POSHAN
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Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India
Policy Note
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Improving Nutrition in Meghalaya

Insights from Examining Trends in Outcomes, Determinants and Interventions between 2006 and 2016

INTRODUCTION

India has made considerable progress on child nutrition outcomes in the last decade. These rates of improvement, however, have been highly variable across the states, mostly due to variability in state-level changes in the determinants of nutrition and in the coverage of health and nutrition interventions. Although all of the states operate under a similar national policy and programmatic environment, the variability in trends in nutritional outcomes points to state-specific factors. An understanding of such factors can facilitate both state-specific learning and cross-state learning, and assist in identifying strategies to help India accelerate its progress in nutrition. In a series of *Policy Notes*, we examine state-specific trends in nutrition outcomes, determinants and the coverage of interventions, with the overall goal of supporting the state. This *Policy Note* focuses on Meghalaya.

Meghalaya, situated in the north-east of India, is a part of the eastern sub-Himalayan belt. It accounts for 0.68 percent of the area of the country and includes 11 districts (Government of Meghalaya 2017). The state, largely agricultural, is home to close to 3 million people (0.2 percent of the population of India) of which 74.4 percent are literate (Census of India 2011). Meghalaya has a sex ratio of 989 females per 1,000 males (Census of India 2011).

The purpose of this *Policy Note* is to examine the trends in undernutrition in Meghalaya and to document trends and geographic variability in the major determinants of nutrition and the coverage of key nutrition and health interventions. In doing this analysis, we aim to highlight the key areas for action to improve nutrition in Meghalaya.

METHODS

We used summary data from the recently released National Family Health Survey-4 (NFHS-4 2015–16) fact sheets (International Institute for Population Sciences 2017) and data from NFHS-3 from 2005–06 to compare trends in outcomes, determinants and interventions over a decade (International Institute for Population Sciences 2008). We also used information from fact sheets of the Rapid Survey on Children (RSoC 2013–14) (Ministry of Women and Child Development 2015) for indicators that are currently not available in NFHS-4 fact sheets. We used summary data reported in NFHS-4 district-level fact sheets to examine inter-district variability. Since NFHS-4 used the Census 2011 district boundaries, this Policy Note reports information for only seven districts.

For outcome indicators, we examined progress on a set of global nutrition targets for maternal, infant and young child nutrition (WHO 2014). These include stunting, wasting, low birth weight,

exclusive breastfeeding, and anemia status among women of reproductive age.

We also examined the levels and changes in several immediate, underlying and basic determinants of nutrition (Black et al. 2013). For intervention coverage, we chose to examine a set of nutrition-specific interventions across the lifecycle for which data are currently available. These include interventions affecting pregnant women, newborn babies, infants, and children.

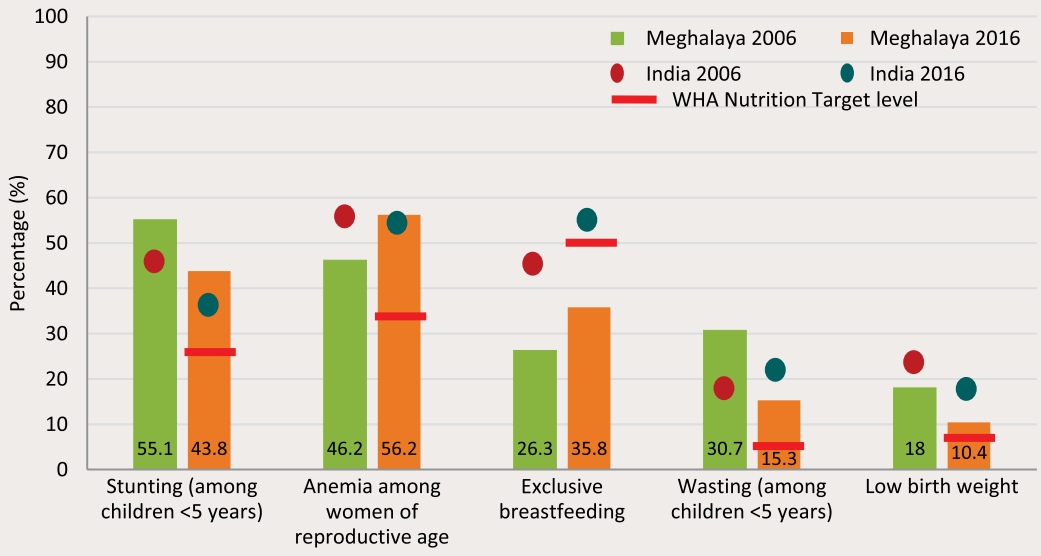
FINDINGS

Trends in nutrition outcomes and variability in outcomes by district

Overall, there have been improvements in nutrition outcomes in Meghalaya between 2006 and 2016. During this period, stunting prevalence fell from 55.1 percent to 43.8 percent (Figure 1). Wasting decreased substantially from 30.7 percent to 15.3 percent. The prevalence of low birth weight decreased by 7.6 percentage points, from 18 percent in 2006 to 10.4 percent in 2016. The prevalence of exclusive breastfeeding (EBF) increased from 26.3 percent to 35.8 percent. Anemia among women of reproductive age, however, got worse from 46.2 percent to 56.2 percent in the last ten years.

Stunting among children less than 5 years of age varies moderately among districts, ranging from 16.8 percent in South Garo Hills to 51.6 percent in Ri Bhoi (Map 1). Stunting is more than 40 percent (rated as very high) in more than half of the districts. The prevalence of anemia among women of reproductive age is higher than 40 percent in all the districts (Map 2). Anemia among women has the lowest prevalence (45.6 percent) in Jaintia Hills and the highest (71.1 percent) in West Garo Hills. The prevalence of wasting ranges from 9.4 percent (Ri Bhoi) to 36 percent (South Garo Hills) (Map 3), and 4 districts have very high wasting prevalence (>15 percent). Severe wasting ranges from 3.6 percent (East Khasi Hills) to 23.7 percent (South Garo Hills) (Map 4). EBF rates are missing for West Garo Hills district. Among the remaining 6 districts, EBF is the lowest (10.4) in South Garo Hills and highest (45 percent) in East Garo Hills.

