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Led by IFPRI
Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India
Policy Note
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Improving Nutrition in Haryana

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

INTRODUCTION

India has made considerable progress in child nutrition outcomes in the last decade. These rates of improvement, however, have been highly variable across the states, mostly due to variabilities 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 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 Haryana.

Haryana was established as a separate state in 1966. It has 2% of the country's population on 1.37% of the total geographic area (Census of India 2011). It is one of the most prosperous states in India with one of the highest per capita incomes. Haryana currently consists of 22 districts, and is situated in north western India (State Government of Haryana 2017).

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

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 2013–2014) (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 the inter-district variability. Since NFHS-4 used the Census 2011 district boundaries, this Policy Note reports information for only 21 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 levels and changes in several immediate, underlying and basic determinants (Black et al. 2013). For intervention coverage, we chose a set of nutrition-specific interventions across the lifecycle, including interventions affecting pregnant women, newborn babies, infants, and children.

FINDINGS

Trends in nutrition outcomes and variability in outcomes by district

There are mixed results for changes in nutrition and health outcomes in Haryana between 2006 and 2016 (Figure 1). Stunting prevalence declined from 45.7 percent in 2006 to 34.0 percent in 2016. In constrast, wasting increased from 19.1 percent to 21.2 percent and severe wasting increased from 5 percent to 9 percent. Anemia remains an urgent public health challenge, with an increase from 56.1 percent in 2006 to 62.7 percent in 2016. Exclusive breastfeeding (EBF) saw an encouraging rise from 16.9 percent to 50.3 percent. The prevalence of low birth weight declined from 32.7 percent to 20.9 percent.

Stunting among children under five years varies widely across districts, ranging from 19.8 percent in Ambala to 52.3 percent in Mewat (Map 1). More than 30 percent of children are stunted in 12 out of 21 districts in Haryana.

The prevalence of anemia among women of reproductive age is higher than 50 percent across all districts in Haryana (Map 2) with high variability, ranging from 54.1 percent in Faridabad to 73.2 percent in Gurgaon. More than half of the districts have very high (over 60 percent) prevalence of anemia.

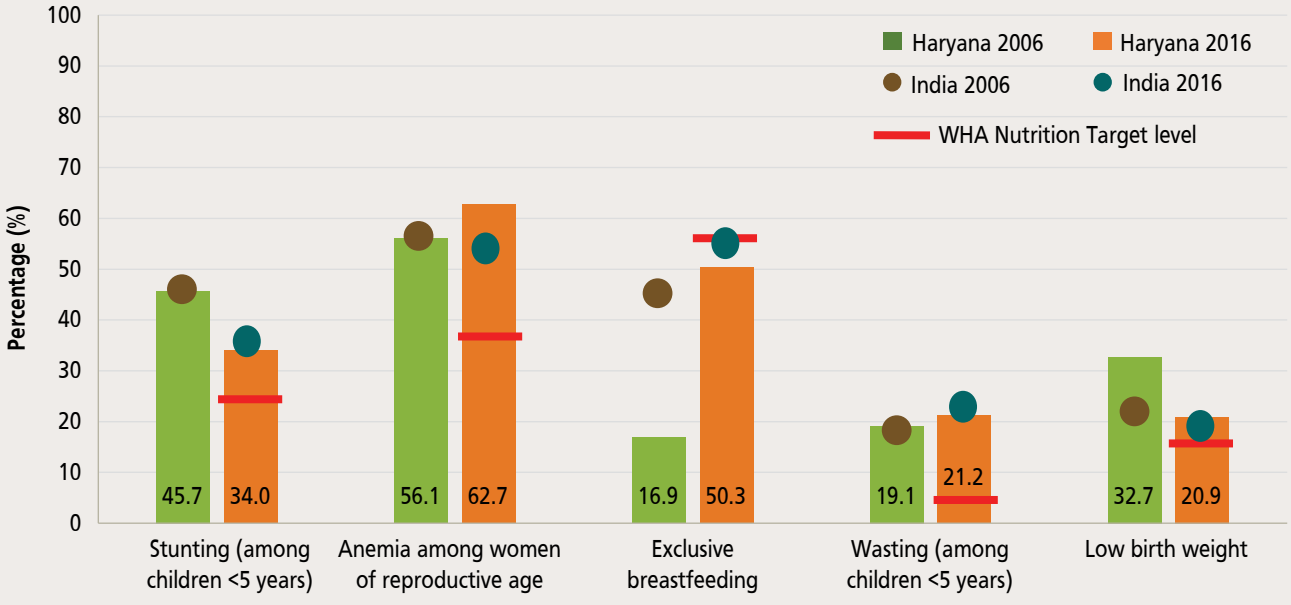
The prevalence of wasting (Map 3) among children under five years is high in all the districts of Haryana (except Rohtak), ranging from 13.6 percent to 37.9 percent. Ambala has the highest level of both wasting (37 percent) and severe wasting (18.4 percent) while Rohtak has the lowest levels (13.6 percent wasting and 4.5 percent severe wasting) (Map 4).

Data on EBF is available for 19 out of 21 districts in Haryana (Map 5). Mahendragarh district has the lowest rate of EBF (34.3 percent) while Rewari has the highest (73.1 percent). Ten districts of Haryana have EBF rates lower than 50 percent.

