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Understanding how the strategic use of data can improve the implementation of Maternal
Nutrition Interventions in Uttar Pradesh (UP), India

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B.S.
University of Michigan
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Abstract

Understanding how the strategic use of data can improve the implementation of Maternal
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By Ahad Amin Bootwala

Objective: Maternal undernutrition remains high in India and is associated with maternal
mortality and adverse birth outcomes. To address this challenge, Alive & Thrive (A&T) aimed to
strengthen interpersonal counseling, micronutrient supplement provision, and community
mobilization through the government antenatal care (ANC) platform in UP. The nutrition-
intensified ANC (I-ANC) intervention facilitated regular use of data to enable corrective actions.
We aimed to understand how maternal health data was used for improving the delivery of
maternal nutrition services and to identify factors associated with data use.

Methods: In-depth interviews (N=35) were conducted among sub-district government staff,
frontline worker (FLW) supervisors and A&T staff in two districts in UP. Systematic coding of
verbatim transcripts and detailed summaries was undertaken to elucidate themes and patterns
related to data use and facilitators and barriers.

Results: Sub-district government staff reported using government data (i.e. HMIS) to estimate
demand for prenatal supplements. Sub-district government staff, FLW supervisors and A&T
staff used government and intervention monitoring data to understand the impact and reach of
services delivered to women. Key indicators on the attendance of pregnant women at community
health events and number of women receiving adequate supplements was discussed with FLWs
in monthly review meetings. Data review guided identification of areas of low FLW performance
(i.e. monitoring weight gain) and prompted refresher trainings. Facilitators of data use included
collaboration between sub-district health department officials on data analysis and monthly
review meetings to provide feedback on improving performance (including counseling topics
and stock of supplements). Barriers to data use included staff vacancies, education level of FLWs
and conflicts between FLWs and supervisors.

Conclusions: Use of data for decision making is critical for supporting intervention planning and
providing targeted supervision and support for FLWs. Collaboration facilitated the use of data,
but structural barriers such as staff vacancies need to be addressed to improve the
implementation of maternal nutrition interventions.

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<u>Chapter 1: Introduction</u>

Introduction and rationale

In 2017, the global maternal mortality ratio was 211 deaths per 100,000 live births.[2] Through Sustainable Development Goal 3, the United Nations hope to reduce the global maternal mortality to less than 70 per 100,000 live births. As of 2016, India has a maternal mortality ratio of 130 per 100,000 live births. Maternal malnutrition, encompassing undernutrition and overweight, is associated with adverse maternal and fetal complications during pregnancy, delivery, and post-partum.[3] As a result, there is growing interest in establishing maternal nutrition interventions within antenatal care (ANC) that emphasize the importance of topics such as iron-folic acid (IFA) supplementation, calcium supplementation, weight gain monitoring, dietary diversity, and the promotion of breastfeeding. As identified in the recent Lancet Series on Maternal and Child Nutrition, evidence-based intervention programs that deliver optimum nutrition to pregnant women, infants, and children could save nearly $370 per life year.[3] However, while there is a clear presence of these evidence-based interventions, there is a lack of data on the implementation of these interventions at scale. This limits the ability to draw inferences on the long-term impact of nutrition interventions on the mother and child's health.

Maternal nutrition in India

Improving maternal nutrition has historically been prioritized by the Indian government through administration of the National Family Health Survey, the National Nutrition Policy created in 1993, and the 10th and 11th Five Year Plans.[4] Despite the presence of these progressive

policies, a streamlined package of nutritional services is not reaching the majority of women during pregnancy, leading to poor compliance to the country's standards. Census data from 2016 reports that the country's maternal mortality rate is 130 deaths per 100,000 live births.[5] According to India's National Family Health Survey-4 for 2015-2016, 51% of women aged 15-49 attended the recommended four or more antenatal care (ANC) visits.[6] Fifty-nine percent of women aged 15-49 attended their ANC visit during the first trimester. Regular ANC is recommended to improve the care of pregnant women and reduce the risk of stillbirths and other complications during pregnancy.[7]

Uttar Pradesh, India

The state of Uttar Pradesh lags behind the national average, with 46% of women receiving ANC during the first trimester and 26% attending four or more ANC visits.[8] Almost half of pregnant women in the state are anemic, which may be preventable through early and regular consumption of iron-folic acid (IFA) supplements. Among those who received ANC, 63% of women received or purchased iron-folic acid supplements, but only 13% consumed them for the recommended 100 days or more. India's average is 78% and 30% for these indicators, respectively.[6] Among women who received ANC services for their last birth, the frequency of weight-gain monitoring and blood pressure measurement were also lower in Uttar Pradesh (63% each) compared to the national average (91% and 89%, respectively).[6,8]

Problem statement

Maternal malnutrition during pregnancy increases the risk of adverse birth outcomes, such as low-birth weight, preterm birth and intrauterine growth restriction.[9,10] These can have

long-term consequences on the cognitive and physical development of the child that may persist or worsen throughout adulthood. There is increased recognition of the need for evidence-based intervention programs to enhance the delivery of nutrition services to pregnant women.[3] India currently has a rich portfolio of maternal nutrition programs under the Integrated Child Development Services (ICDS) Scheme and National Rural Health Mission (NHRM).[4] The ICDS supplemental food program provides 600 kilocalories and 18-20 grams of protein daily to pregnant and lactating women throughout the country. Under NHRM, Village and Health Nutrition Days (VHND) are held on a weekly basis at the village level to provide health and nutrition services such as IFA supplementation, immunizations, and antenatal care (ANC) check-ups. Despite the clear presence of these programs, there is a need for monitoring and evaluation strategies to understand the effectiveness of maternal nutrition interventions in improving maternal health and reducing the risk of adverse birth outcomes.[3,4] Moreover, there is a knowledge gap of what data is measured from intervention programs and how data is used to guide decision-making for program implementation.[3]

To address this gap, the International Food Policy Research Institute (IFPRI) and Alive & Thrive (A&T) have partnered to evaluate the feasibility and impact of integrating a package of interventions for strengthening the delivery of maternal nutrition services in two districts of Uttar Pradesh.[11] Within this parent study, there was a need to understand the strategic use of existing government monitoring data and program intervention monitoring data from A&T for the improvement of program implementation. IFPRI and A&T collaborated with Emory University to address this need through a nested qualitative study. This paper will outline the methodology and key findings from this study.

Purpose statement

This project will examine the use of government monitoring data and program intervention monitoring data by FLW supervisors, block-level government staff and program staff for decision-making to improve implementation of maternal nutrition services in two districts of Uttar Pradesh, India. The following research aims were used to guide data collection and analysis:

- How has the routine government monitoring data and program intervention monitoring data been used in the high and low-performing blocks to guide decision-making for implementation of maternal nutrition services?

- What are the facilitators and barriers to the use of government and intervention monitoring data for decision-making?

Significance statement

This project will provide insight into the current strategy of data usage in two districts of Uttar Pradesh, India, where there is an increased need for streamlined maternal nutrition services to improve maternal health outcomes. Investigating the use of government monitoring data will clarify the extent to which evidence-based decision-making is performed by government staff in India to improve maternal health in the country. The project will also shed light on future strategies that use data to evaluate the effectiveness of maternal nutrition interventions. By thoroughly assessing intervention programs, the goal is to increase the number of women receiving maternal nutrition services during and after their pregnancy. Doing so may have positive, long-lasting impacts on the survival of pregnant women and the development and growth of their children across the first 1,000 days of life.

Definition of terms

Term	Acronym	Definition
Health Management Information System	HMIS	Data collected by the Government of India on maternal health indicators. Collected nationally and statewide.
Intervention monitoring data	█████████████	Data collected on implementation of A&T's intervention by IPE Global.
Village Health and Nutrition Day	VHND	Event in villages where maternal nutrition and supplements are distributed.
Alive & Thrive	A&T	Global initiative to strengthen maternal, infant, and young child nutrition.
IPE Global	IPEG	International consulting group that implements programmatic interventions.
Accredited Social Health Activist	ASHA	Community health worker employed by Government of India's Ministry of Health and Family Welfare (MoHFW).
Anganwadi Worker	AWW	Community health worker employed by the Government of India's International Child Development Scheme.
Auxiliary Nurse Midwife	ANM	Community health worker employed by the Government of India to provide antenatal care services.
Frontline Worker	FLW	Broad term encompassing ANMs, ASHAs, and AWWs.
Block Program Manager	BPM	Government block staff member responsible for supervising ANMs and HMIS data entry
Child Development Program Officer	CDPO	Government block staff member employed by the Integrated Child Development Services scheme.

Block Community Process Manager	BCPM	Government block staff member responsible for supervising ASHA Sanginis and ASHAs.
Health Education Officer	HEO	Government block staff member responsible for supervising ANMs and data entry.
Medical Officer In Charge	MOIC	Government block staff member responsible for supervising FLWs and supervisors in MoHFW and attending to clinical events.

Chapter 2: Literature Review

Global burden of maternal mortality and maternal malnutrition

From 2000 to 2017, there was a 38% reduction in the global maternal mortality ratio (MMR): from 342 deaths to 211 deaths per 100,000 live births.[1] However, this number remains significantly higher than the goal of reducing the maternal mortality rate to 70 deaths per 100,000 live births by 2030 that is outlined by Sustainable Development Goal 3. MMR is widely recognized as an indicator for the overall health of a population, the status of women in society, and the functioning status of a country's health system.[12] For this reason, MMR serves as a marker for health inequities due to gender and the quality of health services in a country, which can impact advocacy efforts to improve a country's overall health status. However, MMR does not highlight the causes of maternal death, among which malnutrition is a key factor.

The World Health Organization (WHO) defines malnutrition as deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients.[13] Malnutrition typically encompasses two broad conditions: (1) undernutrition, or the inadequate consumption of vitamins, minerals, and energy-rich foods; and (2) overnutrition, or the excess consumption of nutrients and energy-rich foods. The inadequate consumption of vitamins and minerals is specifically referred to as "micronutrient malnutrition." Deficiencies in micronutrients such as iodine, vitamin A and iron impact the human body's ability to produce biological molecules such as enzymes and hormones to regulate growth and development.[14] The indicator typically used to assess malnutrition is body mass index (BMI). WHO categorizes the following BMI ranges as follows: ≤ 18.5 kg/m^2 is underweight, 18.5-24.9 kg/m^2 is normal weight, 25.0-29.9 kg/m^2 is overweight, and ≥ 30 kg/m^2 is obese.[15] Underweight BMI is a sign for undernutrition while overweight and obese BMI measures signal overnutrition.

Malnutrition during pregnancy or lactation, referred to as "maternal malnutrition," results in severe consequences for both the mother and child. Maternal undernutrition leads to an increased risk of low birthweight, pre-term delivery, and birth defects such as neural tube defects.[16] The 2018 Global Nutrition Report states that 9.7% of women of reproductive age (20-49 years) are underweight.[17] Undernutrition during pregnancy may lead to anemia, which is defined as low blood hemoglobin concentration.[18] Maternal anemia increases the risk of death of the mother during and after childbirth, contributing to between 2.5-3.4 million deaths worldwide. It is estimated that the prevalence of anemia among non-pregnant women and pregnant women was 29% and 38% in 2011, respectively.[18] Maternal obesity increases the risk of developing gestational diabetes mellitus and pre-eclampsia, along with an increased risk of death or hemorrhage during labor and delivery.[2] There is an increasing trend of overweight among adult women globally, from 29.8% in 1980 to 38% in 2013.[19] Chen et al. (2014) estimated that 38.9 million overweight and obese pregnant women and 14.6 million obese pregnant women exist globally in 2014. The trend is becoming common in high income countries, like the United States, and middle income countries, such as India.

Maternal mortality and malnutrition in India

In 2016, the maternal mortality rate in India was 130 deaths per 100,000 live births, indicating massive progress since 2006 when the rate was 254 deaths per 100,000 live births.[20] However, there is stark variation between states. The MMR ranges from 46 deaths per 100,000 live births in Kerala, India's southernmost state, to 237 deaths per 100,000 live births in Assam, India's easternmost state. Uttar Pradesh is India's most populous state, with about 200 million people or 16.5% of India's total population.[21] Despite India's economic growth since the start of

the 21st century, Uttar Pradesh has lagged behind the country's overall improvement. As of 2016, the MMR in Uttar Pradesh is 201 deaths per 100,000 live births.

Malnutrition remains a major contributor to the burden of disease in India. According to India's National Family Health Survey from 2015-2016 (NFHS-4), the prevalence of undernutrition among women of reproductive age (15-49 years old) is 22.9%, a decrease from 35.6% of underweight adult women reported in NFHS-3 in 2005-2006.[8] In Uttar Pradesh, the prevalence is 25.3%. The NFHS-4 also reports that 23% of women aged 15-49 are overweight or obese, compared to 36% reported in the NFHS-3. In Uttar Pradesh, the prevalence is 17% compared to the 9% reported in the NFHS-3.[6] The slow progress of reducing the high prevalence of undernutrition in India and rise in overweight and obesity signifies India's current "double burden of malnutrition." Anemia remains a major public health concern among this population at 53%, a decrease from the 55% prevalence reported in the NFHS-3.[8] In Uttar Pradesh, the prevalence of anemia among women of reproductive age is 52.4%.[6] To correspond with the objectives of the maternal nutrition program, the following sections will focus on undernutrition and how to address this burden.

Consequences of undernutrition for woman and child

Maternal undernutrition is associated with a higher risk of maternal mortality compared to women of healthy weight.[22] Low BMI during pregnancy is associated with an increase in all-cause mortality, while anemia during pregnancy is associated with increased maternal mortality.[2] Postpartum hemorrhage is linked to anemia and contributes to 24.5% of maternal deaths in India, making it the most common cause of maternal mortality.[23] Low intake of calcium is associated with an increased risk of gestational hypertensive disorder, which contributes to 7.1% of

maternal deaths. Undernutrition at the time of conception decreases the likelihood of improved nutritional status during pregnancy, when women have greater nutritional needs for their own health and that of the child. This condition also contributes to poor birth outcomes such as low birth weight, preterm birth, neonatal mortality, and subsequent childhood malnutrition. Poor fetal growth or stunting in the first 2 years of life lead to irreversible damages in future adult height, income, and education.[10] In other words, maternal undernutrition may have intergenerational consequences on human capital.

Determinants of undernutrition

Undernutrition can be linked to various social determinants. Low family income, unmarried status, and lack of awareness of social support systems are associated with higher odds of giving birth to a malnourished child.[24] Improvements in maternal nutrition are hindered by underlying factors such as female illiteracy, poverty and lack of women's empowerment.[22] Women who live in environments where they have low status are restricted in their ability to leave the household and engage in social interactions.[25] As a result, they are less likely to be exposed to maternal nutrition information or question culturally-based food taboos that increase their risk for undernutrition. In communities where women have low status, access to prenatal and postnatal care may be limited or not available at all due to perceived low priority of these services from local governments and lack of demand. These factors also amplify the risk of maternal undernutrition and death. Optimum maternal and child nutrition can be achieved by building an enabling environment that includes rigorous evaluations, capacity investments and horizontal and vertical coordination.[2] Such an environment may support the development of nutrition-sensitive approaches which address the underlying determinants of undernutrition.[26]

These approaches may then serve as platforms for nutrition-specific interventions that specifically target pregnant and lactating women to reduce micronutrient deficiencies and stunting and wasting in children.

Solutions for undernutrition

Interventions that include micronutrient supplementation before and during pregnancy have shown increased potential to reduce adverse maternal and child health outcomes.[27] Daily iron supplementation to women during pregnancy reduces anemia at term by 70%, iron deficiency anemia by 67%, and low birthweight by 19%. Iron can be jointly consumed with folic acid, which improves mean birthweight and reduces the risk of newborns developing neural tube defects.[3] A review of calcium supplementation programs showed that adequate calcium intake among pregnant women at risk of low calcium intake reduces the incidence of gestational hypertension by 35% and preterm births by 24%.[28] Intervention programs that aim to increase energy and protein intake through antenatal nutrition education have also shown promise in reducing the risk of preterm birth and promoting balanced protein intake, which may improve fetal growth.[29]

The WHO has compiled 39 recommendations on antenatal care for a positive pregnancy experience based on systematic reviews of trials that demonstrate efficacy of maternal nutrition interventions.[30] Previous studies in the Indian state of Punjab have shown that the combination of nutrition education and micronutrient supplementation results in increased maternal weight gain, increased newborn birthweight, and increased consumption of micronutrients such as iron, folic acid and calcium.[31,32] Despite these promising solutions, there is limited evidence of the effectiveness of similar intervention programs at scale in low and middle-income countries,

including India. There is a need to understand the performance of an intervention using the resources available in the setting of implementation. Moreover, there is a knowledge gap of the feasibility of integrating a package of interventions into existing antenatal care platforms that are supported by the Government of India.

Parent study in Uttar Pradesh, India

To correspond with the objectives of the Sustainable Development Goals, the WHO in 2016 published 39 recommendations on antenatal in the framework of five types of interventions directed to achieve a positive pregnancy experience through antenatal care.[30] Following these recommendations and with the aim of translating and implementing some them into a real context, in 2017, the International Food Policy and Research Institute (IFPRI) and Alive & Thrive (A&T), in collaboration with the Government of India, began a project called "Evaluate a Feasibility Study of Integrating Maternal Nutrition Interventions in Existing Reproductive, Maternal, Newborn and Child Health Services in Uttar Pradesh, India: A cluster-randomized evaluation." This parent study aims to evaluate the feasibility and impact of integrating a package of interventions for strengthening the delivery of maternal nutrition services (social mobilization, training of FLWs, strengthening supportive supervision mechanisms, strengthening maternal nutrition services in VHNDs, supply chain management, and strategic use of data) into the existing government programs and services of antenatal care in 13 blocks of Uttar Pradesh. The impact of the interventions will be assessed on the following outcomes: IFA intake, calcium intake, breastfeeding practices, consumption of a diverse diet, and weight-gain monitoring.

Alive & Thrive (A&T) is a global nutrition initiative to improve maternal, infant, and young child nutrition (MIYCN). A&T currently operates in seven low and middle-income

countries, including India, where it partners with governments, United Nations agencies, NGOs, and universities to strengthen MIYCN delivery mechanisms for sustainable social and behavioral change. A&T designed the package of interventions to be implemented for the parent study.

IPE Global (IPEG) is an international consulting group based out of India that provides technical assistance for implementing innovative solutions for sustainable growth in developing countries. IPEG supported the government health system of Uttar Pradesh in building their capacity to implement A&T's maternal nutrition interventions through the current ANC platform. The team of IPE Global facilitators and staff also supported government staff in the successful completion of project activities and to ensure compliance with defined deliverables.

