemia Prevalence**

The perceptions of anaemia prevalence among children were found to vary widely – a BPM claimed that the prevalence in his district was around 30%, while an RBSK team in the same district thought it was 80%. Most is mild anaemia, the RBSK team thought, some moderate, and hardly any severe cases. According to the RBSK team they could not identify mild cases with detection of pallor, but can guess on moderate.

However, many claim they have not seen any children with severe anaemia. For example, adolescent girls out-of-school have never seen anybody around us who is weak, always gets sick, or gets tired easily. A RBSK Team thought there used to be many referrals for anaemia, but now reduced, but the same team also thought that anaemia was worse in the SC/ST residential schools vs the S&ME schools or the AWCs.

Pregnant and lactating women perceived that anaemia has reduced in recent years, though still highly prevalent. Glancing at a VHND register for the previous month, an ANM in Keonjhar indicated that pregnant women’s Hb was recorded in the range of 8.0-10.8. From a register in a CHC in Keonjhar, pregnant women were listed with Hb between 7.4 and 9.5 g/dl, and none above 10 g/dl.

**Adverse Effects and Emergency Preparedness**

Many respondents from every district and block had ready answers when asked what they would do if they were worried whether a child was having an adverse effect to an IFA tablet or albendazole. The responses involved calling for medical help (RBSK Team, the BPM or others at the CHC), calling a supervisor (ASHAs calling ANMs, AWWs calling ICDS Supervisors), calling an ambulance (if they were far from a hospital), and/or a teacher or ASHA taking the child to a hospital directly via local motorized or bicycle transportation (if they were close to a hospital). From schools, teachers or headmaster would also inform a parent at the same time. It was clear that respondents knew they had multiple options, and that they had phone numbers of health personnel whom they trusted in case they wanted to consult. The NHM provides all health officials with Close Users Group (CUG) mobile phone numbers, according to a DMRCH. As one ABEO said, reflecting many others: there was no problem, but if there was, they would report to medical.
With programme experience, those involved in giving IFA supplementation also know to wait a short while before determining whether a medical person should be consulted. A CRCC explained: “We advise… there will be some side effects like black stools, vomiting…. Do not get tensed… within 30-45 minutes these things will gradually resolve.” If it does not, then they should contact the medical team, the contact numbers of which are already provided to every school teacher on the [IFA recording] form. An ICDS official told that: “A call to 108 [ambulance] does not connect easily. So whenever mothers are having a problem, our AWWs take money from the Gaon Kalyan Samiti (GKS), and book an auto and take them to hospital. They are also taking children like that.” More commonly, AWWs said, the ASHA would be the one to go with PLW or young children.

A DMRCH described a more formal response mandated by GOI and state government and mandated per guidelines issued in October 2015\(^4\): “We have a committee to oversee the management of any adverse effects from IFA consumption. A letter has come from government to form this committee. Similar committees have been constituted at district and block level. Quality assurance committees, district executive committee, governing body committee are also there.” This mechanism is perhaps not as effective in the moment as the phone calls and trips to the hospital, but could perhaps play a more formal role.

The vast majority of respondents in all districts reported that they had not been involved with any NIPI beneficiary who had experienced an adverse effect of IFA or albendazole for which medical attention was required.

There were incidents surrounding IFA consumption among students in Puri and Junagarh blocks in Kalahandi in 2014 that received attention in the media, and are even now associated with higher degrees of fear and reluctance to give tablets in schools throughout that state. As a district health official described the incidents: “After taking up the iron tablet, children began to vomit and had to be taken to the hospital. When this happened in Junagarh, the nearby schools stopped giving medicines, saying ‘who will take this type of headache’. In that case we need to go that place, and sensitize them in order to bring the programme back on track. This, however, becomes quite difficult to do.” Another district health official also said: “10-15 secondary school students were hospitalized in the Junagarh incident, in early 2014. There is still resistance in those two blocks.”

There was also an incident surrounding albendazole consumption in one student. A CRCC in Keonjhar told that one child had to be taken to the hospital recently after taking albendazole. The child got very sick in the night. The parent scolded the headmaster and locked up the school, and then took his child to the hospital. A test showed that the child had so many worms that one tablet in school was not enough. He was given a second albendazole tablet in the hospital, and felt better. However, the following day, only the side effects were featured in the newspaper, spreading fear across the state.

\(^4\)Operational Guidelines on “Emergency Response Syste” for any Adverse Event following IFA Supplementation & Deworming in Odisha, 26 October 2015.
6. SUPPORTIVE SUPERVISION, MONITORING AND REPORTING

SUPPORTIVE SUPERVISION AND MONITORING

The structure for monitoring and supervision is primarily: 1) visiting field sites including VHNDs, AWCs and schools and 2) reviewing progress during meetings. There was evidence that the visits and meetings occurred, but it was less clear about the content or quality of the monitoring and supervision and if/what actions were taken during or after as a result.

Health Department

Visiting field sites and records

As described below, there was much evidence of supervisors visiting sites at which the NIPI program is carried out, but only a couple of examples of specifying the content of the visits. One ANM told that she would be happy for senior officials to visit more often: If someone from senior management comes to visit, they said, they will see if there is a tick mark for every Tuesday and Friday indicating that the mother has given IFA syrup to her child.

At the block level, visiting was reported by MOICs, BPMs, an MO PHC and RBSK Teams. MOICs and BPMs reported that they make field visits 10 days each month. A BPM said that they mostly go to VHNDs, and regarding NIPI, they enquire whether the young children are receiving IFA syrup. An MOIC said that they check records at the subcentre and observe activities at the VHND, and that he also receives a monthly report from ANMs (details not specified).

A PHC MO said that he was required to make field visits 6 times per month on Tuesdays, Wednesdays and Fridays. He monitors availability of essential equipment with the ANM like the blood pressure instrument and weighing machine. During visits to VHNDs, the MO PHC supervises whether ANMs are measuring BP, pulse and distributing IFA tablets and syrup. He is not aware of any kind of blood test being done at VHNDs.

Also at the block level, RBSK Teams told that their supervisor is their MOIC, who conducts unannounced spot checks on the RBSK screenings at schools and AWCs. In addition, one RBSK team said they prepare a formatted monthly report which is then reviewed at a monthly meeting. BPMs also visit schools when an RBSK team is visiting: “In 2-3 months we are also visiting 1-2 schools. We enquire from the RBSK team and they inform us if they face any problem in any specific school, then we talk to the concerned CRCCs.”
At the district level, several district health officials expressed a similar sentiment to a DPM, who described his time constraints: “Practically I am not able to visit the 10 times per month required as a minimum for all NHM staff, with all the monthly meetings, court cases, all complaints. I am only able to make field visits 4 days in a month, but I am happy with that.” One District Collector initiated a novel way to check – he asked BPMs and other block officials to post pictures of themselves at the places they were visiting on a WhatsApp group, as well as report the number of pregnant and lactating women who received services at VHNDs.

Regarding monitoring by the state level officials, one state level official said that there are 10 State Integrated Monitoring Teams (SIMTs) to monitor programmes, three districts per each team. Another state official recommended reviving compliance cards from 2012-2013 for adolescent girls that the girls kept with them and ticked each time they consumed IFA tablets.

**Meetings**

Much monitoring and supervision about NIPI occurs in regular meetings in which NIPI is one of numerous topics. Health staff reported that there are:

- ASHA review meetings in which ANMs review ASHAs' work
- Health sector meetings with ASHAs, ANMs, male and female health workers, MO PHC and others, monthly
- Block level meetings, monthly
- RMNCHA meetings with the Collector, periodically

**Content and Quality of Monitoring and Supervision not Strong**

Despite the number of visits and meetings for monitoring and supervision, little was mentioned about the content of what was learned by those who were monitoring and about any actions taken during and after these occasions. Hence, it is not clear how productive they are for identifying and solving the key issues that arise in the field, block, district, and state levels. As one state Health official said that the NIPI implementation system is in place but mechanisms for checks and monitoring ground reality are not: “Unless higher officials take interest in the programme, data is easily cooked and fed into reports from districts without them being able to monitor the actual situation.”

**ICDS**

**Visiting field sites and records**

In the ICDS context, the AWWs at field level did not report any monitoring of iron supplement intake by women or children, this being the role of the ASHAs.

AWWs from four of the six blocks, one set of ICDS Supervisors themselves, and one CDPO all describe the active visiting and supportive supervision schedule of the ICDS Supervisors. The Supervisors themselves said that they visit each AWW once every 2-3 months, or for those that need
more supervision, once each month. The ICDS Supervisors report always having access to a vehicle for visiting the AWWs, with 2-3 Supervisors travelling together. ICDS Supervisors report that they observe “…pre-school, SNP and registers, conduct home visits for VHND, and counsel mothers with malnourished children.” Importantly from a monitoring perspective, Supervisors arrive unannounced for their visits.

At block level, CDPOs also visit the AWCs. Two groups of AWWs report being visited by the CDPO madam. “We make the programme and submit it to sub-Collector and visit accordingly.” This includes supporting VHNDs. At district level, one DSWO described only that DSWOs should visit sites 10 days per month, but did not confirm her frequency.

In addition to supervision from within ICDS, AWWs report that ANMS also give them direction, and that the MOICs visit to check on them, and that RBSK Teams also visit regularly.

Meetings

Monitoring and review is also conducted in regular meetings, as with the Health Department, according to AWWs, ICDS Supervisors and CDPOs, and NIPI is discussed in these meetings some of the time:

- Sector meeting of ICDS Supervisors, twice per month – AWWs report that IFA and anaemia are discussed occasionally
- ICDS review meetings, monthly – A CDPO reported regularly reviewing NIPI among adolescents including supply status, compliance, and any side effects observed, on priority basis
- Block meetings with the CDPO, BDO, BPM, other doctors, ICDS Supervisors and AWWs, monthly – AWWs reported that NIPI is mentioned only when a batch of IFA tablets arrive

Content and Quality of Monitoring and Supervision not Strong

The notion of monitoring exists strongly among staff of the ICDS, even if IFA consumption is not always among the variables being monitored. One district official said that every month someone from WCD state level visits district-wise, arriving unannounced to check on “all activity of anganwadi, IEC activity, and IFA supply and expiry date. Last month it was the Deputy Secretary WCD, and the monitoring official often comes.”

