State Nutrition Profile: Bihar

ABOUT THIS DATA NOTE

This *Data Note* describes the trends for a set of key nutrition and health outcomes, determinants, and coverage of interventions. The findings here are based on data from the National Family Health Survey (NFHS) 3 (2005-2006), 4 (2015-2016), and 5 (2019-2020). In addition to standard prevalence-based analyses, this *Data Note* includes headcount-based analyses aligned to the POSHAN Abhiyaan monitoring framework and uses data from NFHS-5 to provide evidence that helps identify priority districts and number of districts in the state with public health concern as per the WHO guidelines.[1] The *Data Note* includes a color-coded dashboard to compare the coverage of nutrition interventions across all the districts in the state. It concludes with key takeaways for children, women, and men and identifies areas where the state has potential to improve.
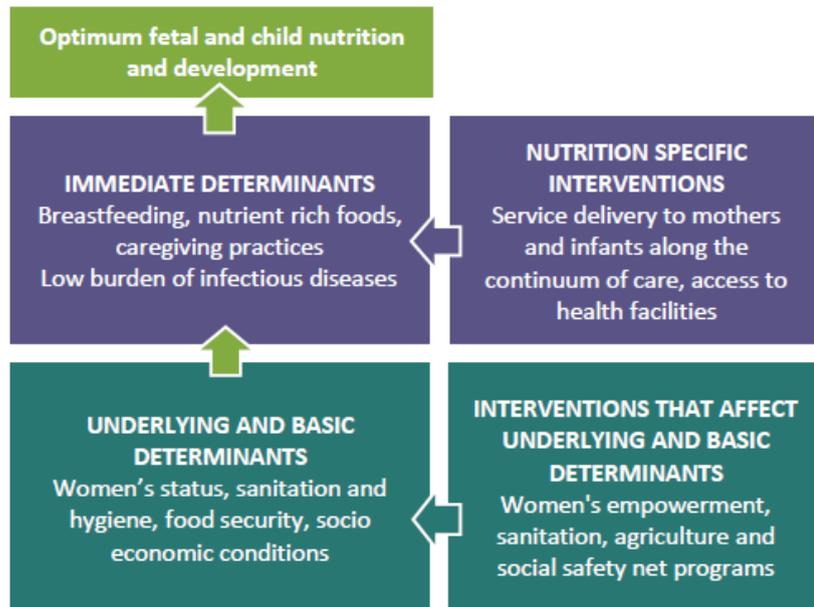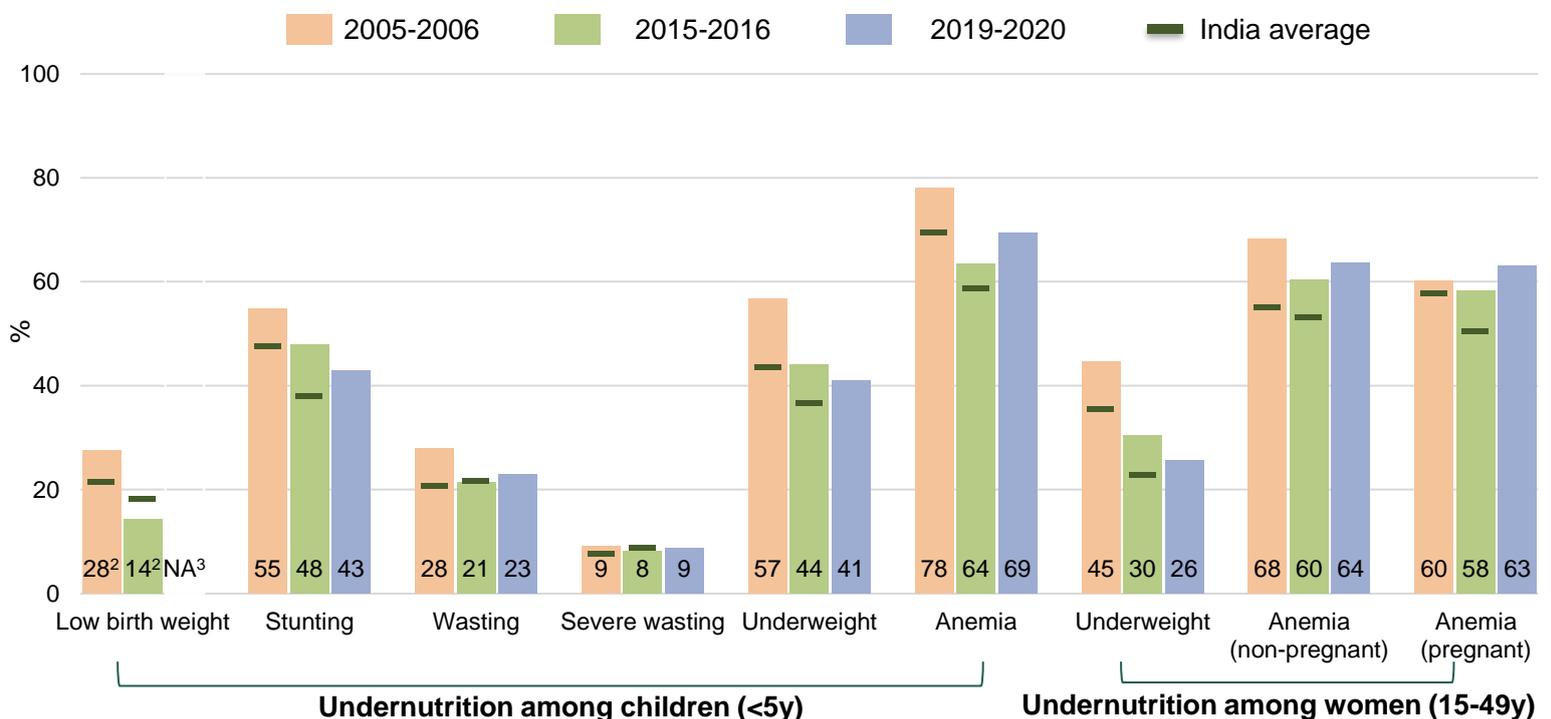
Optimum fetal and child nutrition and development

IMMEDIATE DETERMINANTS
Breastfeeding, nutrient rich foods, caregiving practices
Low burden of infectious diseases

NUTRITION SPECIFIC INTERVENTIONS
Service delivery to mothers and infants along the continuum of care, access to health facilities

UNDERLYING AND BASIC DETERMINANTS
Women's status, sanitation and hygiene, food security, socio economic conditions

INTERVENTIONS THAT AFFECT UNDERLYING AND BASIC DETERMINANTS
Women's empowerment, sanitation, agriculture and social safety net programs

Figure 1. Trends in undernutrition outcomes 2005-2006, 2015-2016, 2019-2020

Legend: 2005-2006 | 2015-2016 | 2019-2020 | India average

	Low birth weight	Stunting	Wasting	Severe wasting	Underweight	Anemia	Underweight	Anemia (non-pregnant)	Anemia (pregnant)
2005-2006	28[2]	55	28	9	57	78	45	68	60
2015-2016	14[2]	48	21	8	44	64	30	60	58
2019-2020	NA[3]	43	23	9	41	69	26	64	63

Undernutrition among children (<5y)   **Undernutrition among women (15-49y)**

Source: NFHS-3 (2005-2006), NFHS-4 (2015-2016), and NFHS-5 state factsheets (2019-2020).
Note: Adult nutrition outcomes are based on the woman dataset, while child nutrition outcomes are based on all child data.
[1]WHO. Nutrition Landscape Information System (NLiS). Help Topic: Malnutrition in children. Stunting, wasting, overweight and underweight. (https://apps.who.int/nutrition/landscape/help.aspx?menu=0&helpid=391&lang=EN).
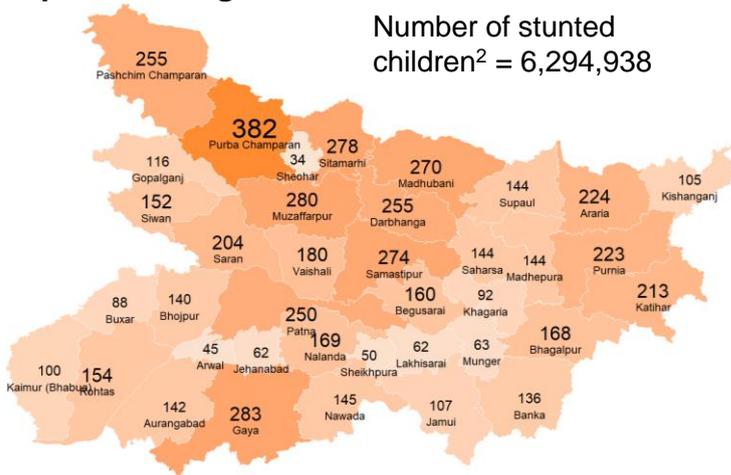[2]In NFHS-3, 83.8% of data was missing, while 38.7% of data was missing in NFHS-4.
[3]NA refers to the unavailability of data for a particular indicator in the specified NFHS round.