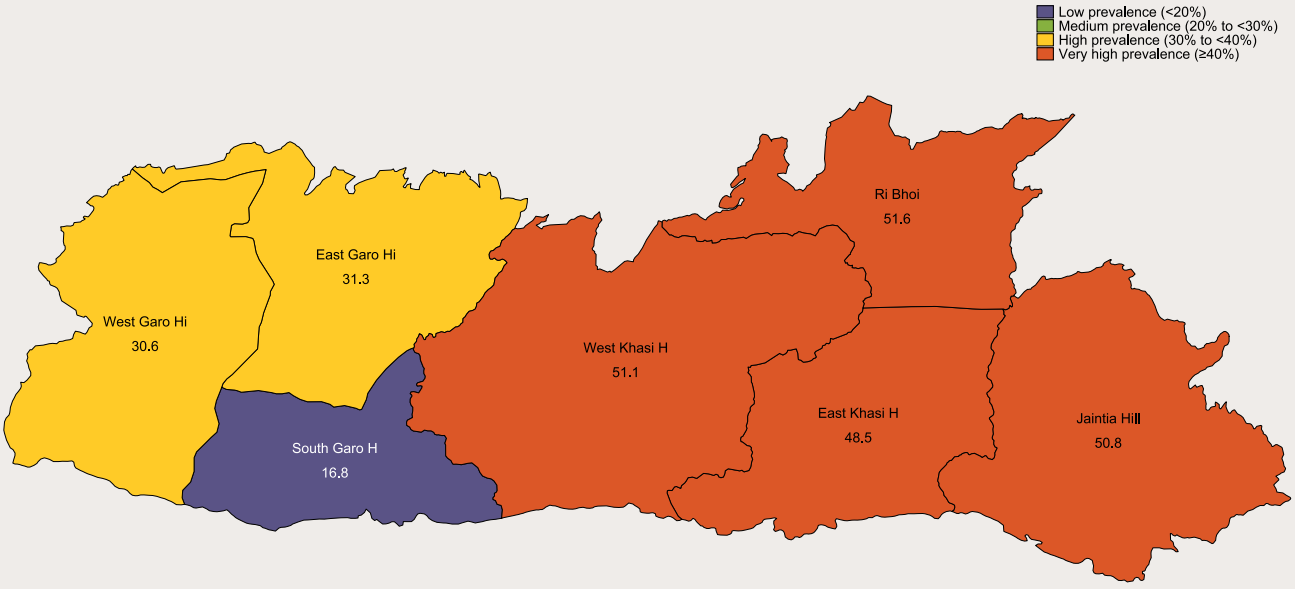
FIGURE 1 Trends in key nutrition outcomes in Meghalaya, 2006 to 2016



Source: NFHS-3 and NFHS-4; RSoC used for low birth weight.

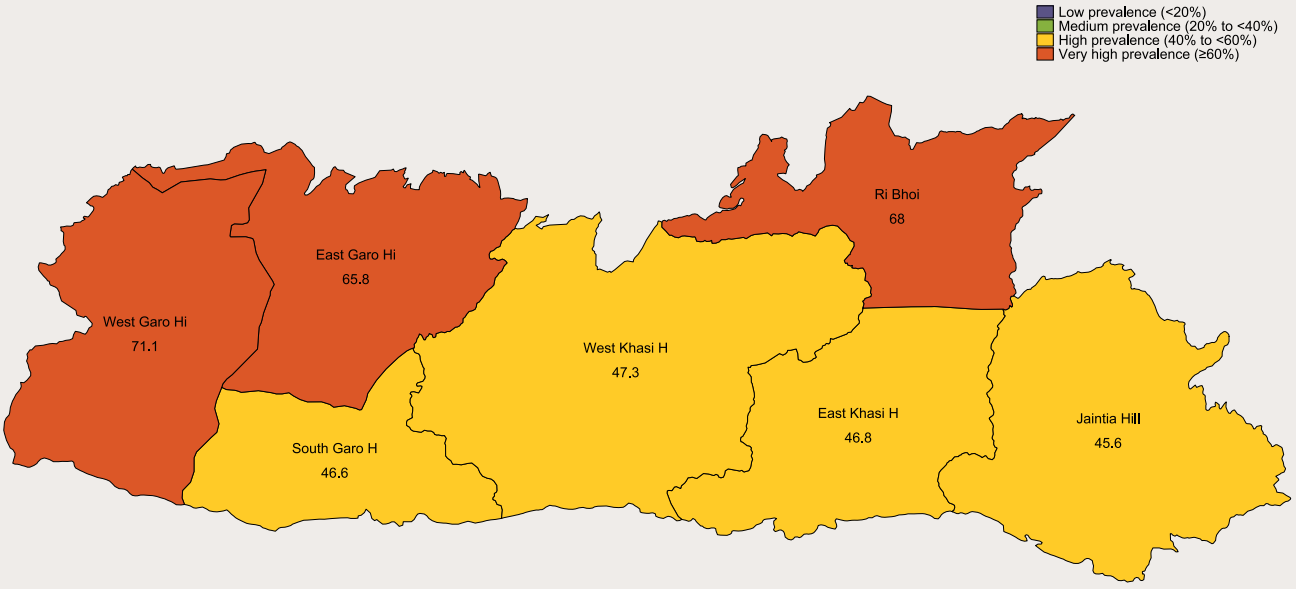
Note: A set of global nutrition targets for maternal, infant and young child nutrition were endorsed by the World Health Assembly (WHA) in 2012. The red lines represent the WHA targets to be achieved by the state, by 2025. The baseline reference year for these targets is 2012. The state baseline estimates are based on NFHS-4 (2016) as there is no survey data for 2012; Child overweight data is not available; Refer to endnotes for indicator definitions.