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 in nutrition-specific interventions to address those determinants. This is followed by a description of changes seen in the underlying determinants of nutrition. However, we do not examine

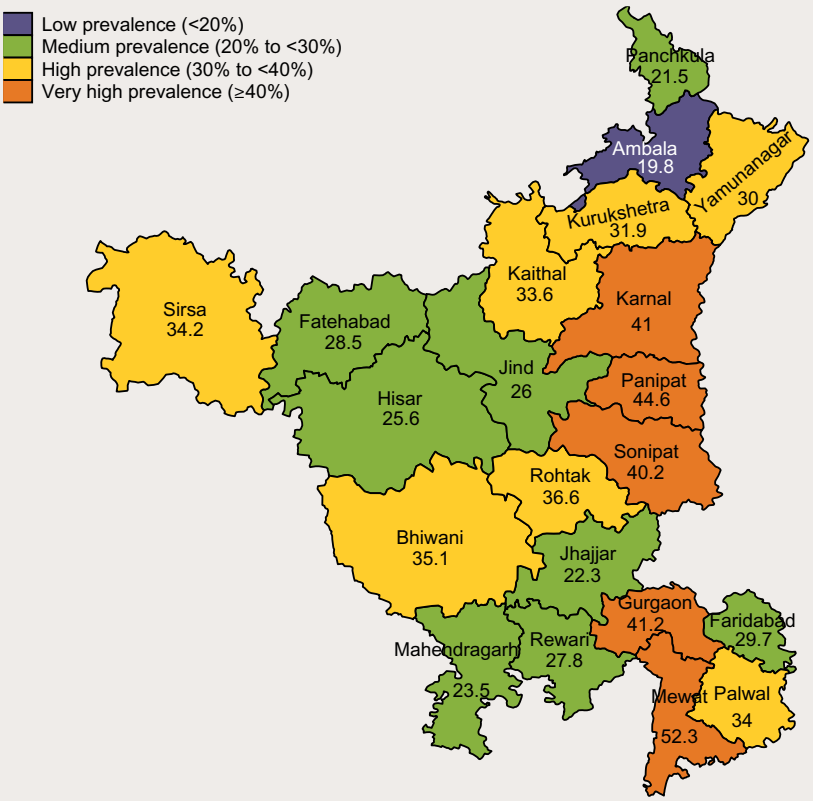
FIGURE 1 Trends in key nutrition outcomes in Haryana, 2006 to 2016



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

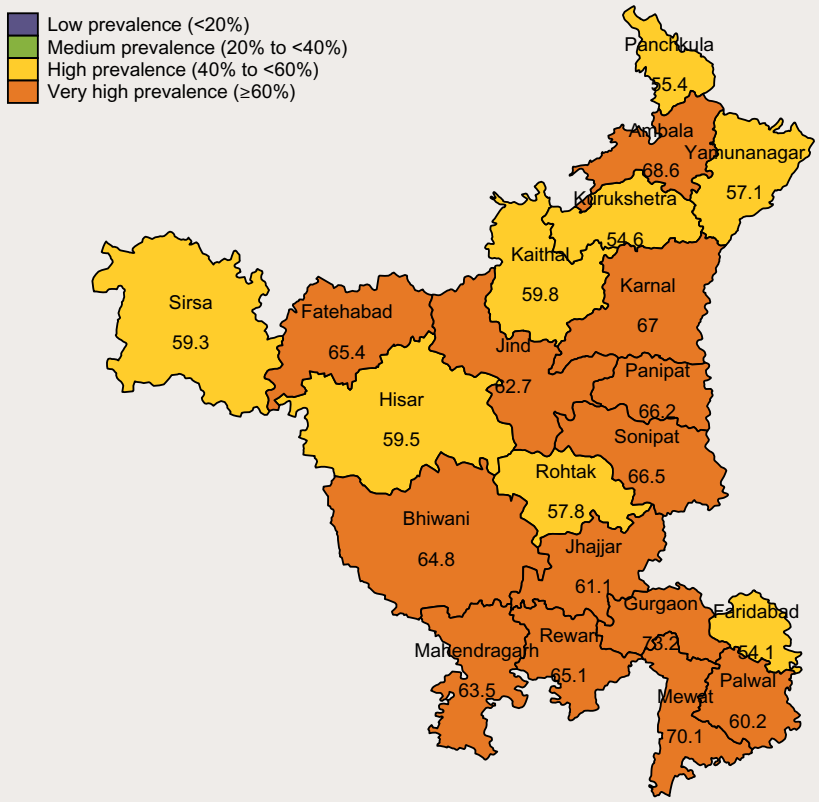
Note: A set of global nutrition targets for maternal, infant and young child nutrition were endorsed by the World Health Assembly (WHA) in 2012. The red lines represent the WHA targets to be achieved by the state, by 2025. The baseline reference year for these targets is 2012. The state baseline estimates 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 Haryana in 2016, by district



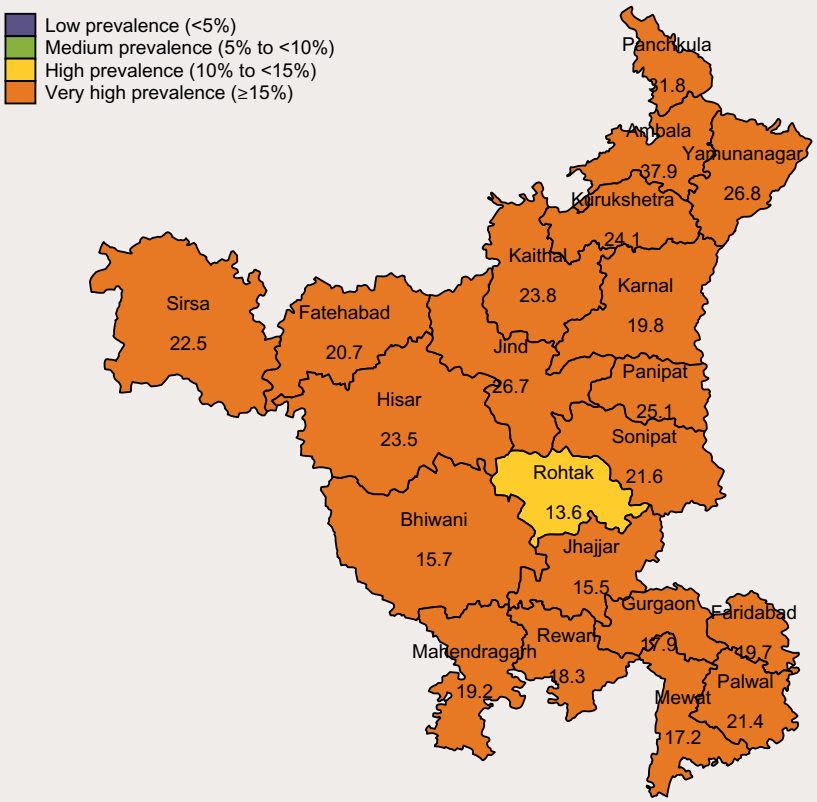
Source: NFHS-4.