Map 1 & 2. Number of stunted & anemic children <5y, 2019-2020

Map 1. Stunting

Number of stunted children[2] = 6,294,938
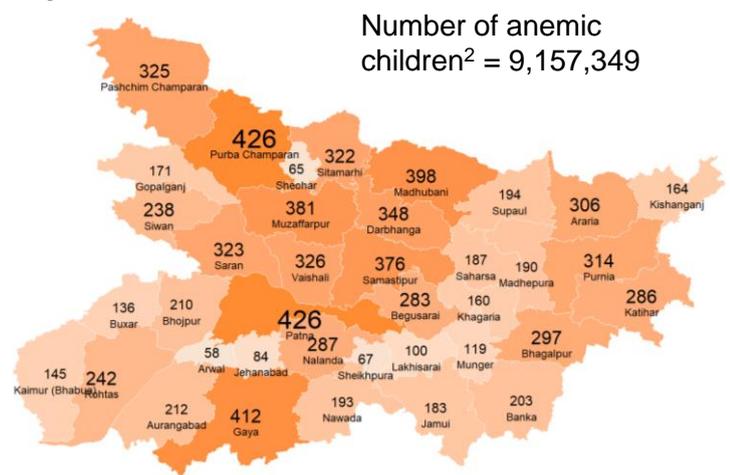

Note: Number in '000s in the above figure

Highest burden districts

1	Purba Champaran	381,534
2	Gaya	283,396
3	Muzaffarpur	279,824
4	Sitamarhi	277,649
5	Samastipur	274,258

No. of districts with public health concern[1]: 38 of 38

Map 2. Anemia

Number of anemic children[2] = 9,157,349

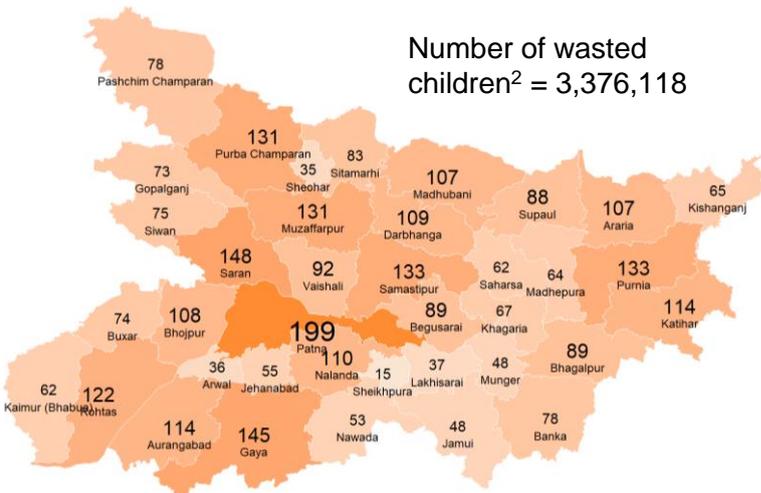Note: Number in '000s in the above figure

Highest burden districts

1	Patna	425,899
2	Purba Champaran	425,799
3	Gaya	411,941
4	Madhubani	397,599
5	Muzaffarpur	381,181

No. of districts with public health concern[1]: 38 of 38

Map 3 & 4. Number of wasted children <5y, 2019-2020

Map 3. Wasting

Number of wasted children[2] = 3,376,118
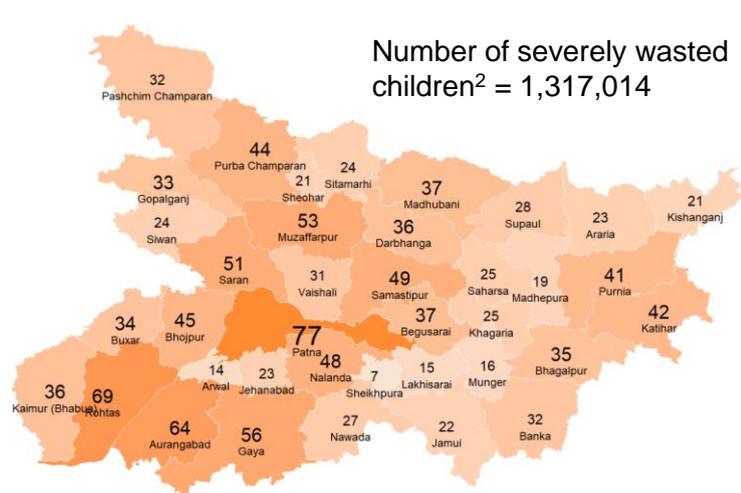

Note: Number in '000s in the above figure

Highest burden districts

1	Patna	199,360
2	Saran	148,293
3	Gaya	145,285
4	Samastipur	132,766
5	Purnia	132,549

No. of districts with public health concern[1]: 38 of 38

Map 4. Severe Wasting

Number of severely wasted children[2] = 1,317,014

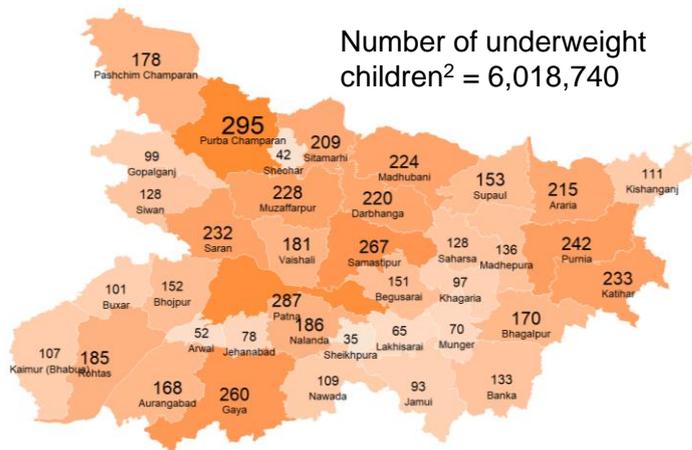Note: Number in '000s in the above figure

Highest burden districts

1	Patna	76,844
2	Rohtas	69,090
3	Aurangabad	63,897
4	Gaya	55,603
5	Muzaffarpur	53,206

No. of districts with public health concern[1]: 38 of 38

Source: IFPRI estimates - The headcount was calculated as the product of the undernutrition prevalence and the total eligible projected population for each district in 2019. Prevalence estimates were obtained from NFHS-5 (2019-2020; all child data) and projected population for 2019 was estimated using Census 2011.
[1]Public health concern is defined as ≥20% for stunting, ≥40% for anemia, ≥10% for wasting, and ≥2% for severe wasting (WHO 2011).
[2]The total number of children <5 years is 14,700,960.

Map 5 & 6. Number of underweight children (<5y) & women (15-49y), 2019-2020
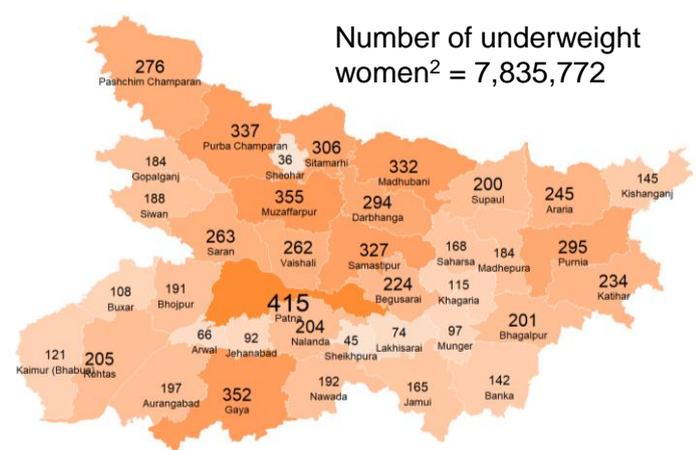
Map 5. Underweight children

Number of underweight children[2] = 6,018,740

178 Pashchim Champaran
295 Purba Champaran
209 Sheohar
42 Sitamarhi
224 Madhubani
153 Supaul
215 Araria
111 Kishanganj
99 Gopalganj
128 Siwan
228 Muzaffarpur
220 Darbhanga
232 Saran
181 Vaishali
267 Samastipur
128 Saharsa
136 Madhepura
242 Purnia
233 Katihar
101 Buxar
152 Bhojpur
287 Patna
151 Begusarai
97 Khagaria
70 Munger
170 Bhagalpur
52 Arwal
78 Jehanabad
186 Nalanda
35 Sheikhpura
65 Lakhisarai
107 Kaimur (Bhabua)
185 Rohtas
168 Aurangabad
260 Gaya
109 Nawada
93 Jamui
133 Banka

Note: Number in '000s in the above figure

Highest burden districts

1	Purba Champaran	294,504
2	Patna	287,078
3	Samastipur	266,779
4	Gaya	260,079
5	Purnia	241,980

No. of districts with public health concern[1]: 38 of 38

Map 6. Underweight women

Number of underweight women[2] = 7,835,772

276 Pashchim Champaran
337 Purba Champaran
36 Sheohar
306 Sitamarhi
332 Madhubani
200 Supaul
245 Araria
145 Kishanganj
184 Gopalganj
188 Siwan
355 Muzaffarpur
294 Darbhanga
263 Saran
262 Vaishali
327 Samastipur
168 Saharsa
184 Madhepura
295 Purnia
234 Katihar
108 Buxar
191 Bhojpur
415 Patna
224 Begusarai
115 Khagaria
97 Munger
201 Bhagalpur
66 Arwal
92 Jehanabad
204 Nalanda
45 Sheikhpura
74 Lakhisarai
121 Kaimur (Bhabua)
205 Rohtas
197 Aurangabad
352 Gaya
192 Nawada
165 Jamui
142 Banka