MAP 1 Stunting (among children <5 years) in Meghalaya in 2016, by district



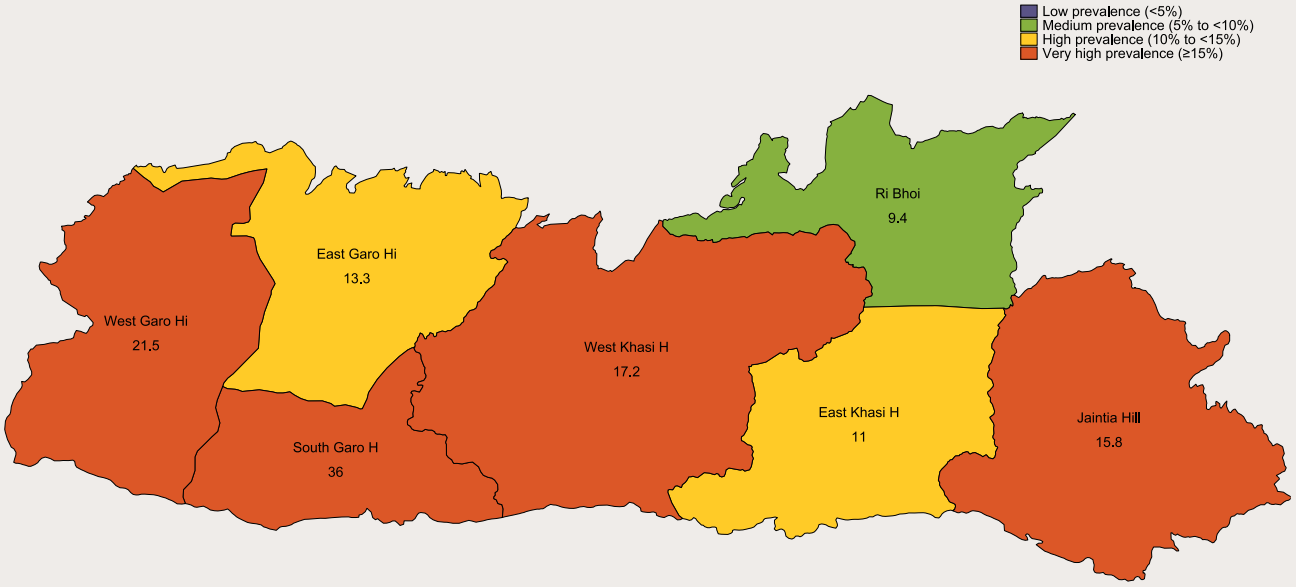
Source: NFHS-4.

MAP 2 Anemia (among women of reproductive age) in Meghalaya in 2016, by district



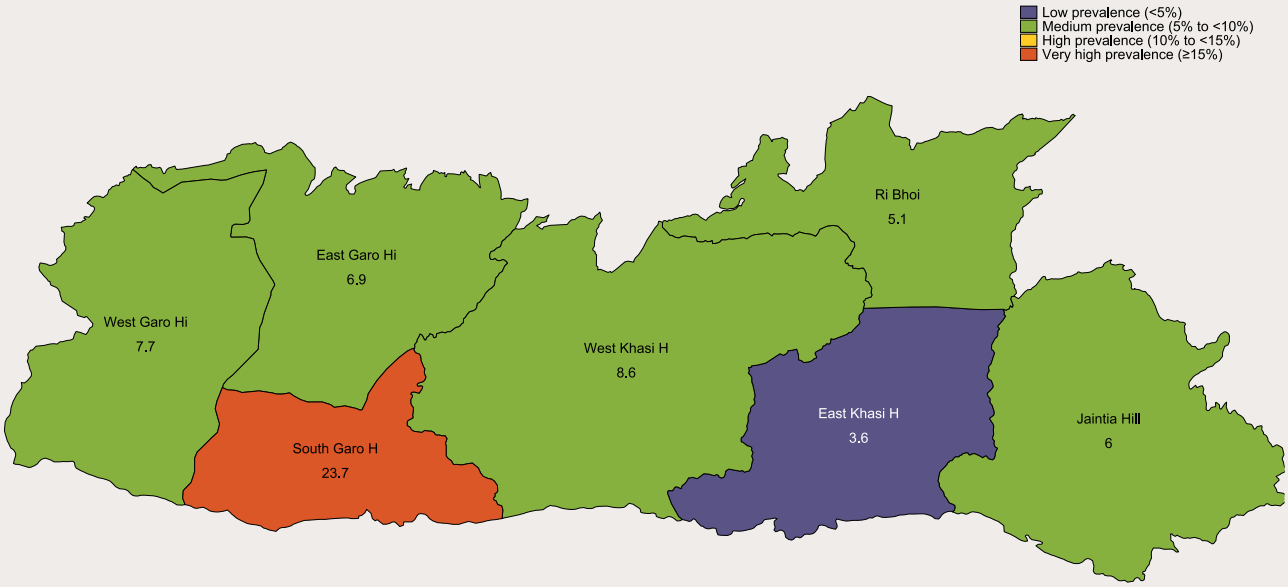
Source: NFHS-4.

MAP 3 Wasting (among children <5 years) in Meghalaya in 2016, by district



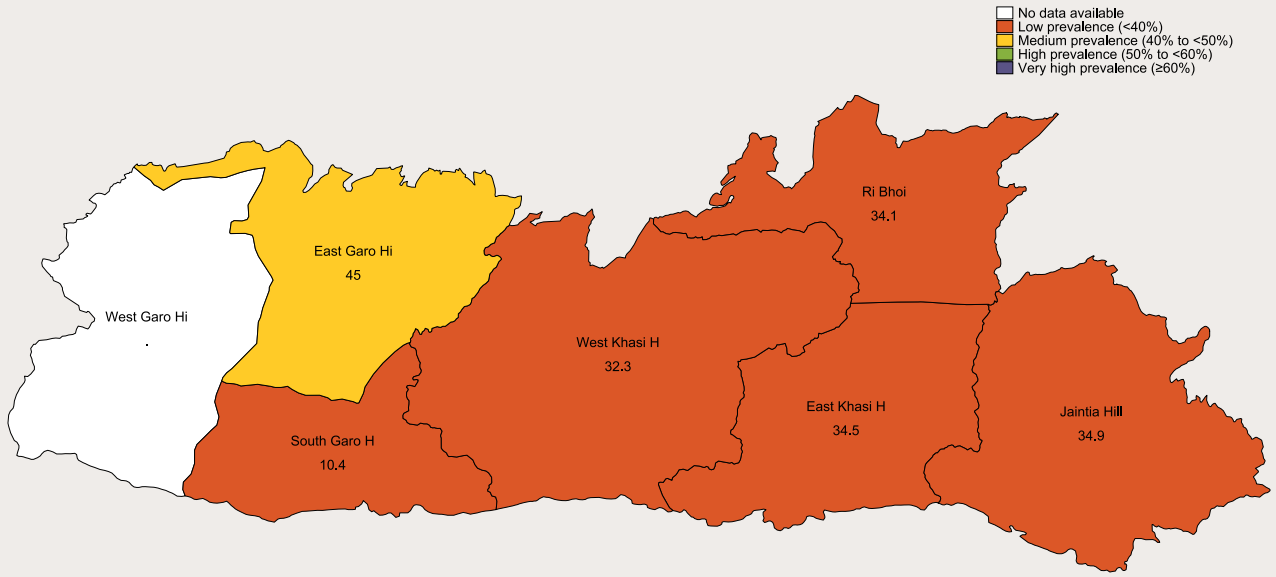
Source: NFHS-4.