Despite a strong notion of monitoring, a WCD official perceives the NIPI programme as the baby of the Health department as ICDS only reports on IFA consumption for out-of-school adolescent girls, a small portion of NIPI participants.
**Education Department**

**Visiting Field Sites and Records**

At the sector level, many described the active role that CRCCs play visiting schools to supervise, assist and monitor teachers. Teachers, CRCCs themselves, a BEO and a DEO described that CRCCs visit about 4-25 schools per month in different districts, arriving unannounced. The DEO said that the CRCCs should be visiting minimum 15 schools per month. Respondents were not specific about the content of the supervision or the monitoring, but related to NIPI, two CRCCs described that they review school records on the amount of IFA received, consumed and remaining.

At the block level, a BEO and DEO reported that visits to 10 schools per month were required for BEOs, 5 schools per month for ABEOs, and that the DEO also visits schools. However, BEOs and ABEOs do so without provision for transportation, except bicycles, which can constrain how much they visit schools. BEOs and ABEOs check on the progress, reviewing the CRCCs' monitoring. Only one CRCC mentioned review specific to NIPI, saying that the BEO and ABEO check of the administration of medicines at the schools.

At the district level, DEOs and a DPC/SSA indicated that the monitoring system at the district level is not frequent. This is due to heavy workload of district officials, lack of data shared from the Health department and lack of information on IFA supplementation alongside the regular data sent up the levels on the Samikshya format about MDMs (addressed further in the section on Content and Quality of Monitoring and Supervision).

**Meetings**

- Supervision and monitoring is also conducted in Education regular meetings, as with the Health and ICDS Departments, according to CRCCs, BEOs, an ABEO, a DPC/SSA and a DEO. They report that NIPI is discussed in these meetings some of the time:

- BEOs and ABEOs meet with CRCCs, monthly – a report from a district suggests that NIPI is not discussed, whereas one from another district suggests that BEOs review NIPI data collected by the ABEOs 2-3 times per year.

- District meeting of the DEO with BEOs and ABEOs, monthly – a report from one district suggests that NIPI is not discussed, whereas ones from two other districts suggest that the performance of IFA supplementation in each block is reviewed as a part of MDM review.

- District meeting of a DWO with the headmasters, ANMs posted at the residential schools and lady matrons, as well as visits to residential schools – their health checklist is mostly about hygiene, not anaemia and IFA supplements.

**Content and Quality of Monitoring and Supervision not Strong**

By 2016, the Education department had begun to increase its level of monitoring and supervision of NIPI activities, in contrast to the first years. A state level Education official said that the state level officials were watching more closely, and the district officials were taking more initiative. A block
official was particularly motivated to improve the rate of reporting: “Our district was a defaulter earlier. But since last year we have given reports”.

The notion of monitoring exists among those involved in education, even if IFA consumption has not yet become a monitoring priority. One set of teachers proudly told that their CRCC and block officials come to see the MDM and “whether our environment is good or not, whether teachers are teaching or not, what is the development in the students, how many children are migrated… and why there is migration.” IFA consumption is not mentioned, but the notion of monitoring exists. In addition, one CRCC describes a way of also following up action based on monitoring information.

In the residential secondary schools, there is a standard checklist for monitoring and reporting attendance, health, hygiene and other school indicators of the boarders, but IFA consumption is not a part of the checklist, and there is no reporting on those children who attend the residential schools as day scholars instead of boarders. Monitoring in the residential schools could also be improved relatively easily. Also in need of improvement in the residential schools is that the ANMs assigned to the schools through the Education department, not the Health department, did not have supervisors to discuss their work with.

**RECORDING AND REPORTING MECHANISMS**

An important issue when tracking reports of data and motivating those who will be recording it is for all concerned to know what the purpose of the data is and how the data will be used. At minimum, data is recorded to show accountability for having distributed the IFA tablets and syrup. Purposes beyond this minimum can help shape the format and frequency of how the data should be reported. Ideally, the data recorded at all levels will be reported back to those who compiled it in summary form so that it can inform the work at each level.

One DEO was not clear on the purpose of the reporting: “Actually we don’t know what is happening with it later on because we don’t receive any feedback. It is not being assessed or what we don’t know as we have not received any feedback on the mistakes or whatever is there in it.” Whereas a BEO in another district knew that districts and blocks were ranked within the state based on the extent of reporting each did on the amount of IFA supplementation consumed. Consumption could be high in a state, but if the reports on that consumption were not complete, a district or block could not achieve a high rank.

**People Involved in the Flow of Reporting**

All respondents told of a similar flow of reporting across departments and districts, with the exception of Bhadrak Health and ICDS Departments, and the flow of reporting was consistent with the guidelines (Nov 201544), with only a few exceptions.

Health officials’ reports are compiled across field level into sector and across sectors into block and district and described as:

IFA red tablets for PLW:

ANM (with help from ASHA) → MO I/C → CDMO, and sometimes copy to DSWO

(In Bhadrak, ASHA ANM → AWW → ICDS Sup → CDPO → DSWO, and copy to MO I/C)

IFA syrup for children 6 months-5 years:

ANM (with help from ASHA & AWW) → MO I/C → CDMO, and sometimes copy to DSWO

(In Bhadrak, ASHA ANM → AWW → ICDS Sup → CDPO → DSWO, and copy to MO I/C)

ICDS officials' reports are compiled across field level into sector and across sectors into block, district and state and described as:

IFA large blue tablets for out-of-school adolescent girls only:

AWW → ICDS Sup → CDPO → DSWO → CDMO and WCD Secretary

Education officials' reports are compiled across field level into sector and across sectors into block and district and described as:

IFA large blue tablets for in-school adolescent girls and boys:

Headmaster → CRCC → ABEO/BEO/BRCC → DEO & sometimes DPC(SSA) → CDMO and SNO MDM

The reported flow of reporting differed slightly from the guidelines for reporting:

ANMs said they reported directly to MO I/Cs instead of through LHVs per the guidelines, a position that did not seem to be filled. Per the most recent guidelines\(^4^5\), there was no mention of the Health Worker Male picking up the IFA consumption records from the headmasters and giving a copy to the MO I/C. In fact, Health Workers Male were hardly mentioned by respondents.

**Inadequate Reporting**

Reporting IFA consumption was cited as inadequate for many units under the Education Department – numerous schools did not report to a CRCC, numerous CRCCs did not report to an BEO, numerous BEOs did not report to the DEO. Teachers said that no CRCC ever asked for reports of IFA consumption. One headmaster and teacher said that they did not keep records of IFA consumption at their school. And one BEO said: “Some teachers are manipulating the data because their main job is to teach. They do not think these programs are part and parcel of their job. As long as they don't have a sense of ownership for these programs the success rate will remain low. We should make them realise the importance of these programmes for kids.”

\(^4^5\)Directorate of Family Welfare letter, 7 December 2015, Subject: Involvement of HW(M) and RBSK MHTs in strengthening National Iron Plus Initiative (NIPi) intervention in Odisha.
Formats and Mechanisms of Reporting

Health

For the IFA red tablets administered to pregnant women (but not lactating), ANMs report consumption through the HMIS on a monthly basis. Unfortunately, the template still asked whether a woman is taking 100 or 200 tablets instead of asking whether she is taking 180 or 360 tablets per the new guidelines.

Many respondents said that there is no format on which to report consumption of IFA syrup for children under 5, nor are there questions about IFA syrup in the HMIS. ASHAs and AWWs record each dose of syrup consumed on each child’s MCP card and they keep their own register (and ASHAs keep their own diaries), and any compiling and reporting is tallied without the benefit of an established form.

Also, when women take IFA tablets at home they mark on the MCP card. ASHAs noted that earlier cards had no provision for marking compliance in consumption of IFA tablets, but in the current card there is a page with circles to be filled each time a woman consumes her tablet(s). Women bring the card to the VHND, and if regular consumption is not indicated, the ASHAs are reminding the women. They are also checking their cards when we make home visits.

ICDS

IFA consumption is not recorded in the ICDS Monthly Progress Report (MPR), the AWWs main reporting mechanism, a monthly form for tallying other items to discuss in the monthly convergence meetings, and ICDS Supervisors suggest that it be added. According to a PO & consultant, anaemia is part of both the SABLA and Adolescent Anaemia Control Programme, but they have different reporting mechanisms.

Education

The teachers typically keep two registers. One in which they tick off students who consumed an IFA tablet each week, and a stock register, where supply of IFA tablet is noted, including amount consumed each Monday and the amount of stock left.

The CRCCs report on IFA consumed in the Samikshya format and meals consumed in the MDM format. As one said: “There is no register from the government… [the teachers] do as per our instruction…. It would be better if the government would supply a register or format…. If they take seriously, it would be better.”

An important finding is about a gap in the NIPI reporting format itself that could be relatively easily remedied. CRCCs describe that there is a place to record IFA consumption alongside MDM consumption in their Samikshya reporting form at the S&ME schools. However, there is no place to record IFA consumption on the Samikshya forms that are sent about MDM consumption to the block, district or state level. Many officials recommended that the IFA consumption data have a place to be recorded in the Samikshya MDM consumption format so that it can be more easily compiled and reported to the block, district and state levels of the Education department.
7. DEWORMING

Biannual deworming treatment with albendazole was readily accepted across the age ranges of the NIPI programme, in schools, AWCs and VHND settings. Beneficiaries said that the medicine tasted good, and tablet distribution occurred twice per year. While deworming with albendazole is widely practiced, the promotion of hygiene and dietary practices is accepted but not fully achievable.