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



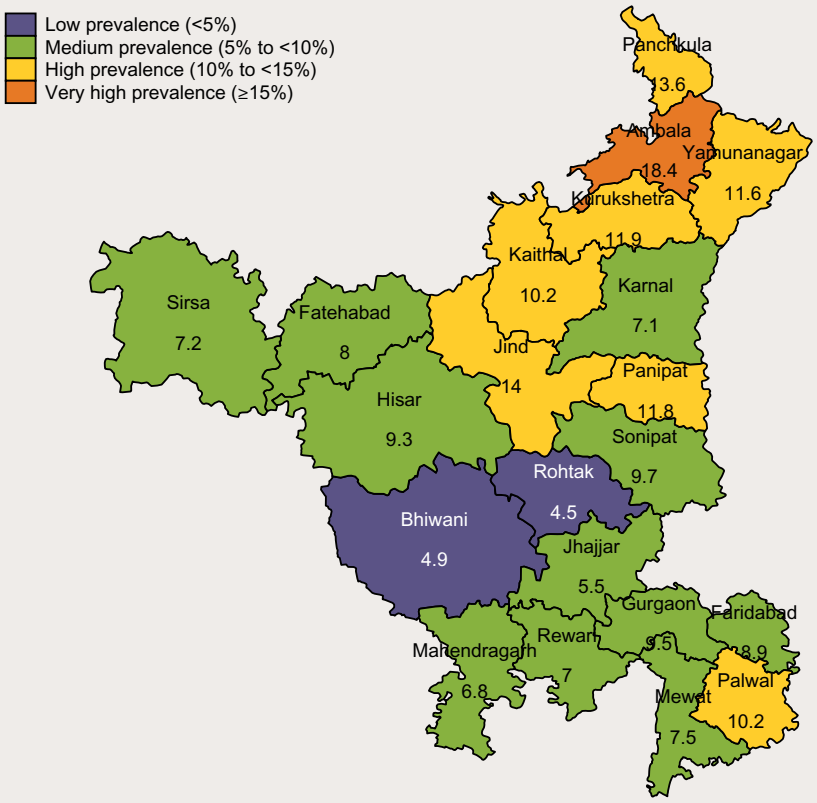
Source: NFHS-4.

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



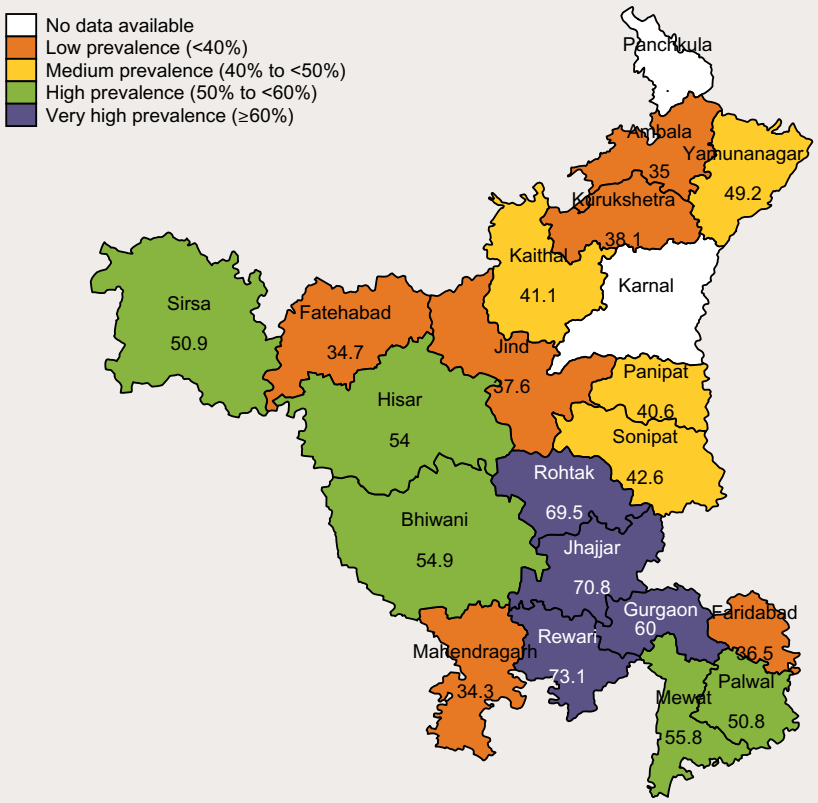
Source: NFHS-4.

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



Source: NFHS-4.

MAP 5 Exclusive breastfeeding in Haryana in 2016, by district



Source: NFHS-4.

coverage data on programs to improve underlying determinants in this Note, because this data is not currently available.