MAP 4 Severe wasting (among children <5 years) in Meghalaya in 2016, by district



Source: NFHS-4.

MAP 5 Exclusive breastfeeding in Meghalaya in 2016, by district



Source: NFHS-4.

Changes in the determinants of nutrition

Improving nutrition for women and children requires that investments be made in changing the determinants of poor nutrition, using a variety of policy instruments and other efforts. Here, we examine changes in the immediate determinants and of nutrition-specific interventions to address those determinants. We also describe changes in the underlying determinants of nutrition. We do not examine coverage data on programs to improve the underlying determinants in this Note because data on those are not available at this time.

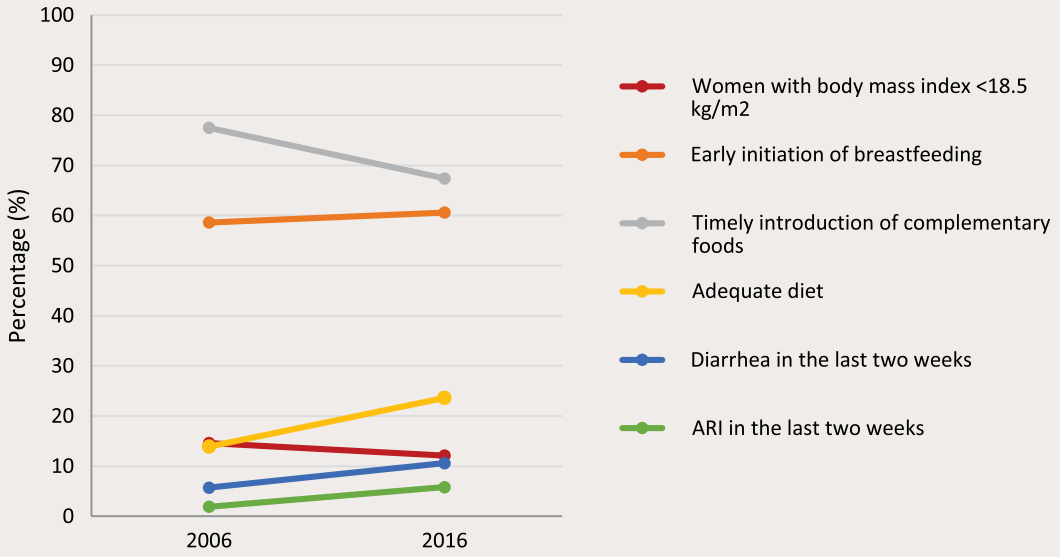
Changes in the ***immediate determinants*** of nutrition in Meghalaya are described in Figure 2. The proportion of women with low body mass index (BMI <18.5 kg/m^2) decreased slightly from 14.6 percent in 2006 to 12.1 percent in 2016. Early initiation of breastfeeding improved marginally from 58.6 percent to 60.6 percent. Child morbidity is a concern as it has increased considerably in the last 10 years, from 5.7 percent to 10.6 percent for diarrhea, and from 1.9 percent to 5.8 percent for acute respiratory infection (ARI).

Complementary feeding is still not adequate in Meghalaya, as it is for India. Timely introduction of complementary foods in children (between 6 and 8 months of age) declined over the last decade (from 77.5 to 67.4 percent). In 2016, the state fared better than the national average for adequate diet in children (between 6 and 23 months of age), but it is still low (23.6 percent).

The coverage of all ***nutrition-specific interventions*** in Meghalaya improved during the last decade (Figure 3). During pregnancy, the proportion of women who received antenatal care (ANC) during the first trimester improved by 20.7 percentage points, reaching 53.3 percent in 2016. The proportion of women who received at least 4 ANC visits increased from 42.8 percent to 50 percent. Iron and folic acid (IFA) consumption during pregnancy improved significantly, from 5.9 percent in 2006 to 36.2 percent in 2016, but it is still far from optimal.

Although institutional deliveries and births assisted by health professionals improved by 22 percentage points between 2006 and 2016, less than 55 percent of the women are exposed to these interventions. Births registered increased substantially from 43.3 percent in 2006 to 79.8 percent in 2016. In the last decade, the

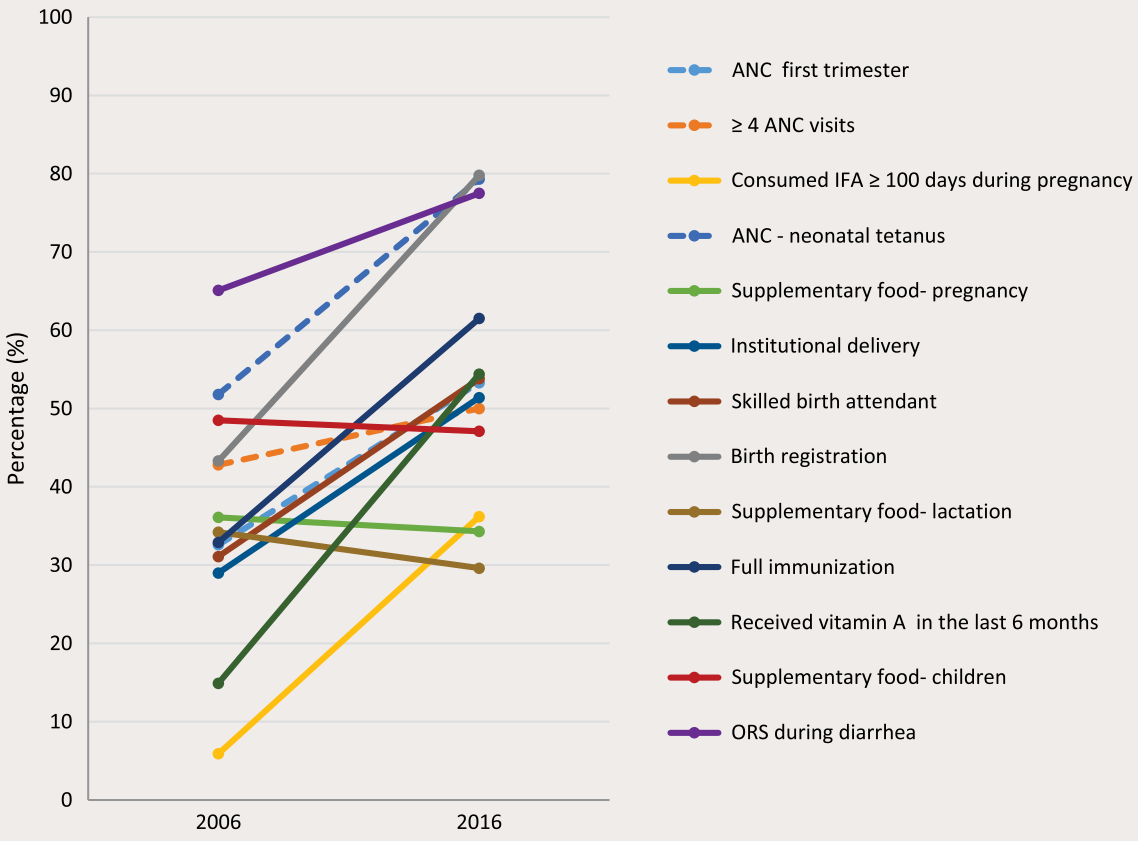
FIGURE 2 Changes in immediate determinants of nutrition in Meghalaya, 2006 to 2016



Source: NFHS-3 and NFHS-4.