A nested cohort study was initiated in 2018 to collect objective measures of maternal nutrition such as weight gain during pregnancy, IFA and calcium intake, anemia, and dietary diversity among a cohort of 440 pregnant women. This process evaluation was strategized to be conducted between the repeated cross-sectional surveys for the parent study at baseline (2017) and endline (2019). A nested qualitative study led by Emory University was added on to the nested cohort to accomplish another primary outcome for the study: to get a deep understanding of the program implementation (parent study) at the district, block, village and household levels through in-depth interviews with key stakeholders involved in the implementation: pregnant women, family members, community members, FLWs, supervisors, block-level staff and program staff. The Emory University team was composed of 3 students to investigate this overall aim. The particular focus of this thesis will be on one component of this aim: to examine the use of government monitoring data and program intervention monitoring data by FLW supervisors, block-level government staff and program staff for decision-making to improve program implementation.

Strategic use of data

There has been much progress in the development of intervention programs that aim to improve maternal and child nutrition. Effective interventions are characterized by their ability to mobilize community platforms, which enable scaling up of these interventions.[3] However, there is a need for understanding the bottlenecks for both implementation and utilization of intervention components by examining data on these aspects. Additionally, if data is being generated, there is a need to understand how this data is being used to inform decisions regarding the improvement of intervention program implementation. Building evidence on the effectiveness of nutrition interventions can inform universal policy changes, development of prevention and management strategies for malnutrition, and scaling up of interventions.[3]

Routine strategic use of data was a component of A&T's package of interventions to strengthen implementation of maternal nutrition services. This included the creation of MN Block Report Cards to outline the reach, intensity, and quality of each component of the program intervention, such as uptake of maternal nutrition services, maternal nutrition counseling, and status of IFA and calcium supplies. IPE Global representatives and A&T program staff were also required to meet weekly and monthly to review status of program activities in the 13 intervention blocks to identify opportunities for A&T support. Lastly, stock of IFA and calcium was required to be monitored monthly through data collection at the district and community health centers in each of the intervention blocks.

This qualitative study will inform the creation of a program impact pathway (PIP) that outlines the use of intervention monitoring data and routine government monitoring data for program implementation. A PIP analysis is an approach that enables theory-driven evaluations by combining inputs from the program's interventions, individual utilization and impact, and

contextual factors that may influence the effectiveness of a program's interventions.[33] Constructing a PIP has been shown to effectively guide data collection, analysis, and interpretation for interventions focused on improving MIYCN practices.

Chapter 3: Methods

Introduction

A nested qualitative study was conducted in collaboration between Emory University and IFPRI to complement the parent study by gaining an in-depth understanding of the maternal nutrition program implementation. This project is a component of the nested qualitative study, with the aim of understanding the use of routine government monitoring data and intervention monitoring data in decision-making for the improvement of maternal nutrition program implementation. Qualitative research methods were used to understand the experiences and opinions regarding the use of monitoring data by program implementation staff, government block-level health staff, and frontline worker (FLW) supervisors. Methods included in-depth interviews with program implementation staff from A&T and IPE Global, government block-level staff, and FLW supervisors. The principle investigator collected the data between July 4, 2019 and August 1, 2019 in Uttar Pradesh, India.

Population and sample

The maternal nutrition program was implemented in a total of thirteen blocks, eight in the district of Unnao and five in the district of Kanpur-Dehat. From each district, one high-performing and low-performing block were sampled based on analysis of program activity data shared by IPE Global. Selection of high and low-performing blocks determined the sampling strategy for in-depth interviews at the community and village level, which were conducted by other members of the qualitative research team. Five government staff, including one Block Coordinator from IPE Global, and three FLW supervisors were sampled in each block (n=32) for interviews. Additionally, three program staff from IPE Global and Alive & Thrive were sampled

for interviews. The current sample size was purposefully selected to represent a diversity of views across the program spectrum. Figure 1 displays the sampling diagram for this study:

Figure 1: Sampling diagram for program staff, government block-level staff, and FLW supervisors

Program Staff Interviews: Alive and Thrive staff (n=1), IPE Global staff (n=2) = **3 IDI**
Government Block-Level Staff Interiews: n=20 (5 IDI/block) = **20 IDI**
- CDPO (n=4), MOIC/HEO (n=4), BPM (n=4), BCPM (n=4), IPEG Block Coordinator (n=4)
FLW Supervisor Interviews: n=12 (3 IDI/block)= **12 IDI**
- ASHA Sangini (n=4), Lady Supervisor (n=8)
Total Interviews: 35 IDIs (expected 36)
planned to conduct one more interview for A&T but could not due to staff availability
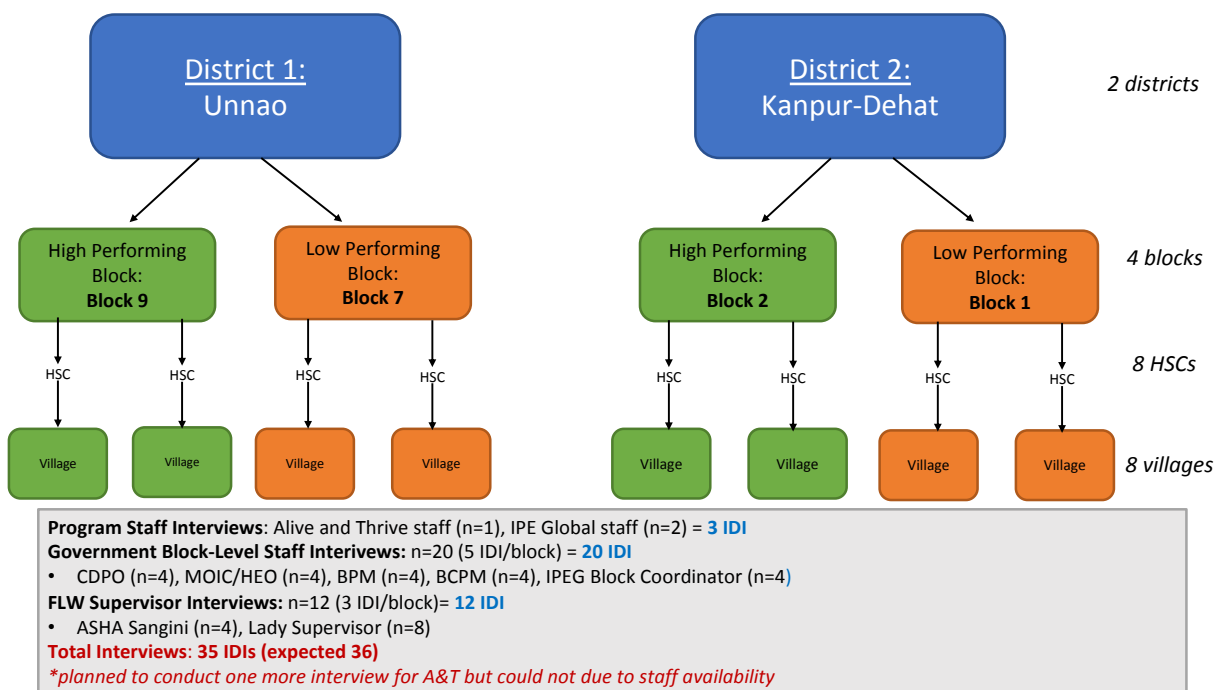
"Program activity sheets" report data regarding the performance of IPE Global's interventions in the field to strengthen maternal nutrition. These sheets were compiled by IPE Global Field Monitors and Block Coordinators on a monthly basis from December 2018 to May 2019. Each month, these electronic sheets are then shared with Alive & Thrive. A data analyst on the Alive & Thrive team transfers the data onto an online data dashboard to display month-to-month progress on program activity indicators. The raw data from the data dashboard was shared with the qualitative research team from Emory University for analysis. Table 1 displays the

twelve key indicators listed on the program activity sheets which were analyzed to determine

high and low-performing blocks.

Table 1: Key indicators of program activity

% of VHND strengthened with maternal nutrition (MN) component	% VHND reported by ANMs with strengthened MN component	% of sub-centers covered with MN strengthened VHNDs	% listed pregnant women (PW) attended MN strengthened VHNDs	% Gram Panchayat covered by Ratri Chaupal (RC)	% RC facilitated by FLWs

% listed PWs (out of total registered for ANC) participated in RC	% husbands (out of total PW registered for ANC) participated in RC	% PW counseled on MN during PMSMA Day supported by IPEG	% VHSNC meeting facilitated	% AAA meetings organized	% supervisors undertaking supportive supervision visits

The research team developed a scoring system that assigned each increment of 5-10% for

the indicator data to a value between 0-10, as displayed in Table 2. Scaled scores were calculated

for each indicator across all thirteen blocks in Unnao (n=8) and Kanpur-Dehat (n=5). An average

indicator score was calculated for each block per month between December 2018 and May 2019.

Then, an average composite score was calculated for each block using the average indicator

score from each month. The blocks with the lowest and highest composite scores in each district

were selected as the low and high-performing blocks, respectively. Table 3 displays the average

composite scores for all thirteen blocks, with the high and low-performing blocks highlighted for

clarity. Table 4 in Appendix A outlines the raw data across all twelve indicators in May 2019

from each of the high and low-performing blocks.

Table 2: Scaled scoring system for indicator percentages in intervention monitoring data

Raw Percentages (%)	Scaled Score
0-5 =	0
5.1-15 =	1
15.1-25 =	2
25.1-35 =	3
35.1-45 =	4
45.1-55 =	5
55.1-65 =	6
65.1-75 =	7
75.1-85 =	8
85.1-95 =	9
95.1-100 =	10

Table 3: Selection of high and low-performing blocks

District	Block	BLOCK AVERAGE
Kanpur-Dehat	Block 1	1.92
	Block 2	3.31
	Block 3	2.79
	Block 4	2.15
	Block 5	2.46
Unnao	Block 6	2.75
	Block 7	2.54
	Block 8	3.69
	Block 9	4.00
	Block 10	2.71
	Block 11	3.23
	Block 12	3.83
	Block 13	3.21

*Orange/red coloring refers to low-performing blocks (Blocks 1 and 7)
*Green coloring refers to high-performing blocks (Blocks 2 and 9)

Program staff interviews were conducted with one member from the A&T local office in

Uttar Pradesh and two program managers from IPE Global. These members were selected to

obtain a general understanding of how data on maternal nutrition services from the block level is used for decision-making at the program level. This population was also interviewed to obtain contextual information on the procurement and demand estimation of IFA and calcium supplements at the state and district levels. Among government block-level staff, interviews were conducted with five staff in each block: Child Development Program Officer (CDPO), Block Program Manager (BPM), Health Education Officer (HEO)/Medical Officer In-Charge (MOIC), Block Community Process Manager (BCPM), IPE Global Block Coordinator. These staff were chosen to obtain diversity in perspectives on data accessibility and usage based on the unique responsibilities of each staff member. Among FLW supervisors, for each block, one ASHA Sangini from the Ministry of Health and Family Welfare (MoHFW) and two Lady Supervisors from the Integrated Child Development Services (ICDS) were sampled. FLW supervisors were interviewed to understand their experience and opinions on the use of data for improving maternal nutrition service delivery. Supervisors were also interviewed to understand their experience with supervising FLWs and their use of data to improve FLW performance. The list of tools used for in-depth interviews are located in Appendix B.

Study Setting

Data for this study was collected through in-depth interviews in four high and low performing blocks across the districts of Unnao (n=2) and Kanpur-Dehat (n=2). Interviews with program staff were conducted at their respective office spaces, which were primarily located in the Lucknow metropolitan area. Interviews with government block staff and FLW supervisors were conducted in the block's Community Health Center (CHC) or Primary Health Center

(PHC). Interviews with ICDS staff were conducted at their respective office space in each of the blocks.

Procedures

Program staff were sampled purposively to obtain diverse opinions from A&T and IPE Global administration on how decisions regarding program implementation are made using data from the field. These participants were chosen based on their position in their respective organization, which indicated their level of involvement in field operations. Once high and low-performing blocks were chosen, government block staff from each were sampled purposively based on their position in the health system and advice from IPE Global administration. Contact information for block staff and FLW supervisors in each block was provided by IPE Global administration. Interviews were arranged by the research team independently through phone calls with the appropriate block staff member. Convenience random sampling was used to select FLW supervisors from each block. The first three supervisors who responded to phone calls and were willing to be interviewed were chosen to participate.

Ethical Considerations

This project was granted expedited approval by the Institutional Review Board of Emory University in the United States (IRB00111064). Local IRB approval was also granted by the Committee for Scientific Review & Evaluation of Biomedical Research in India (Protocol Number: 2017-10-9094). Prior to interviews, verbal consent was obtained from participants in the local language (Hindi), which outlined the study, potential risks and benefits from participation in the study, and efforts put forth to ensure data privacy. It was made clear that

participation in the study will not impact interviewee's status of their job. In addition, participants were informed of their right to not answer any questions during the interview and right to drop out of the study at any time. Permission to record interviews was obtained prior to data collection. Interviews were attempted in private, safe, and comfortable areas for participants.

All data was de-identifiable and names were removed from all transcripts. The principal investigator is CITI-certified and the local research assistant who helped with recruitment of participants and data collection was trained on qualitative and ethical data collection. All members of the research team were instructed to keep audio recordings and corresponding transcripts confidential.

Instruments

In-depth interviews used a semi-structured discussion guide (Appendix B) unique to each stakeholder group: Alive & Thrive program staff, IPE Global program staff, government block staff, IPE Global Block Coordinators, and FLW supervisors. Interviews lasted between 30 to 90 minutes, with most averaging approximately one hour. Topics for discussion among the program staff from Alive & Thrive and IPE Global included supply of IFA and calcium supplements, experience with maternal nutrition service delivery, training of FLWs, and strategic use of data to improve program implementation. Topics for interviews with government block staff and FLW supervisors included experience with supervision of FLWs, quality of maternal nutrition service delivery, and use of data to improve program implementation. Prior to data collection, the interview guides were piloted in an intermediate-performing block in the Unnao district. Piloting allowed the team to test the structure of the guide and the effectiveness of the questions

to gather detailed data from respondents. Revisions to the guides were made accordingly. Interview guides and the oral consent form were initially created in English and translated to Hindi for use during the interviews. Guides were then back-translated into English by local research assistants to ensure quality and accuracy.

After verbal consent was obtained, interviews were audio-recorded on a password-protected mobile device. Two research team members fluent in Hindi were involved in data collection: one local research assistant interviewed and probed respondents while the principal investigator took notes and intermittently probed respondents. Interviews with FLW supervisors were then transcribed and translated from Hindi to English with all identifiable information removed by a third-party researcher who manages a transcription team. Research team members who are fluent in Hindi and English compared audio recordings to translated transcripts to ensure quality and accuracy. Transcripts were stored on a password-protected computer to ensure privacy. During analysis, only the immediate study team had access to the transcripts.

Data analysis

Analysis of data was completed using the principles of thematic analysis.[34] At the time of data collection, detailed field notes were written for each interview and transcribed electronically. Field notes were then reviewed and memos were created to keep track of thought processes, link categories and themes, and brainstorm potential codes. Inductive codes were created accordingly and key quotes were transcribed from Hindi to English to correspond to code definitions. Deductive codes were created based on themes addressed by questions in each interview guide. Inductive and deductive codes were consolidated into three separate codebooks based on the target group being interviewed (one each for program staff, block-level government

staff, and FLW supervisors). Similar codes were categorized into topics. Microsoft Excel was used to create and organize codebooks for each target group. An analysis plan was created to outline and guide the direction of qualitative analysis (Appendix C).

Limitations

Program activity data from IPE Global was the only source used to identify high and low-performing blocks. Activity data was recommended by Alive & Thrive due to its completeness and insight into program performance. It is possible that analysis of other data sources could have resulted in different high and low-performing block designations. To verify the selection of the blocks, IPE Global program staff were asked to identify their perception of high and low-performing blocks based on their personal experiences with visiting field sites. Selection of program activity sheets for analysis was agreed upon by IPE Global administration, Alive & Thrive program staff, and the qualitative research team from Emory University.

Interviews were conducted in a cluster of three people: two interviewers and one respondent. The male principal investigator, who is conversationally fluent in Hindi, took notes while the local female research assistant asked questions from the interview guide. At times, the principal investigator would probe on responses. It is possible that respondents, particularly FLW supervisors who are at a lower position than government block staff, could have been intimidated by being interviewed by two researchers. This resulted in non-specific and brief data being collected in some instances. The principal investigator made every attempt to probe when it was necessary to overcome this challenge.

Chapter 4: Results

Data Sources

Three overarching data sources were used to monitor the progress of implementing the

maternal nutrition program. These included the routine government monitoring data, intervention

monitoring data from IPE Global, and Maternal Nutrition (MN) Block Cards. The following

summary of data sources were derived from interviews with IPEG program staff and government

block staff from high-performing blocks. Block staff contributed descriptions on types of

government monitoring data, including examples of key indicators such as number of pregnant

women receiving adequate IFA and calcium supplements. IPEG program staff described

intervention monitoring data and MN Block Cards. Block staff from low-performing blocks were

knowledgeable of the types of government monitoring data but did not include specific examples

of key indicators in their interviews.

Routine government monitoring data

Three primary government data sources were used by block-level staff for monitoring

and evaluation of maternal nutrition and health in the blocks. The Monthly Progress Report

(MPR) was the first data source reported and available through the ANMs in the block. The

MPR was the only government data source containing both quantitative and narrative health

information. For instance, the MPR not only had the details on the number of pregnant women

that were registered in the first trimester, but also the names of those pregnant women and their

personal information (i.e. address). The MPR also had details on unique health cases that pertain

to the block. In one high-performing block, the MPR outlined the number of vasectomies done

for family planning purposes and the location of these procedures. It was unclear how many total

indicators were monitored on the MPR, although it was assumed that this number varied due to the customizability of the MPR across blocks.

The second government data source was the Uttar Pradesh Health Management Information System (UP HMIS). This online database contained statewide administrative health information such as stock of supplements at each sub-center, location of pharmacies, human resources data (how many nurses, pharmacists, ANMs, etc.), and data reported by ASHAs and AWWs on the women and children they visited in a month. These data were also reported monthly by ANMs and fed into an online portal once a month. UP HMIS data could be filtered by sub-centers and blocks. Since UP HMIS data is not publicly available, it was unclear how many total indicators were monitored.

The national Health Management Information System (HMIS) is an online database that contained only quantitative maternal and child health data from each state in India. Managed by the MoHFW, HMIS reported country-wide statistics on 198 indicators spanning the categories of maternal health, child health, family planning, and miscellaneous health events (i.e. surgical procedures).[35] Among these indicators, 56 are related to maternal health such as number of pregnant women registered for ANC and number of institutional deliveries. These data were derived from the MPRs provided by each ANM in a block to the block government staff, who were responsible for feeding the data onto the HMIS online portal once a month. For this reason, the same indicators could be found in both HMIS and MPR, but MPR had additional contextualized details. HMIS did not report personal information of registered pregnant women or details about the types or locations of family planning procedures. HMIS data could be filtered by sub-center, primary or community health center, block, district, and state.