**KNOWLEDGE OF PARASITIC WORMS WITH ANAEMIA**

As one set of mothers described, worms make children weak, and they lose their appetites. While many beneficiaries understood that parasitic worms infected people by burrowing in through the skin and by eating soil, a number reported that worms were caused by eating too many sweets. They were clear, however, that the deworming medicine albendazole would treat the worm infestation and that using the latrine instead of the fields, wearing sandals in the latrine, and washing hands with soap after the latrine and at other key times could prevent it.

**MECHANISMS OF THE INTERVENTION**

Albendazole is a well-liked part of NIPI programme, especially by beneficiaries for its sweet taste. Fathers in Keonjhar knew their children were getting deworming medicine. They did not feel that they knew much about the health interventions through the schools, but the deworming stood out to them.

Regarding children in school, all respondents who were asked reported that albendazole tablets were given to students in school twice each year, 6 months apart.

Regarding pre-school aged children, all health personnel who were asked reported that children 1-2 years old are given 5 ml of albendazole syrup twice each year, 6 months apart, and children 2-5 year olds are given 10 ml. One set of ASHAs confused the age groups for albendazole syrup with those for iron syrup.

Most health and ICDS personnel reported that they have never seen any side effects from albendazole. An ICDS Supervisor said that they tell mothers what to expect from deworming, and if there is any adverse effect, they should give the child rest and inform the AWW. Education personnel expressed a few fears about adverse effects from the medicine.

Supply of albendazole tablets in schools was available for almost all distribution days. The stock arrives close to programme day, and no stock is kept during the 6 months in between. Two CRCGs told of shortages: One said that in 2015 they gave the 1st dose, but not the 2nd, while another said that the tablets did not reach in time for National Deworming Day that year but they collected extra from sub-centres and completed the distribution within 10-15 days. In AWCs, no shortage of albendazole syrup was reported by health and ICDS personnel.

**MALARIA AND FILARIASIS**

Interviewees commented on other health programmes that could also contribute to reducing anaemia. One official commented that malaria is prevalent in Kalahandi. Another there told that they have Rapid Diagnostic Kits to test for malaria among pregnant women and medicine to treat them if they test positive. In Keonjhar, workers reported that malaria was prevalent, but has been reducing since people are using mosquito nets properly.
8. SOCIAL MOBILIZATION AND COMMUNITY AWARENESS ON ANAEMIA AND NIPI

Mobilization of the NIPI programme and consumption of IFA, from the state level to beneficiaries, has increased steadily over the 3 years since NIPI was started. IFA consumption was initially not well accepted, but after much effort has improved steadily. This is due to the diligence and persuasion across the Health, Women and Child Development, and Education Departments and coordinated from state, district, block, sector, field and beneficiary levels. Biannual deworming treatment with albendazole was readily accepted across the age ranges of the NIPI programme, in schools and AWC settings – most beneficiaries said that the medicine tasted good, and tablet distribution occurred twice per year as per government guidelines. Two set of behaviours are also related to the NIPI programme: increasing hygienic practices to prevent worms and dietary practices to enhance iron intake. Both behaviours were well-understood but not always practiced. Of these four programme elements, 1) awareness and IEC about IFA supplementation is discussed the most in this report, since it requires the most effort to implement; 2) deworming with albendazole is readily accepted, while the promotion of 3) hygiene and 4) dietary practices are accepted but not fully achievable. See Box 5 for key messages from this section.

A common theme of programme acceptance was expressed by respondents: “Initially there was huge resistance from parents, SMCs and teachers“ to allow the distribution of IFA tablets, but “things have improved” said a high-ranking district official. “Earlier adolescent girls didn’t like taking IFA, but now they ask for it“, said AWWs in another district. “In the beginning, they didn’t want to take, but now they line up nicely on Mondays“, reported teachers.

Success to date is largely due to two factors: setting up and improving the system of IFA procurement and distribution, and dissuading key officials and stakeholders of their resistance to IFA. Indeed, success is sometimes stated as lack of resistance instead of full support for NIPI: “No parents, guardians, SMC, students, or community have opposed NIPI… since the beginning“ said an education official in Keonjhar. Positive and consistent awareness-raising about anaemia and NIPI programme, however, has been only a small part of the efforts to date, and, according to many, is the

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**Box 5. Key Messages**

- Resistance to NIPI has decreased significantly due to social mobilization
- Full ownership of programme, however, is lacking, and IEC initiatives could build enthusiasm for the programme
- Knowledge about anaemia is growing gradually
- Sources of information are mostly interpersonal, some radio (Meena), and limited TV and print
- Largest gap is that anaemia is invisible – respondents do not think they are anaemic, nor do they know anyone who is, except severe anaemia.
- Health Department is the main messenger for anaemia and IFA because “everyone listens to doctors”.

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46 Guidelines for Control of Iron Deficiency Anaemia: NIPI, NRHM, 2013
highest priority for programme improvement: Awareness raising is a must for programme success, suggested one high level official, and “Understanding of the anaemia situation is very less” said a high-ranking district official.

**KNOWLEDGE OF ANAEMIA IS INCREASING: RESPONDENTS DESCRIBE THE CONDITION, CONSEQUENCES, SYMPTOMS, AND CAUSES**

*Describing the Condition*

Anaemia was described by most respondents as weakness of the blood or shortage of blood (“bloodlessness”). This was common across beneficiaries and officials and health care providers alike. One group of adolescent school-going boys even elaborated correctly that anaemia was a condition of reduced haemoglobin in the blood, hence less oxygen circulating. Occasionally, beneficiaries like one group of mothers would indicate that they did not know what anaemia was or why they were taking IFA supplements or giving IFA syrup to their young children. Fathers often could not describe much about anaemia, too, but some knew to eat spinach and other green vegetables to combat it, that ASHAs gave their young children syrup, that their wives take IFA tablets in batches of 30 throughout pregnancy, and that consuming IFA compensated for the blood lost in delivery.

When asked about the common illnesses and conditions, neither officials, front-line workers nor beneficiaries mentioned anaemia, but talked of fever, diarrhoea and skin diseases among children, and back pain and oedema among pregnant women.

Beneficiaries and field level workers knew that tiredness -- weakness, feeling faint, doing less work, less concentration -- and pale colour (“bloodlessness”) of eyelids, tongue, nails and skin are symptoms of anaemia. Low appetite was also sometimes reported for both women and young children. Reflecting confusion of symptoms from other conditions, beneficiaries and field level workers also frequently reported swollenness as a symptom of anaemia – swollen face, feet, hands, and in the stomachs of pregnant women – tingling of hands and legs, and hair falling out.

*Consequences of Anaemia and Benefits of IFA Supplementation*

Respondents at all levels reported that anaemia in pregnant women could cause problems in child’s development in utero, in delivery (prematurity, death or disability from haemorrhage) in young children could limit mental growth. Women and adolescent girls also reported that anaemia could cause irregular menstruation cycles. IFA supplements would prevent these negative consequences. In one group, an ICDS Supervisor said, “Children would be brainy and good”. Occasionally the benefits of IFA were oversold, e.g., telling pregnant women that IFA consumption would eliminate or reduce post-delivery abdominal pain. Mothers also credited the syrup given to their young children with preventing colour blindness (confusing it with vitamin A syrup).
Causes of Anaemia

Many respondents knew the causes of anaemia. The most common causes mentioned by beneficiaries and field level workers were inadequate diet and worm infestation (Perceived causes of worms are described in the Deworming section). Malaria was also mentioned sometimes (and using bednets to prevent malaria was known), as was losing blood during menstruation and during delivery. Early marriage and early pregnancy were also cited as contributing to anaemia. Regarding delivery, one group of ASHAs persuaded pregnant women to take IFA, saying that with supplements women will have the required amount of blood that they would lose during delivery, otherwise they could die.

Causes of Inadequate Diet

Beneficiaries and field level workers were asked what they knew about foods that prevent anaemia. The most commonly mentioned foods were green leafy vegetables, including drumstick leaves and spinach, pulses, milk and eggs. Also frequently mentioned was to drink tea at times other than meals. In some cases, they also mentioned mutton meat and a variety of fruits and jiggery. Some also mentioned foods that are not iron-rich or iron-absorption enhancing like starches/grains (rice, wheat, roots with iron, pearl millet), and salt (possibly confusing iron with iodine).

Ultimately though, said one district official, no matter how much we talk about balanced diet, in homes most people are not able to achieve it, and so IFA supplements are needed to improve the diet.

Thus, the basic NIPI information about the IFA supplementation and deworming medicine to combat anaemia are known by most beneficiaries and field level staff. Supporting information on how to attain good hygiene to avoid worm infestation and malaria and to diversify diet is basically known as well, though neither is practiced consistently by those who know the information well. The messages need to be repeated and re-enforced.

Sources of Information – Interpersonal

Beneficiaries reported learning about anaemia, IFA supplements and deworming medicine from different sources. The field level workers (AWWs, ANMs, and sometimes ASHAs) inform out-of-school adolescent girls and women about their own iron status and that of their young children. Teachers and RBSK teams inform school-going adolescent girls and boys. The main way to spread information about NIPI is verbal. RBSK teams visited each secondary school each year (once per year in S&ME schools and four times per year in SC/ST residential schools) to conduct medical exams on all students, diagnose and refer any health problems, and conduct health education in the classrooms. They speak on a variety of health topics, including anaemia, and are the main source of health information to students, teachers and headmasters. An RBSK team in Keonjhar reported that they do not have a checklist of topics to cover for each classroom, but themselves make a plan so
they cover all topics over time at each school. One group of adolescents said they were taught about anaemia by their teachers in Standards 4-5, but overall teachers were rarely mentioned as sources of information.

**Sources of Information – Radio, TV and Print**

Students in one school in a district also learned about anaemia by listening to the Meena radio programme weekly during school on Saturdays. A few groups of adolescents and mothers reported they had heard something about anaemia on TV, but gave no detail on the content, while others said they had never heard about anaemia from TV. Pregnant women reported that they learned from ANMs or ASHAs during VHNDs, but did not mention any home visits. Adolescent girls reported that “We watch on TV also, but we understand more from the AWW.” No beneficiaries reported seeing posters or other print materials on anaemia.