Changes in ***immediate determinants*** of nutrition in Haryana are described in Figure 2. The prevalence of low body mass index (18.5 kg/m^2) among women nearly halved, from 31.4 percent to 15.8 percent. Early initiation of breastfeeding has nearly doubled in the last decade, from 22.3 percent in 2006 to 42.4 percent in 2016. However, complementary feeding is a key concern. Timely introduction of complementary foods (between 6 and 8 months of age) declined over the last decade from an already low rate of 42.6 percent to 35.9 percent. In 2016, only 7.5 percent of children (between 6 and 23 months of age) received an adequate diet.

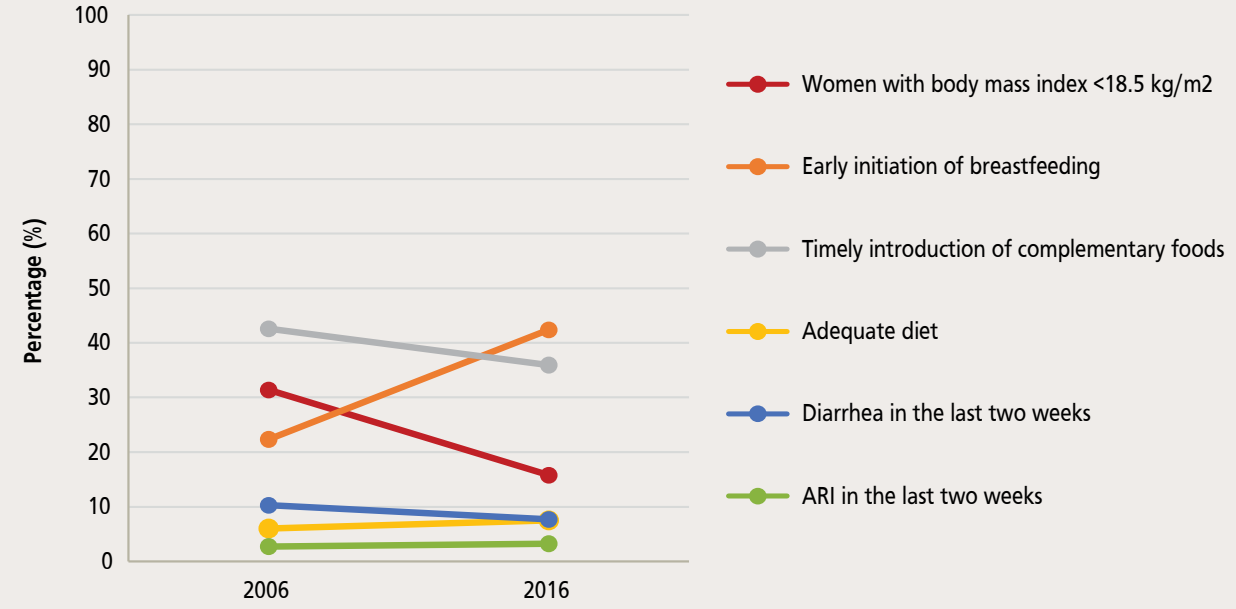
The disease burden showed mixed results in Haryana over the past decade. The proportion of children with diarrhea has declined from 10.3 percent in 2006 to 7.7 percent in 2016. In contrast, the proportion of children with acute respiratory infection increased slightly from 2.7 percent to 3.2 percent over the same time period.

The coverage of most ***nutrition-specific interventions*** in Haryana improved in the last decade (Figure 3). Interventions related to delivery, such as births registered, the proportion of women who delivered in health facilities and whose births were assisted by health professionals, improved substantially with an increase of 23-45 percentage points, reaching over 80 percent in 2016.

During pregnancy, the proportion of women who received any antenatal care (ANC) during the first trimester increased from 51.4 percent to 63.3 percent between 2006-16. The proportion of women who received at least 4 ANC visits increased slightly from 41.8 percent to 45.1 percent. The proportion of women reporting consumption of iron-folic acid (IFA) increased from 17.7 percent in 2006 to 32.5 percent in 2016.

Nutrition interventions focusing on children saw a mixed progress in the last ten years. The proportion of children who received vitamin A supplements increased nearly six-fold, rising from 10.5 percent in 2006 to 66.7 percent in 2016. However, full immunization among children dropped from