A strict data reporting timeline was followed in both high and low-performing blocks. ANMs compiled data from their sub-center into an MPR and reported it to government block staff between the 18th and 20th of the month. Block staff then organized a data review meeting amongst each other to review each ANM's MPR and submit the relevant data into UP HMIS between the 20th and 30th of the month. Block staff had until the 1st and 5th of the following month to submit HMIS data. The additional time allowed staff to carefully transfer data from MPR to HMIS and ensure identical numbers. Figure 2 displays the data sharing chain for HMIS and UP HMIS. Table 5 summarizes the three government monitoring data sources discussed.

Figure 2: UP HMIS and HMIS data sharing chain

ANM submits MPR by 20th of the month → BPM compiles data from all SCs → Data review meeting → Data feeding into UP HMIS by 30th → Data feeding into HMIS by 5th of next month → District Data Manager

Table 5: Summary of government monitoring data sources

	HMIS (Health Management Information System)	UP HMIS	Monthly Progress Report (MPR)
Who?	Reported by ANM at sub-center level and fed into portal by block staff	Reported by ANM at sub-center level and fed into portal by block staff	ANM collects and reports data to government block staff
What?	Centralized database for 198 indicators on maternal and child health, family planning, and miscellaneous health events	Contains stock data on # of supplies (ORS, Vitamin A, IFA/Ca); number of nurses, pharmacists, ANMs; location of CHC/PHCs in a block[35]	Similar indicators as HMIS, but has more narrative details and descriptions

Why?	To track country-wide statistics on ANC services, institutional deliveries, pregnancy outcomes, etc.	To present data specific to health centers in UP	To provide context of maternal nutrition service delivery (i.e. challenges) and report special cases
When?	Collected and reported *monthly* onto online HMIS portal from each block	Collected and reported *monthly* onto online HMIS portal from each block	Collected and reported *monthly* to government block staff
How?	Data can be viewed based on SC, PHC/CHC, block, district, and state	Data presented by sub-center and block	Each department (ICDS, MoHFW, etc.) has their own MPR. Data is presented in a notebook

Intervention monitoring data

IPE Global utilized three types of intervention monitoring data. Program activity sheets were created on a weekly basis by IPE Global and tracked 12 program activity indicators such as percent of VHNDs supported by IPEG, percent of pregnant women attending VHNDs, and percent of Ratri Chaupals facilitated by FLWs. These reports were reviewed by IPEG District Coordinators and Program Managers every week to ensure no mistakes or outstanding statistics. At the end of a monthly cycle, IPEG Block Coordinators consolidate the weekly data into a summary report for the month and distribute that to A&T. The month's report is then reviewed between A&T and IPEG to discuss areas of improvement in program activities.

According to the IPEG protocol, quarterly household surveys were conducted using a cluster sampling approach.[36] Thirty clusters were identified from randomly selected villages where the maternal nutrition intervention was being implemented. In each cluster, 7 pregnant women were randomly selected to complete the survey for a total of 210 pregnant women. The

survey assessed the coverage and adoption of maternal nutrition practices. A total of 92 questions were asked on the survey, such as whether the FLW mentioned the importance early initiation of breastfeeding and if the mother breastfed the newborn. These data were collected on a quarterly basis and shared with A&T at quarterly review meetings to identify areas for improvement for the intervention at the household level.

Lastly, supportive supervision checklists were completed by FLW supervisors such as ASHA Sanginis and Lady Supervisors to monitor the quality of counseling provided by FLW and their knowledge of maternal nutrition. The checklist contained 19 indicators that supervisors must observe and check "Yes" or "No" accordingly if the FLW demonstrates them during home visits with the pregnant woman. These checklists were ideally filled out at every supervisor's home visit with their FLW, which ranged from 15-20 in a month depending on the number of FLWs under the supervisor's direction. Checklist data were compiled monthly and shared at monthly review meetings to identify areas of improvement for each FLW.

All intervention monitoring data were collected on paper or electronically on a mobile phone via Open Data Kit. No preferences for either method of data collection were reported. Figure 3 describes the steps taken for collection and review of each intervention monitoring data source. Table 6 summarizes the three types of intervention monitoring data.

Figure 3: Flow of IPEG intervention monitoring data sources
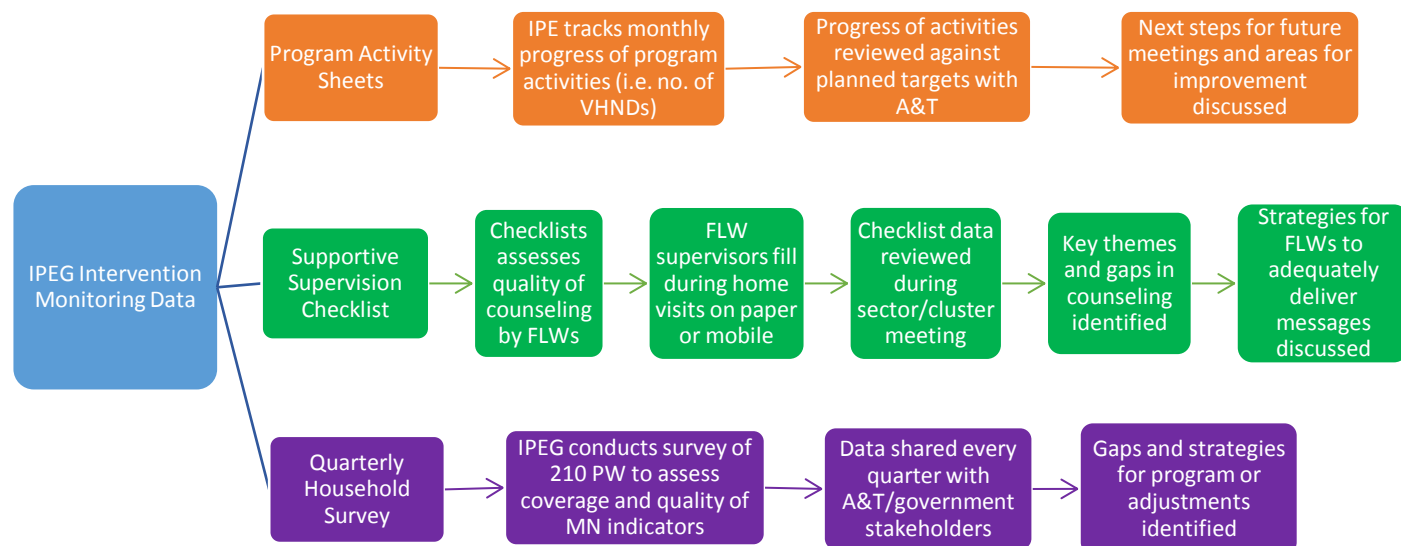
Table 6: Summary of IPEG intervention monitoring data

	Program Activity Sheets	**Quarterly Household Surveys**	**Supportive Supervision Checklist**
Who?	IPEG Block Coordinators compile data for review by IPEG District Coordinator, IPEG Program Managers, and eventually A&T	IPEG Block Coordinators collect data and report to A&T	Completed by FLW supervisors at home visits
What?	Tracks progress of program activities (i.e. % of VHNDs supported by IPEG)	Assesses coverage and quality of maternal nutrition services (i.e. whether FLW visited household and topics mentioned by FLW)	Measures quality of maternal nutrition counseling delivered by FLW and their knowledge of maternal nutrition
Why?	To understand the progress of program activities facilitated by IPEG	To understand the presence and extent of maternal nutrition	To identify strengths and weaknesses in FLW performance

		services being offered to pregnant women	
When?	Reported *weekly* to internal District Coordinators and Program Managers, *monthly* to A&T	Collected and reported *quarterly* to A&T	Data collected at every home visit (15-20 per month) and reported *monthly* at internal review meetings
How?	Data can be collected either on paper or electronically via Open Data Kit	Data collected electronically via Open Data Kit	Data collected on paper or electronically via Open Data Kit

Maternal Nutrition (MN) Block Cards

MN block cards synthesize information from both government and intervention monitoring data. From the HMIS government monitoring data, 9 key maternal nutrition indicators were selected by A&T for reporting in the block card. From the intervention monitoring data, all indicators from the program activity sheets and supervision checklists were included. Nine indicators from the quarterly household surveys were included based on A&T's recommendations. The block card ultimately serves as a report card for the block, allowing government and program staff to review the block's performance in improving maternal nutrition in the community. An example block card is attached in Appendix D for reference.

Block cards are created and validated by multiple members of the IPEG team. Field monitors compile all the intervention monitoring data from the previous month and report it to the Block Coordinators. The Block Coordinator reviews the program data for any outstanding statistics and sends both the program and HMIS data to the District Coordinator. The District Coordinator shares the data with the Data Manager at the district level, who is responsible for designing the MN block card with indicators from HMIS and intervention monitoring data. Once a draft of the MN block is created, this is shared with the IPEG Project Coordinator for review

and then the IPEG Program Manager for final approval. Once this card is approved, it is circulated back to the Block Coordinators for use by government block staff as a decision-making tool. Figure 4 outlines the steps of creating an MN Block Card. Table 7 summarizes the various dimensions of the MN Block Card.

Figure 4: Sequence of MN Block Card creation
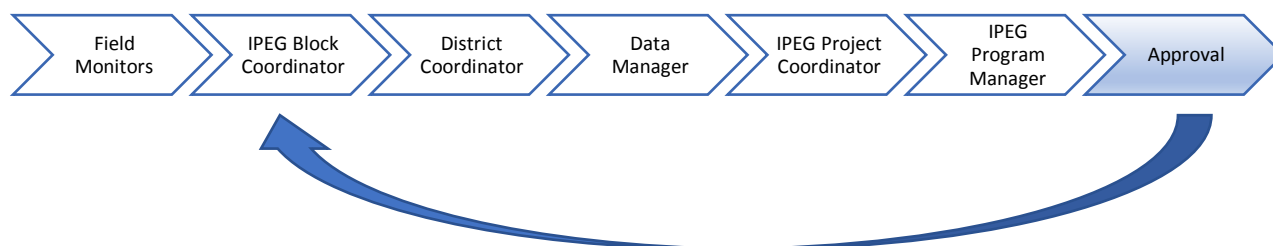
Table 7: Summary of MN Block Card

	Description
Who?	IPEG team members are involved in all stages of creation and review of MN Block Cards
What?	Briefly synthesizes government and intervention monitoring data
Why?	Allows government and program staff to review the block's performance in promoting maternal nutrition in the community
When?	The block card is designed on a *monthly* basis and contains previous months' data to show trends in maternal nutrition indicators
How?	Creation of the block card follows a particular sequence from IPEG team in the field to senior leaders of IPEG

Conceptual Framework

Figure 5: Pathway for the collection and use of data with respective barriers and facilitators
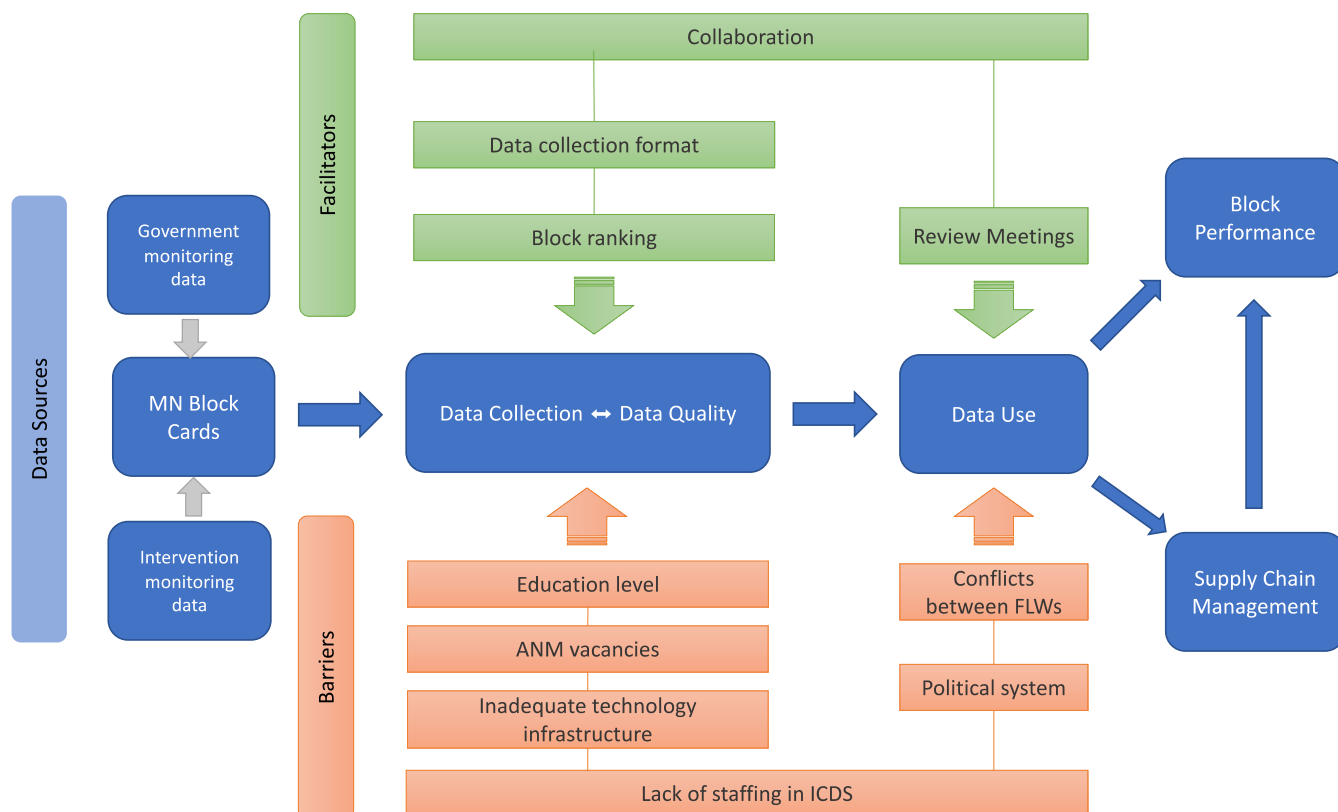
The conceptual framework in Figure 5 describes the process by which data is used for decision-making on implementing maternal nutrition interventions. Government and intervention monitoring data were collected and compiled into MN Block Cards. Then, these data sources were assessed for adequate data quality, which involved an interdependence on observing data collection in real-time This step was facilitated by collaboration between ICDS and MoHFW, the format of data collection, and motivation to achieve a high block ranking. Barriers to this step included education level of FLWs, ANM vacancies, inadequate technology infrastructure in ICDS, and lack of staffing in ICDS. Government and program monitoring data were then used to manage the supply of IFA and calcium supplements and to determine whether the block was

high or low-performing. Collaboration and review meetings facilitated data use, while conflicts

between FLWs, the political system, and lack of staffing in ICDS were key barriers. The supply

chain management strategy employed by a block could also influence its performance. Each of

the components of the conceptual framework will be elaborated on below.

Data collection and quality

This section will discuss the facilitators and barriers of collecting the aforementioned data

and the quality of this data. Each sub-section will explain multiple themes relevant to its scope

and contrast findings from high and low-performing blocks.

Facilitators of data collection:

Collaboration

In one high-performing block, there was extensive collaboration between the MOIC and

CDPO of the block to overcome logistical barriers that negatively impacted data collection. *"In*

meetings [with CDPO] sometimes my team or maybe if there is a routine immunization session

and if AWC is closed and ANM has to be outside. Sometimes if AWW doesn't call children and

say they won't support, then we will find solutions for this through meetings together," said a

high-performing block's MOIC. When an Anganwadi Center (AWC) was closed or if an AWW

refused to support routine immunization sessions, this prevented the timely collection of

immunization data, one of the key maternal health indicators. If such an issue arises, the MOIC

organized a meeting with the CDPO, who manages the AWWs and other field workers employed

under the ICDS, to create a solution. Typically, this entails the CDPO delegating the

responsibility of calling the absent AWWs to their specific Lady Supervisors. If there is still pushback, the CDPO will directly contact the AWWs.

One solution that helped reduce attendance issues was the creation of a micro-plan between the CDPO and MOIC. The MOIC first created the micro-plan with information on dates of VHNDs, internal review meetings, and FLW trainings. Then, the MOIC shared the plan with the CDPO, who was primarily focused on the VHND dates, as this is when AWWs, ANMs, and ASHAs collectively provide maternal nutrition services and collect data on immunizations administered, tablets provided, registration of pregnant women, and other key indicators. *"In [monthly review] meeting I will tell that in 1st August you have VHND and so on and each of them note only their date of VHND,"* said the CDPO. Once each FLW was assigned a VHND date that she needed to attend, of the 8 that typically occur in a month, they were expected to attend and could not take a leave on that day. Interdepartmental collaboration was unique to this block and was not mentioned by government block staff from the other blocks.

Data collection format

The supportive supervision checklist provided by IPE Global allowed FLW supervisors to remember the tasks that needed to be completed by FLWs at home visits, VHNDs, or AWCs. *"Just because, if I am observing something that I don't know, then by checking that list I come to know that which work has to be done and we do those things. Just for a say, if I had heard anything in meeting and it did not recall, then by observing this list I can do it. That is why, it is helpful for me,"* said a Lady Supervisor from a high-performing block. Examples of these tasks included observing whether the FLW conducts a 24-hour food recall or whether she explains the benefits of IFA and calcium to the beneficiaries. In this case, the source of data itself was a

facilitator of data collection because of its format, although its main purpose is to be a tool for supportive supervision. The benefit of recall was mentioned by ASHA Sanginis and Lady Supervisors in both high and low-performing blocks when they were asked about their opinions on the checklist.

The BPM for a high-performing block cited how the checklist helps maintain the FLWs focus on counseling pregnant women. *"When there is a checklist, you only talk about the specific point on the list. There is no time wasting…you will only talk about maternal nutrition, not go on any tangents…because we have to do 2-3 visits in the day. If we don't stay on task, we will only do one."* According to the BPM, the format of the checklist allows for efficient counseling to be performed during home visits by FLWs.

Block ranking

Block staff in Kanpur-Dehat were particularly attuned to the importance of data collection for ensuring the block's high ranking. The BPM for a high-performing block noted, *"If we don't fill the data on time, then our ranking will go down. We will not be at a 100%...the rank for the CHC will be low, which will affect the block and eventually the district."* In addition to timely data collection, the numbers for each indicator also impact block ranking. The MOIC of a low-performing block said, *"HMIS data is very important for us and the district. That is because the overall ranking of the district and block depends on HMIS…for example, is overall ANC good or not. Based on that, all the districts are ranked. Then the blocks are ranked."* In addition to the quality of ANC, the MOIC mentioned indicators not related to maternal nutrition that impacted rankings. *"Other important indicators for us are the number of facilities in the district. How many facilities that allow sterilizations? How many facilities take care of*

tuberculosis patients? This all impacts block ranking," said the MOIC. Ultimately, the desire to achieve a high rank for the block motivated block staff in high and low-performing blocks of Kanpur-Dehat to ensure timely data collection and high numbers for key indicators. This perspective was not discussed during interviews in the Unnao district.