Note: Number in '000s in the above figure

Highest burden districts

1	Patna	414,951
2	Muzaffarpur	354,837
3	Gaya	351,821
4	Purba Champaran	336,661
5	Madhubani	331,917

No. of districts with public health concern[1]: 38 of 38

Map 7 & 8. Number of anemic women (15-49y), 2019-2020
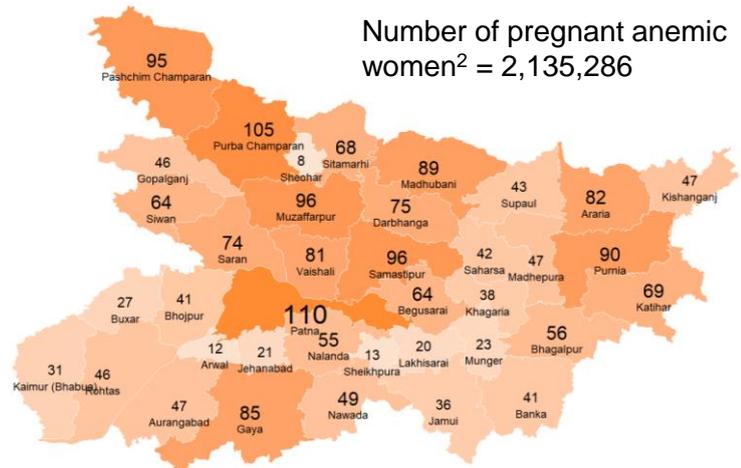
Map 7. Anemia among non-pregnant women

Number of non-pregnant anemic women[2] = 19,516,988

559 Pashchim Champaran
822 Purba Champaran
114 Sheohar
594 Sitamarhi
805 Madhubani
394 Supaul
546 Araria
323 Kishanganj
436 Gopalganj
551 Siwan
827 Muzaffarpur
703 Darbhanga
750 Saran
632 Vaishali
734 Samastipur
357 Saharsa
376 Madhepura
611 Purnia
611 Katihar
342 Buxar
612 Bhojpur
1236 Patna
545 Begusarai
275 Khagaria
292 Munger
647 Bhagalpur
138 Arwal
230 Jehanabad
613 Nalanda
130 Sheikhpura
213 Lakhisarai
333 Kaimur (Bhabua)
588 Rohtas
464 Aurangabad
844 Gaya
475 Nawada
405 Jamui
391 Banka

Note: Number in '000s in the above figure

Highest burden districts

1	Patna	1,235,673
2	Gaya	844,108
3	Muzaffarpur	826,544
4	Purba Champaran	821,511
5	Madhubani	805,328

No. of districts with public health concern[1]: 38 of 38

Map 8. Anemia among pregnant women

Number of pregnant anemic women[2] = 2,135,286

95 Pashchim Champaran
105 Purba Champaran
8 Sheohar
68 Sitamarhi
89 Madhubani
43 Supaul
82 Araria
47 Kishanganj
46 Gopalganj
64 Siwan
96 Muzaffarpur
75 Darbhanga
74 Saran
81 Vaishali
96 Samastipur
42 Saharsa
47 Madhepura
90 Purnia
69 Katihar
27 Buxar
41 Bhojpur
110 Patna
64 Begusarai
38 Khagaria
23 Munger
56 Bhagalpur
12 Arwal
21 Jehanabad
55 Nalanda
13 Sheikhpura
20 Lakhisarai
31 Kaimur (Bhabua)
46 Rohtas
47 Aurangabad
85 Gaya
49 Nawada
36 Jamui
41 Banka

Note: Number in '000s in the above figure

Highest burden districts

1	Patna	110,090
2	Purba Champaran	105,464
3	Samastipur	96,448
4	Muzaffarpur	96,354
5	Pashchim Champaran	95,483

No. of districts with public health concern[1]: 37 of 38

Figure 2. Trends in overweight/obesity & NCDs[1] 2005-2006, 2015-2016, 2019-2020

Legend: 2005-2006 | 2015-2016 | 2019-2020 | India average

Y-axis: % (0, 20, 40, 60, 80, 100)

Children (<5y)
- Overweight/obesity: 0, 2, 2

Women (15-49y)
- Overweight/obesity: 5, 12, 16
- High blood pressure: NA[1], 8, 12
- High blood sugar: NA[1], 4, 6

Men (15-54y)
- Overweight/obesity: 6, 13, 15
- High blood pressure: NA[1], 11, 16
- High blood sugar: NA[1], 7, 8

Table 1. Overweight/obesity & NCDs[2] at district-level 2015-2016, 2019-2020

Category	Outcomes	Worst performing districts (pp)	Best performing districts (pp)	Highest burden districts (thousands)[4]	No of districts with public health concern[5] (total=38)
		Difference between (2019-2020) & (2015-2016)[3]	*Difference between (2019-2020) & (2015-2016)[3]*	*2019-2020*	*2019-2020*
Children <5 years	Overweight/obesity	Sheikhpura: +4.5 Buxar: +3.6	Purnia: -1.6 2 Districts[6]: -1.5	Pu Champ[9]: 30 Gaya: 22	0
Women (15-49 years)	Overweight/obesity	Begusarai: +7.8 2 Districts[7]: +7.3	Aurangabad: -2.2 2 Districts[8]: -2.0	Patna: 395 Siwan: 242	6
	High blood pressure	Banka: +10.0 Munger: +8.3	Araria: -0.6 Madhepura: -0.1	Muzaffarpur: 208 Gaya: 202	0
	High blood sugar	Munger: +5.9 Samastipur: +5.4	Sheohar: -2.2 Kaimur: -2.2	Patna: 140 Samastipur: 98	0
Men (15-54 years)	Overweight/obesity	*Data not available at district-level*			
	High blood pressure	Siwan: +14.2 Banka: +11.7	Buxar: -5.0 Samastipur: -1.0	Muzaffarpur: 303 Pu Champ[9]: 300	6
	High blood sugar	Darbhanga: +7.0 Madhubani: +6.1	Muzaffarpur: -9.1 Aurangabad: -8.5	Patna: 186 Madhubani: 122	0

pp: percentage points

Source: NFHS-3 (2005-2006), NFHS-4 (2015-2016), and NFHS-5 state and district factsheets (2019-2020).

Note: Adult nutrition outcomes are based on the woman/man dataset, while child nutrition outcomes are based on all child data.

[1]NA refers to the unavailability of data for a particular indicator in the specified NFHS round.

[2]NCDs : non communicable diseases

[3]The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2020. All 38 districts in Bihar are comparable between the two time periods.

[4]Burden: The headcount was calculated as the product of the overweight/obesity and NCDs prevalence and the total eligible projected population for each district in 2019. Prevalence estimates were obtained from NFHS-5 (2019-2020) and projected population for 2019 was estimated using Census 2011.

[5]Public health concern is defined as prevalence ≥15% for overweight/obesity (children), ≥20% for overweight/obesity (women and men), ≥ 20% high blood pressure (women and men), and ≥20% high sugar (women and men). Source: WHO (2011).

[6]2 Districts: Darbhanga and Nawada; [7]2 Districts: Banka and Khagaria; [8]2 Districts: Kaimur and Sheohar

