

### State Nutrition Profile: Kerala

#### 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 are based on data from multiple rounds of the National Family Health Surveys using estimates from reports, factsheets, or unit level data. In addition to standard prevalence-based analyses, this *Data Note* includes headcount-based analyses aligned to the POSHAN Abhiyaan monitoring framework to provide evidence that helps identify priority districts and the number of districts where public health concerns exist as per the WHO guidelines<sup>1</sup>. This *Data Note* also includes a color-coded dashboard to compare the coverage of nutrition interventions by district. It concludes with key takeaways for children, women, and men, and identifies areas for improvement.

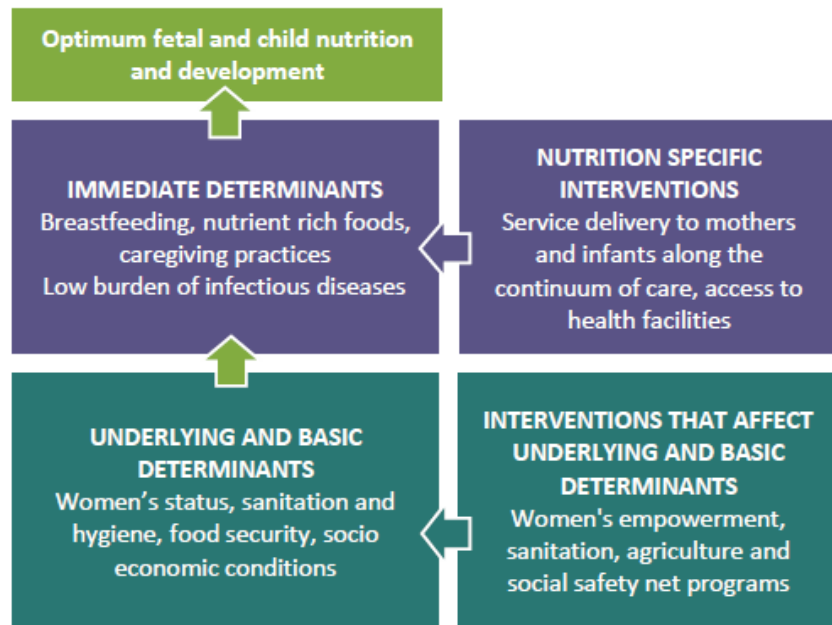
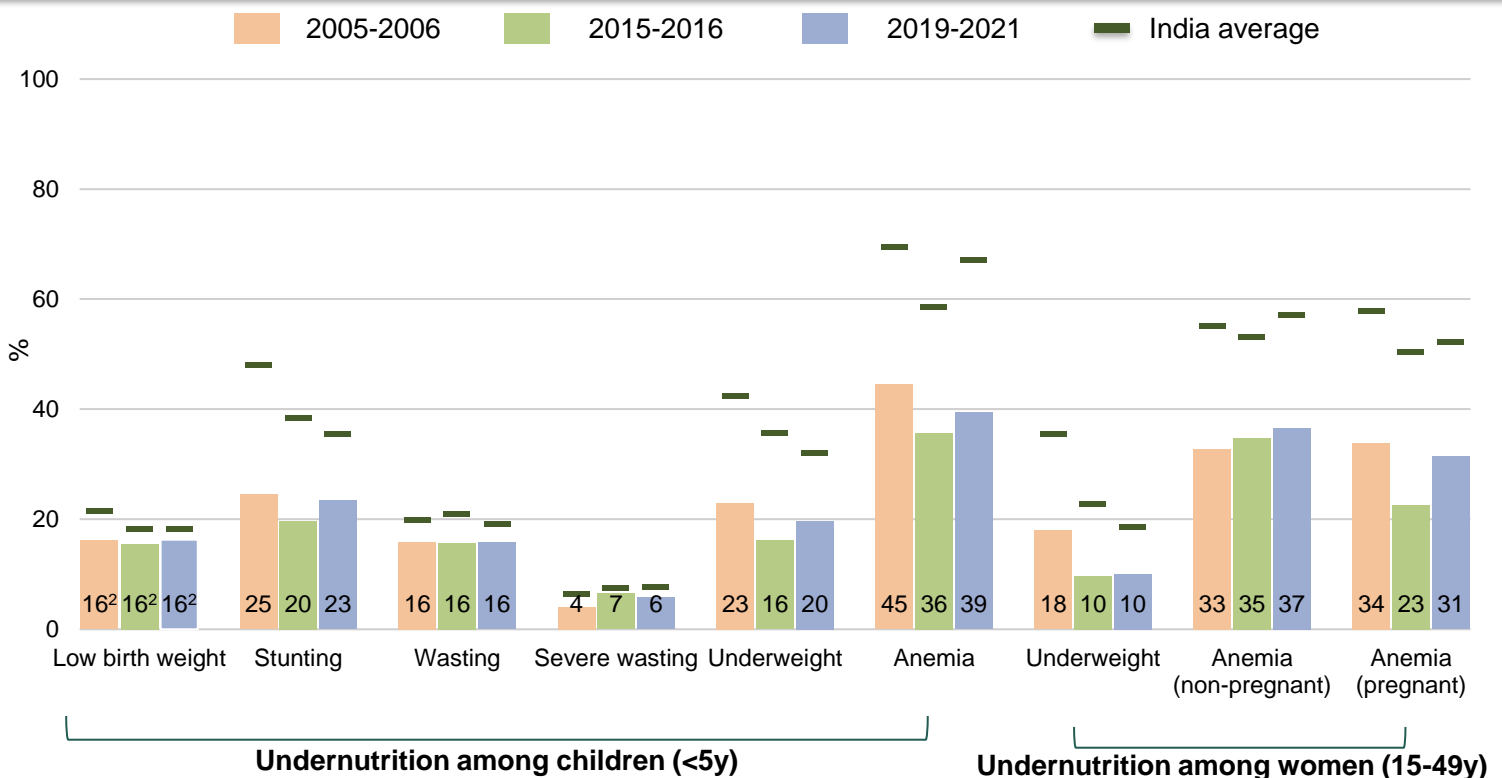