<u>Barriers of data collection</u>

Education level

Education level of ANMs was cited as a reason for issues with data collection because of their lack of familiarity with technical data. *"The thing is that ANMs are older and have passed just 12th grade. And these [maternal nutrition indicators] are technical data on what should be done and to what extent. So now we have 50-60% of ANMs who give wrong data"* said an MOIC from a high-performing block. ANMs primarily receive clinical training to provide primary care services to pregnant women, mothers, and newborns. However, the movement towards implementing evidence-based interventions requires ANMs to assume the responsibility of collecting and reporting healthcare data, including maternal nutrition indicators. IPE Global has prioritized building the capacity of ANMs in data collection by leading trainings alongside government block staff. Unfortunately, the trainings may still be unsuccessful. One BCPM from a low-performing block described, *"In the last fiscal year, we have done about 20 trainings for HMIS at the block level. We specifically focused on pregnant women data, like 1st trimester ANC registration…and then when we call the ANM to give the report for UP HMIS, she will ask 'what's UP HMIS?'"* IPEG did not comment on plans to change the content or administration of trainings, but planned to support the hiring and training of new ANMs to occupy vacancies in each block.

ANM vacancies

Without ANMs, a bulk of data collection and reporting is not possible. The high-performing blocks had 2-3 ANM vacancies, while the low-performing blocks had 8-9 ANM vacancies. While mistakes in data collection still occur in high-performing blocks, the internal processes by which data is collected and reported is disrupted to a greater extent in low-performing blocks. *"We currently have 9 vacant subcenters and two more will happen by July 31st...wherever there are vacancies, there will be problems with all the indicators [in the data]. The flow will not be the same as a sub-center with an ANM present,"* said a BCPM from a low-performing block.

Assuming no vacancies, one ANM is responsible for one sub-center and 1-2 ASHA Sanginis manage all the villages covered by that sub-center, which range from 7 to 24 depending on the size of the sub-center. In the situation of a vacancy, an ANM from a nearby sub-center is told to collect the data and administer the services at the vacant sub-center, in addition to managing these same responsibilities at her own sub-center. ASHA Sanginis within the vacant sub-center or from nearby sub-centers may also be recruited to assist with data collection and reporting if the ANM is overburdened. This was the case in one of the low-performing blocks, where block staff referenced a "micro-plan" for the ASHA Sangini to visit their vacant sub-centers and retrieve data from there. But block staff members could not provide details of this plan.

Lack of staffing in ICDS

Based on the contact information sheets provided by IPEG staff during recruitment, ICDS offices appeared understaffed compared to offices for the MoHFW in both high and low-

performing blocks. ICDS offices had no data operator on staff, between 2-6 Lady Supervisors, and the CDPO as the only block staff member. In contrast, MoHFW offices had a data operator, roughly 18-28 ASHA Sanginis and 18-28 ANMs depending on the size of the block, and roughly 5 block staff members. The low number of ICDS staff was particularly detrimental for fulfilling all of the responsibilities of the department. *"We don't have other staff…no operator to compile [data]. There should be 6 supervisors and only 2 are working…supervisors have to do office work, [field] visits, operate [Anganwadi] centers, and build skills of FLWs,"* said the CDPO for a high-performing block.

High workload due to staff shortage was also reported in low-performing blocks. *"We face problems because reporting is too much in our department,"* said a Lady Supervisor from a low-performing block, who was required to do 20 supervision visits with her FLWs. *"These days we do not have a clerk so we have to see the treasury also…so because of this the visits gradually become low,"* she continued.

Inadequate technology infrastructure

ICDS staff also do not receive the same access to technologies compared to MoHFW staff that facilitate communication between staff members and timely reporting of data. *"Sometimes reports don't come on time because Lady Supervisors don't have phones, so they have to deliver the data in person…they don't have a computer either so they can't upload the data anywhere, nor has any software come up for this purpose,"* said the CDPO for a low-performing block. High-performing blocks also lack adequate technologies and the staff support to complete data reporting tasks. *"Main thing is that I don't have the support or manpower to do [data] feeding…I don't have a computer…and if I did, I don't have anyone to do the computer*

work," said the CDPO for a high-performing block. However, they have developed strategies to overcome these barriers. *"We do the data feeding here and there,"* she continued. *"We go to the shop and ask them to enter the data [on the computer]. Sometimes they do it through mobile."*

Challenges were also present when technology was accessible. This was only mentioned by an ASHA Sangini from a low-performing block who noted:

P: *"Earlier we used to write [checklist data] on papers, it is now that we fill in the mobile but I have not filled the data this month as I don't have internet connection."*

I: *"So you write on paper when your phone doesn't work or you fill both?"*

P: *"I fill both of them. If mobile is not working then we have [paper] registers for it."*

The challenge of poor inadequate internet connection prompted the ASHA Sangini to develop this double recording strategy. When internet connection was available, she would upload the backlog of data collected on paper into her mobile device. It was unclear how many instances she had to implement this strategy. The ASHA Sangini did not report additional burden regarding data collection or reporting.

Data quality

Data quality assurance strategies

In high-performing blocks, data quality was assessed by comparing similar indicators between different data sources. *"If ANM is reporting [through HMIS] that there is no calcium in supply…then FLW supervisors should not be reporting in IPE Global [supportive supervision] checklist that calcium was given to pregnant woman during the home visits,"* said a high-performing block's BPM. *"We ask what was the reason for this discrepancy? And then we work together for a solution by calling meetings,"* he continued. This verification can also happen

within a data source. *"We look at how many tetanus toxoid (TT) vaccines were done. So if we have 5 TTs, how many calcium and IFA supplements were given for each TT [representing one pregnant woman]. We match those figures,"* said an MOIC from a high-performing block.

If block staff are able to join supervisors and FLWs in the field, then they're able to confirm the reliability of data in real-time, which helps them confirm high quality data. This is the typical strategy in low-performing blocks, where data quality is assessed less technically. The BCPM for a low-performing block said, *"My post requires me to be in the field anyway. I do around 12 visits. So I see the data quality this way…where there used to be only 5% institutional deliveries, there is now 50%. Where people didn't know about IFA and calcium, people are now eating them."* By physically going to the field and interacting within the ANC infrastructure of the block, the BCPM confirmed the reliability of the data that was reported to him, which influenced his positive perception of the data's quality.

Defining indicators

One unique concern for data quality was regarding the indicators for IFA and calcium supplement distribution in a low-performing block. One BPM from a low-performing block said *"Now there can be a situation where the ANM gives 50 or 70 supplements to someone. But on HMIS it asks for how many pregnant women were given 360 supplements. So now we have the option to either mark "0" or...define with the ANM that even if you distribute 70 tablets at a time, once your total distributed gets to 360, then you can consider that as one beneficiary served. We do the same for 180 iron tablets."*

Over the course of pregnancy, pregnant women must receive a total of 180 iron-folic acid tablets and 360 calcium tablets. However, the pattern of distribution for these tablets may not be

the same across each block due to supply constraints that will be explained later. Rather than providing all of the tablets at once to beneficiaries, ANMs in this block rationed the distribution over the course of pregnancy, which impacts how the data is reported. This information was mentioned in the last block where interviews took place, therefore probing on this particular scenario could not be done for staff from other blocks. Supplement distribution patterns and reporting tactics in other blocks remains unclear.

Use of data

This section will discuss how routine government monitoring data, intervention monitoring data, and MN Block Cards are used for decision-making in regards to program implementation, the facilitators and barriers of using these data, and the different methods of using data to estimate demand for prenatal supplements. Within each of these themes, quotes from the interviews will illustrate how data were used within high and low-performing blocks.

Use of routine government monitoring data

Investigating issues with supplements

HMIS data is most frequently used to overcome challenges with distribution and consumption of prenatal supplements. A BCPM from a low-performing block described, *"Whatever block is having low data, we pay special attention to them…like if iron levels are come here, why is it low? Then ANM will say that she hasn't received iron supplements. The MOIC will then get involved to contact the pharmacist to inquire whether supplements arrived from the district."* Review of HMIS data enabled a deeper investigation on the structural roots of inadequate supplement distribution to the blocks. HMIS or MPR data can also reveal behavioral

challenges with supplement consumption. A CDPO from a high-performing block said, *"With IFA, we have distributed it to 80% [of beneficiaries], but only 40% are consuming it…so we discuss a lot [in meetings] how we can make it in their habit [to consume the supplements] and make them aware."* With the support of government monitoring data, block staff are able to work within their department to discuss strategies for motivating supplement consumption.

Referrals for targeted care

HMIS data may also be used as a screening tool for providing more comprehensive antenatal care. The MOIC from a low-performing block described, *"If there is a pregnant women who is not being screened, or any that are classified in severe anemia…and if we see that despite giving iron, there is still these cases…ASHAs are also guided that if they think the women is heading towards high-risk pregnancy, then please inform them to come to the next PMSMA day."* The Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) day is a fixed day of the month, often the 9th of every month, when complex antenatal care is provided by the medical professionals of the block to beneficiaries. Using HMIS data on the prevalence of anemia and high-risk pregnancies, ASHAs are able to refer beneficiaries who are at risk of adverse pregnancy outcomes to this event.

Use of intervention monitoring data

Supportive supervision

The supportive supervision checklist was primarily used for decision-making, rather than the program activity sheets or quarterly household surveys. One BPM from a high-performing block described, *"Based on the checklists, I can see which FLWs are weak in counseling…in*

meetings, I spend more time educating [those FLWs] on counseling topics." In this case, the BPM notes the FLWs who do not provide adequate counseling based on the checklist data and dedicates some time in review meetings to strengthen their knowledgebase. FLW Supervisors also use checklist data to deliver feedback to FLWs on their performance in home visits. "When I go with the ASHA, I check her work," said an ASHA Sangini from a high-performing block. *"Once I am done with that, I call her outside away from the household members and tell her where her work is lagging behind. I do not want to check her in front of the household. I tell her that this work is to be done like this, next time her work should be complete. She should not leave it incomplete."* Once this feedback is provided, supervisors reported that the FLWs tend to improve their performance within the next two home visits. The checklist was used to provide feedback in high and low-performing blocks by both ASHA Sanginis and Lady Supervisors.

In only one low-performing block, the checklist data was used by an ASHA Sangini to assign grades to FLWs, which facilitated targeted supervision. *"We categorize ASHA in A, B and C groups. Those who work efficiently we keep in group A,"* said the ASHA Sangini. *"ASHAs which come under group A and B are good but ASHA who come under group C have to be given attention. For that I go to them or sometimes I call them to meet me."* This categorization allowed the ASHA Sangini to focus on giving tailored feedback to ASHAs who were underperforming. The Sangini's typical strategy for feedback was highlighting ASHAs in groups A and B as examples to follow during cluster meetings.

Identifying logistical issues

The MOIC from a low-performing block explained how the checklist keeps him informed on logistical issues of service delivery. *"There have been sessions where weight wasn't taken, or*

hemoglobin wasn't measured. Then why is that?...I check if logistics are available like weight machine, BP monitor, hemoglobin strips, iron, calcium, proper vaccines," he said. Once the MOIC would make the connection between inadequate service delivery and logistical shortcomings, he would use this as an opportunity to request the district's support on logistical issues. *"Shortcomings at the district level come out because of the checklists, like the calcium shortage for example. And even in some areas there is no machine [for measuring blood pressure] or they are broken. So we detail this information to the district,"* said the MOIC. "When the help comes from above, there is a larger impact," he continued. The use of supportive supervision checklists for identifying logistical issues was only mentioned by this MOIC.

Use of MN Block Cards

In general, block staff from high and low-performing blocks were aware of MN Block Cards but could not articulate its use for decision-making. *"I know it was shared with us, but I've never seen it. I don't know much about it,"* said the BCPM from a high-performing block. In some cases, block staff were able to mention a couple topics that were covered on the cards. *"Yes I think it can have indicators on ANC, on calcium, and...I think it has a lot but I don't remember,"* said a BPM from a low-performing block. Of all the block staff interviewed, only one BCPM from a low-performing block mentioned some details, but knew it as a different term. *"I know that you all have an MN chart. It shows monthwise indicators so we look at that [in cluster meetings]...I know that they have things on behavioral change, but it escapes my mind. I think there's something about household on there too,"* he said. Due to the lack of familiarity with MN Block Cards among block staff, its use could not be ascertained. FLW Supervisors were not aware of block cards.

Facilitators of data usage

Collaboration

Similar to the case in data collection, interdepartmental collaboration between the MOIC and CDPO facilitates the use of data for decision-making. *"If I have some weakness or MOIC has weakness, we share data like about any pregnant women aged 15-49 and if he gets to know he shares with us and we share with him…[we work] together with synergy like 'here sir, you need to focus on this point in the meeting,"* said a CDPO from a high-performing block. The transparent exchange of data between the MOIC and CDPO allows them to clarify future areas for improvement and points for discussion in each department's monthly review meetings. The CDPO will share his department's MPR, while the MOIC will share his department's HMIS data. Since the two data sources are similar in their indicators, they should theoretically reflect the same information. Any imbalances should ideally be detected in the cross-check and spur a plan of action.

For instance, if there is a 30% difference in the number of pregnant women registrations between both data sources, that may prompt both the MOIC and CDPO to contact their FLWs and inquire about the discrepancy in data. In this case, the solution may be to arrange a collective meeting between the CDPO, MOIC, and FLW supervisors to address the data quality issue or visit the field in-person to ensure that data is being properly recorded.

Review Meetings

In both ICDS and MoHFW, review meetings take place once a month during which block staff, supervisors, and FLWs meet in one setting to review data and discuss areas for

improvement. Typically led by the BCPM and BPM in MoHFW and the CDPO in ICDS, review meetings allow for direct action to be taken based on analysis of the data sources described earlier. Regarding the supervision checklists, a MOIC from a high-performing block explained, *"When ASHAs come to cluster meetings...we put their checklist in front of them and review it together...a formal meeting is sometimes not necessary because people come every day. Sometimes we take 5 to 10 minutes to review with them."* In this situation, formal or informal review meetings allows the MOIC to provide feedback to the FLWs based on their performance data that is collected on the checklist.

In most of the blocks, a separate review meeting was organized among the block staff to review the quality of the HMIS data in particular, which facilitated its use. *"Here we have an HMIS validation committee where the MOIC, BPM, ARO, and myself are there,"* explained a BCPM from a low-performing block. *"Every month we meet...when the data is given by the ANMs, we meet together to discuss its quality."* In this setting, block staff may assess data quality using the strategies mentioned previously, such as comparing similar indicators from different data sources.

Barriers of data usage

Lack of staffing in ICDS

The low staff in ICDS complicates not only data collection, but also analysis and use of data to make changes in program implementation. One CDPO from a high-performing block explained how both sides come into play: "*There are centres where beneficiary said that ASHA used to come and give vaccines but never share any information with us like we have to go for institutional delivery, initiation of breastfeeding within an hour of delivery etc. Workers are*

aware and get information here but not bother to tell beneficiaries. So I need someone to tell me all these things so we will counsel our workers separately." The issue of information not being shared with beneficiaries is particularly addressed by the supportive supervision checklist, which track the performance of FLWs. However, the low number of supervisors on staff decreases the capacity for FLW supervision through the checklist, which decreases the amount of data that could be used to develop targeted solutions for FLWs who demonstrate weaker performance. This was a cross-cutting issue across both high and low-performing blocks.

Conflicts between FLWs

In order to implement changes based on the use of data, there must be cooperation between FLWs. A BCPM from a low-performing block recalled *"During VHND, ASHA and AWW have to work together and have same role of calling people…in some areas, AWW will say that this is not her job, it's for ASHA to do…ASHA will say that working as a team is not my responsibility."* The BCPM also noted that trainings have been organized on teamwork during interpersonal counseling in the past to address this issue. The effectiveness of these trainings on reducing FLW conflicts was unclear. Conflicts between FLWs also occurs in high-performing blocks. *"In front of our district magistrate it has shown the percentage of ASHAs present and 7% presence of AWW…sometimes it happens that there is no synergy between the workers,"* said a CDPO from a high-performing block. The CDPO was not asked how he addressed this specific issue, but when asked to describe his role, he said *"Wherever our workers were not reachable or might not help much, all these matters have come to me and I communicated with the workers to try to make training active…where our workers were absent, myself and IPEG have worked together on it and received good support and the work is nicely done."*

Political system

When block staff were asked about the actions they are able to take based on the data, a common theme that emerged was the low feasibility of making changes on the state or national government level. Staff from both high and low-performing blocks described that the maternal nutrition services are implemented according to the work structure that the Government of India mandates, leaving little room for changes with data reporting standards, funding, and recruitment of staff. One CDPO from a high-performing block said *"Any Govt. program is done by Govt.'s work structure and according to their mechanism we have to work on. We can't do any changes on them. We have made our system work according to the program or if we get any problem then we try to solve it at our level."* The political barrier was also referenced by a BCPM in a low-performing block: *"If I was at a higher level, I would be at the policy level trying to make policy changes. Not here doing implementation work with ASHAs."* Due to the scope of work for block staff, there's a limit to the changes they are able to make to program operations.

Supplement demand estimation

Block staff also use data to estimate demand for IFA and calcium supplements, although the method of doing so differs in each block. In one high-performing block, the BPM instructs ASHAs and ANMs to look at the trends in 1st trimester antenatal care (ANC) registration from the past 2-3 years on the HMIS portal to estimate the population size for each of their respective villages. The BPM compiles this information to calculate the population of pregnant women in the entire block and thus, the demand for supplements. The estimate for the year is sent by the BPM to the chief pharmacist of the district, who creates a purchase order for the manufacturer. In another high-performing block, the MOIC explained that demand estimation is done at the

district level based on the total number of blocks. Supplements are uniformly divided and distributed to each block, regardless of population size, on a quarterly basis. Lastly, in one low-performing block, demand is estimated based on the due lists created by the ANMs. Due lists are created on a weekly basis, prior to the VHND of that week, to track which pregnant women are due for immunizations, receipt of micronutrient supplements, and other maternal nutrition services. Distribution of supplements to ANMs happens according to the demand reported by each ANM.

Supply chain management

This section will discuss the facilitators and barriers of maintaining IFA and calcium supply at the district and block levels. This section will incorporate perspectives from both block-level and program staff. Each sub-section will contrast findings between high and low-performing blocks. Figure 6 outlines the steps for requesting and distributing micronutrient supplements from the village and block levels to the state, and vice versa.