**Little Emphasis on Raising Awareness**

The most common recommendation for enhancing NIPI success was to raise awareness on the profile of anaemia and on combatting it with IFA, diet, deworming and hygiene. While there is guidance on implementing other aspects of NIPI, e.g., procurement and reporting, there is much less on how to raise awareness among beneficiaries, community members, field level workers and others, and hence on to build demand for reducing anaemia. As one district-level education official explained, “There is no problem related to IFA tablets. Only awareness is required.” Awareness-raising efforts are much less for anaemia than for other health topics, like malaria, explained one group of ANMs. Thus, many of the recommendations compiled below to ensure further NIPI success focus on raising awareness about anaemia and NIPI and creating demand improving iron status across the population.

**IEC Materials Limited**

Many respondents from all levels reported that they did not currently have or had not seen NIPI IEC materials. There had been materials earlier. Many said that some printed NIPI IEC materials were distributed at the beginning of NIPI (in 2013 or early 2014) – posters and booklets were most commonly mentioned – but none more recently. In one district, BPMs said that they are still making photocopies of the original booklets, and an AWW from there showed her only copy, which she says she consults and asks the adolescent girls to read from it during their Saturday sessions. In Keonjhar a senior health official said that posters are on the walls of health
centres, AWCs, and secondary schools, though ICDS and Education officials there said they had no NIPI IEC materials. In one district, one team of RBSK said there were no materials on IFA but some for deworming, and one group of BPMs there said there were none for schools and none on IFA syrup but some on health during pregnancy and on deworming. All teachers had received booklets according to a CRCC and an RBSK team in another district. In the 9 districts in which the SABLA programme for adolescents at AWCs is running, there is a kit of materials on health and livelihoods, but both AWWs and adolescent girls reported that it does not contain information on anaemia.

**INVISIBILITY OF ANAEMIA**

One of the major constraints to raising awareness about the importance of reducing anaemia is that most respondents, from state level through to beneficiaries, claimed not to know many people who were anaemic. This is despite Annual Health Survey 2014 results for Odisha results from 2014 indicating that 70-80 percent of women, adolescents, and young children are anaemic (see Tables in the Background section). The district-wide prevalence is even higher in Keonjhar and Jagatsinghpur, and similar to the state-wide proportion in Bhadrak and Kalahandi. Respondents who answered that they know someone who is anaemic describe persons with visible pallor, a blood transfusion, or cerebral malaria. Most respondents asked about this reported not knowing anyone who was anaemic. For example, mothers in one district said that their children were not weak or anaemic. Adolescent boys in the same district and adolescent girls in another district said that they don’t know anyone suffering from anaemia. A matron in an SC/ST school said she had no anaemia case in her hostel. An ICDS official in another district said that he had not noticed any problems of iron deficiency, though children suffer from diarrhoea and minor illnesses. And an education official said that girls were not anaemic because they are literate and knew how to control it, including taking IFA supplements and deworming medicine.

Even women who were taking double-dose of IFA supplements while pregnant or lactating were not reported as anaemic, not by themselves or by field-level health workers. This was the case even if ANMs had assessed their haemoglobin during VHNDs and found them to be in the anaemic range and if the women themselves were told to take a double dose of IFA.

This suggests that “anaemia” is interpreted as severe anaemia, which is indeed far less common (0-8%, see Table from AHS in the Background) and that moderate and mild anaemia is virtually invisible. As an RBSK team said, “The reason anaemia doesn’t get priority is that it is not seen.” Only one group of teachers, in another district, effectively acknowledged the invisible nature of anaemia – they requested IEC materials that included before-and-after pictures so that students could visualise how they would look with anaemia and without it, e.g., lacking concentration vs. feeling attentive to their studies. It is a major programme gap if beneficiaries and field level workers have knowledge about anaemia and are willing to go through the steps of implementing it, but do not think the beneficiaries are anaemic or in need of the NIPI programme. Participation in NIPI will not

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47 *Annual Health Survey (AHS). Clinical, Anthropometry and Biochemical (CAB) Factsheet, Odisha section, 2014.*
have much importance for them, and they will not take much “ownership” in it. Thus, a major emphasis of future awareness-raising efforts should be to impress on all NIPI target groups and their families that they likely experience anaemia or are at risk of it (3 out of 4 chance), and that their participation in NIPI will benefit them. It is expected that this would be key for all those associated with the NIPI programme, especially the beneficiaries, to take a more personal interest in anaemia reduction.

**HANDLING THE EARLY RESISTANCE**

An important aspect of resistance to IFA at the beginning of NIPI was that many associated with the Education Department – teachers, headmasters, SMCs, CRCCs and others – were reluctant to implement a medical intervention. They feared being on the frontline and being perceived as being responsible if students experienced side effects from the IFA, which they thought of as medicine. Early in the programme, the media printed a story from Kalahandi District in which a student fainted after taking the IFA supplement. The student likely fainted due to dehydration or other reason, but many, especially the print media, associated the incident with IFA. This increased the teachers’ fear and their resistance to distributing IFA supplementation to their students. There were reports of students or teachers throwing the supplement away, of parents and SMCs telling students not to take it, and of CRCCs refusing to take the IFA tablets to school to be distributed.

*Health officials as the Main Messengers*

What emerged from the early resistance is that the Health Department officials, particularly the doctors, needed to be the main spokespersons promoting NIPI and handling the response to any perceived side effects. As a CRCC said, “A medical doctor has good status and position in the community and people could get convinced by doctors easily.” As an education official from another district said, “Suppose there is a local school where there is resistance against administration of IFA tablets. Teachers might be thinking it is not their duty. There should be instruction to the Health Department to organize a campaign by the health workers in school or community. That has to be done by the Health Department.” And indeed, it seemed that the Health Department was taking that responsibility, and that others involved in NIPI were able to count on their leadership. As the education official explained, “I talked to the MO of the area in which there was resistance. He told that he will send health workers to create awareness. In that particular school he will call a meeting of the parents and sensitise the matter.” One group of teachers also advocated for AIIMS to conduct health education throughout Odisha, saying that “Villagers listen to doctors”. It should be noted that respondents also suggested other important secondary messengers, to minimize local resistance, especially tribal leaders (*mukhiya*) and influential people in villages because, as one set of ICDS workers said, “Everyone listens to them”.

How IFA was Promoted to Respond to Resistance

Functionaries reported a number of special efforts they made to combat the resistance to IFA consumption at schools and among mothers, as well as regular features. In schools, an RBSK team and CRCCs told that two years earlier they had held a special meeting with headmasters and teachers who did not want the school to receive IFA, and convinced them. In one case this team said they trained a health coordinator on how to convince the resistant parents. In another district with continued resistance in 2-3 clusters, the DEO met repeatedly with key people there so that the IFA could be distributed fully. While the parties still do not seem interested in the school children receiving IFA, they are no longer resistant.

DEMAND FOR NIPI AND NASCENT PROGRAMMING INNOVATIONS

One element the team was listening for during the interviews was how much demand for IFA supplementation had grown over the several years since the NIPI programme started. Demand only manifested in a couple of small ways, but these are hopeful. Teachers across the districts told us that students would remind them of IFA distribution on Mondays, and notice if the supplements were not available at the usual time. Also, in one case, AWWs told that mothers-in-law accompany their daughters-in-law to make sure they receive IFA, and that they take them from the government, not the private doctors.

Even private doctors exhibited demand for the government's IFA supplementation. A number of government officials explained that beneficiaries regarded cost-free medicines as low quality. Indeed, ANC examinations during VHNDs were also regarded as low quality because there was no privacy afforded where they were conducted, typically on the veranda of the AWC. However, for the IFA supplementation, several groups of mothers and ANMs from several districts told us that women had returned to VHNDs after private doctors had told them to get their IFA there free of charge.

Another way that nascent demand was expressed was through locally initiated innovations to promote the NIPI programme. While there were only a few examples, it seems that districts, blocks, sectors, schools and other platforms could be encouraged to innovate further throughout Odisha:

- A training for 270 nodal teachers was organised by the health team in Bhadrak
- A “campaign on NIPI” – getting MO I/Cs to speak on NIPI at schools was conducted in Jagatsinghpur
- Many frontline workers gathered together on National Deworming Day to promote deworming
- Readers club dedicated to health each 2nd Saturday of each month initiated by teachers in Jagatsinghpur
- School clubs competing on health, initiated in a cluster in Jagatsinghpur.
9. HARD TO REACH AREAS

Discussed so far are numerous programmatic issues related to the NIPI programme. In this section a set of external factors concerning beneficiaries being hard to reach are discussed, which impose additional constraints on programme implementation. As expressed by the interviewees, “hard-to-reach” had four components – remoteness in terms of residing a far distance from main roads and from government attention, language in terms of beneficiaries not speaking Odia, tribal issues and customs, and low education level of beneficiaries. Though all four might exist together, especially among tribal people, separating out the components of being hard-to-reach is important for making recommendations to reduce programmatic constraints related to their geographic, cultural and educational circumstances. See Box 6 for key messages.

Among the 6 blocks where interviews were conducted for this report, two are tribal-dominated – Keonjhar/Harichandanpur and Kalahandi/Lanjigarh. Most of the comments about being hard-to-reach came from these areas. There were also comments from two non-tribal areas – Keonjhar/Banspal and Bhadrak/Bhandari Pokhari. There were not comments about being hard-to-reach from the two Jagatsinghpur blocks, Raghunathpur and Kujang.

REMTENESS – DISTANCE FAR FROM MAIN ROADS, AND FROM GOVERNMENT ATTENTION

According to a health official in a largely tribal area, about 35% of the 472 villages are cut off from transportation during the rainy season, a few of which are cut off all year. Despite this, about 90% of VHNDs are conducted (more than 1500 of about 1700 sessions scheduled in the block). The ASHA and AWW live in the villages, and so are there all the time. Sanitation facilities are not common there, reported an SMC member – in one village 90% of households do not have latrines.