[9]District codes: Pu Champ- Purba Champaran

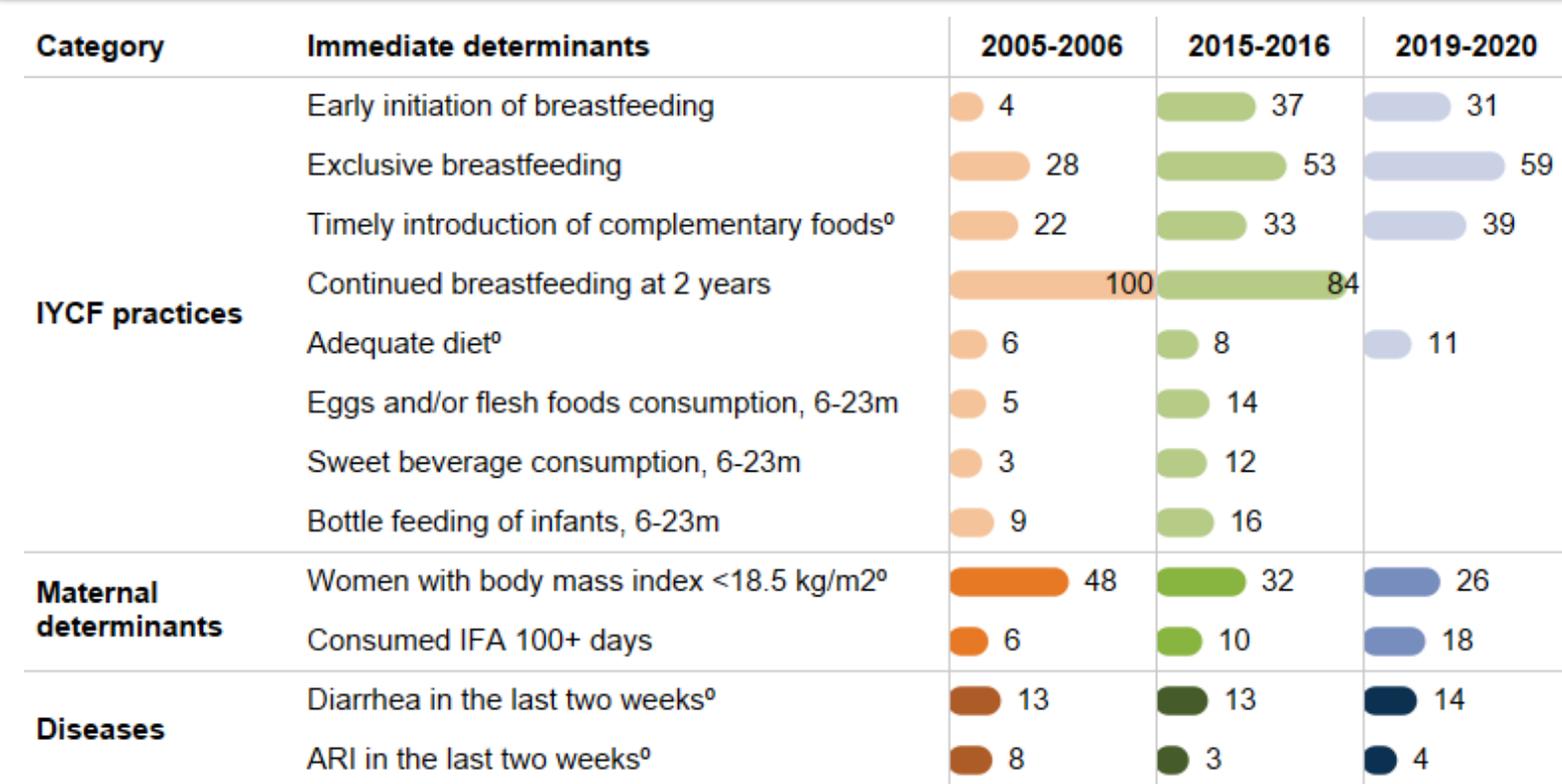# Figure 3. Trends in immediate determinants (%) 2005-2006, 2015-2016, 2019-2020

Category	Immediate determinants	2005-2006	2015-2016	2019-2020
IYCF practices	Early initiation of breastfeeding	4	37	31
	Exclusive breastfeeding	28	53	59
	Timely introduction of complementary foods[0]	22	33	39
	Continued breastfeeding at 2 years	100	84	
	Adequate diet[0]	6	8	11
	Eggs and/or flesh foods consumption, 6-23m	5	14	
	Sweet beverage consumption, 6-23m	3	12	
	Bottle feeding of infants, 6-23m	9	16	
Maternal determinants	Women with body mass index <18.5 kg/m2[0]	48	32	26
	Consumed IFA 100+ days	6	10	18
Diseases	Diarrhea in the last two weeks[0]	13	13	14
	ARI in the last two weeks[0]	8	3	4

Table 2. Immediate determinants at district-level 2015-2016, 2019-2020

Category	Immediate determinants	Worst performing districts (pp)	Best performing districts (pp)	Top coverage districts (%)[2]
		Difference between (2019-2020) & (2015-2016)[1]	*Difference between (2019-2020) & (2015-2016)[1]*	*2019-2020*
IYCF practices	Early initiation of breastfeeding	Nalanda: -27.4 / Katihar: -21.2	Gaya: +11.9 / Begusarai: +10.5	Kaimur: 48.5 / Jehanabad: 45.1
	Exclusive breastfeeding	Katihar: -26.3 / Saran: -26.1	Sheikhpura: +40.4 / Gaya: +38.6	Gopalganj: 83.5 / Sheohar: 83.5
	Timely introduction of complementary foods [0]	Pu Champ[3]: -12.5 / Kishanganj: -11.1	Saharsa: +28.5 / Katihar: 26.0	Arwal: 61.7 / Saran: 58.7
	Adequate diet[0]	Sheikhpura: -12.8 / Nawada: -12.3	Samastipur: +11.9 / Supaul: +9.6	Samastipur: 17.7 / Muzaffarpur: 17.2
Maternal determinants	Women with BMI<18.5 kg/m2[0]	Arwal: +0.4 / Pa Champ[3]: +0.2	Sheikhpura: -15.6 / Muzaffarpur: -12.3	Siwan: 18.1 / Sheohar: 20.0
	Consumed IFA 100+ days	Pa Champ[3]: -4.5 / Patna: -0.5	Munger: +22.8 / Lakhisarai: +16.6	Munger: 33.0 / Bhagalpur: 28.0
Diseases	Diarrhea in the last two weeks[0]	Supaul: +27.9 / Madhubani: +18.0	Gopalganj: -15.4 / Sheohar: -9.5	Jamui: 2.1 / Kaimur: 3.1
	ARI in the last two weeks[0]	Pa Champ[3]: +4.9 / Siwan: +4.9	Gopalganj: -4.3 / Purnia: -3.8	Patna: 0.7 / Bhagalpur: 1.1

pp: percentage points
Source: NFHS-3 (2005-2006), NFHS-4 (2015-2016), and NFHS-5 state and district factsheets (2019-2020).
Note: Immediate determinants are based on the last child data; data on continued breastfeeding at 2 years, egg and/or flesh foods consumption, sweet beverage consumption, and bottle feeding of infants not available in NFHS-5 factsheets (2019-20)/state report
[0]Indicator definition differs slightly between NFHS-4 and NFHS-5.
[1]The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2020. All 38 districts in Bihar are comparable between the two time periods.
[2]For all indicators, top coverage districts refer to the districts with the highest prevalence in immediate determinants, except for women with a BMI of 18.5 kg/m2, diarrhea in the last two weeks, and ARI in the last two weeks, for which it refers to the districts with the lowest prevalence in coverage.
[3]District codes: Pu Champ: Purba Champaran, Pa Champ: Paschim Champaran.

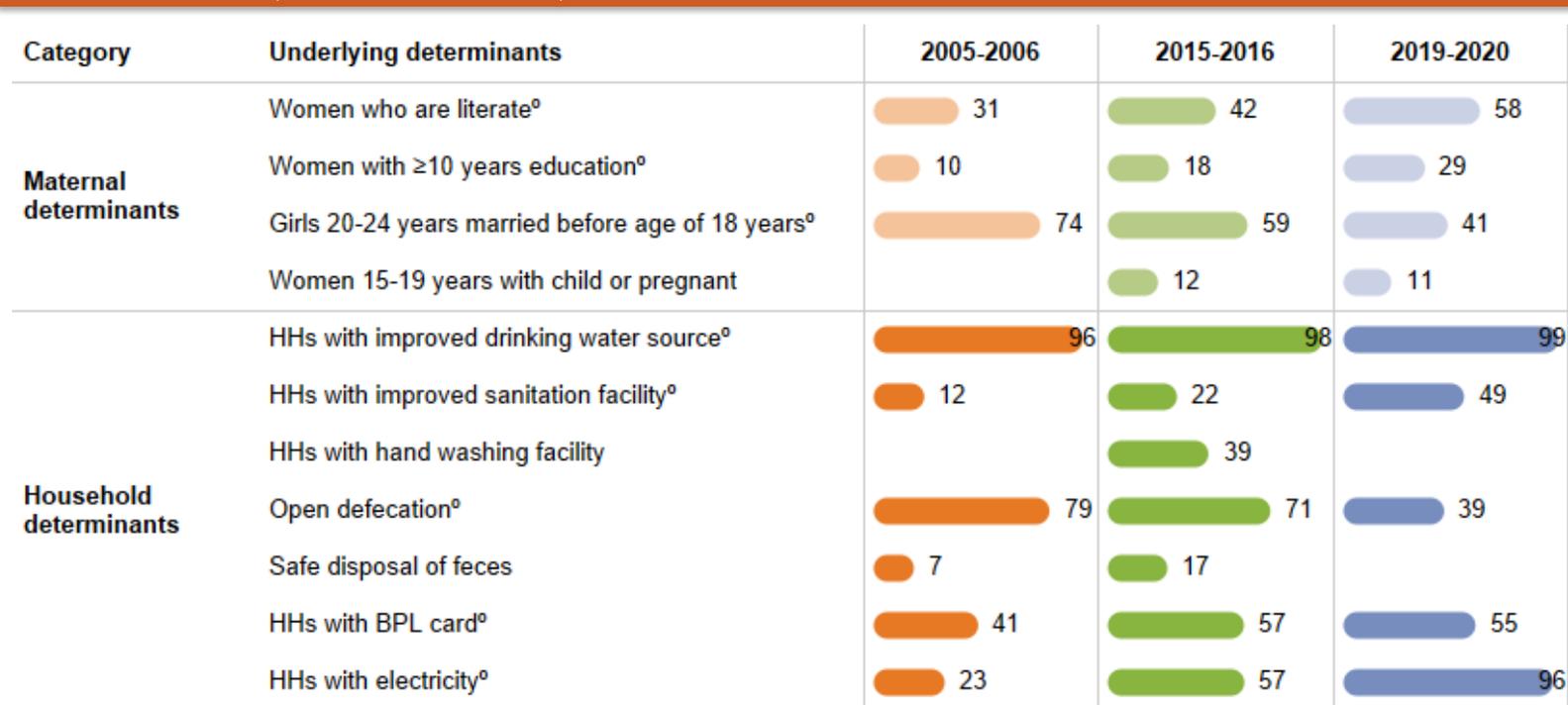# Figure 4. Trends in underlying determinants (%) 2005-2006, 2015-2016, 2019-2020