Figure 6: Micronutrient supply chain management from the state to the household level

Movement of Supplies

State	District Chief Pharmacist	Block Pharmacist	Block-level Staff	ANMs	VHNDs or home visits	Pregnant women
• Procures IFA and Ca supplements directly from manufacturer	• Distributes to blocks	• Store supplies at block storage units	• Distribute supplies uniformly, based on PW registration data, or due lists from FLWs	• Receive uniform amount of supplies **or** based on indents	• ASHA delivers supplies if PW can't attend VHND	

Request for Supplies

State	District Chief Pharmacist	MOIC	ANMs
• Procures supplies from manufacturer	• Creates separate demand estimation based on previous year trends, stock availability and/or number of blocks	• Creates demand estimation based on due list and/or previous year trends in registered PW on HMIS portal	• Create indents based on due list and/or # of current supplies

Facilitators of maintaining IFA and calcium supply

Rate contract for calcium

In 2015, the Government of India released guidelines on maternal health with information on the benefits of calcium. However, it took nearly three years since then to conduct the necessary trainings and increase the supply of calcium in Uttar Pradesh. *"When we first started the maternal nutrition program, there was hardly any awareness about calcium, though IFA program has been running since last two decades,"* said an A&T program director. Significant advocacy by leaders in A&T and letters from Chief Medical Officers in multiple districts led to a rate contract being created in July 2018 between the state government and calcium suppliers. The rate contract is an agreement that mandates suppliers to sell drugs or supplements at a particular price to the state government, assuming all technical and financial

specifications are met. Once the rate contract was created, demand for calcium increased,
allowing for calcium to eventually be present in some blocks.

Use of data for demand estimation

The use of indicators from HMIS, such as number of pregnant women registered for
ANC in the 1st trimester, or the analysis of due lists allowed for data-driven projections to be
made about the demand for IFA and calcium supplements in the block. The district also made a
demand estimation using the projections created by the blocks and other data points which were
unknown to the respondents. In particular, the "planning department" is the body that was
responsible for analyzing the data points and submitting a purchase order to the state
government. An IPEG program manager explained, *"That could be say 100 [pregnant women].*
And it has estimated say planning department knows there are about 110. It may choose to have
a number like 108 or 112. So it is somewhere around this number…but I don't know exactly how
they determine this number…when they make the purchase order, this number is a mix of a
triangulation of couple of data points." The planning department was led by the chief pharmacist
and Reproductive and Child Health (RCH) officer. Once they made the demand calculation, it
was sent to the district's Chief Medical Officer (CMO) for approval before sending it to the state.

Adjustments are made in the demand calculation for pregnant women who are anemic,
since they require twice as many iron supplements per month. To obtain an accurate estimate of
the prevalence of anemia in the state, the planning department uses the recent National Family
and Health Survey, a large-scale cross-sectional survey that provides information on population,
health, and nutrition indicators. *"If you look at the HMIS data, the numbers are very low,"* said
an IPEG program manager. *"If you look at the NFHS data, the numbers are very high. Based on*

that, if you were to estimate if Unnao has anemia of 60%...then you can do an estimate of IFA based on your anemic women based on the prevalence in NFHS. That is why districts do not 100% depend upon the blocks. They do feel that certain numbers, they are not capturing." The final demand estimation at the district level is a combination of demands from each the blocks and a buffer to account for the anemic women in the district and other indicators that are unknown to program staff outside of the district.

Barriers of maintaining IFA and calcium supply

Inadequate calcium production capacity

While the rate contract facilitated an increased demand and awareness for calcium, calcium suppliers could not keep up with the needs of all 75 districts in Uttar Pradesh. *"Because all 75 districts gave in their demand estimation [for calcium] at the same time…they could only meet 20-25% of the demand,"* said an IPEG program staff member. The impact of this demand was seen immediately. *"From October onwards, we started to see VHNDs without calcium…in Unnao the distribution was pretty haphazard…most of the blocks were out of calcium by January,"* said the staff member. The latter half of the quote is referring to the compounded effect of increased demand for supplements and inadequate methods of procurement and distribution on maintaining IFA and calcium supply. The different approaches to supply chain management between districts is another barrier that will be explained further.

At the time of data collection, respondents in both low-performing blocks reported a lack of calcium stock due to procurement issues at the district level. Calcium supply in the high-performing blocks differed by district. The MOIC in Kanpur-Dehat's high-performing block reported a shortage of calcium for 9 months. In Unnao's high-performing block, the IPEG Block

Coordinator reported low calcium supply, but assured that the issue was being addressed through the creation of a demand list that travels from the ASHA Sanginis to the MOIC and finally to the district.

Centralization of procurement

Supply for IFA was also negatively impacted due to the shift in procurement of supplements from the district to the state level in March 2019. Prior to this, the chief pharmacist of each district's planning committee would upload their demand estimation to an online portal connecting them to the supplement manufacturers. However, in March 2019, the Uttar Pradesh state government changed procurement of medicines to be at the state level. They established the UP Medical Supply Corporation to lead negotiations with manufacturers on rate contracts and procure supplements using the compiled demand estimations from all of the districts. Districts could still create their own purchase order using their preferred demand estimation method, but the state government now acted as a middleman.

While calcium stock was unaffected by the shift in procurement, IFA supply began to decrease because of UP Medical Supply Corporation's slow transition into their new position. *"Both of the districts had a decent amount of IFA until the end of 2018, but the shift in procurement did start delaying IFA procurement…for most of 2018, most blocks had adequate IFA, especially Unnao since they had procured for the whole year,"* said an IPE Global staff member. At the time of data collection, respondents from the blocks and program level did not report shortages of IFA. *"For this financial year, I think the UP Supply Corp has done their purchase orders and supplies have started coming in…once the district gets it, they will distribute it to the block,"* said the IPEG staff member.

Contrasting supply chain management between districts

Procurement and distribution of supplements differs between the Kanpur-Dehat and Unnao districts, which have negative downstream consequences for the maintenance of IFA and calcium supply in their respective blocks. Kanpur-Dehat estimates their demand and submits their purchase order on a quarterly cycle, while Unnao's is more erratic. *"There was a purchase for around 2 million tablets done in April 2018,"* said an IPEG program manager. *"Before that last purchase was 10 months ago. And before that it was 1.5 years ago. So we did not see a scientific cycle for estimating demand and making the purchases [compared to Kanpur-Dehat]."* This sporadic demand estimation method, in addition to poor recordkeeping of current supply by the chief pharmacist of Unnao, led to inefficient distribution of supplements once they were procured. *"Once he procured it in 2018, all the stocks were sent out in one go…[Unnao and Kanpur-Dehat] have very limited space. If you visited the warehouse where they store medicines, you will see that none of these two districts have the space,"* said the IPEG program manager. While Kanpur-Dehat benefitted from a quarterly check-in with block staff to ensure adequate supply, Unnao had limited communication with its blocks. Some blocks in Unnao received between 16-24% of the tablets they should've acquired. *"We also saw 1-2 blocks that were not efficient with distribution to the ANMs,"* said the program manager.

In Kanpur-Dehat, supplement distribution follows a different methodology. An IPEG staff member recalls, *"We've seen some challenges is how much tablets go to each of the blocks. For instance in Kanpur-Dehat, there is one block called ***. It's much larger than all the other blocks. It has about 35 sub-centers, while the other blocks in the district have between 17 to 20 sub-centers. So what the chief pharmacist tells me is that there is a certain percentage he allocates to *** and equal distribution to all the other blocks…He had some logic in how he*

allocated supplies to *** because it's the biggest…but he did not apply the same scientific logic to the other 9 blocks." It was unclear why the chief pharmacist adopted this method of distribution, but according to IPEG staff, *"this was a practice has been doing for multiple years. In his experience, this logic that he had applied was working well."* Nevertheless, IPEG staff expressed concern that this method of distribution would cause supplement shortages in blocks with a higher population but nearly the same number of sub-centers as the other blocks. Figure 7 displays a summary of the facilitators and barriers of maintaining IFA and calcium supply.

Figure 7: Summary of facilitators and barriers for maintaining IFA and calcium supply
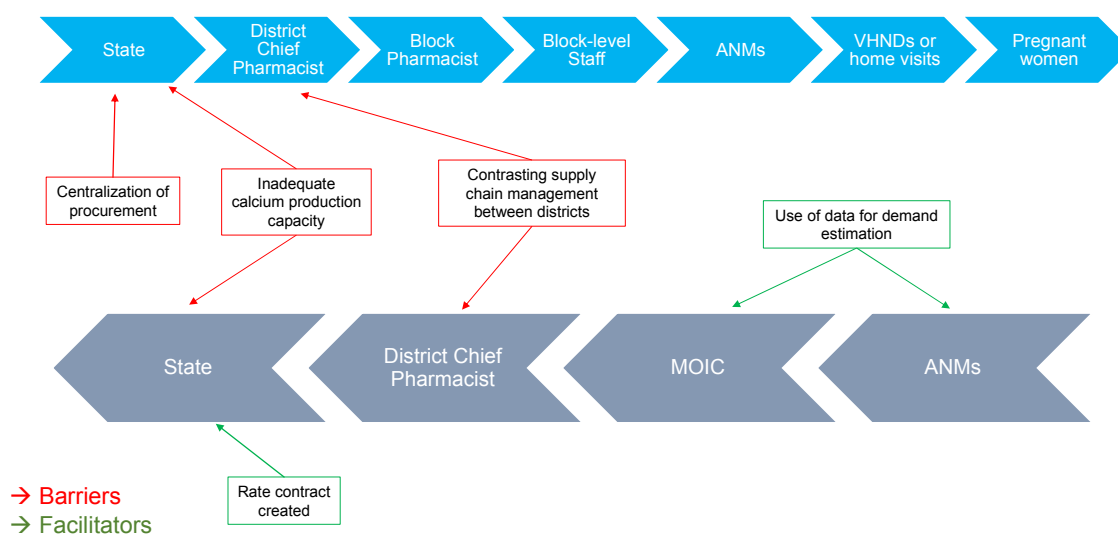
Chapter 5: Discussion

Summary of key findings

This study used qualitative data from 35 in-depth interviews across 4 blocks (2 high-performing and 2 low-performing) to understand how data is used to improve the implementation of a maternal nutrition program intervention in Uttar Pradesh, India. The interviews revealed that routine government monitoring data was used to identify issues involving the supply and consumption of IFA and calcium supplements and to act as a screening tool for high-risk pregnant women. It was also used to identify the overall performance of blocks in delivering adequate maternal health care. Intervention monitoring data was used to identify areas of improvement for FLW performance and to understand logistical issues that hinder health care delivery. A number of individual facilitators and structural barriers impact the use of government and intervention monitoring data, which will be further discussed below.

The MoHFW and ICDS each created their own Monthly Progress Report (MPR) to provide narrative data on maternal health and nutrition. Within the MoHFW, MPR data is used to feed data onto the national and statewide Health Management Information System (HMIS), which contained quantitative data on maternal health and nutrition. MPR and HMIS together make up the government monitoring data. IPEG had their own portfolio of data to illustrate the performance of intervention activities: program activity sheets, supportive supervision checklists, and quarterly household surveys. Together, these three data sources make up the intervention monitoring data. Lastly, MN Block Cards combined indicators from both IPEG's monitoring data and HMIS to showcase the overall performance of the block. Block staff primarily used government and intervention monitoring data for decision-making. They were aware of MN

Block Cards but did not use them to make decisions regarding implementation of maternal nutrition interventions.

The pathway from data collection to data use was influenced by multiple facilitators and barriers. Most facilitators and barriers for data collection were common to both high and low-performing blocks. The format of supportive supervision checklists helped supervisors remember to collect data on tasks for home visits and the desire to achieve a high ranking motivated block staff to ensure timely data collection. Checklists in healthcare are known to be a useful cognitive aid to guide users through accurate task completion, which can help decrease error and improve patient care.[37] In low-resource settings of India, implementation of the World Health Organization (WHO) Safe Childbirth Checklist increased health provider adherence to delivering WHO-recommended advice on safe childbirth and increased reception of safe childbirth recommendations among women admitted for delivery.[38] A mediator between checklists and improved patient care is supportive supervision. In rural Eastern Uganda, checklists allowed health administration to measure performance of healthcare facilities in the area and provide supportive supervision in the form of feedback, technical updates or guidelines, and on-the-job training.[39]

The key barriers to data collection were low education among ANMs, lack of staffing in ICDS offices and inadequate technology infrastructure. Challenges in technology infrastructure has been most commonly investigated in relation to monitoring data. In a systematic review of mobile health interventions, the authors concluded that mobile technology tools help community health workers improve care, communication between workers, and program monitoring data collection.[40] The availability of phones is critical to achieve these objectives, although it must be

coupled with technical support to health workers, adequate mobile network availability, and data security to ensure its sustainability.[41]

Collaboration between block leaders in MoHFW and ICDS to overcome logistical challenges in the field was a facilitator of data collection in only one high-performing block. Vacancies in ANM positions were a specific barrier in low-performing blocks, resulting in greater challenges with timely and accurate data collection. While vacancies in nurse-midwife positions have not been previously cited as a barrier to data collection, they have been linked to poor maternal and newborn health delivery in other low and middle-income settings. In two districts of Upper West Region in Ghana, nearly 40% of health facilities lacked a midwife on staff, requiring untrained nurses to assume this responsibility.[42] Consequently, health workers described high stress levels and denial of care in these circumstances. Shortage of staff has also been linked to barriers of receiving and delivering quality maternity care in Uttar Pradesh.[43] Lack of trained gynecologists, anesthetists, and nurses resulted in delayed or denial of care and high workload among current staff. Staff shortages may also provoke a negative perception of the healthcare system among beneficiaries and providers. A qualitative study on the barriers to the uptake of health services in northeastern India revealed that lack of doctors and nurses in rural hospitals discouraged pregnant women from seeking care at those facilities.[44] Doctors also preferred to leave rural settings due to low salaries and inadequate medical equipment to provide quality health services.

In high-performing blocks, data quality was assessed by comparing similar indicators across data sources. In low-performing blocks, government staff assess data quality in real-time during their supervision visits or refuse to question the work of their ANMs. One unique concern of data quality emerged from one of the low-performing blocks, where block staff consistently

reported an HMIS indicator incorrectly. Rather than reporting the number of pregnant women given the full amount of IFA and calcium tablets, block staff totaled rations of supplements given to multiple pregnant women. Once the total number of rations equaled 180 IFA tablets or 360 calcium tablets, block staff reported this as one pregnant woman given the full amount of IFA and calcium tablets. The inconsistency in data quality assurance strategies and potentially in data reporting may lead to poor data quality overall, which prevents targeted guidance on achieving health targets for low and middle-income countries. The World Health Organization describes the key constructs of high data quality as completeness, timeliness, and internal consistency.[45] A quality assessment of Health Management Information System (HMIS) data in the Jimma Zone region of Ethiopia revealed up to a 40% discrepancy in completeness and timeliness between districts and overall inconsistency between MCH indicators.[46] Some key determinants of high quality data included confidence in HMIS task completion, high quality supervision, and availability of technology such as computers or calculators.

Among routine government monitoring data, HMIS or MPR data was used by block government staff to investigate issues with availability and consumption of IFA and calcium supplements. HMIS data was also used as a screening tool for pregnant women who require more comprehensive antenatal care. Supportive supervision checklists were the primary intervention monitoring data source used. They were used to identify counseling topics that FLWs have not mastered and provide targeted feedback to underperforming FLWs. Checklists were also used to identify logistical issues in the field, such as the lack of equipment for data collection. A variety of data were used to estimate demand of IFA and calcium supplements at the block level, such as trends in ANC registration from HMIS or due lists from ANMs. There was no consistent method of demand estimation across all blocks.

Monthly review meetings between FLWs, supervisors, and block staff were the main

facilitator for data usage, occurring across both high and low-performing blocks. Collaboration

between ICDS and MoHFW facilitates the use of data to ensure high quality reporting in each

department, but this was evident in only one high-performing block. Barriers for data usage were

present in all blocks, such as lack of staffing in ICDS, conflicts between FLWs, and low

feasibility of decision-making due to political hierarchies. Cooperation across health sectors and

between districts and blocks is needed for scaling maternal and child health and nutrition

interventions. According to Kim et al. (2017), ICDS and NHRM in Odisha, India collaborated

often to develop guidelines and review programs due to a shared motivation and leadership for

coordination.[47] However, NHRM tended to dominate the agenda for these initiatives and did not

share data with ICDS. Dissatisfaction at the block-level was due to lack of guidelines for

coordination from the district, heavy workload, and insufficient resources such as personnel to

supervise the villages in a block. As mentioned previously, high workload of medical personnel

may lead to delay or denial of care and insufficient resources may discourage doctors and nurses

to work in rural settings.[43,44] FLWs are also negatively affected by the disconnect between

district and blocks because they may not be given a voice to explain the reality of healthcare

delivery in the field, which can influence the success of implementing top-down changes.[48] Since

the nature of their work involves trust and teamwork between each other, they tend to value these

same components among health administration.

In order to transport and request adequate supplies of IFA and calcium supplements, there

must be robust communication between the state, district chief pharmacist, block-level staff, and

ANMs. The key facilitators for maintaining these supplies were the rate contract for calcium,

which eventually increased distribution of calcium to the blocks, and the use of data for

estimating the demand of IFA and calcium supplements at the district level. The calculation

involves demand estimations from the block and a few other data points that are unknown to

people outside of the district. An adjustment is also made in the calculation to account for

pregnant women who are anemic, as they require twice as much iron as healthy pregnant women.

The key barriers for maintaining IFA and calcium supply were the increased demand of calcium

stifling the capacity to supply all the blocks, the centralization of procurement from the district to

the state level, and the contrasting methods of supply chain management between Unnao and

Kanpur-Dehat. Similar supply and demand scenarios manifest in other parts of India. In Bihar,

major bottlenecks in IFA supply were identified such as low utilization and importance given to

indents and lack of appropriate IFA demand forecasting.[49] Unique barriers to IFA supply that

emerged included limited storage space for supplements, inadequate supply management training

for storekeepers, and lack of a safe disposal plan for expired medicines. Inadequate IFA supply is

also present in low and middle-incomes countries outside of India. A qualitative study in seven

countries across Asia and Africa revealed a common barrier to adequate supply being inadequate

procedures for IFA procurement at the local level, such as data monitoring of supplement stock

and accurately forecasting demand.[50] Supply-side factors for calcium in the context of maternal

nutrition were difficult to identify in the literature, but consumption is significantly determined

by a mix of individual and structural factors such as receiving counseling on calcium

consumption and education level, respectively.[51]

Implications

UNICEF has established six operational approaches to create an enabling environment

for the sustainable delivery of nutrition services at scale. Of these, three are particularly relevant

to the implications of this study: supporting scale-up of evidence-based nutrition-specific interventions and nutrition-sensitive programming, developing capacity to implement contextually relevant nutrition programs, and strengthening systems to ensure effective monitoring and evaluation.[26]

The broader implications from this project are the structural barriers of ANM vacancies, low education of ANMs, and lack of staffing in ICDS. Current FLWs in both MoHFW and ICDS are burdened by the dual pressure of data reporting and maternal health service delivery. However, the larger disparity between staffing capacity and department responsibilities in ICDS may compromise their synergy with MoHFW to scale up nutrition-specific interventions or nutrition-sensitive programming and strengthen current monitoring and evaluation systems. These findings can inform further advocacy by Alive & Thrive at the state and national levels to invest in hiring more FLWs and supervisors. The educational level barrier among ANMs may lead to targeted training programs for ANMs on quantitative data skills or recruitment of staff specific for this function to relieve the data reporting pressure on ANMs.