In one tribal-dominated village, fathers said that officials do not give much attention to their community. They also described that they lived far from a motorable road, and during any flooding, which was very common, they would have to carry sick patients to the road on a bamboo carrier on their shoulders. They said that there are not many doctors in the tribal areas. According to village leaders, in recent years, non-trained doctors (“quacks”) have come into the area, selling ineffective medicines at high prices.

In another block, roads can also become impassable in the rainy season. An RBSK Team described that if they got to the village to do school screenings and it rained, they would not be able to come back. Some areas are remote because there is little phone connectivity, since there is only one

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**Box 6. Key Messages (Hard to Reach)**

- Four ways in which beneficiaries were hard-to-reach are: remoteness from main roads and government attention, language, tribal customs, and low education level.
- NIPI-specific recommendations are to: engage tribal leaders to promote IFA and deworming, diet and hygiene; and prepare and use IEC materials in the major local tribal languages.
mobile tower in the block and the remote areas are not reached. In this case, people in the remote areas would also not be able to reach the two health emergency numbers (108 and 102). In addition, people fear the elephants who live there and sometimes do not seek health care out of fear, according to an ICDS official there. On the other hand, she said, in remote areas beneficiaries may attend services like VHND more regularly because they do not have the private or other alternative health services that are available in more central areas.

In yet another block, some roads have been improved, but some still become covered in water during the rainy season and people need to get around in boats. This makes it difficult to deliver IFA supplements. A high level education official had not yet been to the remote areas in his district, but thought he should go. A health official said that some areas in the district are unreachable in the rainy season, but communication is less of a problem – 99% of the areas can be reached by phone.

In one district, in response to the remoteness, district health officials decided to take the health system to the distant villages in tribal areas. Regular health camps with doctors, gynecologists, paramedics, nurses and ANMS were started in early 2016. Haemoglobin of pregnant women was tested, deworming medicine given, family planning methods promoted and provided, and many other services provided. Attendance was initially slow, but then the village headmen were contacted about asking the women to participate, and attendance increased.

**LANGUAGE**

In the tribal areas, the local tribal language, e.g., Juang, Munda, Ganda and others, is the mother tongue and Odia is not known by all. One group of fathers explained that they spoke Santali, but not Odia. This can be a problem if the beneficiary and the service provider cannot communicate, as described by an RBSK Team: “There are some people who cannot speak our language, and we cannot learn their symptoms or know how to send them for treatment”. However, it often is not a problem if translation is available, as reported by a health official: “We have no language problem. People speak their tribal language, but the ASHA and AWW from the same area translate for those of us who do not understand.” Whether translation is available or not, it is recommended that IEC materials be produced in the major tribal languages, as suggested by high level health officials.

**TRIBAL ISSUES AND CUSTOMS**

A number of tribal beliefs and customs came to light during the interviews. The Juang in one area have a conviction that if they will have the tubal ligation operation for family planning, the ancestors will not receive offerings from them, though these ideas are reducing. Also, according to AWWs “Some mothers-in-law tell that due to iron tablet the child will grow more in the womb and the mother has to go for caesarian. We tell them the bleeding will be compensated with the iron tablet. Many in-laws now understand, and the anti-supplement ideas are reducing.” Furthermore, medical field workers explained that males in their tribal areas do not cooperate with AWW or allow
family members to take services from VHND or AWC. However, they reported, this is starting to change because the tribal men mix with others who value and use the services.

On a different note, fathers told that their ASHA does not come to their village, since she is of a different caste and does not speak their tribal language. By contrast, in a tribal neighborhood, adolescent girls reported that an ASHA and an AWW go together to provide health services, though they live in a non-tribal area.

As an ANM said, “As we work at the field level we feel that other people come to health centre for their health issue but the tribal people never come to health centre, they go for some home remedies from which they do not get any nutrition. If we force them to come they say we don’t have money or time for it. The ASHA and AWW forcefully drag them to the health centre for health check-up.” She goes on to say that it is improving gradually, with women coming to the VHNDs.

**LOW EDUCATION LEVELS**

In addition to the other components of beneficiaries being hard-to-reach, interviewees made a few comments about them being uneducated, whether tribal or living remotely or not. In one block, beneficiaries are mostly tribal and mostly illiterate, said a community leader. The uneducated women in hilly tribal areas, might hide their pregnancies from the ASHAs until the 9th month. In another block, one field health worker said that uneducated tribal people do not take the IFA supplements, despite their counseling, and the local diet is monotonous, mostly rice with chillies.
Sections below are presented in order of priority of the findings and recommendations.

**SOCIAL MOBILISATION**

The NIPI Programme has largely overcome initial resistance and is performing reasonably well, but to increase programme participation further, the programme needs ways of increasing relevance (NIPI beneficiaries except pregnant women do not understand that they are likely anaemic) and enthusiasm (for example, giving awards, staging competitions, initiating other IEC).

The most common recommendation from all levels of respondents for how to make the NIPI programme more successful was to raise the priority of anaemia by raising awareness through all the stakeholders about combatting it with IFA, diet, deworming and hygiene.

Enough background information was gleaned from respondents in the NIPI process documentation to inform an enhanced NIPI communication strategy. Though not designed specifically as formative research for a communication strategy, much information was gleaned (see Results). Once a communication strategy is designed and messages are drafted, additional information could be collected about how the messages are understood (a pre-testing phase).

Much of the message about anaemia and the way that NIPI will reduce it is already being taught to NIPI audiences, and has begun to be understood and acted upon. However, the respondents revealed some specific gaps – 1) the main long-term consequences of anaemia – poor cognitive development and school performance, low work productivity, and poor delivery outcomes – were only related to severe anaemia, not moderate or mild; 2) most beneficiaries and many frontline workers thought they were not anaemic; and 3) IFA is seen as a medicine, not as a food supplement.

There are numerous audiences in NIPI -- the beneficiaries are the primary audience, and all agents involved in the programme are secondary audiences. Respondents at each level recommended that agents at other levels or beneficiaries were the ones that needed to apply themselves more to make the NIPI programme more successful. For example, IFA supplementation would be more successful if parents and teachers could be convinced, if “higher authorities” would see and appreciate the work of field level workers, if adolescent girls could be convinced to come to AWCs on Saturday mornings. This suggests that all persons in the existing system are recognized as important for its smooth functioning. Only two groups seemed to be underutilized for NIPI – fathers and community leaders.

The health department personnel, particularly the doctors, are the main messengers of NIPI, and indeed play that role well. They quell resistance, lead trainings, and are ready to handle any emergencies that may arise. Education and WCD Department personnel are secondary
messengers, and are also ready to play their roles. Additional systematic efforts by the Health Department are warranted to promote fuller participation in NIPI.

The ability of the current NIPI programme to communicate through multiple channels to each set of beneficiaries is limited, and therefore its ultimate success. Beneficiaries reported that they consistently heard about anaemia, IFA supplementation and other programme interventions through interpersonal communication (health workers, AWWs or teachers), and students and teachers heard from the RBSK Team once a year.

**Recommendations for Enhanced Social Mobilisation**

The overall recommendation is to prioritise social mobilisation and develop an enhanced NIPI communication (IEC) strategy. Recommendations for some of the components of a strategy follow – NIPI message, audiences, messengers, and channels. The purposes of enhanced IEC could be to:

- Raise the demand for IFA, iron-rich diet, deworming and hygiene among the beneficiaries;
- Reduce the invisibility of anaemia; and
- Elevate the status of field level health, ICDS and education staff as NIPI implementers

For enhancing the NIPI message:

- Beneficiaries and their parents should know that anaemia can be invisible, but nonetheless cause harm such as poor school performance, low work productivity, or poor delivery outcomes
- Beneficiary audiences should understand that they have a 3/4 chance of being anaemic
- IFA should universally be referred to as a “supplement” to food, not as a tablet, medicine, to avoid fear of medicines and their side effects
- IEC material should be translated into several of the major tribal languages
- Leaflets should be developed with pictorial messages for non-literate beneficiaries. In addition, it is recommended to sensitise and orient the media to reduce their tendency to over-react to any side effects of IFA experienced by students – as one state official said: “There is always a ‘media crisis’.

In addition to the many audiences already targeted by NIPI social mobilization, the following should be added:

- Community leaders such as the sarpanch, SHG and SMC, due to their influence in communities, should be persuaded about the importance of combatting anaemia so they can lead support of NIPI as well
- Fathers, due to their influence within families, should be counselled on anaemia in addition to mothers so they can support IFA consumption by their wives and children
The key recommendation about an enhanced messenger role from the Health Department is to bolster the role of the RBSK Team in schools:

- RBSK Teams are in the unique position of being doctors, therefore well-respected, and visiting every school in their jurisdiction once each year. Their role in educating students and teachers could be enlarged by allowing more time at each school to be used for educating. Alternatively a communication specialist could be added to each RBSK team to conduct a community or school information event during each visit, while the rest of the team are conducting health screenings. This recommendation is consistent with a recent directive letter from the Directorate of Family Welfare, Odisha.

Finally, for beneficiaries to hear about NIPI through multiple channels is crucial for persuading about its importance, and the following additional channels are recommended:

- Awards, competitions and events to raise the status of the NIPI programme – as one District Education official said: “To generate interest there can be award or reward. We should motivate them and enable them to do.”

- Media to raise the status and increase the reach of the NIPI programme, including sensitising media actors on anaemia, and expanding messages through radio shows and public service announcements, through scripts of existing TV serials and TV advertisements, through local drama as entertainment, or through a campaign (beneficiaries and officials frequently referred to the visibility of the polio campaign).

- New IEC materials such as updates for teachers; print materials with drawings of anaemic vs. non-anaemic young children, students, and women; section on anaemia for the science curriculum; and section on anaemia for the SABLA kit for adolescents.

**ADMINISTERING THE INTERVENTION**

Supplementation with IFA across the life cycle groups is being implemented relatively well, but there are gaps for each group where IFA consumption falls short of the guidelines.

