

Delivering Nutrition to Pregnant Women

Fiscal Bottlenecks in Purnea, Bihar

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To reduce the burden of maternal undernutrition in India, select nutrition interventions are delivered to pregnant women at scale through the National Health Mission. But in Purnea, a district in Bihar, delivery is constrained by poor planning and budgeting, delayed fund flow, and shortage of infrastructure and human resources; and funds are underutilised.

Maternal nutrition is important due to its critical and complex association with women's well-being and implications for child development (Jose and Navaneetham 2008). Evidence suggests that deficiencies in both macronutrients and micronutrients can cause severe maternal morbidity and mortality (Villar et al 2003). During pregnancy, an inverse relationship exists between calcium intake and development of hypertension (Black et al 2013), and iron deficiency anaemia in pregnancy increases the risk of haemorrhage and maternal mortality (Results UK 2016; Stoltzfus et al 2004). A woman's nutritional status before and during pregnancy also impacts foetal development and child malnutrition. Maternal undernutrition can lead to intra-uterine growth retardation, low-birth-weight babies, preterm birth, childhood stunting, and emergence of chronic diseases (Villar et al 2003; Vir 2016). Poor maternal nutrition also results in low energy reserves in mothers and affects their functional outcomes.

According to the National Family Health Survey (NFHS-4), the state of Bihar has the worst maternal nutrition indicators in India. Almost 30% of women have low body mass index (BMI), and around 60% are anaemic (they have less than 11.9 g/decilitre of haemoglobin in their blood). Disparity between districts in Bihar is significant; Purnea is one of the districts where undernutrition is high (IPS 2016). Almost 72% of pregnant women in Purnea are anaemic. Nearly 39% of women have below-normal BMI (less than 18.5 kg/m²), much higher than the average percentage of women with below-normal BMI in the state. Access to prenatal and postnatal care is limited. As per NFHS-4, only 33% of women registered during the

first trimester of their pregnancy and only 4.6% received full antenatal care (ANC).

For addressing maternal and child undernutrition, the *Lancet 2013 Series* suggests evidence-based, nutrition-specific interventions (Bhutta et al 2013) that address the immediate causes of undernutrition relating to food insecurity, micronutrient supplementation, and access to quality ANC. Health-related nutrition interventions are delivered through the National Health Mission (NHM), a centrally sponsored scheme. The NHM is an umbrella programme delivering a range of maternal and child health (MCH) services, within which delivery of most nutrition interventions for pregnant women are included.

This article analyses the budgets for select nutrition interventions for pregnant women delivered through the NHM in Purnea. It also analyses the fiscal and procedural constraints to the delivery and uptake of these selected nutrition interventions in the district.

Methodology

This article aims to understand the fiscal bottlenecks in the delivery of nutrition interventions to pregnant women. To do so, it uses a mix of primary and secondary research. The detailed methodology is discussed below.

Analysis Framework

Large-scale implementation of the relevant nutrition interventions during pregnancy, as mentioned in the *Lancet 2013 Series*, can reduce the high burden of maternal and child undernutrition and mortality (Bhutta et al 2013). The interventions for pregnant women include supplementation with iron and folic acid (IFA), calcium, and other micronutrients; salt iodisation; and balanced energy and protein supplementation (Bhutta et al 2013). In India, some of the nutrition interventions for pregnant women mentioned in Bhutta et al (2013) are included in the basic ANC services provided to pregnant women through the NHM. It includes facility-based ANC packages and outreach activities for pregnant

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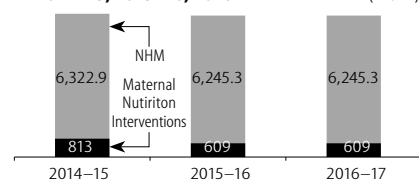
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women. Village Health Nutrition Days (VHNDs) are organised every month at anganwadi centres (AWCs), where micro-nutrient supplements such as IFA and calcium are distributed to pregnant women. These services are delivered by community health workers (cwws)—accredited social health activists (ASHAs), auxiliary nurse midwives (ANMs), with support from anganwadi workers (AWWs). The Supplementary Nutrition Programme for Pregnant and Lactating Women, part of the Integrated Child Development Services scheme, is implemented by the Ministry of Women and Child Development. It delivers supplementary nutrition intervention for pregnant women; therefore, this analysis excludes this intervention.