Note: ARI = Acute respiratory infection; Refer to endnotes for indicator definitions.

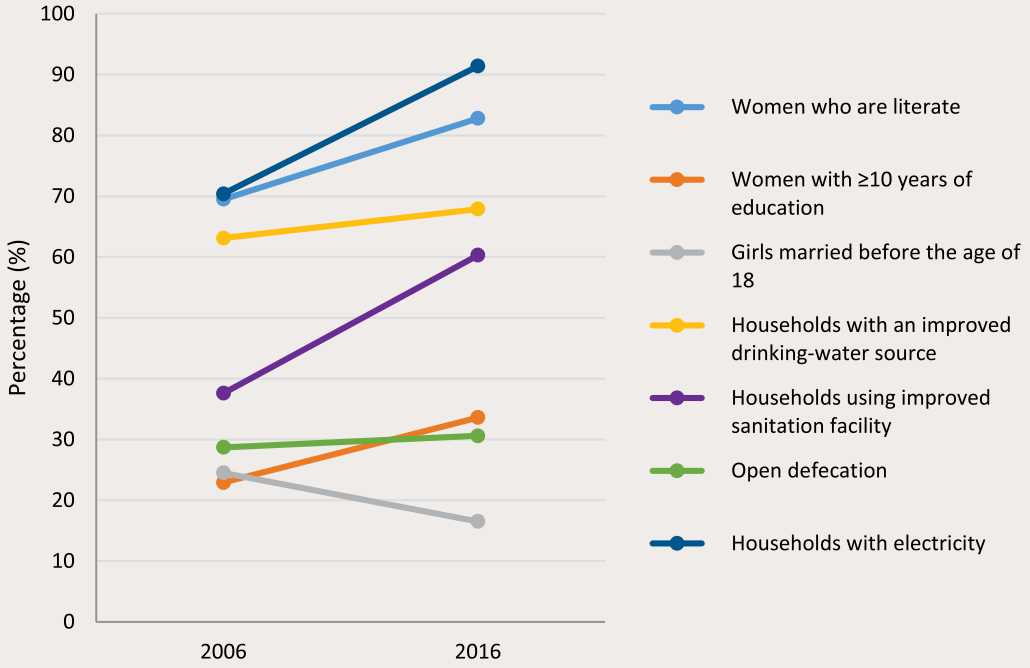
FIGURE 3 Changes in coverage of nutrition-specific interventions along the continuum of care in Meghalaya, 2006 to 2016



Source: NFHS-3 and NFHS-4; RSoC data used for food supplementation.

Note: ANC = Antenatal care; IFA = Iron and folic acid; ORS = Oral rehydration salts; Refer to endnotes for indicator definitions.

FIGURE 4 Changes in underlying determinants of nutrition in Meghalaya, 2006 to 2016



Source: NFHS-3 and NFHS-4; RSoC data used for open defecation indicator.

Note: Refer to endnotes for indicator definitions.

coverage of food supplementation declined slightly for pregnant women (from 36.1 percent to 34.3 percent), lactating women (from 34.2 percent to 29.6 percent), and children (from 48.5 percent to 47.1 percent). The overall coverage of food supplementation remains low for all beneficiaries. Nutrition interventions focused on children have improved in the last ten years. The proportion of children who were fully immunized nearly doubled from 32.9 percent to 61.5 percent. There has been substantial improvement (39.5 percentage points) in children receiving vitamin A supplementation, but the coverage is still low (54.4 percent). Children with diarrhea who received oral rehydration salts (ORS) increased from 65.1 percent to 77.5 percent during this period.

Changes in the ***underlying determinants*** of nutrition are presented in Figure 4. Between 2006 and 2016, there has been an increase in the proportion of women who are literate (from 69.5 percent to 82.8 percent) and the proportion of women with more than 10 years of education (from 22.9 percent to 33.6 percent). Early marriage of girls declined by 8 percentage points (from 24.5 percent to 16.5 percent).

In terms of infrastructure, proportion of households with an improved drinking-water source increased slightly from 63.1 percent in 2006 to 67.9 percent in 2016.

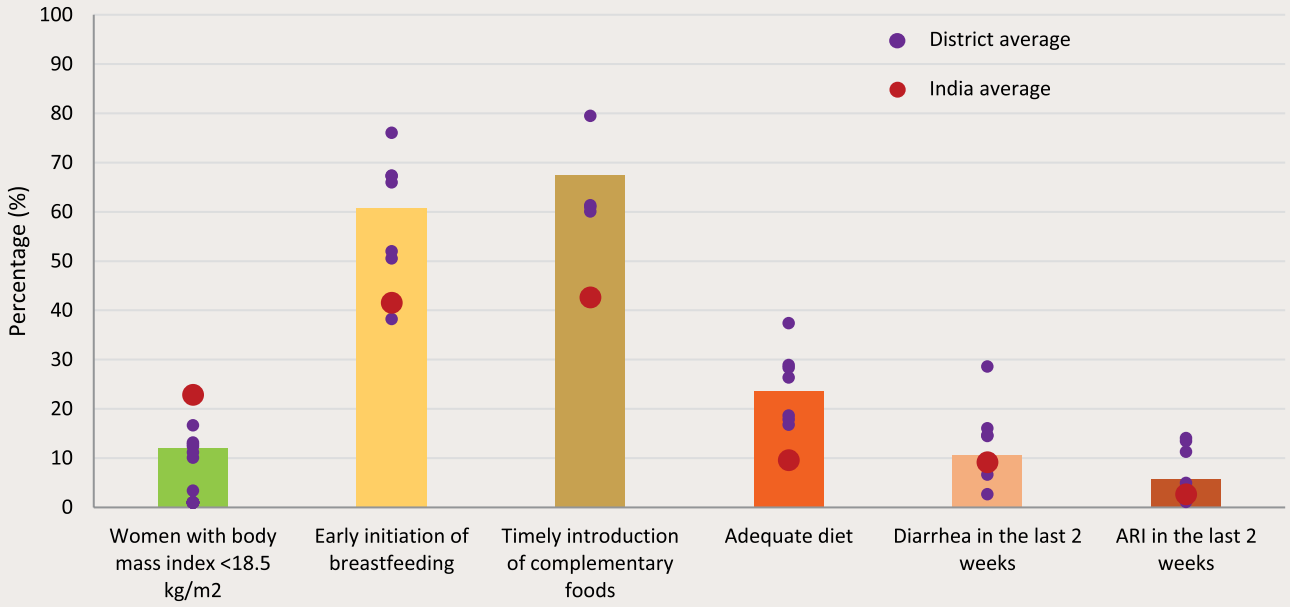
Greater improvements were observed for households with electricity, which increased from 70.4 percent to 91.4 percent during the same period. Households using improved sanitation facilities increased considerably from 37.6 percent to 60.3 percent. Meghalaya has an open defecation rate of 30.6 percent (RSoC 2013–14). Overall, in 2016, Meghalaya has performed better than the national average on four out of the six indicators of the underlying determinants (women's literacy, early marriage of girls, sanitation and households with electricity).