Category	Underlying determinants	2005-2006	2015-2016	2019-2020
Maternal determinants	Women who are literate[o]	31	42	58
	Women with ≥10 years education[o]	10	18	29
	Girls 20-24 years married before age of 18 years[o]	74	59	41
	Women 15-19 years with child or pregnant		12	11
Household determinants	HHs with improved drinking water source[o]	96	98	99
	HHs with improved sanitation facility[o]	12	22	49
	HHs with hand washing facility		39	
	Open defecation[o]	79	71	39
	Safe disposal of feces	7	17	
	HHs with BPL card[o]	41	57	55
	HHs with electricity[o]	23	57	96

Table 3. Underlying determinants at district-level 2015-2016, 2019-2020

Category	Underlying determinants	Worst performing districts (pp)	Best performing districts (pp)	Top coverage districts (%)[2]
		Difference between (2019-2020) & (2015-2016)[1]	*Difference between (2019-2020) & (2015-2016)[1]*	*2019-2020*
Maternal determinants	Women who are literate[o]	Not applicable[3]	Madhepura: +24.7 Sitamarhi: +24.3	Rohtas: 76.5 Siwan: 70.9
	Women with ≥10 years education[o]	Not applicable[3]	Munger: +17.6 Begusarai: 16.7	Munger: 44.4 Patna: 43.6
	Girls 20-24 years married before age of 18 years[o]	Not applicable[3]	Sheohar: -30.1 Rohtas: -28.9	Siwan: 21.3 Saran: 26.2
	Women 15-19 years with child or pregnant	Saharsa: +11.7 Purnia: +9.1	Sheohar: -10.7 Gaya: -7.7	Kaimur: 2.6 Siwan: 2.6
Household determinants	HHs with improved drinking water source[o]	Khagaria: -0.6 Purnia: -0.4	Jamui: +12.7 Munger: +6.8	6 Districts[4]: 100.0
	HHs with improved sanitation facility[o]	Not applicable[3]	Rohtas: +43.9 Kaimur: +40.3	Rohtas: 69.0 Khagaria: 65.0
	HHs with electricity[o]	Not applicable[3]	Katihar: +65.0 Samastipur: +57.5	Jehanabad: 99.3 Patna: 99.0

pp: percentage points
Source: NFHS-3 (2005-2006), NFHS-4 (2015-2016), and NFHS-5 state and district factsheets and state reports (2019-2020).
Note: Underlying determinants are based on the last child data; safe disposal of feces not available in NFHS-5 factsheets (2019-20)/state report and data on HHs with hand washing facility not available in NFHS-3 (2005-06) and NFHS-5 factsheets (2019-20)/state report. Data on open defecation and HHs with BPL card for 2019-2020 are taken from NFHS-5 state reports.
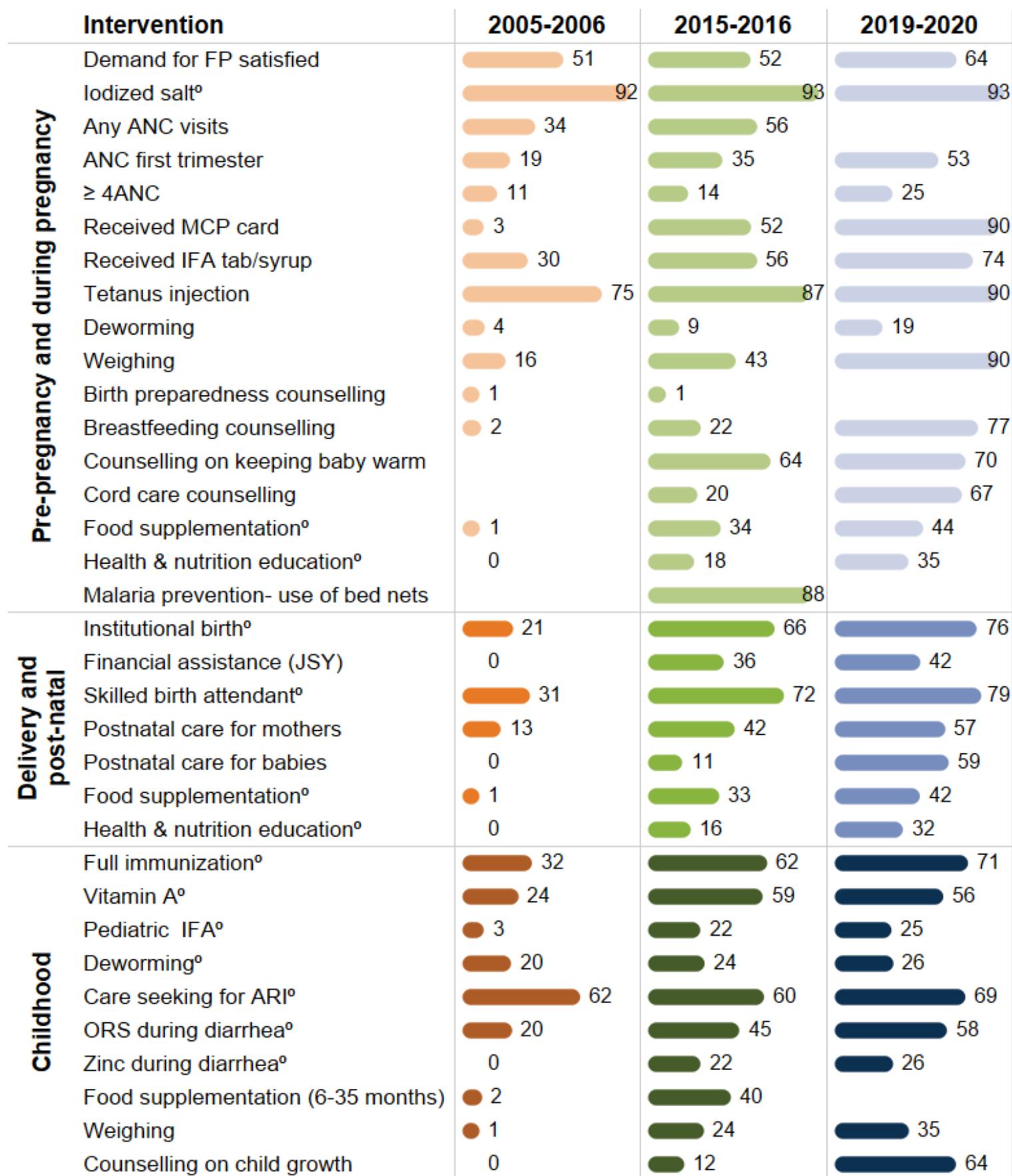[o]Indicator definition differs slightly between NFHS-4 and NFHS-5.
[1]The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2020. All 38 districts in Bihar are comparable between the two time periods.
[2]For all indicators, top coverage districts refer to the districts with the highest prevalence in underlying determinants, except for girls 20-24 years married before age of 18 years and women 15-19 years with child or pregnant for which it refers to the districts with the lowest prevalence in coverage.
[3]Prevalence did not increase or decrease in any of the districts.
[4]6 Districts: Araria, Aurangabad, Kishanganj, Madhubani, Saharsa, and Sheohar.

Figure 5. Trends in coverage of interventions across the first 1,000 days (%), 2005-2006, 2015-2016, 2019-2020

Intervention	2005-2006	2015-2016	2019-2020
Pre-pregnancy and during pregnancy			
Demand for FP satisfied	51	52	64
Iodized saltº	92	93	93
Any ANC visits	34	56	
ANC first trimester	19	35	53
≥ 4ANC	11	14	25
Received MCP card	3	52	90
Received IFA tab/syrup	30	56	74
Tetanus injection	75	87	90
Deworming	4	9	19
Weighing	16	43	90
Birth preparedness counselling	1	1	
Breastfeeding counselling	2	22	77
Counselling on keeping baby warm		64	70
Cord care counselling		20	67
Food supplementationº	1	34	44
Health & nutrition educationº	0	18	35
Malaria prevention- use of bed nets		88	
Delivery and post-natal			
Institutional birthº	21	66	76
Financial assistance (JSY)	0	36	42
Skilled birth attendantº	31	72	79
Postnatal care for mothers	13	42	57
Postnatal care for babies	0	11	59
Food supplementationº	1	33	42
Health & nutrition educationº	0	16	32
Childhood			
Full immunizationº	32	62	71
Vitamin Aº	24	59	56
Pediatric IFAº	3	22	25
Dewormingº	20	24	26
Care seeking for ARIº	62	60	69
ORS during diarrheaº	20	45	58
Zinc during diarrheaº	0	22	26
Food supplementation (6-35 months)	2	40	
Weighing	1	24	35
Counselling on child growth	0	12	64

Source: NFHS-3 (2005-2006), NFHS-4 (2015-2016) & NFHS-5 state factsheets and state reports (2019-2020).
ºIndicator comparable between NFHS-3 and NFHS-4 but differs slightly from NFHS-5.
Note 1 : Interventions' coverage is based on the last child data.
Note 2: The following information is not available in the NFHS-5 factsheets and state reports (2019-20): receipt of at least one ANC visit, birth preparedness counselling, malaria prevention and food supplementation (6-35m). Information on use of bed nets during pregnancy is not available in NFHS-3 data (2006).
Note 3: Data on food supplementation and health and nutrition education during pregnancy and post-natal care, and weight measurement during childhood and counselling on child growth for 2019-2020 are taken from NFHS-5 state reports.
Note 4: Refer to district dashboard for the inter-district variability in the coverage of interventions.