This article analyses the budgets for nutrition interventions delivered through the ANC package of the NHM and expenditure on health centres incurred through

the NHM (Table 1). The Janani Shishu Suraksha Karyakaram (JSSK) for pregnant women is concerned mainly with institutional delivery, but this article includes it because it includes budgets for nutrition supplements (IFA, folic acid, and calcium) and deworming (albendazole) for pregnant women. To analyse the fiscal constraints to the delivery of nutrition interventions for pregnant women in Purnea, this article examines issues of planning, budgeting, and fund utilisation in the NHM and its components. The extent of fund utilisation is analysed by comparing expenditure against allotment for Purnea for each fiscal year based on Financial Management Reports (FMR). Fund utilisation is found to be low; its reasons are analysed through a combination of quantitative evidence, based on information on delay in fund releases and shortage of staff and infrastructure against

Figure 1: Budgets Allotted for NHM and Select Maternal Nutrition Interventions for Purnea for FY 2014–15, 2015–16, 2016–17 (₹ lakh)



Source: Compiled by authors from FMR, DHS Purnea.

sanctions/norms, and qualitative evidence, or perceptions of key respondents on the problems.

Data Sources and Timeline

The analysis is based on a mix of primary and secondary information. The information regarding budget outlays and expenditures for the interventions have been collated from FMRs prepared under the NHM and collected from the District Health Society (DHS), Purnea. The information on staff and infrastructure was collated from the *Economic Survey of Bihar (2016–17)* and from the DHS, Purnea. Information on fiscal and procedural bottlenecks constraining scheme implementation was collected from informal, semi-structured interviews conducted with five DHS officials, four officials each from Block Health Societies of Jalalgarh and Purnea East, and 39 front-line workers (FLWs) (nine ANMs, 17 AWWs, and 13 ASHAs) from 20

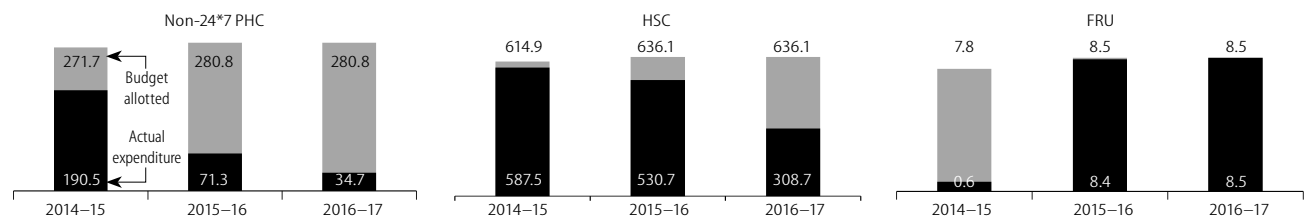
Table 1: Interventions from NHM Included in Maternal Nutrition Budget Analysis for Purnea

Category	Strategy/Intervention
ANC (package under NHM programme: It includes IFA and calcium supplementation, deworming, early registration for inclusion in outreach services, four ANC check-ups, organising VHND, and any other facilities for pregnant women)	<ul style="list-style-type: none"> • Monthly VHND • Line listing and follow-up of severely anaemic women • Identification of high-risk pregnancy and timely referral for treatment • Training and incentives for ANM, AWW, ASHA, and Mamta • IEC activities for Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), including printing of MCP cards, safe motherhood booklets, etc. • JSSK for pregnant women

Table 2: Budget Allotted and Actual Expenditure on Maternal Nutrition Interventions within NHM Budget of Purnea for FY 2014–15, 2015–16, 2016–17 (₹ lakh)