The direct implications on the current maternal nutrition programming in Uttar Pradesh stem from the individual facilitators across the pathway of data collection and use. Block staff in areas where overall performance of the maternal nutrition program is low should adopt the strategies of interdepartmental collaboration and engagement in meaningful review meetings to facilitate the constant monitoring and evaluation of data from the program for use in decision-making situations. Monitoring and evaluation is a critical component of successful health service delivery.[26] A systematic review of supplement delivery programs in developing countries, including India, showed that a lack of documenting and monitoring contributed to uncertainty of the effectiveness of program interventions.[52] Additionally, the fragmented structure of the health

sector in India, where components of ANC services are managed by different departments, results in different monitoring strategies that perpetuate the high workload and dissatisfaction of health professionals in the field.[53] Therefore, there is a need for streamlined health data monitoring and evaluation alongside other operational approaches to strengthen delivery of health services. In Odisha, India, the state government changed their nutrition programming in 2009 to include a component on monitoring health outcomes, health care processes, and health systems performance between the state's MoHFW and Women and Child Development scheme.[8,54] The result was a three-fold increase in institutional deliveries in the poorest district of Odisha from 2008 to 2011, compared to the two-fold increase statewide, and a reduction in the gap of maternal nutrition service utilization between tribal women and all women in the state by 10% during that time period.[54] In primary health care facilities of South Africa, a checklist was introduced as a part of a quality improvement intervention to improve the monitoring of a package of health services for mothers and children.[55] The intervention resulted in increased growth monitoring of children and discussions between health workers and mothers about maternal health services. The endline quantitative survey implemented by IFPRI's program evaluation team may provide similar insights about the impact of the program intervention that includes a monitoring and evaluation component on delivery outcomes and maternal nutrition service utilization in Uttar Pradesh.

The immediate impact of this study will be informing the development of a program impact pathway (PIP) that will include a component illustrating the importance of using intervention and government monitoring data to strengthen program implementation. A similar design has been created by Kung'u et al. (2018) for integrating a nutrition intervention into the health programs of Ethiopia, Kenya, Niger, and Senegal.[56] The logic model for Ethiopia

specifically called for improved data use and monitoring as one of three key activities to ultimately decrease maternal and neonatal morbidity and mortality. At the endline of the multi-country study, there was a significant change in quality and uptake of ANC during pregnancy among control and intervention groups in Ethiopia.[57]

Strengths & Limitations

Conducting a qualitative study allowed for detailed insight to be obtained on the variety of data sources collected and used, the facilitators and barriers for data collection and usage, and how data is used to manage supply of IFA and calcium supplements. Additionally, 35 of the 36 expected interviews were completed, accommodating a diversity of perspectives to be collected at the program administration and block levels.

Interviews were mostly conducted in private and comfortable settings. However, this was heavily dependent on the availability of office spaces in the block CHC, PHC or ICDS office. In one block, interviews with block staff were conducted with the data operator in the room, as they could not leave from their work station. This could have potentially biased answers regarding data usage during the interview. In blocks with heavy patient traffic, interviews were sometimes interrupted with other staff entering the office space. In these settings, respondents received many phone calls and in some cases, requested to stop the interview to answer them.

The selection method of FLW supervisors may have introduced bias as well. Supervisors were selected based on their response to a phone call and willingness to be interviewed. Those who were not interviewed may have had a different perspective on the topics covered in the interview guide.

Recommendations for program implementation

A number of key recommendations emerge from this study for improving the use of data for decision-making in the Government of India's ANC infrastructure. At the grassroots level, collaboration between ICDS and MoHFW must occur to scale the implementation of maternal nutrition interventions and programming. Both sectors must perceive that they have equal stake in creating an enabling environment for optimal maternal and child nutrition, which can be achieved through regular intersectoral meetings and the transparent exchange of data. Block-level review meetings must also continue to occur to provide a platform for data quality review and decision-making.

A standardized data quality measure must also be established among all blocks that aligns with the WHO Data Quality Report Card guidelines on completeness, timeliness, and internal consistency.[45] Operationalization of indicators, such as the number of pregnant women given 360 calcium tablets, must be coordinated between all blocks to ensure accurate reporting. If possible, additional indicators could be incorporated to capture the total number of IFA and calcium tablets distributed if they are not already present.

From a structural standpoint, governing bodies at the state and national level must invest in building the capacity of block-level staff to implement contextually relevant nutrition programs. Hiring of ANMs needs to be prioritized in blocks that face a high number of vacancies and their technical training in data collection may be addressed through specific trainings on this skill or through delegating this responsibility to other staff members in the MoHFW. ICDS generally lacks the resources that are present to the MoHFW. More supervisors must be hired to ensure adequate supportive supervision of AWWs and hiring of data operators can decrease the workload associated with data reporting among CDPOs and Lady Supervisors.

Lastly, the procurement and distribution of supplements must be based off a standardized scientific calculation that incorporates the demand reported by the ANMs, as they may have a better understanding of needs at the village level. Once this is established, a regimented purchase order cycle must be created with the UP Medical Supply Corporation to acquire supplements in a timely manner. Once supplements are procured, distribution can be done according to the initial projections made by the ANMs of the blocks. Proper recordkeeping in addition to regular communication between the district, blocks, and sub-centers that carry supplement stock can ensure availability of supplements at all times for beneficiaries.

Recommendations for future research

Since ANMs are critical to the data collection and quality assurance process, further investigation must be done to reveal the barriers they face in these processes. This may reveal a more specific knowledge gaps at the individual level, such as technical training on data management, or structural level such as the burden of workload. These gaps can then be addressed through nutrition-sensitive programming.

While it is established that there is an interconnected relationship between data collection and data quality, it is unclear if perceptions on data quality impacts its use. For instance, if HMIS data for a particular month is determined to be poor quality, it is unclear if the data will still be used for decision-making at the block or district level. The determinants must be clarified through specific questions on this topic with block-level and district-level staff.

The political system barrier for data use could be dissected further to understand its impact on work satisfaction and motivation among block-level staff. These could shed light on more individual-level barriers that impact the pathway from data collection to data use in Figure

5. Additionally, the convergence of strategic decision-making between officials at the, district, and block levels of Uttar Pradesh can be researched to understand the level of coordination that is present or still needed to ensure adequate service delivery and policy implementation.

It remains unclear how demand for IFA and calcium supplements is calculated at the district level by members of the planning committee. Respondents from IPEG explained that the projection is a result of triangulating multiple data points, one of them being the population of pregnant women in each block. However, the remaining data points and their quality are unknown to individuals outside of the district. It is also unclear how the planning committee for each district incorporates their blocks' projections into the final demand estimation, if at all. Follow-up investigation should include interviews with members of the planning committee, particularly the chief pharmacists and RCH officers, to inquire about the intricacies of demand estimation at the district level.

Summary conclusion

An abundance of monitoring data from government and interventional sources is collected and then used for decision-making on the implementation of maternal nutrition services. A variety of individual facilitators and structural barriers influence each step of this pathway, which ultimately impacts the overall performance of the block. In order to sustain the facilitating strategies of data use and to mitigate its barriers, there must be cooperation between the state, district, and block to develop and ensure adherence to guidelines, build the capacity of health service delivery, and support additional investigation on strategies for health systems strengthening.

Appendix A: Tables

Table 4: Raw percentage data for high and low-performing blocks on twelve key indicators of program activity for May 2019

	Key Indicators for program activity											
	% of VHND strengthened with maternal nutrition (MN) component	% VHND reported by ANMs with strengthened MN component	% of sub-centers covered with MN strengthened VHNDs	% listed pregnant women (PW) attended MN strengthened VHNDs	% Gram Panchayat covered by Ratri Chaupal (RC)	% Ratri Chaupals facilitated by FLWs	% listed PWs (out of total registered for ANC) participated in RC	% husbands (out of total PW registered for ANC) participated in RC	% PW counseled on MN during PMSMA Day supported by IPEG	% VHSNC meeting facilitated	% Supervisors undertaken supportive supervision visits	% AAA meetings organized
Block 1 (Low)	70.6	65.4	30.4	68.8	12.0	40.0	25.3	14.5	52.5	18.0	56.3	23.9
Block 2 (High)	89.6	74.3	95.7	72.7	38.7	45.3	187.4	84.5	79.1	25.0	33.3	28.3
Kanpur-Dehat	**66.0**	**56.4**	**63.2**	**66.2**	**26.6**	**38.6**	**27.5**	**15.3**	**9.5**	**22.9**	**31.6**	**31.6**
Block 7 (Low)	73.0	62.0	64.7	68.6	20.9	38.7	12.6	6.2	3.7	30.3	20.0	27.9
Block 9 (High)	68.5	58.3	77.3	64.2	30.8	41.2	92.5	53.8	71.4	28.7	66.7	40.9
Unnao	**74.3**	**64.8**	**58.9**	**74.8**	**21.3**	**43.4**	**58.1**	**29.4**	**52.8**	**19.8**	**57.7**	**30.4**
OVERALL	**70.2**	**60.6**	**61.1**	**70.5**	**24.0**	**41.0**	**42.8**	**22.4**	**31.2**	**22.1**	**35.9**	**30.4**

Appendix B: Tools

Oral Consent Form

Namaste. My name is [Name of Interviewer] and I am working with Emory University and IFPRI to understand the implementation of the maternal nutrition program in your community. We would like to speak with you about your experiences and understand the factors related to the delivery of maternal nutrition services in this area. We are also interested in how monitoring data is used in decision-making for the maternal nutrition program. The information provided by you is very important for us, as it will help to understand how maternal health and nutrition program is implemented in this area and can be improved. Our discussion will last approximately 45 minutes.

Your participation in this interview is completely voluntary, and you may refuse to answer any questions or decide to end the interview at any point. This will neither impact your ability to access the services nor influence the quality services you are utilizing. There are no consequences of any kind if you decide that you do not want to participate.

This study is not intended to benefit you directly, but we hope this research will benefit people in your community in the future. There are no costs for you to participate in the study and you will not receive any compensation for your participation.

Any information provided by you will remain entirely confidential and will only be shared with members of the research team. We will take care to ensure that your information is kept securely, and your name and identity will not be linked with your responses.

During the interview, I will be taking notes. I would also like to record this interview to make sure I do not miss any information you provide. The recording will be safely stored and no one outside the research team will have access to it. There will be no way to identify you through either the recording or interview.

Please keep in mind that there is no right or wrong answer in this discussion. We would simply like to understand your experiences and views and encourage you to speak without hesitation.

Contact Information

If you have questions about this study, your part in it, your right as a research participant, or if you have questions, concerns or complains about the research you may contact the following:
> Melissa Young, PhD at +1-404-727-1529
> Emory Institutional Review Board at 404-712-0720 or toll-free at 877-503-9797 or by email at

Do you have any questions about anything I just said?

Do I have your permission to record this interview?

Do I have your consent to proceed to the interview questions?

Participant agrees to participate: Yes   No

If yes: _____   _____
                    Name of Interviewer   Date

Alive & Thrive In-Depth Interview (IDI) Guide

<u>Warm-Up:</u>

1. Tell us about your role as xxx. What do you specifically do for the maternal nutrition program?
   a. *Responsibilities?*
   b. *What does your daily work involve?*
   c. *How does it fit in with overall plans for the program?*

2. What has your professional experience been in implementing the maternal nutrition program?
   a. *Positive and negative experiences?*
   b. *How long have you been involved?*

<u>Supply of IFA and Calcium supplements</u>
3. Please describe the steps taken to ensure consistent supply of IFA supplements.
   a. *What is the process for estimating the required supply?*
   b. *Who is involved in monitoring stock of supplements?*
   c. *What's the process of delivery to the households?*
   d. *How often is stock checked at health sub-centers?*
   e. *Storage and inventory management?*
   f. *Record-keeping of stock transactions (receipt of supplements, consumption, adjustments, losses, any other logistical issues)?*

4. What have been the challenges of maintaining adequate stock of IFA supplements?
   a. *Obtaining supplements?*
   b. *Storage of supplements?*
   c. *Feedback on top-down distribution of supplements?*

5. What do you think can be done to improve the supply of IFA supplements?
   a. *Thoughts on streamlining the process?*
   b. *Suggestions for top-down distribution from manufacturers?*
   c. *Suggestions on horizontal allocation of supplements to PHC/CHC and HSCs?*

6. Until now, we have talked about maintaining supply of IFA supplements. How does this compare to the supply of calcium?
   a. *What is the process for estimating the required supply?*
   b. *Who is involved in monitoring stock of calcium supplements?*
   c. *What's the process of delivery to the households?*
   d. *How often is stock checked at health sub-centers?*
   e. *Storage and inventory management?*
   f. *Record-keeping of stock transactions (receipt of supplements, consumption, adjustments, losses, any other logistical issues)?*

7. What have been the challenges of maintaining adequate stock of calcium supplements?

  a. *Obtaining supplements?*
  b. *Storage of supplements?*
  c. *Feedback on top-down distribution of supplements?*

8. What do you think can be done to improve the supply of calcium supplements?
  a. *Thoughts on streamlining the process?*
  b. *Suggestions for top-down distribution from manufacturers?*
  c. *Suggestions on horizontal allocation of supplements to PHC/CHC and HSCs?*

9. What data is being collected on IFA and calcium supplementation?
  a. *Stock of supplements?*
  b. *Whether supplements were delivered to mothers?*
  c. *Coverage (amount of households, ANC centers, and blocks that receive adequate amount of supplements)?*
  d. *Consumption/intake?*
  e. *How frequently is all of this monitored?*
  f. *Who is collecting monitoring data?*

10. How is this data being used for decision making and managing operations?
  a. *Storage management?*
  b. *Inventory management?*
  c. *Supply chain decisions upstream?*

Counseling on recommended maternal nutrition services
11. How is the program influencing counseling services delivered to pregnant women?
  a. *Counseling on dietary diversity and quantity of food intake?*
  b. *Consumption of IFA and calcium supplements?*

12. What have been some challenges in strengthening the counseling services component of the program?
  a. *Keeping FLWs motivated?*
  b. *Training of FLWs?*
  c. *Motivation of supervisory staff?*
  d. *Adherence to counseling messages?*
  e. *How have you been addressing these challenges?*

13. What data is being collected on counseling services?
  a. *At household?*
  b. *At VHNDs?*
  c. *At anganwadi centers (AWCs)?*
  d. *How is the data being collected?*
  e. *How is it used?*
  f. *Effect on program operations?*

Strategic use of data:

14. Besides data on supplements, counseling services, and ANC, what data is A&T monitoring for program implementation?

  a. *Quarterly household surveys? Indicators?*
  b. *Supportive supervision checklist? Indicators?*
  c. *Program activity sheets? Indicators?*
  d. *Sources of these data?*
  e. *Other key indicators you would recommend adding to any of the monitoring data methods?*
  f. *How would these be helpful to the program?*

15. How do you access the program monitoring data?

  a. *Timeliness of accessing data? (how soon after collected do you see?)*
  b. *Challenges in accessing, interpreting?*
  c. *Thoughts on quality of data? How do you define quality?*
  d. *Advantages of collecting monitoring data?*
  e. *Improvements you recommend?*

16. How is the program monitoring data currently used?

  a. *Sharing with other team members?*
  b. *Decisions to be made from the data?*
  c. *Changes in the training of FLWs and supervisors?*

17. How do you use the government monitoring (HMIS) data?

  a. *Preparation of MN block cards?*
  b. *Challenges in using HMIS data for block cards?*
  c. *Perceptions on quality of data?*
  d. *Advantages of using this data?*
  e. *Improvements you recommend?*

18. How do you think the MN data dashboard efforts will be scaled-up to the current ANC platform in the health system?

  a. *Feasibility?*

19. What are the challenges of scaling up A&T's program initiatives to the entire district or state?

  a. *Opinions of state and district leadership?*
  b. *Staffing capacity?*
  c. *Funding capacity?*
  d. *Internal relationships between politicians?*

20. What are the internal program activity targets you discuss in the quarterly review meetings with IPEG?

  a. *Current targets?*
  b. *How are targets set?*
  c. *How do you monitor targets?*
  d. *Are you meeting the targets?*
  e. *What targets are not being met and how can they be met?*

f.   *Is program monitoring data discussed here? If so, how is it being used?*
g.   *Challenges of conducting review meetings?*

Closing:

21. What recommendations do you have to improve the data collection and use of program monitoring data?

22. Is there anything else you would like to share?

Thank you very much for your time and valuable insights!

IPE Global Program Staff IDI Guide

<u>Warm-Up:</u>

1. Can you describe your role in the implementation of Maternal Nutrition program?
    a. *Responsibilities?*
    b. *What does your daily work involve?*
    c. *How does it fit in with overall plans for the program?*

2. What has your experience been in implementing the maternal nutrition program?
    a. *Positive and negative experiences?*
    b. *How long have you been involved?*

<u>Capacity Development/Training</u>
3. Can you describe how the field team (district manager, block coordinators, and field monitors) was oriented?
    a. *Components of the orientation?*
    b. *When were they oriented?*
    c. *Length of orientation?*

4. Can you describe how the supervisors are trained on supporting the FLWs?
    a. *Training components? (Completing supportive supervision checklists? Contact points with pregnant women? Record keeping on MCTS? Supplies management? Accompanying FLWs during counseling sessions?)*
    b. *When were they trained?*
    c. *Length of training?*

5. How are the FLWs trained on knowledge of maternal nutrition and counseling pregnant women?
    a. *Training components? (Counseling on IFA intake? Counseling on Calcium intake? Weight monitoring? Counseling on weight gain? Counseling on diet diversity at home visits? Seeking feedback from pregnant women?)*
    b. *When were they oriented?*
    c. *Length of orientation?*
    d. *Is refresher training conducted at monthly meetings? What do you review in these trainings?*

6. How do you think the trainings have impacted the knowledge and skills of government supervisors and block-level managers?

7. How do you think the trainings have impacted the knowledge and skills of FLWs?

8. What have been the challenges in training the government supervisors and block-level managers?

      a. Not enough time?

      b. Drop-outs?

      c. Encouraging use of SS checklists?