Intervention coverage at district level, 2019-2020

Legend: <20% | 20-<40% | 40-<60% | 60-<80% | >=80% | Not Available

District name	Demand for FP satisfied	Iodized salt	Any ANC visits	ANC first trimester	≥4 ANC	Received MCP card	Received IFA tab/syrup	Tetanus Injection	Deworming	Weighing	Birth preparedness counselling	Breastfeeding counselling	Counselling on keeping baby warm	Cord care counselling	Food supplementation	Health & nutrition education	Malaria prevention- use of bed nets	Institutional birth	Financial assistance (JSY)	Skilled birth attendant	Postnatal care for mothers	Postnatal care for babies	Food supplementation	Health & nutrition education	Full immunization	Vitamin A	Paediatric IFA	Deworming	Care seeking for ARI	ORS during diarrhea	Zinc during diarrhea	Food supplementation (6-35 months)	Weighing	Counselling on child growth
BIHAR		93.3		52.9	25.2	89.5	73.9	89.5	19.1									76.2	42.1	79.0	57.3	59.3			71.0	56.0			69.4	58.2	25.6			
Araria		93.7		41.6	25.8	90.6	77.9	86.4	16.1									66.2	46.6	70.3	46.4	48.2			61.6	57.1			57.9	50.5	9.2			
Arwal		90.1		57.4	34.5	95.5	77.0	94.2	23.3									79.2	52.1	83.1	70.1	70.1			84.2	57.8			86.3	57.5	51.2			
Aurangabad		92.4		53.6	29.3	92.3	78.1	93.2	25.9									77.5	56.8	84.6	71.5	72.0			89.7	63.9			84.4	64.4	36.9			
Banka		90.1		70.7	31.7	84.0	86.0	93.6	20.8									79.8	54.7	80.4	72.3	74.7			88.1	42.8			72.6	63.8	41.4			
Begusarai		89.2		46.5	21.6	87.8	78.4	88.6	29.6									86.0	40.2	85.6	54.0	60.9			65.8	57.2			75.4	61.8	31.6			
Bhagalpur		85.2		53.3	27.6	85.4	76.9	89.9	23.8									77.2	36.0	77.5	54.0	60.5			66.8	46.2			69.5	73.7	23.6			
Bhojpur		92.2		42.7	33.5	93.3	57.8	93.8	14.2									86.9	36.2	87.5	56.1	62.4			61.9	40.3			81.9	49.2	45.3			
Buxar		93.5		61.5	27.4	92.2	72.7	93.4	21.0									89.5	35.9	90.6	66.9	68.3			75.0	50.4			81.6	49.2	26.8			
Darbhanga		96.0		51.8	24.9	87.6	73.8	91.9	17.5									69.9	38.8	75.9	50.5	50.9			66.3	60.4			65.4	61.9	19.6			
Gaya		94.9		63.2	25.1	93.4	81.1	94.9	22.4									76.6	52.4	77.7	72.5	75.4			85.0	47.1			79.0					
Gopalganj		96.6		53.2	27.9	89.6	73.8	90.1	22.0									85.9	35.9	88.0	53.9	54.2			75.8	69.1			61.5	69.2	9.1			
Jamui		91.0		73.8	37.9	87.8	82.1	95.2	22.4									73.4	44.0	72.7	66.7	69.8			66.4	30.2			63.7					
Jehanabad		91.0		58.4	17.4	95.8	78.4	94.2	16.2									89.1	43.3	88.3	77.7	71.2			70.3	68.4			78.0	49.6	25.3			
Kaimur (Bhabua)		93.7		62.4	25.6	97.2	82.0	93.5	26.8									83.3	52.6	86.0	81.6	77.0			88.9	67.5			77.5					
Katihar		96.7		40.9	15.3	91.7	71.4	84.4	18.3									66.9	49.6	73.8	41.7	44.3			73.7	50.2			66.0	60.4	17.1			
Khagaria		88.0		44.6	17.4	89.5	74.4	83.9	6.0									74.2	32.2	82.3	54.2	52.2			64.7	62.9			81.2	55.6	27.4			
Kishanganj		94.8		37.6	17.1	84.7	71.6	79.2	16.7									54.6	33.3	64.9	40.7	42.1			67.3	53.2			67.7	64.5	4.2			
Lakhisarai		84.2		66.1	28.0	87.1	79.4	92.8	23.3									75.8	48.5	76.2	66.7	74.1			68.9	41.8			79.3	44.3	30.0			
Madhepura		95.4		53.8	20.9	95.6	75.5	87.7	16.3									75.0	74.0	77.1	49.5	58.9			72.0	55.8			58.2	52.1	36.2			
Madhubani		91.9		67.5	34.9	91.5	74.4	94.0	17.9									73.7	42.6	78.5	58.9	61.0			74.1	74.7			66.5	64.6	30.4			
Munger		92.6		68.7	36.8	89.8	88.2	90.5	23.0									93.2	41.8	92.3	80.7	83.4			73.4	44.6			69.9	58.7	24.4			
Muzaffarpur		96.1		55.9	28.2	84.1	69.8	93.8	17.0									72.5	34.1	78.2	55.9	55.9			74.9	57.8			80.3	66.3	27.9			
Nalanda		89.1		64.7	29.3	87.6	71.5	94.2	17.2									80.3	45.4	85.1	77.5	73.0			75.2	44.1			84.3	72.6	51.7			
Nawada		98.2		69.5	31.6	88.1	79.3	94.8	12.6									79.9	47.2	79.5	74.1	80.5			74.5	37.3			84.4					
Pashchim Champaran		97.7		55.0	25.4	83.9	59.9	89.7	19.2									79.5	38.7	78.4	57.3	64.1			62.1	62.4			60.2	56.8	16.4			
Patna		92.9		51.7	17.9	88.8	71.9	83.0	10.5									89.1	27.7	81.4	59.0	63.1			56.6	58.4			68.8	43.8	20.7			
Purba Champaran		96.9		45.4	21.7	83.5	59.9	86.4	14.4									61.5	27.7	67.4	43.7	41.8			68.3	51.5			59.8	40.7	19.7			
Purnia		92.6		26.3	11.1	93.4	78.6	83.6	17.3									68.9	34.2	74.2	41.0	41.5			62.7	65.2			63.7	41.2	25.9			
Rohtas		97.4		64.9	34.2	91.2	80.1	95.0	30.1									89.1	41.7	91.3	85.0	80.7			86.8	71.5			83.1					
Saharsa		94.6		34.8	11.7	95.1	65.1	82.7	12.7									70.4	58.5	72.9	38.5	40.8			72.2	57.4			75.5	50.3	21.2			
Samastipur		91.9		53.4	23.5	90.4	81.3	90.4	24.0									83.4	50.0	83.7	52.1	51.5			71.4	64.1			78.7	60.2	30.3			
Saran		92.9		44.4	30.7	94.3	61.4	88.1	16.4									73.0	39.2	79.1	54.1	58.3			72.0	50.2			71.4	51.5	36.8			
Sheikhpura		90.3		68.8	28.4	87.7	72.2	95.8	19.7									89.2	55.8	91.8	77.1	78.7			82.8	42.8			69.0	59.3	52.8			
Sheohar		95.6		62.8	25.3	93.2	74.0	94.0	17.0									74.3	58.3	77.0	61.1	58.7			62.9	59.2			73.3	49.8	33.3			
Sitamarhi		95.0		57.8	20.3	91.1	74.0	87.6	24.1									64.4	45.2	69.6	51.1	57.3			66.6	60.0			67.7	69.6	18.3			
Siwan		94.1		61.0	30.3	82.9	79.1	96.6	15.9									86.4	34.1	86.9	63.9	63.0			76.1	48.3			71.6	56.7	14.2			
Supaul		94.3		59.0	30.9	96.1	83.0	89.8	26.9									80.4	63.1	79.4	60.7	64.2			73.6	50.5			62.9	59.5	25.9			
Vaishali		86.2		46.7	24.5	88.5	79.1	80.8	19.0									81.6	33.6	84.8	57.4	64.3			71.0	55.8			61.4	54.9	18.2			

Source: NFHS-5 district factsheets and state reports (2019-20).

Note 1: The following information is not available in the NFHS-5 factsheets and state reports (2019-20): (1) Information on preconception and pregnancy-related indicators including demand for FP satisfied, receipt of at least one ANC visit, weighing, birth preparedness counselling, counselling on keeping baby warm, cord care counselling, food supplementation, health and nutrition education and malaria prevention; (2) Lactation-related indicators including, food supplementation and health and nutrition education; and (3) early childhood-related indicators including pediatric IFA, deworming, food supplementation (6-35m), weighing and counselling on child growth. Information on use of bed nets during pregnancy not available in NFHS-3 data (2005-2006).