Strategy/Activities	2014–15		2015–16		2016–17	
	Budget Allotted as per PIP	Actual Expenditure	Budget Allotted as per PIP	Actual Expenditure	Budget Allotted as per PIP	Actual Expenditure
ANC services	700.9	59.4	590.2	414.7	590.2	269.5
1 JSSK (for pregnant women)	497.7	0	500.5	384.6	500.5	267.9
2 Incentive proposed for HSC team for improving a set of indicators*	4.9		4.9		4.9	
3 Monthly VHND		4.5				
4 Line listing and follow-up of severely anaemic women						
5 Identification of high-risk pregnancy and timely referral for treatment	6.7		6.7		6.7	0.2
6 Capacity building of FLHW (ANM, AWW, ASHA and VHSNC Chairman)	26.8	23.2				
7 Refresher training of Mamta			2.1		2.1	1.2
8 ASHA training	138.6	29.4	75.5	2.5	75.5	0.1
9 Procurement and replenishment of ASHA Drug Kit	13.4		0	14.8	0	0
10 ASHA incentive under MH (ANC/PNC)						
11 Mobility costs for ASHA and bicycle for ASHA facilitator	7.3	2.3	0	12.8	0	0
12 IEC activities for PMSMA	0.2	0	0.5	0	0.5	0
13 Printing of MCP cards, safe motherhood booklets, etc	4.3					0.1
14 Monitoring for quality MCH service delivery through front-line workers	1					
15 Sub-centre strengthening						
Health centre-related	112.1	14.6	18.4	12.5	18.4	59
1 National mobile medical vans and ambulances	28.8	0	4.8	0	4.8	0
2 Infrastructure for MCH centres (L-1, L-2, L-3)	83.3	14.6	13.6	12.5	13.6	59
Total	813	74	608.6	427.2	608.6	328.5
Expenditure as % of allocations		9.1		70.2		54.0

Source: DHS Purnea.

Figure 2: Budget Allotted and Actual Expenditure on Health Centres through NHM

Source: Compiled by authors from FMR, DHS Purnea.

villages of two blocks—Purnea East and Jalalgarh. The analysis was done for three financial years: 2014–15, 2015–16, and 2016–17.

Limitations of the Analysis

This analysis is confined to only interventions delivered through the NHM. It excludes the additional budget, if any, on these interventions outside the NHM; budgets for complicated pregnancies, abortion, and measures to prevent pregnancies; period of childbirth; and postpartum interventions.

The findings from the analysis are presented below.

In Purnea, the total budget for maternal nutrition interventions delivered through the NHM was low; and this declined over the three fiscal years studied (Table 2, p 31).

In 2014–15, the budget allotted was ₹813 lakh; it fell to ₹608.6 lakh in both 2015–16 and 2016–17. Per beneficiary, the allocation dropped in each succeeding year—from ₹813.4 (2014–15) to ₹588.1 (2015–16) and to ₹526.3 (2016–17)—due to an increase in the number of pregnant women enrolled in the programme (from 0.999 lakh in 2014–15 to 1.034 lakh in 2015–16 and 1.156 lakh in 2016–17). Overall, NHM allocations also declined from ₹6,322 lakh in 2014–15 to ₹6,245 lakh in 2016–17 (Figure 1, p 31).

The budget was cut largely because outlays for nutrition-related ANC activities fell from ₹700.9 lakh in 2014–15 to ₹590.2 lakh in both 2015–16 and 2016–17. Funds are allotted for ANC activities that comprise, largely, the JSSK (70%–85%) and ASHA training (12%–20%). Funds for the JSSK increased marginally—from ₹497.7 lakh in 2014–15 to ₹500.5 lakh in both 2015–16 and 2016–17—but the ASHA training component declined significantly during the period. In the last two years studied, funds were not allocated for a

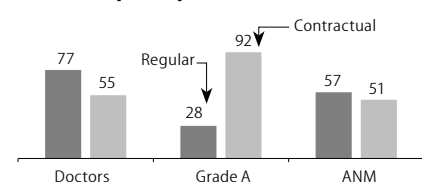
few activities intrinsic to ANC provision—monthly VHND, line listing and follow-up of severely anaemic women, and printing of Mother and Child Protection (MCP) cards.

The District Health Action Plan (DHAP) 2014–17 had proposed to allocate ₹34 lakh per year for monitoring the VHND (NRHM nd); in 2014–15, ₹4.5 lakh was spent, but funds were not approved in 2015–16 or 2016–17. The other expenses (such as logistic support and information, education, and communication [IEC] services) for the outreach service were to be incurred through Village Health Sanitation and Nutrition Committee (VHSNC)/Health Sub-Centre (HSC) untied funds. In 2014–15, ₹26.78 lakh were allocated for “capacity building of VHSNC staff;” utilisation was close to 86%, but no allocations were made in the subsequent two financial years.

Fund Utilisation

In 2014–15, only 9.1% of the funds was utilised. Utilisation improved to 70.2% in 2015–16 and 54% in 2016–17, largely on account of increased expenditure under the JSSK, but the improvement should be seen in the context of reduced fund allocations for maternal interventions (Figure 1).