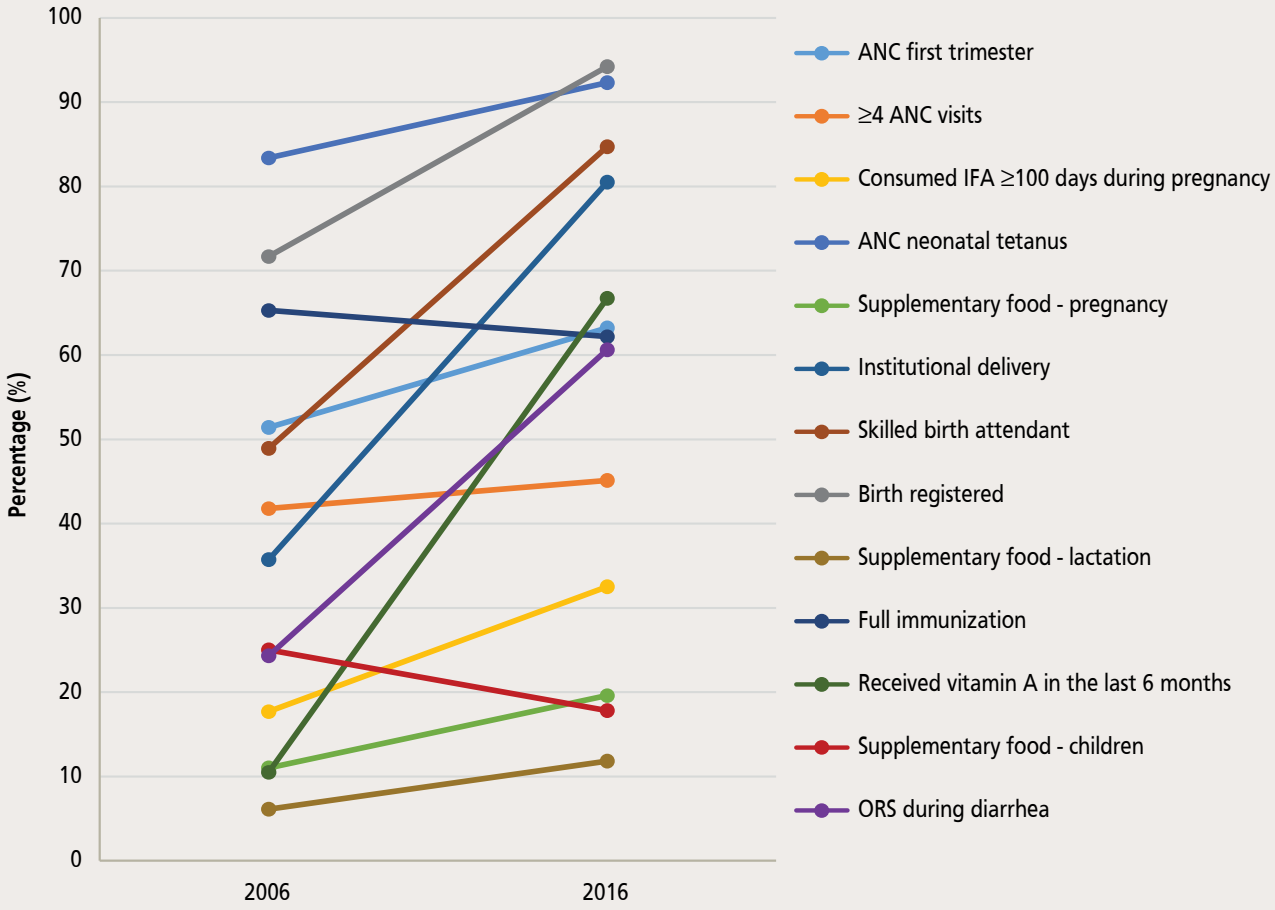
FIGURE 2 Changes in immediate determinants of nutrition in Haryana, 2006 to 2016



Source: NFHS-3 and NFHS-4.

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

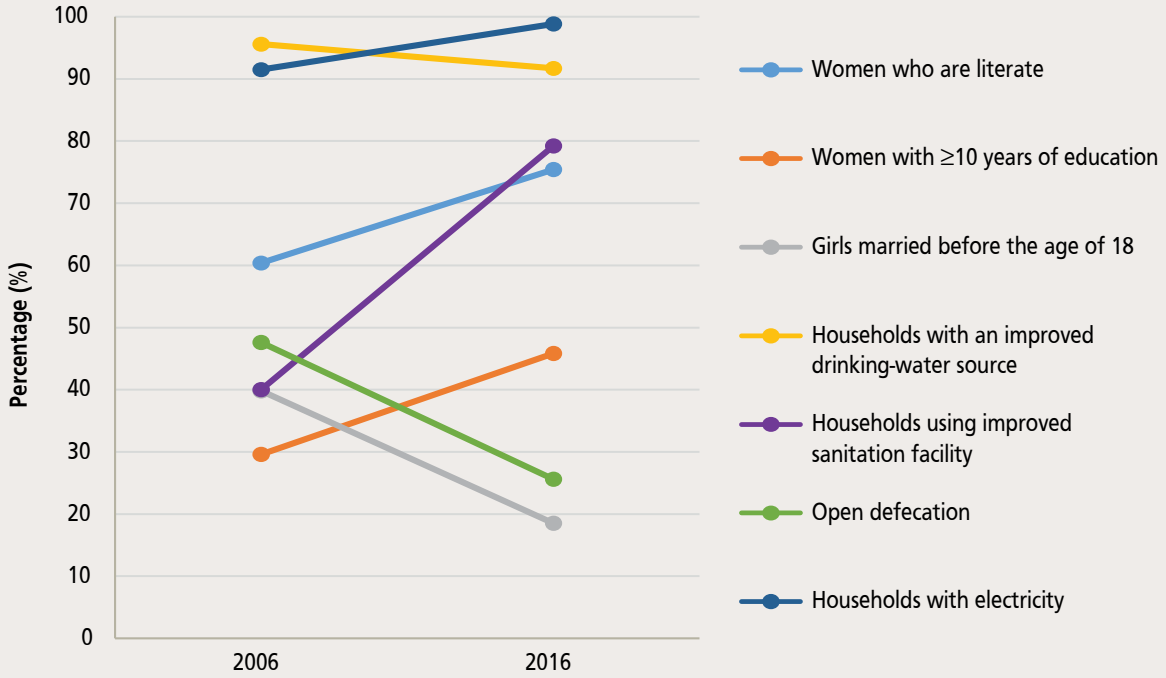
FIGURE 3 Changes in coverage of nutrition-specific interventions along the continuum of care in Haryana, 2006 to 2016



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

Note: ANC= Antental 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 Haryana, 2006 to 2016



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

Note: Refer to endnotes for indicator definitions.

65.3 percent to 62.2 percent during the same time period. Children with diarrhea who received ORS increased from 24.3 percent to 60.6 percent.

Between 2006 and 2016, the coverage of food supplementation improved for pregnant women (from 11 percent to 19.6 percent), and lactating mothers (from 6.1 percent to 11.8 percent). However, supplementary food for children decreased from 25 percent to 17.8 percent.