Note 2: Food supplementation during early childhood is for children aged 6-35 months; counselling on child growth during early childhood is conducted after taking weight measurement.

Table 4. Intervention coverage at district-level 2015-2016, 2019-2020

Category	Interventions	Worst performing districts (pp)	Best performing districts (pp)	Top coverage districts (%)
		Difference between (2019-2020) & (2015-2016)[1]	*Difference between (2019-2020) & (2015-2016)[1]*	*2019-2020*
Pregnancy	ANC first trimester	Purnia: -9.2 Saharsa: -0.9	Madhubani: +40.1 Jamui: +37.3	Jamui: 73.8 Banka: 70.7
	≥4 ANC visits	Patna: -3.8 Purnia: -1.1	Jamui: +27.5 Arwal: +23.0	Jamui: 37.9 Munger: 36.8
	Received MCP Card	Not applicable[2]	Pu Champ[3]: +68.0 Muzaffarpur: +62.0	Kaimur: 97.2 Supaul: 96.1
	Tetanus injection	Patna: -8.4 Vaishali: -7.5	Pa Champ[3]: +12.4 Darbhanga: +11.8	Siwan: 96.6 Sheikhpura: 95.8
Delivery and post-natal	Institutional birth°	Nalanda: -0.4 Vaishali: -0.2	Sitamarhi: +22.8 Darbhanga: +20.4	Munger: 93.2 Buxar: 89.5
	Skilled birth attendant°	Patna: -4.7 Bhagalpur: -1.2	Sitamarhi: +19.5 Sheohar: +15.2	Munger: 92.3 Sheikhpura: 91.8
	Postnatal care for mothers	Purnia: -5.8 Patna: -4.2	Muzaffarpur: +32.3 Pa Champ[3]: +28.9	Rohtas: 85.0 Kaimur: 81.6
	Postnatal care for babies°	Not applicable[2]	Kaimur: +71.5 Banka: +67.4	Munger: 83.4 Rohtas: 80.7
Early childhood	Full immunization	Patna: -12.3 Begusarai: -10.4	Pa Champ[3]: +30.2 Madhubani: +25.5	Aurangabad: 89.7 Kaimur: 88.9
	Vitamin A supplementation°	Bhojpur: -23.6 Bhagalpur: -23.1	Kaimur: +21.0 Madhubani: +17.7	Madhubani: 74.7 Rohtas: 71.5
	Care seeking for ARI°	Gopalganj: -9.7 Munger: -6.3	Bhojpur: +48.2 Arwal: +36.8	Arwal: 86.3 2 Districts[4]: 84.4
	ORS treatment during diarrhea°	Lakhisarai: -18.6 Buxar: -12.9	Aurangabad: +51.7 Sitamarhi: +33.9	Bhagalpur: 73.7 Nalanda: 72.6
	Zinc treatment during diarrhea°	Kishanganj: -28.2 Saharsa: -23.8	Nalanda: +34.7 Sheikhpura: 34.3	Sheikhpura: 52.8 Nalanda: 51.7

Key takeaways

Children: Stunting and wasting prevalence declined by 7 percentage points (pp) from 2006 to 2016; stunting continued to decline by 5pp but wasting increased by 2pp from 2016 to 2020. Underweight declined by 13pp from 2006 to 2016 and continued to decline by 3pp from 2016 to 2020. Anemia declined by 14pp from 2006 to 2016 but increased by 5pp from 2016 to 2020.

Women: Underweight declined by 15 pp from 2006 to 2016 and continued to decline by 4pp from 2016 to 2020. Anemia in non-pregnant and pregnant women declined by 8pp and 2pp, respectively, from 2006 to 2016, but increased by 4-5pp among both groups of women from 2016 to 2020. Overweight/obesity increased by 7pp from 2006 to 2016 and continued to increase by 4pp from 2016 to 2020.

Men: Overweight/obesity increased by 7pp from 2006 to 2016 and continued to increase by 2pp from 2016 to 2020.

Attention is needed to improve (%s in 2020):
- *Outcomes*: Stunting (43%) and anemia in children (69%); anemia in non-pregnant (64%) and pregnant (63%) women
- *Immediate determinants:* Early initiation of breastfeeding (31%); adequate diet (11%); 100+ IFA (18%)
- *Underlying determinants:* Women with ≥10 years education (29%); households with improved sanitation (49%)
- *Coverage of interventions:* ≥4 ANC visits (25%), food supplementation (42-44%), and health and nutrition education for women (32-35%); growth monitoring of children (35%)

pp: percentage points.
Source: NFHS-3 (2005-2006), NFHS-4 (2015-2016), and NFHS-5 state and district factsheets (2019-2020)
Note: Interventions' coverage are based on the last child data.
[0]Indicator definition differs slightly between NFHS-4 and NFHS-5. [1]The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2020. All 38 districts in Bihar are comparable between the two time periods.[2]Prevalence did not increase or decrease in any of the districts. [3]District codes: Pu Champ: Purba Champaran, Pa Champ: Paschim Champaran. [4]2 Districts: Aurangabad and Nawada.

Indicator definition

Nutrition outcomes	Definition
Low birth weight	Percentage of live births in the five years preceding the survey with a reported birth weight less than 2.5 kg, based on either a written record or the mother's recall
Stunting among children	Percentage of children aged 0-59 months who are stunted i.e., height-for-age z score < -2SD
Wasting among children	Percentage of children aged 0-59 months who are wasted i.e., weight-for-height z score < -2SD
Severe wasting among children	Percentage of children aged 0-59 months who are wasted i.e., weight-for-height z score < -3SD
Underweight children	Percentage of children aged 0-59 months who are underweight i.e., weight-for-age z score < -2SD
Anemia among children	Percentage of children aged 6-59 months who are anemic i.e., (Hb <11.0 g/dl)
Underweight women	Percentage of women aged 15-49 whose Body Mass Index (BMI) is below normal (BMI <18.5 kg/m2)
Anemia among non-pregnant women	Percentage of non-pregnant women aged 15-49 who are anemic (<12.0 g/dl)
Anemia among pregnant women	Percentage of pregnant women aged 15-49 who are anemic (<11.0 g/dl)
Overweight/obesity - children	Percentage of children aged 0-59 months who are overweight i.e., weight-for-height z score > 2SD
Overweight/obesity - women	Percentage of men aged 15-54 who are overweight or obese (BMI ≥25.0 kg/m2)
Overweight/obesity - men	Percentage of men aged 15-54 who are overweight or obese (BMI ≥25.0 kg/m2)
High blood pressure among women^	Percentage of women aged 15-49 with elevated blood pressure (Systolic >140 mm Hg or diastolic >90 mm Hg)
High blood pressure among men^	Percentage of men aged 15-54 with elevated blood pressure (Systolic >140 mm Hg or diastolic >90 mm Hg)
High sugar level among women^	Percentage of women aged 15-49 with elevated blood pressure (Systolic >140 mm Hg or diastolic >90 mm Hg)
High sugar level among men^	Percentage of men aged 15-54 with high blood sugar levels (141-160 mg/dl)

Immediate determinants

Early initiation of breastfeeding	Percentage of children under aged 3 years breastfed within one hour of birth for the last child born in the 3 years before the survey
Exclusive breastfeeding	Percentage of youngest children under age 6 months living with mother who were exclusively breastfed
Timely introduction of complementary foods[0]	[1]Percentage of youngest children aged 6-8 months living with mother who received solid or semi-solid food during the previous day; [2]Percentage of youngest children aged 6-8 months living with mother who received solid or semi-solid food and breastmilk
Continued breastfeeding at 2 years[$]	Percentage of youngest children 12–23 months of age who were fed breast milk during the previous day
Adequate diet	Percentage of youngest children 6–23 months of age who consumed a minimum acceptable diet during the previous day
Eggs and/or flesh foods consumption[$]	Percentage of youngest children 6–23 months of age who consumed egg and/or flesh food during the previous day
Sweet beverage[$]	Percentage of youngest children 6–23 months of age who consumed a sweet beverage during the previous day
Bottle feeding for infants[$]	Percentage of youngest children 0–23 months of age who were fed from a bottle with a nipple during the previous day
Women with body mass index <18.5 kg/m2 [0]	[1]Percentage of women aged 15-49 with a youngest child < 5 years who have BMI below normal (BMI <18.5 kg/m2) ; [2]Percentage of women aged 15-49 whose BMI is below normal (BMI <18.5 kg/m^2)
Consumed IFA 100+ days	Percentage of mothers aged 15-49 who consumed iron folic acid for 100 days or more during the last pregnancy in last five years preceding the survey
Diarrhea in the last two weeks[0]	[1]Percentage of youngest children under age five who had diarrhea in the two weeks preceding the survey; [2]Percentage of children under age 5 who had diarrhea in the 2 weeks preceding the survey
ARI in the last two weeks[0]	[1]Percentage of youngest children under age five who had symptoms of acute respiratory infection (ARI) in the two weeks preceding the survey; [2]Percentage of children under age five who had symptoms of acute respiratory infection (ARI) in the two weeks preceding the survey