Fund utilisation for ANC-related services through outreach activities and ASHAs was low—30% in 2014–15, 35.5% in 2015–16, and 1.9% in 2016–17. Only ₹0.2 lakh was spent on identifying high-risk pregnancy and timely referral for treatment in 2016–17, but this activity was not carried out at all in 2014–15 or 2015–16. Fund utilisation was poor even for training ASHAs, which receives the majority share in ANC-related activities—21% in 2014–15, 3% in 2015–16, and none in 2016–17. Delays in the release of funds often adversely affected the training component.

Figure 3: Shortage of Employees (against Number of Posts Sanctioned) for Various Health Posts in Purnea (April–September 2016)

Source: Economic Survey Bihar, 2016–17; NHM PIP Purnea 2012–13.

In September 2016, the number of HSCs and Primary Health Centres (PHCs) in Purnea were below the norms of the Indian Public Health Standards; each was serving a population more than their capacity (Government of Bihar 2017). Each HSC served a population of more than 9,000 people, whereas the norm is up to 5,000. A PHC served more than 62,000 people, against the norm of up to 30,000. In the three fiscal years studied, funds allotted were low for peripheral health facilities such as HSCs, PHCs, and First Referral Units (Figure 2). The extent of utilisation of funds available for HSCs and non-24*7 PHCs was also low. Only 50% of the budget allotted for HSCs was spent in 2016–17.

The key functionaries for tracking and providing ANC services are ANMs and ASHAs, which are linked to an HSC and PHC closest to the village. Health centres are understaffed (Figure 3). As of September 2016, vacancies were about 57% for permanent ANMs (against the number of persons sanctioned), 50% for contractual ANMs, 72% for Grade A nurses, and 60% for doctors. There were no gynaecologists in block-level health facilities (as of September 2016). In the case of complications or difficulty, pregnant women travel to the district headquarters.

Nutrition interventions for pregnant women form a part of basic ANC services provided through VHND. It has delivered services to women in villages, built a better interface between FLWs and pregnant

women, and raised women's awareness of services (Kumar 2015), but the services do not adequately meet the needs. Not all the kits and equipment (weighing scales and blood pressure machines) used by ANMs for ANC were in working order, and some (haemoglobin testing strips) were of deficient quality. Often, village- and block-level health facilities lack the equipment to run routine lab tests, and private facilities are used (NHM 2016). A private ANC facility costs ₹2,000–₹3,000, including tests and doctor's fees but excluding long-distance travel cost and time, but women often prefer it because there are no doctors at village- and block-level health facilities.

Gaps in Planning and Budgeting Process

The NHM follows a bottom-up approach for planning and budgeting. The plans made at the district level (DHAP) are presented to the state government; the state's demand for funds, or the State Programme Implementation Plan (SPIP), should be based on the DHAPs.

The budget demands for nutrition interventions for pregnant women are supposed to be generated using various parameters, such as the number of expected pregnant women in the year (estimated through eligible couple survey conducted by ASHAs); payments to be made (such as beneficiary payment, ASHA incentives, courier services for VHND); and consumables required during the year. However, discussions with FLWs revealed that their inputs were hardly ever taken for planning or budgeting. The DHAP did not include inputs from the blocks or villages (CAG 2015), and the SPIPs did not consider DHAPs in their plans (NHM 2016). Therefore, budget allocations did not meet a district's needs; the deficit created a backlog of requirements; health facilities functioned sub-optimally; and service delivery was poor. Despite high demand, IFA supplements were always in short supply, and blood pressure instruments, weighing machines, and kits were not replaced even after repeated demands.

The approval of NHM budgets and release of funds were also delayed. SPIPs, which are approved by the Union

Ministry of Health and Family Welfare, are supposed to be approved by the month of February. Bihar's NHM budget for 2015–16, 2016–17, and 2017–18 was approved in September, November, and August of the respective years. Disbursal took time, too. It should take 15 days (NHM 2016) to transfer funds from the state treasury to the state health society, but it took 60–65 days, and it took another month or so to reach the district.