The intervention of supplementing the numerous groups with IFA (PLW, children under 5 years, male and female students 11-19 years, and adolescent girls out-of-school) is being conducted reasonably well, given that only two full years of start-up and implementation had occurred at the time of the interviews, that coordination is required among three departments, one of which has not coordinated on a large scale with the others before (Education vs Health and ICDS), and that 6 life cycle groups with their own considerations as are reviewed here and two more having more recently begun or soon to begin (children 5-10 years in school and WRA). The emphasis on the prevention side of the programme through supplementation over the therapeutic side is well-placed, given the large proportion of mild and moderate cases.

There is an implementation gap for each life cycle group, however, in which each group systematically consumes less IFA than intended by the guidelines:
Pregnant women who are anaemic, who receive the most focus of any of the life cycle groups, are not getting the full 360 IFA red tablets recommended for them, either because they are only given for 3-4 months instead of 6, are only given 200 total as per the earlier guidelines instead of 360, or are given an amount that is miscalculated in other ways and less than the guidelines.

Lactating women as a group receive much less emphasis compared to pregnant women. Acknowledging that this group had only recently started receiving IFA red tablets to this group, and that programming for them is at a nascent stage, only a small number of lactating women were receiving their full batches of IFA tablets to take during their first 6 postpartum months.

Children 6 months-3 years are supposed to receive syrup at home two times per week from their ASHA, but are limited if the ASHA cannot reach all the houses this often.

Children 3-5 years are supposed to receive syrup two times per week at the AWC during daily ICDS sessions with the AWW, but are limited if their caretakers cannot take them twice or the AWWs do not receive timely adequate supplies.

Adolescent girls out-of-school, many of whom do not attend the AWC every Saturday due to distance, workload or interest, and therefore are not taking IFA tablets weekly.

Adolescent in Standards 6-10 are not receiving enough IFA in some school clusters where compliance with IFA is low and teachers, headmasters and/or CRCCs need more persuasion about NIPI’s contribution to their well-being.

**Recommendations for Administering the Intervention**

By life cycle group:

- For pregnant women, frontline workers (ANMs, ASHAs and AWWs) should ensure that they get 360 IFA tablets, if anaemic, and 180 if not.

- Encourage pregnant women to take their MCP card with ANC records with them if/when they move to their natal home for the end of their pregnancy and first month or so postpartum so their ANC can be seamless across the two locations.

- For lactating women, frontline workers should ensure that they get 360 IFA tablets, if anaemic, and 180 if not.

- For administration of IFA syrup to children 6 months-3 years, encourage the mother to give the 1ml doses on Tuesdays and Fridays and self-record it in MCP card, and have the ASHA visit frequently to monitor consumption and recording.

- For administration of IFA syrup to children 3-5 years, allow the mother to keep the IFA syrup bottle at home and give the dose of IFA syrup to her child on Tuesdays and Fridays and self-record it in MCP card, and have the AWW monitor IFA consumption and reporting during ICDS sessions at the AWC (or during home visits by the AWW or ASHA).
➢ For adolescent girls out-of-school, make the session more informative focusing on their health, behavior and build in incentives for them to participate in Saturday sessions at the AWC, e.g., introduce haemoglobin assessment and/or distribute eggs /take home ration (THR), /Meals etc.

➢ For students in the 9th and 10th standards, extend the MDM programme to them to ensure higher uptake of IFA and uniformity in programme implementation protocol.

➢ For adolescent girls and boys in junior college, distribute IFA tablets to them.

In addition:

➢ Given the low level of adverse effects of the IFA, and the robust systems in place for reaching medical assistance quickly, all the schools and AWCs should have the emergency contact number written on wall and IFA supplementation register.

➢ Provisioning higher incentives for ASHAs for IFA syrup administration and increasing utilization of the same: Although incentive has been provisioned for IFA syrup administration by ASHAs at rate of Re.1 per 8 doses per month for each child, the utilization of this remains poor. One reason reported for poor utilization is that the current incentive is too less to motivate ASHAs.

➢ Strengthen messaging around IFA administration among in-school adolescents during vacations: Multiple respondents from Education department expressed uncertainty over protocols and process of distributing IFA supplements during school holidays. Strengthening messaging and guidance around this is therefore recommended, so as to bring more clarity among programme implementers on guidelines and protocols.

LOGISTIC MANAGEMENT

Despite a strong supply chain, respondents did describe few instances of stock-outs of IFA tablets/syrup. At the time of study, two specific stock-outs in field were identified – for IFA Red tablets and IFA syrup. While the major reason for stock-out of IFA red tablets was inadequate procurement by state, in case of IFA syrup, the supply-chain below district level faced disruptions due to delayed/inadequate indenting and supply.

The degree of sharing stocks and information to avoid shortages and stock outs is impressive at a local field level among ANMs, ASHAs and AWWs, and could be encouraged further within the state - among schools, among pharmacists, and at block and district levels using the electronic supply chain software. Regarding pharmacists, it was also noted that their knowledge of anaemia was limited, but their interest is high and their role among actors in the NIPI programme is central. Also related to pharmacists, storage space for IFA syrup and tablets and albendazole is limited.

Mentioned countless times by teachers, headmasters, CRCCs as well as frontline workers was a fear of IFA tablets and syrup expiring. To be cautious, some even did not want to distribute tablets several months ahead of their expiration date.
Recommendations for Logistics Management

Several key recommendations emerged from the analysis of interview data on logistics management:

- The way AWWs, ASHAs and ANMs share IFA information about IFA stock in the various local storage places and share the stock itself is useful for avoiding shortages and stock outs and should be conducted more widely across the state, including electronic sharing within OSMCL's e-Aushadi procurement software at block and district levels.

- Such supply disruptions could be identified and prevented if systems for tracking supply position and distribution up to block level are available through OSMCL software.

- Inform pharmacists more about the NIPI programme so they can understand anaemia and more fully engage with combating it.

- Expand and improve storage space for IFA and albendazole among other essential drugs at district, block and PHC pharmacies, including adding racks such that boxes are not on the floor, and ventilation and temperature control that require adequate electricity. In addition, local storage conditions in AWCs, schools and sub-centres should be checked.

- Consider softening the aspect of training and supervision of teachers, headmasters, CRCCs and frontline workers about expired IFA tablets and syrup, lest they do not give supplements that are still effective from being overly fearful.

DIAGNOSIS, TREATMENT, REFERRAL AND FOLLOW-UP

The therapeutic side of NIPI in health centres is negligible, in large part because Hb concentrations in all except pregnant women are not tested, hence beneficiaries needing therapeutic IFA doses are not detected.

Hb concentration is not tested among young children, school children or adolescents out-of-school, only among pregnant and perhaps lactating women. Instead, the visual pallor technique is used, which detects only severe anaemia. Without assessing Hb concentration, it is difficult for RBSK Teams and AWWs to follow GOI NIPI Guidelines for treatment of mild and moderate anaemia.

Recommendations for Increased Diagnosis, Treatment, Referral and Follow-up

Several key recommendations emerged from the interviews related to anaemia diagnosis, referral, treatment and follow-up, all at the level of revision of the guidelines:

- All health centres should have functioning haemoglobinometers.

- Those who review and develop the RBSK mechanism should consider building in more time per school and developing more IEC material so that the RBSK Team can further educate students, parents, SMCs, teachers, headmasters, CRCCs and others can learn more about NIPI, get their questions answered, and engage with the programme more.
Make haemoglobinometers available to RBSK Teams to assess students’ anaemia status, and develop a strategy to monitor whether haemoglobin levels are improving over time. Moderate anaemia is prevalent among adolescents in Odisha and throughout India, but it is difficult to distinguish those with moderate from those with mild or no anaemia under NIPI – only severe anaemia can be distinguished and only with the skin pallor technique. Making haemoglobinometers available to RBSK Teams so they may determine the degree of anaemia is recommended. Once haemoglobin levels can be assessed, developing a mechanism to provide adequate doses to manage mild/moderate anaemia is recommended.

Adolescent girls who are out-of-school should receive a health check-up, like the adolescents in school receive from the RBSK Team, and should have their haemoglobin checked, like PLW. The check-up could occur at the AWC when the RBSK Team screens the young children.

For adolescents, follow treatment protocols by Hb level for anaemic school children, including IFA for children with mild/moderate anaemia on a daily or near daily basis.

**MONITORING AND SUPERVISION**

Despite the number of visits and meetings for monitoring and supervision, little was mentioned about the actions taken during and after these occasions, so it is not clear how productive they are for identifying and solving the key issues that arise in the field, block, district, and state levels.

A robust monitoring system is needed to assess further acceptance of IFA consumption, albendazole consumption, and behaviour change related to hygiene and dietary diversity. The system need not assess NIPI progress to measuring many participants, as in a survey, rather assess in small subsamples of beneficiaries and officials from state to field level. Monitoring techniques should also be applied to operational research situations, where different methods of improving programme efficiency and effectiveness are compared. Perhaps certain monitoring topics could be field projects for AIIMS students.

Though the ownership and supervision of NIPI within the ranks of the Education Department have increased greatly, there are some supervisors who do not receive IFA reports regarding IFA supply and consumption, and therefore cannot effectively supervise and feel ownership.

**Recommendations for Monitoring and Supervising the NIPI programme**

A number of recommendations are made toward a more robust and useful monitoring and supervision system:
➢ Revise reporting forms – rationalise the reporting process to allow for the recording of NIPI results to be combined with the recording of related activities, e.g., IFA consumption per student to be on same form as consumption of MDMs in both S&ME and residential schools, and collect information on day scholars attending residential schools.

➢ Enhance mechanisms whereby state officials supervise and hold accountable the district officials who report to them.

➢ Provide copies of supply and consumption reports to align reporting and supervision processes – ensure that all who supervise on NIPI have the reports that update them on the programme’s progress.

➢ Motivate the reporting – make the purpose of reporting clear, make widely available a summary of results comparing districts, blocks, even sectors and clusters.