In the last decade, Haryana experienced some improvements in the ***underlying determinants*** of nutrition (Figure 4). The proportion of households with access to electricity increased from 91.5 percent to 98.8 percent. The proportion of households using improved sanitation facility nearly doubled (from 40 percent to 79.2 percent). The proportion of households with an improved drinking water source was high in 2006 at 95.6 percent, but declined slightly to 91.7 percent in 2016.

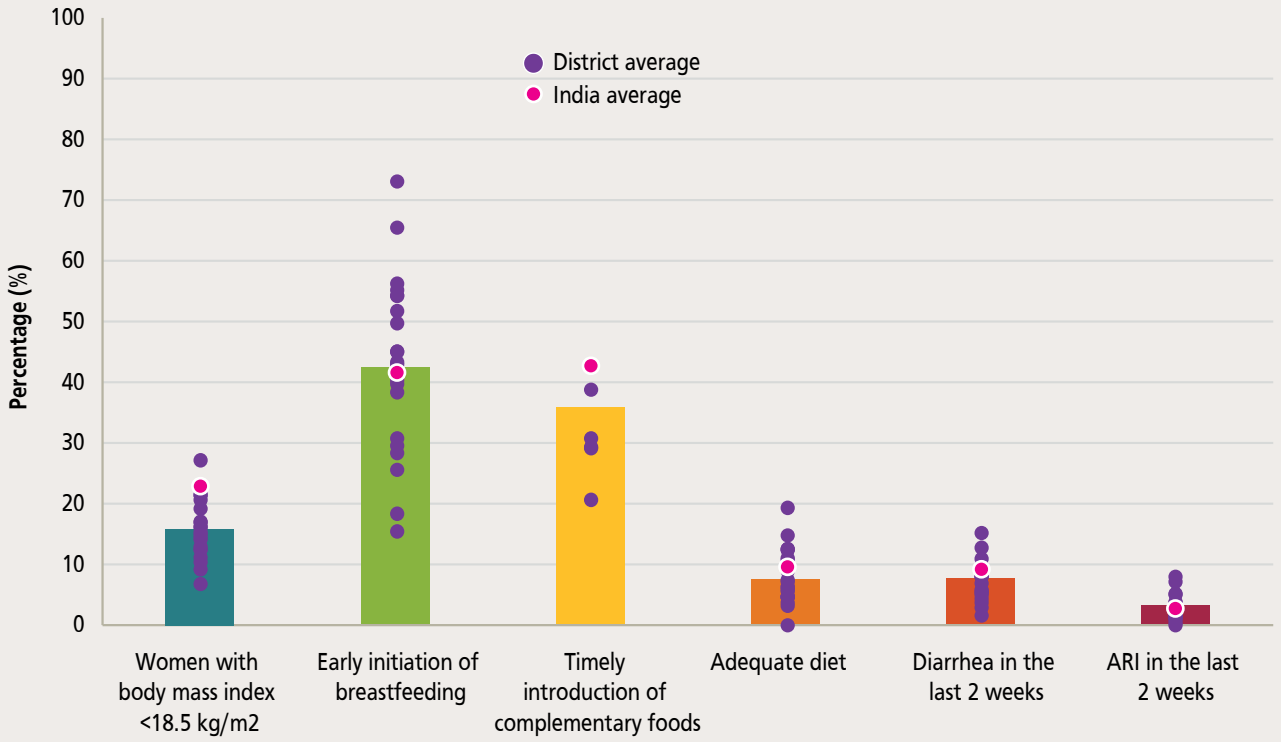
During this period, there was an improvement in women's literacy (from 60.4 percent to 75.4 percent) and the proportion of women with more than 10 years of education (from 29.6 percent to 45.8 percent). There was a significant decline in the proportion of girls who were married before 18 years of age (from 39.8 percent to 18.5 percent).

Inter-district variability in determinants of nutrition and interventions in Haryana, in 2016

In Figures 5, 6, and 7, we highlight the district variability in immediate determinants (Figure 5), coverage of health and nutrition interventions (Figure 6) and underlying determinants (Figure 7). Among the 21 districts in Haryana, there is a high degree of inter-district variability for many key determinants (that is, early initiation of breastfeeding, ANC visits, IFA during pregnancy, institutional delivery, full immunization, vitamin A supplementation, ORS to children with diarrhea, women's education, under age marriage etc.). In contrast, there is little to no inter-district variability for some other determinants, either because their levels are very high (for example, mothers whose last birth was protected against neonatal tetanus, skilled birth attendant, households with access to electricity, etc.), or because the challenges are uniform across all the districts (for example, adequate diet among children 6–23 months old, Janani Suraksha Yojana (JSY) availaled, etc.).

For some determinants, for example, low BMI among women, underage marriage of girls, women's education, neonatal tetanus, institutional delivery, births registered, early initiation of breastfeeding, skilled birth attendant and households with access to