9. What have been the challenges in training the FLWs?
   - *a. Not enough time?*
   - *b. Drop-outs?*
   - *c. Attendance at monthly meetings for refresher trainings?*
   - *d. Engagement from supervisors?*

Service Delivery & Community Mobilization

10. How is IPE Global strengthening the delivery of maternal nutrition services?
    - *a. At PMSMAs?*
    - *b. At home visits?*
    - *c. At VHNDs?*

11. What have been the challenges to delivering these services in each of these settings?
    - *a. PMSMAs?*
    - *b. Home visits?*
    - *c. VHNDs?*

12. How is IPE Global engaging the community in supporting maternal nutrition practices (regular antenatal care, tracking weight gain of mother, dietary diversity, and consuming IFA and calcium supplements)?
    - *a. Participation of husbands/men at Ratri Chaupals? Mother-in-laws? Other family members?*
    - *b. Engaging local religious leaders and village elders?*
    - *c. Involving local health care providers?*
    - *d. Is there documentation of participants?*

13. What challenges have you faced in conducting the Ratri Chaupals, if any?
    - *a. Participation from husbands? Other family members?*
    - *b. Participation from any community members?*
    - *c. Attendance?*
    - *d. Facilitating the RCs?*
    - *e. Showing the videos on maternal nutrition?*

Strategic use of data:

14. What types of data is IPE Global collecting and/or using from village, block, and districts?
    - *a. MN block cards?*
    - *b. Performance of FLWs (SS checklists at VHND, home visit, and RCs)?*
    - *c. Quarterly household survey?*
    - *d. VHSND and RC attendance?*

e. *Sub-center operations?*
f. *Support from supervisors?*

15. Please describe the supportive supervision checklists.
    a. *Do you have these checklists?*
    b. *Walk through process of how they're used in the field? (where? by who? when?)*
    c. *Frequency of checklist completion?*
    d. *Frequency of sharing checklist data and with who?*

16. How are the data from the SS checklists used?
    a. *Use in review meetings?*
    b. *Use for program operations?*
    c. *Feedback given to supervisors? FLWs?*

17. How do you prepare the program monitoring data?
    a. *Timeliness of accessing data? (how soon after collected do you see?)*
    b. *Challenges in accessing, interpreting?*
    c. *Perceived quality of data? How do you define quality?*
    d. *Advantages of collecting monitoring data?*
    e. *Improvements you recommend?*

18. How is the program monitoring data currently used?
    a. *Sharing with other team members?*
    b. *Decisions to be made from the data?*
    c. *Changes in the training of FLWs and supervisors?*

19. How do you use the government monitoring (HMIS) data?
    a. *Preparation of MN block cards?*
    b. *Challenges in using HMIS data for block cards?*
    c. *Perceptions on quality of data?*
    d. *Advantages of using this data?*
    e. *Improvements you recommend?*

20. What has been your experience in developing MN report cards?
    a. *Access to HMIS data?*
    b. *Quality of HMIS data?*
    c. *Identifying elements for the card?*
    d. *How are the percentages calculated to put into the MN block cards?*

21. How are MN report cards currently used?
    a. *Challenges in using cards?*
    b. *Orienting government staff to use cards?*
    c. *Discussed at monthly meetings?*
    d. *Decisions based on card?*

22. Please describe the weekly review meetings and points/targets discussed.

a. *Who conducts them, where, and how frequently?*
b. *Targets/points discussed?*
c. *How are targets set?*
d. *How do you monitor targets?*
e. *Are you meeting the targets?*
f. *Actions taken when targets are not met?*
g. *How can they be met?*

23. Please describe the monthly review meetings and use of monthly program targets?
    a. *Who conducts them, where, and how frequently?*
    b. *Targets/points discussed?*
    c. *How are targets set?*
    d. *How do you monitor targets?*
    e. *Are you meeting the targets?*
    f. *Actions taken when targets are not met?*
    g. *How can they be met?*

Closing:
24. Please comment on the sustainability of IPE's systems-strengthening activities.
    a. *How are independent VHNDs with MN counseling possible? What makes them successful and why?*
    b. *How are independent RCs with MN counseling possible? What makes them successful and why?*

25. What are the challenges of scaling up A&T's program initiatives to the entire district or state?
    a. *Opinions of state and district leadership?*
    b. *Staffing capacity?*
    c. *Funding capacity?*
    d. *Internal relationships between politicians?*

26. What recommendations do you have to improve the data collection and use of monitoring data?
    a. *For A&T program monitoring data?*
    b. *For government/HMIS data?*

Is there anything else you would like to share?

Thank you so much for you time and valuable insights!

IPE Global Block Coordinator IDI Guide

1. Can you describe your role in the implementation of Maternal Nutrition program?
    a. *Responsibilities?*
    b. *What does your daily work involve?*
    c. *How does it fit in with overall plans for the program?*
2. What has your experience been in implementing the maternal nutrition program?
    a. *Positive and negative experiences?*
    b. *How long have you been involved?*

Program Implementation

3. Please describe your process for activating a sub-center.
    a. *Village meetings with AWWs, ANMs, and ASHAs?*
    b. *VHSNC meetings?*
    c. *What leaders/influencers do you engage?*
    d. *Key messages conveyed?*

4. How have you been strengthening the delivery of maternal nutrition services at VHNDs?
    a. *Ensuring adequate supplies of IFA and Ca supplements?*
    b. *Supporting weight measurement of mothers?*
    c. *Planning meetings with BCPM and ANM?*
    d. *Documentation of VHND attendance and activities?*

5. What has been your experience in strengthening the services at VHNDs?
    a. *Things that have been successful?*
    b. *Challenges faced?*

6. What has been your experience in facilitating Ratri Chaupals?
    a. *Engaging husbands? Other family members?*
    b. *Challenges?*

7. How have you been strengthening the interpersonal counseling skills of FLWs?
    a. *Are you doing joint mentoring sessions with supervisors?*
    b. *Observations from home visits? From VHNDs? From group counseling at VHND/Mamta Diwas/Godbharai events?*
    c. *Feedback given to FLWs? To supervisors? Any examples?*

Performance Improvement

8. How are you monitoring the performance of FLW supervisors, if at all?
    a. *Collecting any data?*
    b. *Using program activity sheets? HH surveys? SS checklists? How?*

      c. *How do you define quality of work? Performance?*
      d. *Discussing in monthly review meetings?*

9. How are you monitoring the performance of FLWs, if at all?
      a. *Collecting any data?*
      b. *Using program activity sheets? HH surveys? SS checklists?*
      c. *Discussing in monthly review meetings?*

Closing

10. What recommendations do you have to improve the implementation of the maternal nutrition program?
      a. *Supply chain management?*
      b. *Training of supervisors and FLWs?*
      c. *Supervision of FLW supervisors and FLWs?*

Is there anything else you would like to share?

Thank you so much for you time and valuable insights!

Block-Level Program Staff IDI Guide

<u>Warm-Up:</u>

1. What role do you play in the implementation of the maternal nutrition services in this block?
   a. *What are your responsibilities and contributions to the program?*
   b. *What does your daily work involve?*
   c. *How is your role different from other government block staff?*

2. What has been your experience in strengthening and prioritizing maternal nutrition service delivery through the current ANC platform?
   a. *How long have you been involved?*
   b. *Please describe your positive and negative experiences.*

<u>Delivery and Quality of the maternal nutrition services:</u>

3. How are the current maternal nutrition services being delivered in the block?
   a. *What services are delivered at health facilities such as PHC or CHC?*
   b. *What services are delivered at the health sub-center?*
   c. *What services are delivered at the VHNDs?*
   d. *What services are delivered at the household?*
   e. *Who's involved in delivery?*

4. How is the delivery of maternal nutrition services being monitored?
   a. *What's being monitored? In what settings are you monitoring these services?*
   b. *Who's monitoring the services?*

5. Based on what you've observed/heard, what changes have been seen in the use and coverage of maternal nutrition services in the last year?
   a. *Have they increased, decreased, or stayed the same?*
   b. *What types of services are being utilized more or less?*
   c. *Is data being monitored on these services?*

6. What has been your experience in working with IPE Global staff in delivering maternal nutrition services in your area?
   a. *Can you describe your orientation to the IPE program?*
   b. *Do you think IPE Global's work has been helpful? Why or why not?*
   c. *What have been IPE Global contributions to delivery of maternal nutrition services?*
   d. *What challenges have you encountered when working on IPE Global's initiatives?*

7. What have been the challenges of implementing the maternal nutrition program?
   a. *Any difficulty with accessing or understanding monitoring data?*

    b. *Any challenges with compliance from mother and family members to maternal nutrition messages delivered during counseling*
    c. *Any challenges with FLW performance and motivation?*
    d. *Any challenges with the availability of IFA and calcium?*
    e. *Any challenges with communicating with program staff members or field workers?*

Supportive supervision of government program staff:

FOR HEO + BPM (ANM Supervisor):

8. Can you describe your experience supervising the ANMs?
    a. *How many ANMs do you supervise?*
    b. *What activities by the ANMs do you supervise?*
    c. *Can you please comment on the ANMs' knowledge of diet and nutrition during pregnancy and post-partum?*
    d. *Can you please comment on the ANMs' knowledge of breastfeeding practices?*

9. Can you describe a typical supervision visit to ANMs in your area?
    a. *Where do visits take place?*
    b. *What activities do you perform during your supervision visits?*
    c. *Do you provide feedback to the ANMs? What feedback do you provide?*
    d. *How are the ANMs using your feedback?*

10. What were some difficulties, if any, that you encounter when trying to supervise the ANMs?

FOR ALL BLOCK GOVERNMENT STAFF:

11. Can you describe your experience with conducting your supportive supervision visits to households and VHNDs?
    a. *What activities do you perform during your supervision visits?*
    b. *Have you been able to complete all these visits? Why or why not?*
    c. *What challenges have you faced, if any, to complete these visits?*

12. Please describe your experience with the supportive supervision checklists.
    a. *What indicators are you monitoring? How frequently?*
    b. *How is data collected?*
    c. *What have been some challenges to data collection?*
    d. *Who is this shared with?*
    e. *Have there been any challenges with sharing the checklist data?*

13. How do you use the supportive supervision checklists?
    a. *Are you giving any feedback to FLWs based on the checklist data? If not, why?*
    b. *Are you discussing the data in any meetings, such as cluster or sector meetings?*

c. *How does the checklist data influence program operations?*
d. *Are the supportive supervision checklists helpful, in your opinion?*

Strategic use of data:

14. What types of data do you have access to?
  a. *Do you have access to HMIS data?*
  b. *Do you have access to IPE program monitoring data? These include supportive supervision checklists, program activity sheets, and quarterly household surveys.*
  c. *What indicators are you monitoring?*

15. What difficulties do you encounter in accessing the data?
  a. *Is the data regularly shared with you? Why or why not?*

16. What data do you use and not use?
  a. *Do you use HMIS data? How?*
  b. *Do you use IPE programing monitoring data? How?*
  c. *Why do you use these data?*
  d. *Why do you not use these data?*

17. How do you use these data?
  a. *What data do you look at?*
  b. *What actions do you typically take based on the data?*
  c. *Are you discussing the data in any meetings, such as cluster or sector meetings?*
  d. *Who do you share the data with, if at all?*

18. Please describe the quality of the data you are accessing.
  a. *Why do you think this?*
  b. *Are you getting data from all the health sub-centers in your block?*
  c. *Are you missing any data from sub-centers? If so, why?*
  d. *Are you missing any data on certain indicators?*
  e. *How frequently do you get these data?*

19. What are the challenges of using this data?
  a. *Can you make changes to program operations based on the data? Why or why not?*
  b. *Is more data needed?*

20. What has been your experience with the MN block cards?
  a. *Are you aware of it?*
  b. *Do you play any role in developing these cards? If so, what is your role?*
  c. *What indicators do the block cards contain?*
  d. *How is MN block card data different from the program monitoring data?*

21. How do you use the MN block cards?
  a. *What actions do you typically take based on the data?*

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b. *Are you using them to review performance of supervisors or FLWs? If so, how?*
c. *What indicators are you looking at?*
d. *Are you discussing them in sector or cluster level meetings? If so, how?*
e. *Who do you share the MN block card data with, if at all?*

22. Based on your personal experience, how valuable is collecting data for program implementation?
a. *In your opinion, should program monitoring continue? Why or why not?*
b. *What insights have you gained about maternal nutrition services by using the data?*

Closing:

23. How do you think IPE's program interventions can be strengthened?
a. *Do you think Ratri Chaupals will be sustainable in the future? Why or why not?*
b. *Do you think the checklists introduced by IPE Global will integrated into the current government health system? Why or why not?*
c. *What is the potential to scale-up these interventions to other districts and the entire state?*

24. What recommendations do you have to improve the data collection and use of monitoring data?
a. *For IPE Global's program monitoring data?*
b. *For government/HMIS data?*

Is there anything else you would like to share?

Thank you very much for your time and valuable insights!

Acronyms (in alphabetical order):

BCPM = Block Community Process Manager
HEO = Health Education Officer
BPM = Block Program Manager
CDPO = Child Development Program Officer

Front Line Worker (FLW) Supervisor IDI Guide

Designation of supervisor:	
Age:	Village:
Years working:	Education:

Training exposure and availability of materials and supplies

1. Have you received a training on maternal nutrition from IPE Global in the last year?
   a. *When did the training happen?*

2. Can you tell me about your experience with the trainings?
   a. *What were the topics discussed at the trainings?*
   b. *How did you feel about trainings? Were they useful? Why/why not?*
   c. *Is there anything unclear or something you would wish has been covered?*
   d. *After the initial training, did you receive any additional refresher training/coaching on maternal nutrition?*

Work
3. Can you describe what your work responsibilities are?

4. What materials and tools do you use to deliver maternal nutrition services?

5. What difficulties have you faced in carrying out the nutrition related services you are responsible for?

Home visits and check-ups/ Interpersonal counseling
For Lady Supervisor:
6. Can you describe your experience supervising the AWW?
   a. *How many AWWs do you supervise?*
   b. *What activities performed by the AWW do you supervise?*
   c. *Where do you conduct these supervision visits? (At home? At VHND? At AWC events?)*
   d. *Have you been able to complete all these visits? Why or why not?*
   e. *Can you please comment on the AWWs knowledge of diet and nutrition during pregnancy and post-partum?*
   f. *Can you please comment on the AWWs knowledge of breastfeeding practices?*

7. Can you describe a typical supervision visit to the AWC in your area?
   a. *What activities do you perform during your supervision visits?*
   b. *Do you provide feedback to the AWWs? What feedback do you provide?*
   c. *How are the AWWs using your feedback in their daily work?*

8. What are some difficulties, if any, that you encounter when you supervise the AWWs?

For ASHA Sangini:
9. Can you describe your experience supervising the ASHAs?
    a. *How many ASHAs do you supervise?*
    b. *What activities performed by the ASHA do you supervise?*
    c. *Where do you conduct these supervision visits? (At home? At VHND? At CHC/PHC?)*
    d. *Have you been able to complete all these visits? Why or why not?*
    e. *Can you please comment on the ASHAs knowledge of diet and nutrition during pregnancy and post-partum?*
    f. *Can you please comment on the ASHAs knowledge of breastfeeding practices?*

10. Can you describe a typical supervision visit with the ASHAs?
    a. *What activities do you perform during your supervision visits?*
    b. *Do you provide feedback to the ASHAs? What feedback do you provide?*
    c. *How are the ASHAs using your feedback in their daily work?*

11. What are some difficulties, if any, that you encounter when you supervise the ASHAs?

Continue for ALL Supervisors:
12. How did you overcome these difficulties?
    a. *What strategies have you implemented to overcome these difficulties?*
    b. *How can these be addressed in the future?*
    c. *Do you mention these difficulties during sector or cluster review meetings?*

13. Please describe how the sector or cluster review meetings are conducted.
    a. *Who leads them?*
    b. *What topics do you discuss?*
    c. *Do you discuss any data at the meetings? If so, what data is discussed?*
    d. *What challenges do you face in conducting these meetings?*

14. How do these meetings compare to the AAA meetings?
    a. *Who leads them?*
    b. *What topics do you discuss?*
    c. *Do you discuss any data at the meetings? If so, what data is discussed?*
    d. *What challenges do you face in conducting these meetings?*

15. What are the steps that need to be taken to improve the delivery of maternal nutrition services?

Community events: VHND
16. What was your experience with organizing VHNDs in the last one year?
    a. *Have there been any changes to the way you organized VHND and to the services you provide during VHND?*
    b. *What are some challenges in organizing and providing services during VHND?*
    c. *Do pregnant women and their families attend? Why? Why not?*

    d. *What works well in the VHND?*
    e. *How are the current VHNDs helping to strengthen maternal nutrition as compared to previous VHNDs?*
    f. *What would you do differently next time you organize a VHND?*

Community events: Ratri Chaupal

17. What was your experience with Ratri Chaupal?
    a. *What are some of the challenges with organizing the Ratri Chaupals?*
    b. *What worked well in the Ratri Chaupal?*

18. How is the community responding to Ratri Chaupals?
    a. *Difficulties for husbands and families of pregnant women to attend?*
    b. *Difficulties for other community members to attend?*
    c. *Do you feel it will be possible for you and other FLWs to conduct Ratri Chaupals in the future with support from Panchayati Raj Institutions? Why or why not?*
    d. *How do you think Ratri Chaupals are helping to strengthen awareness of maternal nutrition in the villages?*
    e. *How has this event impacted knowledge of maternal nutrition among community members?*

Strategic use of data
19. What types of data do you have access to?
    a. *Do you have access to HMIS data?*
    b. *Do you have access to IPE Global's program monitoring data?*
    c. *Do you have access to MN block cards?*
    d. *How is this data used in your daily work?*
    e. *Any challenges to accessing or using the data?*

20. Please describe your experience with the supportive supervision checklists.
    a. *What indicators are you monitoring? How frequently?*
    b. *How is data collected?*
    c. *What have been some challenges to data collection?*
    d. *Who is this shared with?*
    e. *Have there been any challenges with sharing the checklist data?*

21. How do you use the supportive supervision checklists?
    a. *Are you giving any feedback to FLWs based on the checklist data? If not, why?*
    b. *Are you discussing the data in any meetings, such as cluster or sector meetings?*
    c. *How does the checklist data influence program operations?*
    d. *Are the supportive supervision checklists helpful, in your opinion?*

Opinions and perceptions
22. What changes, if any, have you noticed in the maternal nutrition practices of the pregnant women?
    a. *Changes in weight gain monitoring?*

     b. *Changes in consumption of IFA supplements?*
     c. *Changes in consumption of calcium supplement?*
     d. *Changes in eating a diverse diet?*
     e. *Changes in breastfeeding practices?*

23. What changes, if any, has the maternal nutrition program had on the communities in which you work?
     a. *Changes in their knowledge of maternal nutrition practices?*
     b. *Changes in their attendance at VHNDs or other community events?*
     c. *Changes in the behaviors of local doctors?*

24. According to you, what steps need to be taken to support women and community members in adopting practices?

Closing
25. What recommendations do you have for further efforts in maternal nutrition service delivery?

26. Is there anything else you would like to share?

Thank you very much for your time and valuable insights!

<u>**Appendix C: Analysis Plan**</u>

Research Questions:

- How has the routine government monitoring data and intervention monitoring data been used in the high and low-performing blocks to guide decision-making for program implementation?
- What are the facilitators and barriers to the use of government and intervention monitoring data for program decision-making?