Inter-district variability in selected determinants and coverage of interventions in Meghalaya, in 2016

The seven districts of Meghalaya for which NFHS-4 data is available cover a range of socio-economic characteristics. As seen in Figures 5-7, among these districts there is a high degree of inter-district variability for most of the immediate, coverage and underlying determinants. There is less inter-district variability for some other determinants (Mother and Child Protection (MCP) card, and households with electricity), where majority districts have high (over 80 percent) coverage.

On many indicators, such as women with low body mass index, timely introduction of complementary foods, use of MCP card, use of ORS and zinc during

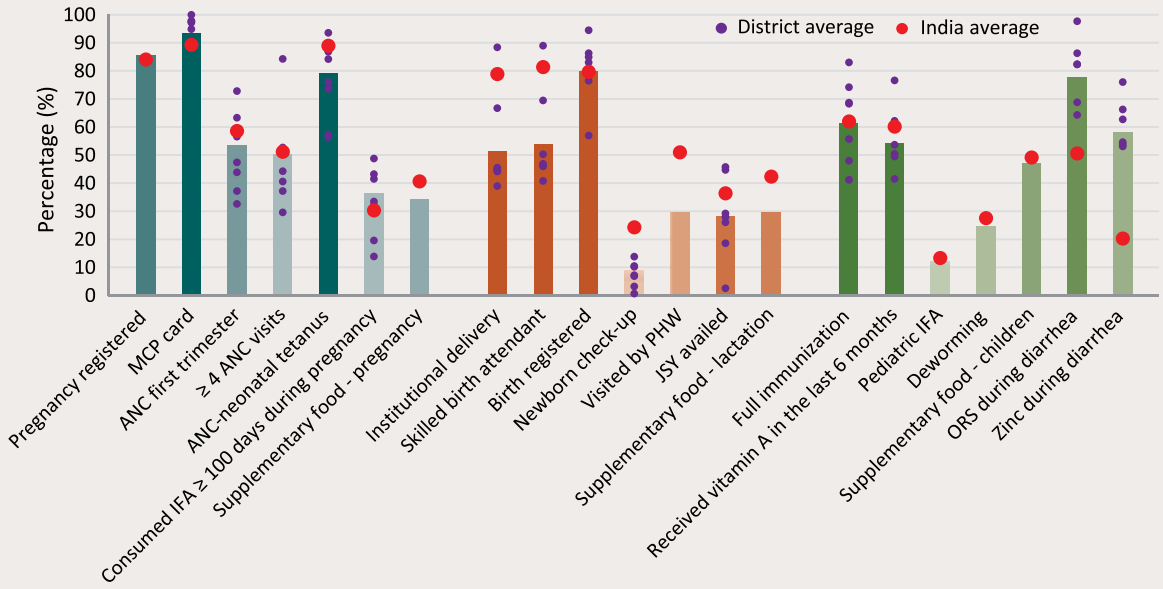
FIGURE 5 Inter-district variability in immediate determinants in Meghalaya, in 2016



Source: NFHS-4.

Note: Bars represent state averages; ARI= Acute respiratory infection; Refer to endnotes for indicator definitions.

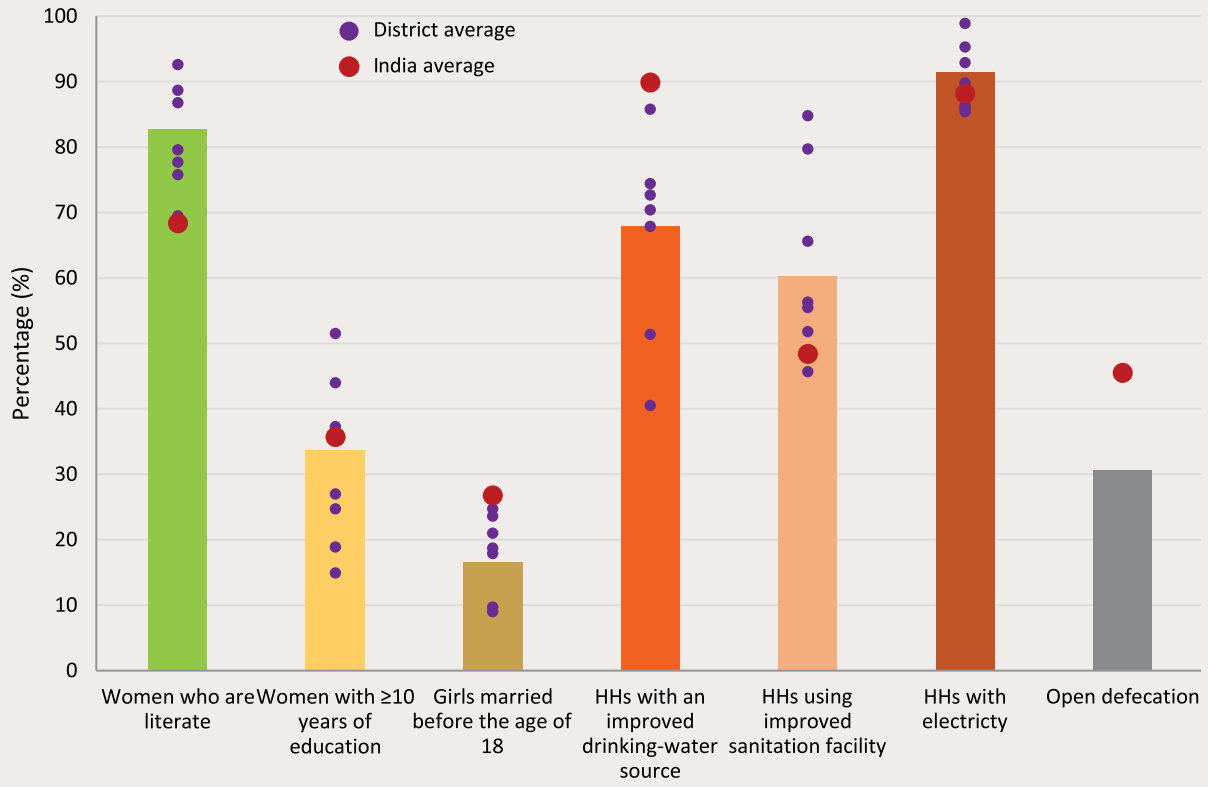
FIGURE 6 Inter-district variability in coverage of selected interventions in Meghalaya, in 2016