Underlying determinants

Women who are literate[0]	[1]Percentage of women aged 15-49 with a birth in five years preceding the survey who are literate i.e., those who completed standard 6 or higher and can read a whole sentence; [2]Percentage of women aged 15-49 who are literate i.e., those who completed standard 9 or higher and can read a whole sentence or part of a sentence.
Women with ≥10 years education[0]	[1]Percentage of women aged 15-49 with a birth in five years preceding the survey with 10 or more years of schooling; [2]Percentage of women aged 15-49 with 10 or more years of schooling
Girls 20-24 years married before age of 18 years[0]	[1]Percentage of women aged 20-24 years with a birth in five years preceding the survey who were married before age 18 years; [2]Percentage of women aged 20-24 years who were married before age 18 years
Women 15-19 years with child or pregnant	Percentage of currently married women aged 15-49 who had their first birth before age 20 years and in the five years preceding the survey
HHs with improved drinking water source[0]	[1]Percentage of youngest children under age 5 living in household that use an improved source of drinking water; [2]Population living in households that use an improved sanitation facility
HHs with improved sanitation facility[0]	[1]Percentage of youngest children under age 5 living in household that uses improved toilet facility; [2]Population living in households that use an improved sanitation facility
HHs with hand washing facility^[$]	Percentage of youngest children under age 5 living in household that had soap and water for washing hands
Open defecation[@]	Percentage of youngest children under age 5 living in household that has no toilet facility/defecates in open
Safe disposal of feces[$]	Percentage of youngest children living with mother whose stools were disposed of safely
HHs with BPL card[@]	Percentage of youngest children under age 5 living in households with BPL card
HHs with electricity[0]	[1]Percentage of youngest children under age 5 living in household that has electricity; [2]Population living in households with electricity

^ Indicator not available in NFHS-3. [$] Indicator not available in NFHS-5 factsheets/state reports [0]Indicator comparable between NFHS-3 and NFHS-4 but differs slightly from NFHS-5. [@] Indicator not available in NFHS-5 factsheets but available in NFHS-5 states reports.
[1] Definition per NFHS-3/NFHS-4. [2] Definition as per NFHS-5 factsheet.

Indicator definition

Interventions	Definition
Demand for FP satisfied[@]	Percentage of currently married women aged 15-49 with demand for family planning satisfied by modern methods
Iodized salt[0]	[1]Percentage of women aged 15-49 living in HHs that use iodized salt; [2]Percentage of households using iodized salt
Any ANC visits[$]	Percentage of women aged 15-49 with a live birth in the five years who received at least one ANC for the last birth
ANC first trimester	Percentage of women (15-49 years of age) attended by any provider during the first trimester of pregnancy that led to the birth of the youngest child in the last 2 years
≥ 4ANC	Percentage of mothers aged 15-49 who had at least 4 antenatal care visits for last birth in the 5 years before the survey
Received MCP card	Percentage of mothers who registered last pregnancy in the 5 years preceding the survey for which she received a Mother and Child Protection (MCP) card
Received IFA tab/syrup[@]	Percentage of women who received IFA (given or purchased) tablets during the pregnancy for their most recent live birth in the 5 years preceding the survey
Tetanus injection	Percentage of women whose last birth was protected against neonatal tetanus (for last birth in the five years preceding the survey)
Deworming- pregnancy[@]	Percentage of women who took an intestinal parasite drug during the pregnancy for their most recent live birth in the 5 years preceding the survey
Weighing- pregnancy[@]	Percentage of women aged 15-49 with a live birth in the five years preceding the survey who were weighed during ANC for the last birth
Birth preparedness counselling[$]	Percentage of women who had at least one contact with a health worker in the three months preceding the survey and were counselled on birth preparedness; calculated among women aged 15-49 who gave birth in the five years preceding the survey
Breastfeeding counselling[@]	Percentage of women who met with a community health worker in the last three months of pregnancy and received advice on breastfeeding (for the last pregnancy in the five years preceding the survey)
Counselling on keeping baby warm[@]	Percentage of women who met with a community health worker in the last three months of pregnancy and received advice on keeping the baby warm for their most recent live birth in the five years preceding the survey
Cord care counselling[^@]	Percentage of women who met with a community health worker in the last three months of pregnancy and received advice on cord care for their most recent live birth in the five years preceding the survey
Food supplementation - pregnancy[@]	[1]Percentage of youngest children under age 5 whose mother received supplementary food from AWC during pregnancy; [3]Among children under 6 years, percentage whose mother received specific benefits from AWC during pregnancy: supplementary food
Health & nutrition education – pregnancy[@]	[1]Percentage of mothers who received health and nutrition education from an Anganwadi Centre (AWC) during last pregnancy in the five years preceding the survey; [3]Among children under 6 years, percentage whose mother received specific benefits from AWC during pregnancy: health and nutrition education
Malaria prevention- use of bed nets[^$]	Percentage of women who used mosquito net during the pregnancy for their most recent live birth in the 5 years preceding the survey
Institutional birth[0]	[1]Percentage of women aged 15-49 who gave birth in health/institutional facility for their most recent live birth in the 5 years preceding the survey; [2]Percentage of live births to women aged 15-49 in the five years preceding the survey that took place in a health/institutional facility
Financial assistance (JSY)[@]	Percentage of women who received financial assistance under JSY for their most recent live birth that took place in institutional facility in the 5 years preceding the survey
Skilled birth attendant[0]	[1]Percentage of women whose last delivery was attended by a skilled health personnel for their most recent live birth in the 5 years preceding the survey; [2]Percentage of births attended by skilled health personnel for births in the 5 years before the survey
Postnatal care for mothers	Percentage of mothers who received postnatal care from a doctor/nurse/LHV/ANM/midwife/other health personnel within 2 days of delivery for their most recent live birth in the five years preceding the survey
Postnatal care for babies	Percentage of children who received postnatal care from a doctor /nurse /LHV /ANM /midwife /other health personnel within 2 days of delivery for last birth in the 5 years before the survey
Food supplementation – postnatal[@]	[1]Percentage of youngest children under age 5 whose mother received supplementary food from AWC while breastfeeding; [3]Among children under 6 years, percentage whose mother received specific benefits from AWC while breastfeeding: supplementary food
Health & nutrition education – postnatal[@]	[1]Percentage of youngest children under age 5 whose mother received health check-ups from AWC while breastfeeding; [3]Among children under 6 years, percentage whose mother received specific benefits from AWC while breastfeeding: health and nutrition education
Full immunization[0]	[1]Percentage of youngest living children aged 12-23 months fully vaccinated based on information from either vaccination card or mother's recall; [2]Percentage of children aged 12-23 months fully vaccinated based on information from either vaccination card or mother's recall
Vitamin A – early childhood[0]	[1]Percentage of youngest children aged 6-59 months who received Vitamin A supplementation in the last 6 months preceding the survey; [2] Percentage of children aged 9-35 months who received a vitamin A dose in the last 6 months
Pediatric IFA[0@]	Percentage of youngest children aged 6-59 months who received iron supplements in the past 7 days preceding the survey
Deworming – early childhood[0@]	Percentage of youngest children aged 6-59 months who received deworming tablets in the last 6 months preceding the survey
Care seeking for ARI[0]	[1]Percentage of youngest children under age 5 years with fever or symptoms of ARI in the 2 weeks preceding the survey taken to a health facility or health provider; [2]Percentage of children under age 5 years with fever or symptoms of ARI in the 2 weeks preceding the survey taken to a health facility or health provider
ORS during diarrhea[0]	[1]Percentage of youngest children under age 5 years with diarrhea in the 2 weeks preceding the survey who received oral rehydration salts (ORS); [2]Percentage of children under age 5 years with diarrhea in the 2 weeks preceding the survey who ORS
Zinc during diarrhea[0]	[1]Percentage of youngest children under age 5 years with diarrhea in the 2 weeks preceding the survey who received zinc; [2]Percentage of children under age 5 years with diarrhea in the 2 weeks preceding the survey who received zinc
Food supplementation (children 6-35 months) [$]	Percentage of youngest children aged 6-35 months who received food supplements from AWC in the 12 months preceding the survey
Weighing – early childhood[@]	Percentage of youngest children under age 5 who were weighed at AWC in the 12 months preceding the survey
Counselling on child growth[@]	Percentage of youngest children under age 5 whose mother received counselling from an AWC after child was weighed in the 12 months preceding the survey

[^] Indicator not available in NFHS-3. [$]Indicator not available in NFHS-5 factsheets/state reports. [@]Indicator not available in NFHS-5 factsheets but available in NFHS-5 states reports. [0]Indicator comparable between NFHS-3 and NFHS-4 but differs slightly from NFHS-5.
[1]Definition per NFHS-3/NFHS-4. [2]Definition as per NFHS-5 factsheet. [3]Definition as per NFHS-5 state reports.

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Disclaimer: The maps used in this Data Note are based on the districts in NFHS-5 factsheets/reports . The boundaries shown do not imply any official endorsement or acceptance by IFPRI.

ABOUT POSHAN

Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN) is a multi-year initiative that aims to support the use of data and evidence in decision-making for nutrition in India. It is supported by the Bill & Melinda Gates Foundation and led by IFPRI in India.
http://poshan.ifpri.info/

ABOUT DATA NOTES

POSHAN Data Notes focus on data visualization to highlight geographic and/or thematic issues related to nutrition in India. They draw on multiple sources of publically available data.

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