Analysis plan steps:

1. Memo and code data inductively from field notes of each interview
2. Review questions from interview guides of each target group to create deductive codes
3. Create categories/topics based on similarities in codes
4. Consolidate codes, categories, definitions, and examples into three separate codebooks based on target group in Microsoft Excel. Example is below:

Target Group: Block-Level Staff

Topic	Code	Sub-Code	Definition	Example
Data Collection and quality				
	Facilitators of data collection			
		Collaboration between ICDS and MoHFW	Any mention of the CDPO and MOIC working together to overcome logistical issues in the field, which prevent the timely and accurate collection of data	*"In meetings [with CDPO] look sometimes my team or maybe if there is a routine immunization session and if AWC is closed and ANM has to be outside. Sometimes if AWW doesn't call children and say they won't support, then we will find solutions for this through meetings together" (MOIC, HPB)*
		Supportive supervision checklist	Use when respondent mentions the checklist and its assistance with data collection	*"Yes, it is helpful as when the list is right in front of us, we do not forget to do things. We remember them and are able to do them on time" (Lady Supervisor 2, HPB)* *"Just because, if I am observing something that I don't know, then by checking that list I come to know that which work has to be done and*

				we do those things. Just for a say, if I had heard anything in meeting and it did not recall, then by observing this list I can do it. That is why, it is helpful for me" (Lady Supervisor 1, HPB)
	Barriers of data collection			
		Education level	Any mention of issues with data collection due to the educational capacity and/or training of ANMs on understanding technical data	*"The thing is that ANMs are older and have passed just 12th grade. And these [maternal nutrition indicators] are technical data on what should be done and to what extent. So now we have 50-60% of ANMs who give wrong data" (MOIC, HPB)*
		ANM vacancies	Use when respondent talks about vacancies of sub-centers and the difficulties in data collection associated with this	*"We currently have 9 vacant subcenters and two more will happen by July 31st...wherever there are vacancies, there will be problems with all the indicators [in the data]. The flow will not be the same as a sub-center with an ANM present" (BCPM, LPB)*
		Lack of staffing in ICDS	Describes issues with ICDS achieving their full responsibilities for data collection due to the lack of staff members	*"We don't have other staff...no operator to compile [data]. There should be 6 supervisors and only 2 are working...supervisors have to do office work, [field] visits, operate [Anganwadi] centers, and build skills of FLWs" (CDPO, HPB)*

5. Compare results based on the following variables and subgroups below for each target group:
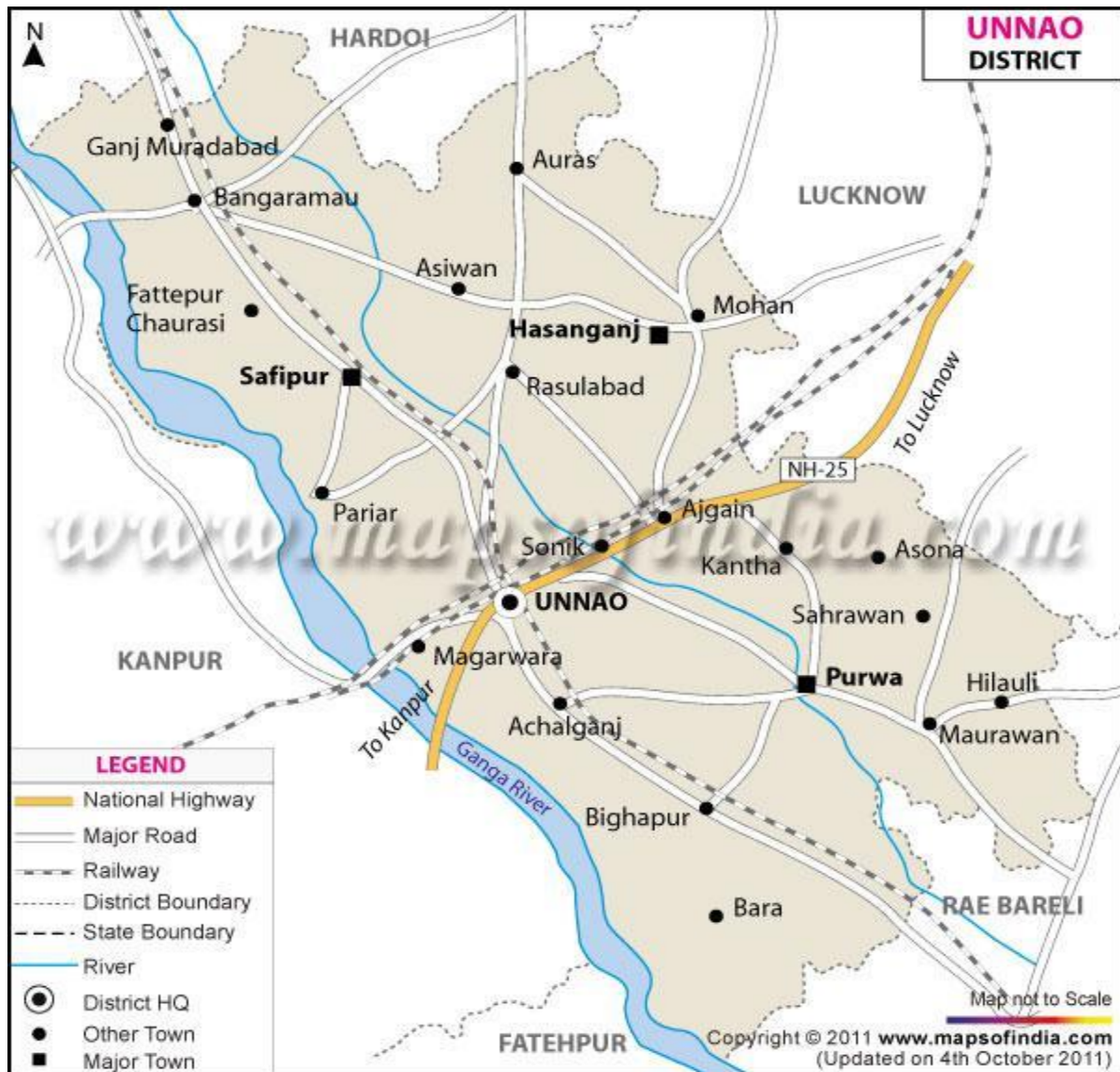
- Program staff:
  - Agency represented (A&T and IPEG)
- Block-level government staff:
  - Position in ICDS or MoHFW
  - High vs low-performing blocks
- FLW supervisors:
  - Position (ASHA Sangini vs. Lady Supervisor)
  - High vs low-performing block

Appendix D: Sample Block Card

Block Nawabganj
(District: Unnao)

नवाबगंज उत्तर प्रदेश में उन्नाव जिले में स्थित एक ब्लॉक है। उत्तर प्रदेश के ग्रामीण भाग में स्थित, यह उन्नाव जिले के 16 ब्लॉकों में से एक है। सरकारी रिकॉर्ड के अनुसार, नवाबगंज की ब्लॉक संख्या 285 है। ब्लॉक में 124 गाँव हैं।

नवाबगंज की जनसंख्या 180404 है। इसमें से 94336 पुरुष हैं जबकि महिलाओं की संख्या 86068 है।

Status on Maternal Nutrition Indicators under HMIS

Sub-Center	Total number of pregnant women registered for ANC	Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	Number of PW given 180 Iron Folic Acid (IFA) tablets	Number of PW given 360 Calcium tablets	Number of PW given one Albendazole tablet after 1st trimester	Number of PW received 4 or more ANC check ups	Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	Number of PW having Hb level<11 (tested cases)(7.1 to 10.9)	Number of PW having Hb level<7 (tested cases)
				HMIS , Nawabganj, August 2019					
Nawabganj	30	83%	267%	267%	100%	110%	277%	160%	13%
Chamrauli	17	76%	100%	0%	0%	35%	18%	71%	12%
Katehru	4	75%	100%	100%	0%	0%	0%	0%	0%
Makoor	13	77%	100%	100%	0%	62%	62%	38%	8%
Ajgain	19	89%	95%	0%	0%	84%	84%	47%	0%
Ashakhera	23	74%	83%	83%	0%	52%	74%	0%	0%
Atbarpur	11	73%	55%	0%	0%	55%	73%	27%	0%
Bhasora	10	70%	100%	0%	0%	100%	100%	40%	0%
Bhauli	15	80%	100%	0%	0%	67%	67%	47%	0%
Chamrouli	19	68%	84%	0%	0%	84%	68%	0%	0%
Dilwal	12	67%	100%	0%	0%	100%	100%	0%	0%
Gaura	6	67%	100%	0%	0%	83%	100%	0%	0%
Gauri	6	67%	83%	0%	0%	100%	100%	0%	0%
Jaitipur	12	75%	83%	17%	0%	67%	100%	0%	0%
Jansaar	11	100%	100%	0%	0%	55%	100%	0%	0%
Katheru	0								
Makoor	9	100%	100%	100%	0%	67%	67%	44%	0%
Mehnaura	14	71%	29%	29%	0%	43%	71%	57%	0%
Nidhankhera	6	83%	100%	0%	0%	100%	133%	33%	0%
Raipurgadhi	13	69%	100%	100%	0%	77%	77%	0%	0%
Ranipur	2	100%	100%	0%	0%	100%	100%	0%	0%
Saraijoga	14	86%	100%	21%	0%	79%	79%	79%	0%
Sarosa	0								
Sohramau	9	100%	100%	0%	0%	100%	100%	56%	0%
Block (Total)	275	79%	109%	53%	11%	74%	99%	43%	3%

Quality of Counseling by FLW
(Supportive Supervision)

Indicators	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr	May	June	July	Aug	Sep
FLW मातृ पोषण पर परामर्श के लिए उपलब्ध IEC सामग्री का इस्तेमाल किया	NA	17	46	46	39	66	65	96	96%	100%	99%	100%	100%

एफएलडब्ल्यू (FLW) एमसीपी कार्ड की जांच करती है और स्वास्थ्य कार्यकर्ता के साथ अंतिम यात्रा / संपर्क के बारे में पुष्टि /सत्यापित करती है	NA	14	40	40	38	65	43	30	19%	22%	43%	37%	35%
FLW हर महीने वजन में बढ़ोतरी को जँचती है और महिला को उस के बारे में बताती है।	NA	10	8	8	9	59	42	27	22%	21%	42%	37%	34%
FLW महिला का वजन लेती है, वजन को MCP कार्ड में दर्ज़ करती है और हर महीने वजन में बढ़ोतरी को जँचती है और महिला को उस के बारे में बताती है।	NA	83	85	85	67	33	36	15	20%	1%	3%	8%	1%
FLW गर्भावस्था के दौरान वजन के महत्व पर सलाह देती है, पिछली वजन की जांच के लिए गर्भवती महिलाओं से पूछती है, एमसीपी कार्ड में वजन रिकॉर्ड करती है और वजन के बढ़ने को ट्रैक करती है	NA	17	44	44	39	58	48	24	65%	1%	3%	10%	1%
FLW ने गर्भवती महिला / स्तनपान कराने वाली मां को आयरन की गोली (आईएफए) का उपभोग सूचित किया है	NA	93	95	95	100	94	98	99	96%	99%	99%	98%	99%
FLW ने गर्भवती महिला / स्तनपान कराने वाली मां को आयरन की गोली	NA	90	98	98	95	92	90	100	95%	84%	86%	82%	92%

(आईएफए) के बारे में याद दिलाया												
FLW ने आयरन के फायदे के बारे में बताया है	NA	93	98	94	93	93	94	98	98%	91%	91%	94%	83%
FLW ने गर्भवती महिला / स्तनपान कराने वाली मां को कैल्शियम की गोली का उपभोग सूचित किया है	NA	97	94	55	94	93	91	96	93%	94%	92%	95%	99%
FLW ने गर्भवती महिला / स्तनपान कराने वाली मां को कैल्शियम की गोली के बारे में याद दिलाया	NA	83	55	5	88	94	96	99	96%	75%	69%	64%	65%
FLW ने कैल्शियम के फायदे के बारे में बताया है	NA	0	5	95	28	63	64	95	94%	79%	73%	68%	65%
एफएलडब्ल्यू ने गर्भवती महिला / स्तनपान कराने वाली मां को एक दिन में अपने आहार में कम से कम पांच खाद्य समूहों का उपभोग करने के बारे में सचित्र प्रदर्शन / फ्लिपबुक / समूह परामर्श उपकरण के माध्यम से सूचित किया है?	NA	97	95	74	93	94	96	100	97%	99%	99%	98%	95%
एफएलडब्ल्यू ने गर्भवती महिला / स्तनपान कराने वाली मां को एक दिन में अपने आहार में कम से कम पांच खाद्य समूहों का उपभोग करने के बारे में सचित्र प्रदर्शन / फ्लिपबुक / समूह परामर्श उपकरण	NA	83	74	100	63	78	77	98	96%	99%	100%	97%	90%

के माध्यम से सूचित किया है?												
एफएलडब्ल्यू ने गर्भवती महिला / स्तनपान कराने वाली मां को भोजन की मात्रा के बारे में सूचित किया है और यह याद दिलाया है की उन्हें दिन में 3 बार आहार तिमाही के अनुसार में वृद्धि के साथ लेना है ?	NA	100	100	98	100	99	97	98	94%	86%	88%	80%	57%
FLW ने उन गर्भवती महिलाओं को जो अपनी तीसरी तिमाही में हैं, उन्हें बच्चे को जनम के तुरंत बाद स्तनपान कराने महत्व के बारे में सूचित किया	NA	100	98	72	86	61	58	37	57%	43%	49%	61%	72%
FLW ने गर्भवती महिला को यह याद दिलाया है कि खाना पकाने और खाने से पहले शौचालय का उपयोग करने के बाद, उसे साबुन से हाथ धोना चाहिए ?	NA	83	72	43	86	94	86	97	94%	90%	98%	99%	90%
FLW ओपन एंडेड सवाल पूछती है और गर्भवती महिलाओं को उनकी कठिनाइयों की व्याख्या करने की अनुमति देती है, माता की चिंताओं को ध्यानपूर्वक सुनती है, और बाधाओं और अन्धविश्वास के लिए सलाह देती है	NA	17	43	40	38	62	59	89	81%	44%	35%	35%	13%

एफएलडब्ल्यू पति के साथ भी उपरोक्त प्रमुख बिंदुओं और इस निवेश के महत्व पर चर्चा में शामिल है और इन लोगो द्वारा गर्भवती महिला को नियमित रूप से प्रसव पूर्व जाँच के लिए वीएचएनडी पर ले जाने के बारे में बता रही है	NA	17	40	23	21	37	38	60	58%	58%	57%	59%	50%
एफएलडब्ल्यू सास के साथ भी उपरोक्त प्रमुख बिंदुओं और इस निवेश के महत्व पर चर्चा में शामिल है और इन लोगो द्वारा गर्भवती महिला को नियमित रूप से प्रसव पूर्व जाँच के लिए वीएचएनडी पर ले जाने के बारे में बता रही है	NA	17	23	98	31	56	62	87	95%	86%	89%	83%	81%

Project Activities

	IPC WITH SUPERVISORS		IPC WITH FLW				RATRI CHAUPAL				
	Number of supervisors who made SS visit	Total No. of checklists filled	No. of. ASHAs mentored during IPC	No. of AWWs mentored during IPC	Total IPC home visits done	Family calendars distributed	Gram Panchayats covered by Ratri Chaupal	Facilitated by IPEG (Achieved)	Facilitated by FLWs	Listed PWs	Participation of Husband
Jan	6	35	19	18	77	425	41	41	**20**	351	209
Feb	3	13	41	24	152	12	28	28	**12**	311	187
Mar	2	5	49	46	191	202	22	22	**11**	204	90
Apr	9	66	43	60	214	310	27	27	**19**	209	105
May	7	29	47	27	89	160	29	29	**24**	386	174
June	16	52	44	31	98	240	19	19	**12**	191	98
July	23	83	121	151	386	275	0	0	**0**	0	0
Aug	16	52	58	79	205	300	9	9	**9**	103	59
Sep	20	56	93	113	300	500	15	16	9	139	92

	MNF VHND					VHSNC		AAA MEETING	
	MN VHND reported by ANMs	MN VHND supported by IPEG (Achieved)	No. of sub-centres covered by IPEG supported VHNDs	Listed PW in VHNDs supported by IPEG	PW in VHNDs supported by IPEG	VHSNC meetings facilitated by IPEG	VHSNCs meetings Without IPEG	AAA in Presence of IPEG	AAA without IPEG
JAN	24	12	12	340	240	17	20	1	11
FEB	46	8	8	89	63	22	4	2	0
MAR	58	8	8	104	50	12	8	3	12
APR	52	14	14	136	88	11	14	11	7
MAY	107	22	22	216	157	9	22	3	10
June	97	18	18	197	122	17	7	5	6
July	123	15	15	151	121	18	26	7	16
Aug	98	16	16	137	112	6	18	5	18
Sep	104	12	12	119	97	29	42	4	15

Status of IFA and Ca

Month	PW	Anemic PW	LW	Current IFA stock	Current Ca stock	IFA monthly need	CALCIUM monthly need	Stock of IFA in months	Stock of CALCIUM (PW only) in months
September	1698	28	1016	1252000	2000	83100	162840	1507%	1%
October	1698	28	1016	1252000	2000	83100	162840	1507%	1%
November	2650	12	1712	1,200,500	15000	131580	162440	912%	9%
December	2958	9	2023	1,187,000	4250	149970	298860	791%	1%
January	3152	9	2251	170,000	12000	162630	324180	105%	4%
February	3331	8	2334	148000	5000	170430	339900	87%	1%
March	3426	9	2431	102000	0	176250	351420	58%	0%
April	3426	9	2431	102000	0	176250	351420	58%	0%
May	3426	9	2431	140000	0	176250	351420	79%	0%
June	3426	9	2431	60	0	176250	351420	0%	0%
July	3426	9	2431	180000	70000	176250	351420	102%	34%
Aug	3426	9	2431	110000	20000	176250	351420	62%	10%
Sep	3426	9	2431	180000	20000	175980	351420	102%	6%

HH Survey

	AUGUST (%)	OCTOBER (%)	JANUARY (%)	APRIL (%)	July(%)	Oct (%)
गर्भवती महिला ने 5 खाद्य पदार्थ (10 में से) का उपभोग किया	52	48.6	71	53	60	65
पिछले 30 दिनों में IFA के सत्यापित उपभोग " के साथ गर्भवती महिला	23	55.5	67	61	62	74
पिछले 30 दिनों में Calcium के सत्यापित उपभोग " के साथ गर्भवती महिला	21	27	41	18	15	55
आहार विविधता ज्ञान (PW को कि आहार विविधता के बारे में 6 प्रमुख संदेश में से 5 पता है)	48.6	52.3	62	82	94	95
IFA ज्ञान (PW को 7 संदेश में से 5 पता है)	48.4	50.8	66.2	77	91	93
Calcium ज्ञान (PW को 3 संदेश में से 2 पता है)	37.3	33	63.4	56	82	85
गर्भावस्था के दौरान उचित देख-भाल (PW को 3 संदेश में से 2 पता है)	88.9	78.8	82	62	78	75
ANM के साथ संपर्क (% PW जो इस तिमाही में कम से कम तीन बार ANM से मिली हैं)	39.3	15.6	12.3	7	18	18
गृह भ्रमण (गर्भवती महिलाए जिनके घर FLW ने कम से कम एक बार गृह भ्रमण किया है)	94.6	96.1	97.2	99	100	99

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