➢ Review whether the purpose, participants and frequency of meetings in which NIPI is discussed is adequate for its monitoring, implementation review and problem-solving, and for updating participants.

TRAINING

Workers and officials at all levels reported having been instructed how to implement the NIPI programme.

Most district, block, sector and frontline workers described receiving training at the beginning of NIPI, and getting updated NIPI information through regular meetings. For the most part, any gaps in information or shortfalls in performance could be filled through additional supportive supervision at all levels. A budget for refresher training should also be considered. There is currently no budgetary provision for training below block level.

Recommendations for Strategic Training

Additional training could be provided strategically and in targeted fashion in the following ways:

➢ Additional training could be strategically used to raise the status of the programme by giving opportunities for special training to teachers (for whom dispensing nutritional supplements is a new responsibility) and AWWs.

➢ Efforts are on-going according to state officials to incorporate technical health content, including NIPI-related information, into teachers’ curriculum, and these should be supported.

➢ Audio-video training tools on anaemia could be made widely available and shown at regular or project meetings, functioning as refresher training, or as a spark to discussion on how to improve NIPI programme implementation.

➢ A cascade of training within the existing system could be considered further, making sure to carve out the time for any new responsibilities.

➢ A systematic check should be conducted to ensure that all workers who start working on NIPI since its inception get trained adequately on NIPI.
HARD-TO-REACH NIPI BENEFICIARIES

“Hard-to-reach” had four components – remoteness in terms of residing a far distance from main roads and from government attention, language in terms of beneficiaries not speaking Odia, tribal issues and customs, and low education level of beneficiaries. Though all four might exist together, especially among tribal people, separating out the components allowed for some practical recommendations to reduce programmatic constraints.

Recommendations for Reaching the Hard-to-Reach

➢ Increase resources by state and district government for the more remote hilly areas and their tribal peoples, including roads and health services

➢ Monitor and supervise to make sure jobs are being done, and the geographical, cultural and educational constraints are being identified and addressed

➢ Prepare and distribute IEC materials on the NIPI programme in the major tribal languages

➢ Strengthen involvement of local village tribal heads (mukhiya) in the programme to minimise local resistance, and arrange for their sensitisation, budgeting accordingly.
The fund requirement for procurement of most of the formulations of IFA and Albendazole tablets/syrup/suspension were not requested to Govt. of India in the NHM PIP. Instead, the state bore this expenditure for procurement of drugs through the dedicated State Government funds. Following is an analysis of the different types of formulations procured by the state.

### IFA BLUE COLOUR TABLETS (FOR ADOLESCENTS)

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16029</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the tablets are as per the Govt. of India specifications</td>
<td>Tab. Ferrous Sulphate + Folic Acid (Large) (Enteric Coated and blue coloured-Indigo caramine). IFA (Large) &amp; IFA-WIFS name to be displayed prominently</td>
</tr>
<tr>
<td>Estimated Adolescents (class 6 to 10 and out of school adolescent girls) of state</td>
<td>44,97,778 adolescents</td>
</tr>
<tr>
<td>Estimated requirement of tablets for state</td>
<td>23,38,84,456 tablets</td>
</tr>
<tr>
<td>Total number of tablets approved in NHM PIP (2015-16)</td>
<td>16,37,19,116 tablets (70% of total estimated requirement)</td>
</tr>
<tr>
<td>Total number of tablets mentioned in the tender document (2015-16)</td>
<td>16,37,19,116 tablets</td>
</tr>
<tr>
<td>Total number of tablets purchased</td>
<td>16,37,19,600 tablets (IFA tablets purchased in two instalments - through two Purchase Orders (POs) dated 16th September, 2015 and 31st December, 2015)</td>
</tr>
<tr>
<td>Gap between estimated requirement of drug and actual purchase</td>
<td>7,01,64,856 tablets (30%)</td>
</tr>
</tbody>
</table>

### IFA PINK COLOURED TABLET FOR WIFS JUNIOR (CHILDREN 6 – 10 YEARS)

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the tablets are as per the Govt. of India specifications</td>
<td>Tab. Ferrous Sulphate + Folic Acid (Small) (Sugar Coated and Pink coloured (The thickness of Aluminium foil: 40micron with LDPE 25 micron coating/ heat seal lacquer). IFA (Small) &amp; WIFS Junior name to be displayed prominently</td>
</tr>
<tr>
<td>Estimated Children (class 1 to 5) of state</td>
<td>38,36,492 children</td>
</tr>
<tr>
<td>Estimated requirement of tablets for state</td>
<td>19,94,97,584 tablets</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Total number of tablets approved in NHM PIP (2015-16)</td>
<td>13,96,48,308 tablets (70% of total estimated requirement)</td>
</tr>
<tr>
<td>Total number of tablets mentioned in the tender document (2015-16)</td>
<td>13,96,48,308 tablets (IFA tablets purchased in 2 instalments - through 2 purchase orders dated 16 September, 2015 and 31 December, 2015)</td>
</tr>
<tr>
<td>Total number of tablets purchased</td>
<td>13,96,48,800 tablets</td>
</tr>
<tr>
<td>Gap between estimated requirement of drug and actual purchase</td>
<td>5,98,48,784 tablets (30%)</td>
</tr>
<tr>
<td>Remark</td>
<td>EDL list indicates the Pink IFA tablet to have enteric coating. As per GoI recommendations, it should be mentioned as sugar coated.</td>
</tr>
</tbody>
</table>

**IFA SYRUP (CHILDREN 6 – 59 MONTHS)**

There are two types of IFA syrup being procured in Odisha mentioned as following:

**A. IFA Syrup (50 ml bottle, Auto-dispensable)**

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16031</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the IFA Syrup are as per the Govt. of India specifications</td>
<td>Each 1 ml containing 20mg of Elemental Iron and 0.1 mg of Folic Acid. It is put in an Amber colour Auto-dispensing bottle so that only 1ml can be dispensed at a time. Each bottle of 50 ml to be packed in a mono-cartoon and the instruction leaflet (as per GOI guideline) is to be placed inside the mono-cartoon.</td>
</tr>
<tr>
<td>Estimated Children (6 months to 5 years age) of state</td>
<td>41,78,268 children</td>
</tr>
<tr>
<td>Estimated requirement of syrup bottles (50 ml bottle) for state</td>
<td>83,56,536 bottles</td>
</tr>
<tr>
<td>Total number of Syrup bottles (50 ml bottle) approved in NHM PIP (2015-16)</td>
<td>58,49,576 bottles (70% of the total estimated requirement)</td>
</tr>
<tr>
<td>Total number of bottles (50 ml) mentioned in the tender document</td>
<td>69,73,241 bottles</td>
</tr>
<tr>
<td>Total number of bottles (50 ml) purchased</td>
<td>58,49,600 bottles (Bottles purchased in 2 instalments - through 2 purchase orders dated 16 September, 2015 and 31 December, 2015)</td>
</tr>
</tbody>
</table>
### Gap between estimated requirement of drug and actual purchase

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap between estimated requirement of drug and actual purchase</td>
<td>25,06,936 bottles (30%)</td>
</tr>
</tbody>
</table>

**Remark**
Specifications are as per GoI but details mentioned in EDL sheet are inconsistent e.g. at one place it mentions 'dropper' and another place it mentions to have 'auto-dispenser'. The EDL list mentions the bottle capacity as 100 ml instead of 50 ml. However, in the tender document, the capacity of auto-dispenser IFA is 50 ml which is as per GoI specifications.

### B. IFA Syrup (100 ml bottle)

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the IFA Syrup</td>
<td>Each 5ml contains 100mg of Elemental Iron and 0.5 mg of Folic Acid with measuring cap, dropper and plastic container as per I.P (This is NOT as per the Govt. of India specifications)</td>
</tr>
</tbody>
</table>

**Remark**
During field visits, it was found that this kind of dropper bottle is being given to health facilities to be prescribed if required in the OPDs of PHC/CHC/Hospital etc.

### IFA SMALL ENTERIC COATED

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16037</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the IFA small tablet</td>
<td>Tab. Ferrous Sulphate + Folic Acid (Enteric Coated, Red Colour) (Paediatric)(Aluminium foil/Blisterpack) - Each Enteric coated Tab. Contains 20mg Elemental Iron with 100 mcg Folic Acid (This is NOT as per the Govt. of India specifications).</td>
</tr>
</tbody>
</table>

**Total number of tablets mentioned in the tender document (2015-16)**
95,06,000 tablets

### IFA RED COLOURED TABLET FOR PREGNANT AND LACTATING WOMEN

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16038</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the tablets are as per the Govt. of India specifications</td>
<td>Tab. Ferrous Sulphate + Folic Acid (Enteric Coated, Red Colour) (Aluminium foil/Blister pack) Equivalent to 100 mg of Elemental Iron + Folic Acid 0.5mg (500mcg) / Enteric Coated Tablet</td>
</tr>
<tr>
<td>Estimated Pregnant Women (ANC) and Lactating Mothers (PNC) of state</td>
<td>9,55,732 (ANC) + 8,93,225 (PNC) = 18,48,957</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Estimated requirement of tablets for Pregnant Women in state</td>
<td>27,52,50,816 tablets (180 tab for 40% PW + 360 tab for 60% PW)</td>
</tr>
<tr>
<td>Estimated requirement of tablets for Lactating Mothers in state</td>
<td>16,07,80,500 tablets (180 tab per LM)</td>
</tr>
<tr>
<td>Estimated requirement of tablets for state</td>
<td>43,60,31,316 tablets</td>
</tr>
<tr>
<td>Total number of tablets mentioned in the tender document (2015-16)</td>
<td>3,61,15,300 tablets</td>
</tr>
<tr>
<td>Total number of tablets purchased</td>
<td>2,40,76,900 tablets</td>
</tr>
<tr>
<td>Gap (between tender quantity and real purchase quantity)</td>
<td>1,20,38,400 tablets (Only one PO for red IFA, dated 31st Dec 2015, could be traced as part of the study)</td>
</tr>
<tr>
<td>Gap (between estimated requirement and actual purchase quantity)</td>
<td>42,39,92,916 tablets (Based on the PO dated 31st Dec, 2015)</td>
</tr>
<tr>
<td>Remark</td>
<td>Although NHM PIP 2015-16 mentions 'IFA large - Tab. Ferrous Sulphate + Folic Acid (Red color, Equivalent to 100 mg of Elemental Iron + Folic Acid 0.5 To be met out of JSSK drugs'; no specific document specifying the actual purchase could be traced under the study. The remark in JSSK head under NHM PIP (2015-16) is as follows: “Budgeted 10% &amp; rest to be met out of State budget. This fund has to be utilised for meeting drugs &amp; consumables, if not available at that point of time, with the respective facility from State supply. Procurement has to be done through local purchase, observing official procedure.”</td>
</tr>
</tbody>
</table>