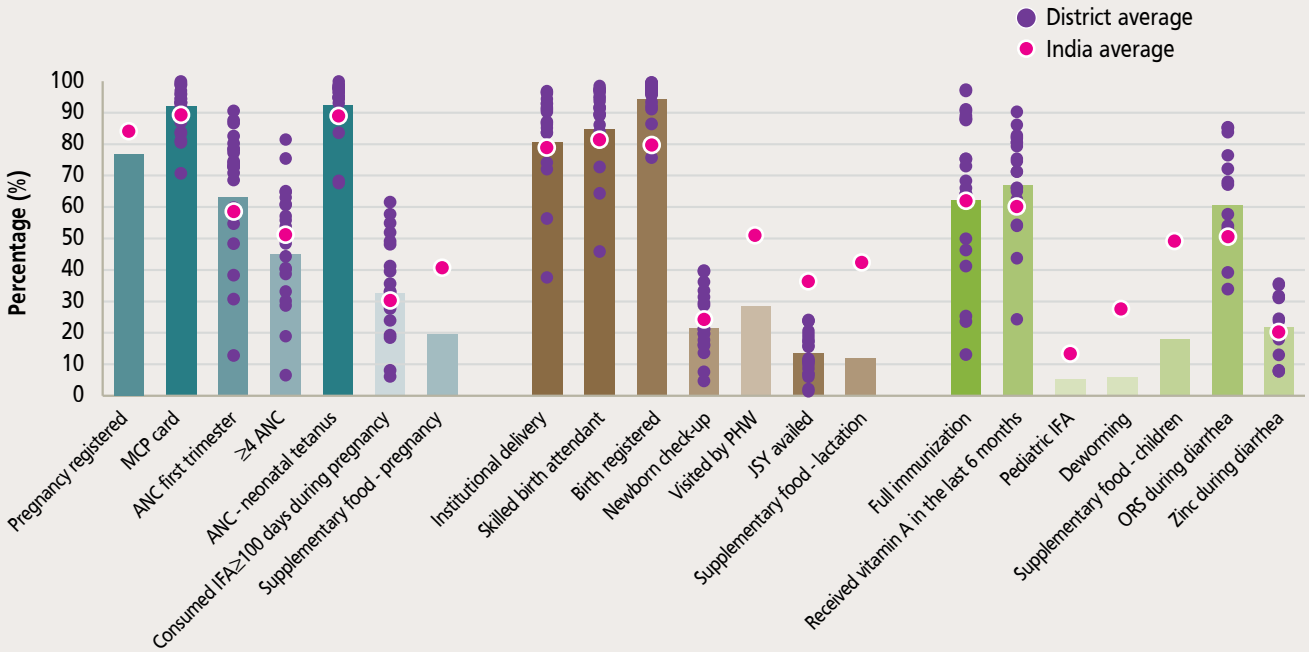
FIGURE 5 Inter-district variability in immediate determinants in Haryana, in 2016



Source: NFHS-4.

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

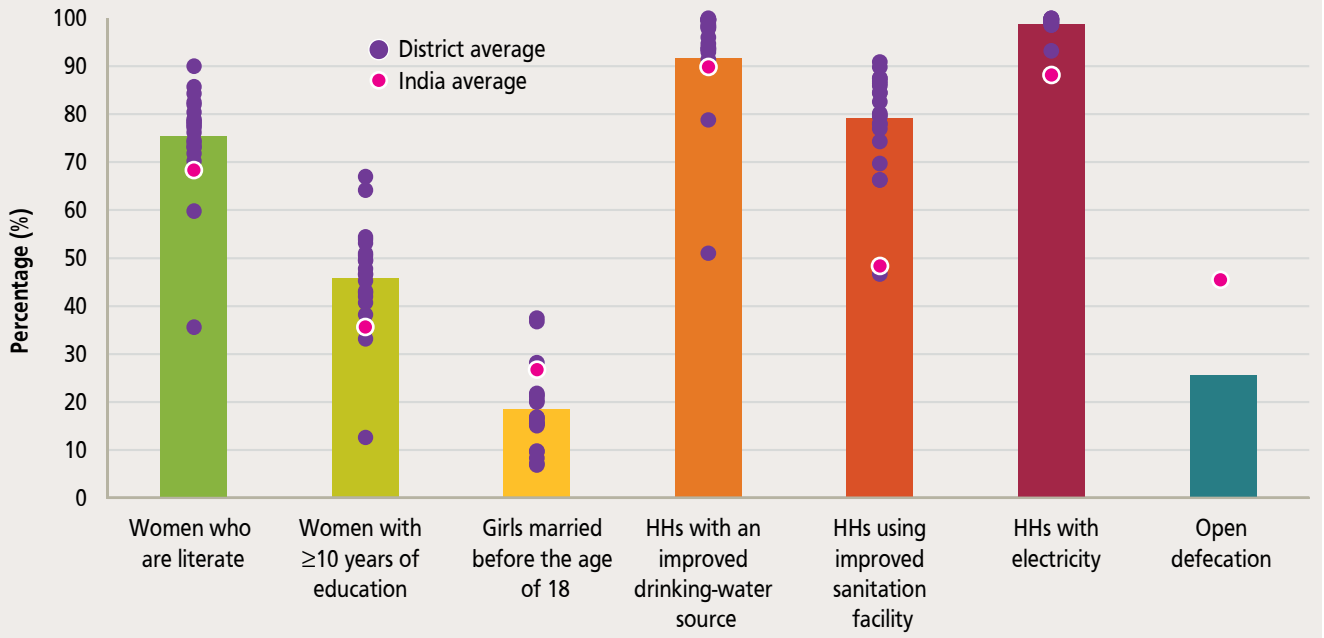
FIGURE 6 Inter-district variability in coverage of selected interventions in Haryana, in 2016



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

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 Haryana, in 2016



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

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

electricity and improved sanitation, most districts in Haryana are doing better than the national average. For some others, such as timely introduction of complementary feeding, adequate diet, pregnancy registration, provision of supplementary food, etc., most districts fall below the national average.