Source: NFHS-4; RSoC data was used for indicators on pregnancy registration, food supplementation during pregnancy, lactation and for children, visits by health worker, pediatric IFA and deworming for children.

Note: Bars represent state averages; As RSoC data is not representative at the district-level, district variablity is unavailable for these indicators; ANC= Antenatal care; IFA= Iron and folic acid; JSY= Janani Suraksha Yojana; ORS= Oral rehydration salts; MCP= Mother and child protection; PHW= Primary health worker; Refer to endnotes for indicator definitions.

FIGURE 7 Inter-district variability in underlying determinants in Meghalaya, in 2016



Source: NFHS-4; RSoC data is used for indicator for open defecation.

Note: Bars represent state averages; HHs= Households; Refer to endnotes for indicator definitions.

diarrhea, women's literacy, girls married before the age of 18, and households using improved sanitation facility, most districts within Meghalaya are doing better than the national average. On a few other indicators, such as institutional delivery, skilled birth attendant, newborn check-ups, households with an improved drinking-water source and electricity, most districts in Meghalaya are doing worse than the national average.

LOOKING FORWARD: IMPLICATIONS & RECOMMENDATIONS

In the era where India has now embraced the sustainable development goals, it is an opportune time for Meghalaya to set its own nutrition targets to be achieved by 2025, and to set in motion accelerated actions necessary for improved nutrition. In the last 10 years, the state has seen improvements in the coverage of most nutrition-specific interventions such as care during pregnancy and delivery, postnatal care and care for children. These improvements seem to commensurate with the progress in reduction of stunting, wasting and low birth weight. However, the state has not made improvements in anemia among women, which has actually shown a reverse trend in the last 10 years and has a prevalence level of more than 40 percent in all the districts. Anemia among women is thus an issue of huge public health concern.

To achieve progress in nutrition, the state should invest in improving the coverage of interventions targeting the first 1000 days of life. On nutrition-specifc interventions during pregnancy, significant efforts are needed to improve ANC visits as the coverage is still low (50-53 percent). In addition, special attention is required to improve the low coverage of IFA consumption (36.2 percent), and supplementary food for pregnant women (34.3 percent). Interventions related to delivery have made progress in the last 10 years, but it is important for Meghalaya to make further improvements as only half of the deliveries are taking place in health facilities, or are being assisted by health professionals.

Significant investments are needed to strengthen the coverage of several postnatal interventions where it

is low. These include pediatric IFA supplementation, deworming, food supplementation and infant and young child feeding practices, particularly exclusive breastfeeding and complementary feeding. In addition, the practice of timely introduction of complementary foods declined in the last 10 years and less than a quarter of children are receiving adequate diet. Further improvements are needed to reach the goal of 100 percent coverage for several interventions, including immunization, vitamin A supplementation and ORS during diarrhea, where the coverage is between 45 and 76 percent. Special efforts are required to improve the low coverage of supplemenary food (29-47 percent), which has gotten worse for pregnant mothers and children. The state needs to invest more in efforts to reduce child morbidity in the state, which has been on a rise.

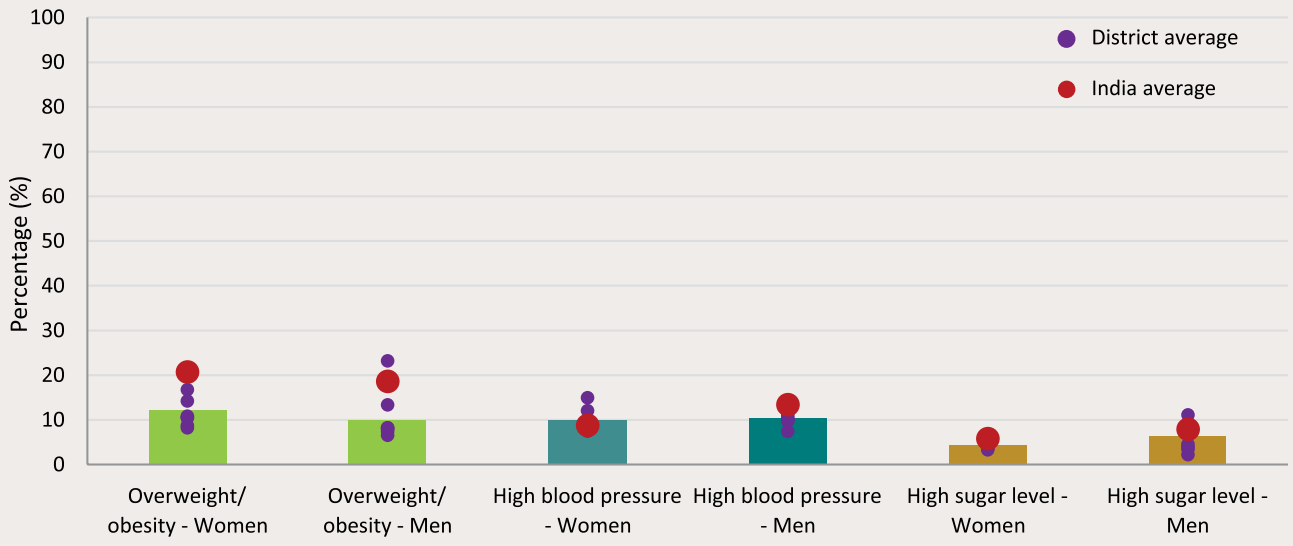
On underlying determinants, the state has made considerable progress in improving women's literacy and sanitation. However, improvements on all other indicators have been modest. Intense efforts are required to improve women's education, households with an improved drinking-water source and households using improved sanitation facility, which are critical elements of enabling environment for child growth and development. Finally, the inter-district variability across outcomes and multiple determinants calls for district-specific strategies to bridge these gaps.