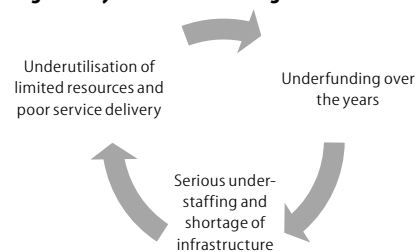
The highest proportion of funds was released to the district in the third quarter of the fiscal year. Delayed releases hindered the regular functioning of activities, district- and block-level NHM officials, and many activities had to be postponed. That affected service and expenditure quality. When funds were delayed, the officials met current expenditure requirements by temporarily allocating funds from different NHM components or sub-programmes.

Discussion

Maternal nutrition interventions are an integrated set of services. It requires adequate physical infrastructure, well-trained staff, and regular supply of drugs and supplements. However, compared to district requirements, the NHM programme has been underfunded over the years. A vicious cycle of understaffing and shortage of infrastructure has led to underutilisation of even the limited resources available and, in turn, to fund allocation for the scheme in subsequent financial years (Figure 4).

Low fund utilisation adversely impacts scheme implementation and reduces allocations in subsequent years. Funds have been reduced because the health sector has performed poorly (Chakravarthi et al 2017) or the state government lacks the capacity to spend its resources (Sundararaman et al 2016). In Purnea, the functioning of the programme has been undermined also by other procedural or budgetary lapses, such as inadequate or weak planning for nutrition interventions for pregnant women, delayed approval of budgets and release of funds, and shortage of staff and infrastructure. An effective health delivery infrastructure is required for delivery of many nutrition interventions, such as regular

Figure 4: Cycle of Underfunding



check-ups for monitoring pregnancy, management of anaemia, and birth planning. But district health centres lack basic facilities (such as a pathology laboratory) and amenities (like running water supply, toilet, electricity, ANM residence), which interfered with their smooth functioning in the district (NRHM 2013). Yet, spending on strengthening the health system was low.

The health workforce, the backbone of health services delivery (Campbell et al 2013), was inadequate in Purnea. The WHO (2010) has suggested a maximum limit of nearly 435 persons per skilled health personnel (including doctors, nurses, and midwives) for delivery of essential MCH services. Considering contractual and permanent ANMs, doctors, and Grade A nurses, only one health worker was employed for every 4,620 people in rural areas of Purnea and one health worker was sanctioned for a population of 1,900. Since there are high vacancies for ANMs, the weekly schedule of existing ANMs was tight, and HSCs functioned irregularly. Most ANMs were contractual employees, and not all were trained in maternal healthcare. There were other issues as well—ANMs did not receive salary and incentives on time; PHCs did not provide them residence or amenities; and, although their job requires ANMs and ASHAs to travel a lot, mobility support is limited.

These affected fund utilisation. Spending on some components of the scheme was irregular. For some components, funds are allocated in a given year, but utilised only in subsequent years. In 2014–15, ₹4.3 lakh was allocated for printing MCP cards, but the only expenditure reported was ₹0.1 lakh in 2016–17. Another issue that demands attention is the delivery of ANC services through VHND. It is dependent on the AWC set-up for implementation,

but most AWCs lack basic materials (chair, table, carpet, toilets). Unless proper infrastructure is created and minimum basic amenities provided, the services provided through AWCs would remain weak.

Poor resource allocation for the health sector in general, and for nutrition interventions for pregnant women in particular, has created a situation in the district where out-of-pocket expenditure on ANC services was high and dependence on private healthcare had increased. There is, therefore, a need to significantly scale up health system budgets in the district.

A major challenge in studying district-level budgets is the difficulty in accessing budget documents. State-level budget and NHM documents are available in the public domain, but the district budget documents have to be collected from the DHS. These documents are sometimes incomplete and not audited.

Conclusions

During pregnancy, a woman's physiology considerably influences the growth and development of the foetus and her own well-being. Nutrition interventions during pregnancy positively impact maternal nutrition, but implementation and coverage remains low in Purnea, largely due to low budgets for health interventions, weak service delivery infrastructure, and serious staff shortage. Procedural issues such as delays in the approval and release of funds adversely affect fund utilisation for ANC services. The delivery of maternal nutrition interventions can be improved only if the overall health delivery system is improved. This would entail enhancing budgets for the NHM and the health sector overall, addressing procedural challenges, recruiting an adequate number of skilled health personnel, improving infrastructure, and providing health facilities accessible round the clock. The health service delivery system is at the core of maternal nutrition interventions; strengthening them will go a long way in improving the health of women in the district.

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