**IRON SUCROSE**

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications</td>
<td>Inj. Iron Sucrose 50 mg/ 2.5 ml 5 ml/Amp (20 Ampules/Box)</td>
</tr>
<tr>
<td>Total number of Ampules mentioned in the tender document</td>
<td>93255 ampules (No PO could be traced for any actual purchase)</td>
</tr>
</tbody>
</table>
### TABLET IRON

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications</td>
<td>Tab. Iron (Sugar Coated) (Aluminium foil/Blister pack) Equivalent to 100 mg of Elemental Iron 10 Tabs/Strip</td>
</tr>
<tr>
<td>Total number of Tablets mentioned in the tender document</td>
<td>9,84,000 tablets (No PO could be traced for any actual purchase)</td>
</tr>
</tbody>
</table>

### SYRUP IRON

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications</td>
<td>Syrup Iron Each 5ml Contains 30mg of 100ml / Bottle</td>
</tr>
<tr>
<td>Total number of bottles mentioned in the tender document</td>
<td>1,68,400 bottles (No PO could be traced for any actual purchase)</td>
</tr>
</tbody>
</table>

### TABLET FOLIC ACID

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications</td>
<td>Tab. Folic Acid (Aluminium foil/Blister pack) IP 5 mg/Tab</td>
</tr>
<tr>
<td>Total number of Tablets mentioned in the tender document</td>
<td>43,42,500 tablets (No PO could be traced for any actual purchase)</td>
</tr>
</tbody>
</table>

### IRON DROP

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D16019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications</td>
<td>Palatable, with dropper and plastic container as per I.P) Elemental Iron 50 mg / ml. 15ml / Bottle</td>
</tr>
<tr>
<td>Total number of bottles mentioned in the tender document</td>
<td>78,250 (No PO could be traced for any actual purchase)</td>
</tr>
</tbody>
</table>

### ALBENDAZOLE TABLETS FOR CHILDREN (CLASS 1 TO 5) AND ADOLESCENTS (ADOLESCENTS FROM CLASS 6 TO 10 + OUT-OF-SCHOOL ADOLESCENT GIRLS)

<table>
<thead>
<tr>
<th>OSMCL Drug Code</th>
<th>D08004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications of the tablets are as per the Govt. of India specifications</td>
<td>Tablet Albendazole (Chewable, Aluminium Foil/Blister Pack)</td>
</tr>
<tr>
<td>Description</td>
<td>Value</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Estimated children (class 1 to 5) + Adolescents (class 6 to 10 plus out of school adolescent girls) of state</td>
<td>38,36,492 (children class 1 to 5) + 44,97,778 (adolescents 6 to 10 plus out of school adolescent girls) = 83,34,270</td>
</tr>
<tr>
<td>Estimated requirement of tablets for children (class 1 to 5) in state</td>
<td>76,72,984 tablets</td>
</tr>
<tr>
<td>Estimated requirement of tablets for Adolescents in state</td>
<td>89,95,556 tablets</td>
</tr>
<tr>
<td>Estimated total requirement of tablets for state</td>
<td>1,66,68,540 tablets</td>
</tr>
<tr>
<td>Total number of tablets approved in NHM PIP (2015-16)</td>
<td>61,38,388 tablets (80% of requirement for children class 1 to 5) + 62,96,886 tablets (70% of requirement for adolescents) = 1,24,35,274 tablets</td>
</tr>
<tr>
<td>Total number of tablets mentioned in the tender document (2015-16)</td>
<td>Missing in tender</td>
</tr>
<tr>
<td>Total number of tablets purchased</td>
<td>61,38,440 tablets (for children class 1 to 5) + 62,96,960 tablets (for adolescents) = 1,24,35,400 tablets</td>
</tr>
<tr>
<td>Gap between estimated requirement of drug and actual purchase</td>
<td>42,33,140 tablets (25%)</td>
</tr>
</tbody>
</table>
Since its inception, the anaemia control programme has undergone multiple transitions. Since 2011, Adolescent Anaemia Control Programme (AACP) for out-of-school adolescent girls was being implemented through the platform of Anganwadi centres. In 2013, the Weekly Iron Folic acid Supplementation (WIFS) programme was introduced, which also included school-going adolescent girls and boys. Bi-weekly IFA syrup supplementation to pre-schoolers was initiated in 2014 across all the districts through platform of Anganwadi centers (for 36–59 months children) and through home visits (6-35 months children). Since mid-2014, WIFS junior component in schools, for students in class I-V, has also been initiated. While IFA supplementation among pregnant women has been going on since decades, recently in 2016 lactating women were also brought under the fold of NIPI programme.

The process documentation on NIPI was conducted with the purpose of understanding the achievements, challenges, bottlenecks and promising practices in implementation of the programme in Odisha. The data collection for the documentation was conducted during 2015-16, and some time has elapsed before its release. During this period, various components of the NIPI programme have undergone structural changes. With the aim to make this document more comprehensive and updated, these recent developments under NIPI have been outlined below.

**Planning and Coordination**

- State Level Coordination Meeting for WIFS has been subsumed to ‘State Adolescent Health Committee’ (SAHC). *(Adaptation of Order from Adolescent Division of Ministry of Health & FW, Govt. of India)*\(^{48}\)

- In order to strengthen inter-departmental convergence and streamline reporting on WIFS, a letter was issued from Directorate of Family Welfare to all District Collectors requesting them to review the NIPI Programme during the monthly convergence meeting, in presence of officials from all concerned departments *(DFW Letter)*\(^{49}\).

**Logistics Management**

- Acknowledging the issue of expired tablets lying at various levels in the field, the Directorate of Family Welfare also issued another letter\(^{50}\) to all the districts highlighting the

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\(^{48}\) Minutes of State Coordination Meeting on SAHC held on 17\(^{th}\) Sept, 2016

\(^{49}\) DFW Letter No. - 243 / Dt. 19-03-2016: Review of NIPI Programme in monthly RMNCH+A Review Meeting

\(^{50}\) DFW Letter No. 164 / Dt. 21-02-2017: Revised Guideline for NIPI Programme focusing on supply chain, reporting and management of IFA Tablets
importance of proper management and disposal of expired drugs. The letter stated that all expired drugs should be returned to central warehouse following the reverse pathway of the supply chain. The disposal of expired IFA Tablets / syrup will be done at district central warehouse by following the state guideline for the same.

**Training**

- It was evident through routine programme monitoring and even during the data collection for this study, that there was further scope to improve the programme understanding and awareness among district/block officials, frontline workers and teachers. With the view to improve skills and capacities of functionaries at all levels, a capacity building programme is planned to be rolled-out during 2017-18. For this, the state-level ToT for district-level officials from Health, Education, WCD and SSD departments will be supported by UNICEF. The master trainers will further train the block officials and RBSK MHTs. Consequently, the AYUSH Doctors of RBSK MHTs will provide orientation and handholding support to teachers, AWWs and SMC members.

**Administration of Intervention**

- As per the revised guideline on IFA Syrup supplementation (DFW Letter\(^5\)), ASHA is responsible for administering IFA Syrup to all children from 6 months to 5 years age group. IFA Syrup bottles are to be handed over by ANM at VHND Session to respective mothers to keep at their home and ASHA is required to ensure the administration of IFA Syrup through home visits.

- Since 2016-17 the state has introduced deworming among pregnant women. All pregnant women now receive one Albendazole tablet (400mg) during 2nd trimester.

**Monitoring and Supervision**

- Acknowledging the need for providing hand-holding and supportive supervision to AWWs and teachers, the Health department, with support from UNICEF has planned a pilot initiative for WIFS monitoring in three poor performing districts (one district from each revenue division). As part of this initiative, AYUSH doctors (posted at CHC/PHC and RBSK MHTs) will monitor WIFS implementation and make hand-holding visits to AWCs and schools. While RBSK doctors will do this during their routine visits to schools/AWCs, the AYUSH doctors posted at CHC/PHCs will be provided incentive (Rs.150/visit) which has been approved under NHM ROP 2017-18.

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**Reporting Mechanism**

- GoI WIFS reporting formats for schools and AWCs have been translated to Odia and printed booklets have been supplied to districts by state NHM Office. Auto-carbon papers have been used in these booklets to facilitate easy reporting and record maintenance.

- WIFS reporting has been incorporated as part of DWCD department's e-pragati software. In coordination with Health department, DWCD has agreed to revise the e-pragati template, to align it with the monthly reporting format for WIFS.

- From April 2017 onwards, GoI has incorporated WIFS reporting into HMIS. With reference to this decision, MD, NHM (Odisha) has issued one letter (NHM Letter)\(^{52}\) for incorporation of NIPI reporting into HMIS.

- The S&ME department has developed an SMS based monitoring system to capture data on various components of Mid-Day Meal, including IFA administration.

**Social Mobilisation**

- In order to build community demand for NIPI, the Health department has planned to develop (with support from UNICEF) and supply resource materials for Nutrition Health Education to be used at schools and AWCs. The department has also proposed in the NHM PIP (2017-18) for development of posters on WIFS to be supplied to all AWCs of the state.

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\(^{52}\)NHM Letter No.- 5596 / Dt. 17-05-2017: Strengthening of HMIS Reporting System in Odisha