Alongside investments in improving early nutrition, it is also important for Meghalaya to consider the challenge of non-communicable diseases. As Figure 8 shows, the challenge is slowly emerging in Meghalaya, with 12.2 percent of women and 10.1 percent of men being overweight or obese. High blood pressure and high blood sugar are other significant public health challenges in Meghalaya. High blood pressure among women in Meghalaya is higher than the national average. This suggests that Meghalaya needs to consider ways to simultaneously address undernutrition and emerging non-communicable diseases related to nutrition.

NOTE

1. Meghalaya currently consists of 11 districts. Since the National Family Health Survey-4 used the Census 2011 district boundaries, this Policy Note reports information for only 7 districts.

FIGURE 8 Levels of non-communicable diseases in Meghalaya and India, in 2016



Source: NFHS-4.

Note: Bars represent state averages; Refer to endnotes for indicator definitions.

2. Indicator definitions, in alphabetical order:

Acute respiratory infection (ARI) in the last two weeks: Percentage of children below 5 years of age with symptoms of ARI in 15 days preceding the survey.

Adequate diet: Percentage of children 6–23 months old who received 4 or more food groups and a minimum meal frequency.

ANC (4 or more visits): Percentage of mothers receiving at least 4 ANCs for the last birth in the last 5 years.

ANC (first trimester): Percentage of mothers who received antenatal care during the first trimester of pregnancy for the last birth in the last 5 years.

ANC-neonatal tetanus injections: Percentage of mothers who were protected against neonatal tetanus for the last birth in the last 5 years.

Anemia among women of reproductive age: Percentage of women 15–49 years old who are anemic (<12.0 g/dl for non-pregnant women and <11.0 g/dl for pregnant women).

Birth registered: Percentage of children under age 5 years whose birth was registered.

Consumed IFA ≥ 100 days during pregnancy: Percentage of mothers who took iron and folic acid supplements for at least 100 days for the last birth in the last 5 years.

Deworming: Percentage of children 6–59 months old who were given deworming medication in the last 6 months.

Diarrhea in the last two weeks: Percentage of children below 5 years of age who had diarrhea in 15 days preceding the survey.

Early initiation of breastfeeding: Percentage of children who were breastfed within one hour of birth.

Exclusive breastfeeding: Percentage of infants 0–5 months old who were exclusively breastfed.

Full immunization: Percentage of children 12–23 months old who received BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth).

Girls married before the age of 18 years: Percentage of women 20–24 years old married before the age of 18 years.

High blood pressure: 15–49 years old men and women with systolic ≥140 mm of Hg and/or diastolic ≥90 mm of Hg.

High blood sugar: 15–49 years old men and women with blood sugar level >140 mg/dl.

Households with an improved drinking-water source: Percent distribution of households with an improved drinking water source.

Households with electricity: Percentage of households with electricity.

Households using improved sanitation facility: Percent distribution of households using improved sanitation facilities.

Institutional delivery: Percentage of births delivered in a health facility for births in the last 5 years.

Janani Suraksha Yojana (JSY) availed: Percentage of women who received financial assistance under JSY for births delivered in an institution for the last birth in the last 5 years.

Low birth weight: Percentage of live births in the last 5 years weighing less than 2,500 grams at birth.

Mother Child Protection (MCP) card: Percentage of registered pregnancies for which the mother received an MCP card.

Newborn check-up: Percentage of children who received a health check after birth from a doctor/nurse/LHV/ANM/midwife/ other health personnel within 2 days of birth.

Open defecation: Percentage of households having no sanitation facilities.

ORS during diarrhea: Percentage of children below 5 years of age who received ORS during diarrhea.

Overweight/obesity: 15–49 years old men and women with body mass index ≥25 kg/m^2.

Pediatric IFA: Percentage of children 6-59 months old who received iron and folic acid supplement in the last 6 months.

Pregnancy registered: Percentage of pregnancies registered among women who had a live birth in the 35 months preceding the survey.

Severe wasting: Percentage of children 0–59 months old who are <-3SD from median weight for height of the WHO Child Growth Standards.

Skilled birth attendant: Percentage of births assisted by a doctor/nurse/LHV/ANM/other health personnel.

Stunting: Percentage of children 0–59 months old who are <-2SD from median height for age of the WHO Child Growth Standards.

Supplementary food (children): Percentage of children 6–35 months old covered by an *Anganwadi* center (AWC) who received supplementary food provided at the AWC in the last 12 months.

Supplementary food (lactation): Percentage of mothers with children under the age of 6 years in areas covered by an AWC who received supplementary nutrition from the AWC during lactation.

Supplementary food (pregnancy): Percentage of mothers with children under the age of 6 years in areas covered by an AWC who received supplementary nutrition from the AWC during pregnancy.

Timely introduction of complementary foods: Percentage of infants 6–8 months old who received solid and semi-solid foods and breastmilk.

Visited by primary health worker (PHW): Percentage of women who were visited by a primary health worker (AWW/ ASHA/ANM) at home within one week of delivery/discharge from health institution, among those who had a live birth in 35 months preceding the survey.

Vitamin A: Percentage of children 9–59 months old who received vitamin A supplements in the last six months.

Wasting: Percentage of children 0–59 months old who are <-2SD from median weight for height of the WHO Child Growth Standards.

Women who are literate: Percentage of women who are literate.

Women with at least 10 years of education: Percentage of women 15–49 years old having at least 10 years of schooling.

Women with body mass index (BMI) <18.5kg/m^2: Percentage of women 15–49 years old with BMI less than 18.5 kg/m^2.

Zinc during diarrhea: Percentage of children below 5 years of age who received zinc during diarrhea.

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ABOUT POSHAN

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN) is a multi-year initiative that aims to build evidence on effective actions for nutrition and support the use of evidence in decision-making. It is supported by the Bill & Melinda Gates Foundation and led by IFPRI in India.

ABOUT POLICY NOTES

POSHAN Policy Notes aim to provide evidence-based guidance to support policy and program actions for nutrition in India.

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