LOOKING FORWARD: IMPLICATIONS & RECOMMENDATIONS

Considering India's commitments to global nutrition targets, it is an opportunity time for Haryana to set its own nutrition targets for 2025, to examine progress within and across the state, and to accelerate actions necessary to improve all forms of malnutrition. Overall, the state has been operating within the national programmatic framework and has seen advances in some nutrition outcomes such as stunting, exclusive breastfeeding and low birth weight. However, there are some clear challenges ahead for Haryana to address on nutrition outcomes and determinants. Given an alarming increase in anemia among women of reproductive age between 2006 and 2016 and a very high rate of anemia (from 54 percent to 73 percent in all the districts), special attention is needed to identify the factors contributing to anemia and to put in place the solutions to tackle this public health problem. Efforts are also needed to reverse the increasing trend in wasting, which is more than 15 percent in all except one district. For these outcomes, the state should identify factors that have helped some districts perform well, and use these insights to help the poor performing districts to improve.

To accelerate its progress on nutrition, Haryana should invest in improving the coverage of interventions targeting the first 1000 days of life and continue to invest in sustaining adequate delivery where coverage is already high. On nutrition-specific interventions during the prenatal phase, emphasis is needed on further increasing ANC and IFA consumption coverage since less than half of women received 4 or more ANC visits in 2016, and only a third consumed IFA during 100 or more days of pregnancy. Interventions related to delivery have made tremendous progress. It is important for Haryana to sustain these achievements. However, the state should strengthen its efforts on improving the usage of the JSY scheme and increase the levels of newborn check-up.

Significant efforts are required to strengthen the postnatal intervention coverage, most importantly to reverse the declining trends in full immunization coverage among children (which dropped by 3.1 percentage points to 62.2 percent in 2016), and the timely introduction of complementary foods to

infants (which decreased by 6.7 percentage points to 35.9 percent in 2016). The current level of adequate diets during complementary feeding is extremely low at 7.5 percent, calling for special attention to promote and support optimal feeding practices. Provision of pediatric IFA and deworming tablets also need attention, as state level coverage rates for these indicators are still low. Large inter-district variability on many of these interventions indicate that uniform service delivery across the entire population remains a challenge.

As the state saw improvements across most underlying determinants, it is recommended that Haryana make efforts to further this progress in the years to come. Education levels and underage marriage of girls vary tremendously by district, and both of these are critical to address. In addition, action must be taken to reverse the declining trend in household access to improved drinking water, which declined slightly in the last ten years.

Alongside investments in early nutrition, it is also important for Haryana to consider the challenge of non-communicable diseases. As Figure 8 shows, approximately 20 percent of women and men in Haryana are now overweight or obese. The challenges of high blood pressure and high blood sugar are also emerging, with rates higher among men than women. Haryana's rates of overweight and hypertension are slightly higher than the national average. These suggest that Haryana needs to develop a strong nutrition strategy to simultaneously address and prevent the double burden of under and over nutrition.

NOTE

1. Haryana currently consists of 22 districts. Since the National Family Health Survey-4 used the Census 2011 district boundaries, this Policy Note reports information for only 21 districts.

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.

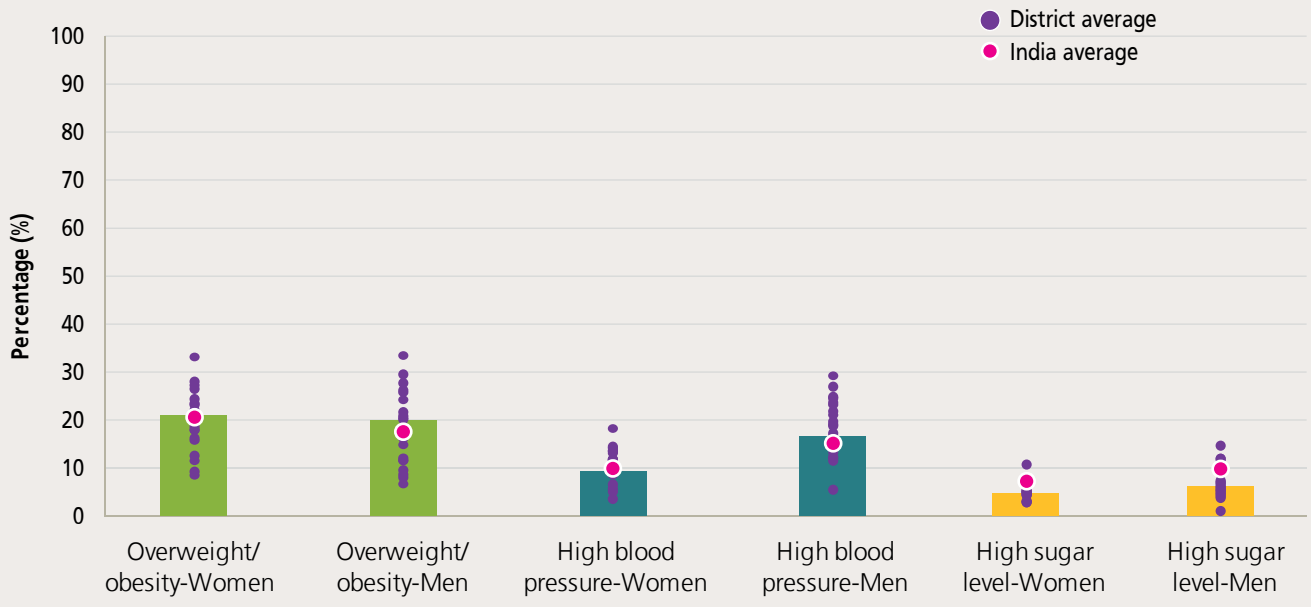
   ANC-neonatal tetanus injections: Percentage of mothers who were protected against neonatal tetanus for the last birth in the last 5 years.

   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.

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



Source: NFHS-4.

Note: Refer to endnotes for indicator definitions.

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 year old men and women with systolic ≥140 mm of Hg and/or diastolic ≥90 mm of Hg.

High blood sugar: 15–49 year 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 birthweight: 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 year 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) <18.5 kg/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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