Figure 1. Trends in undernutrition outcomes 2005-2006, 2015-2016, 2019-2021



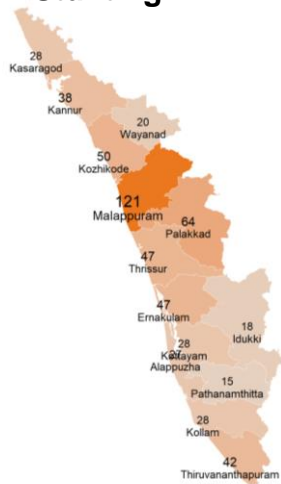
Source: NFHS-3 (2005-2006) national report and data [IFPRI estimates], NFHS-4 (2015-2016) national report, and NFHS-5 (2019-2021) national and state factsheets. Anemia among non-pregnant and pregnant women for 2005-2006 are IFPRI estimates using woman dataset.

<sup>1</sup>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>). <sup>2</sup>In NFHS-3, NFHS-4, and NFHS-5, 2.9%, 1.0%, and 0.9% of the data were missing, respectively.

# Map 1 & 2. Number of stunted & anemic children <5y, 2019-2021

## Map 1. Stunting



Number of stunted children<sup>1</sup> = 575,085

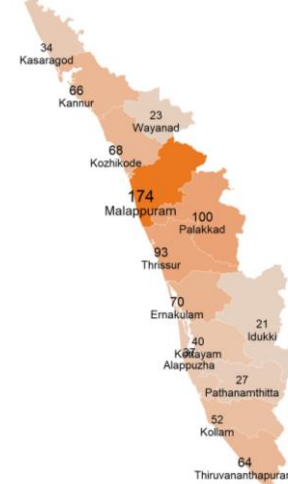
Note: Number in '000s in the above figure

### Highest burden districts

1	Malappuram	120,849
2	Palakkad	63,868
3	Kozhikode	50,475
4	Ernakulam	47,346
5	Thrissur	47,013

No. of districts with public health concern<sup>2</sup>: 11 of 14

## Map 2. Anemia



Number of anemic children<sup>1</sup> = 871,287

Note: Number in '000s in the above figure

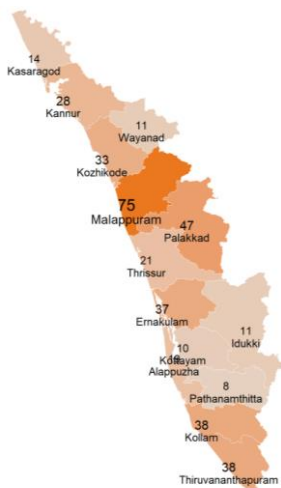
### Highest burden districts

1	Malappuram	174,286
2	Palakkad	100,258
3	Thrissur	93,486
4	Ernakulam	70,369
5	Kozhikode	68,332

No. of districts with public health concern<sup>2</sup>: 4 of 14

# Map 3 & 4. Number of wasted children <5y, 2019-2021

## Map 3. Wasting



Number of wasted children<sup>1</sup> = 388,384

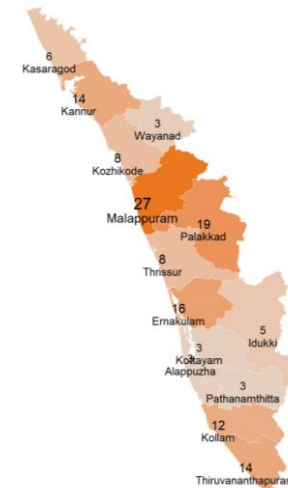
Note: Number in '000s in the above figure

### Highest burden districts

1	Malappuram	74,811
2	Palakkad	46,665
3	Kollam	38,298
4	Thiruvananthapuram	37,826
5	Ernakulam	36,801

No. of districts with public health concern<sup>2</sup>: 12 of 14

## Map 4. Severe Wasting



Number of severely wasted children<sup>1</sup> = 140,881

Note: Number in '000s in the above figure

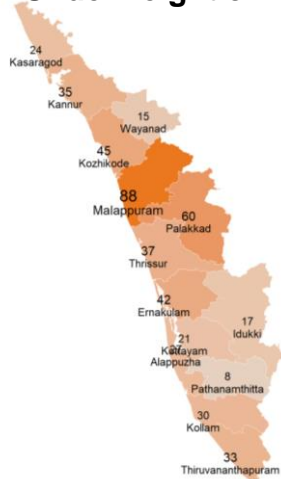
### Highest burden districts

1	Malappuram	26,718
2	Palakkad	19,354
3	Ernakulam	15,925
4	Thiruvananthapuram	13,696
5	Kannur	13,613

No. of districts with public health concern<sup>2</sup>: 14 of 14

# Map 5 & 6. Number of underweight children (<5y) & women (15-49y), 2019-2021

## Map 5. Underweight children



Number of underweight children<sup>1</sup> = 481,631

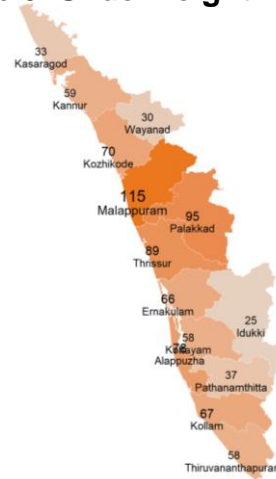
Note: Number in '000s in the above figure

### Highest burden districts

1	Malappuram	87,965
2	Palakkad	59,567
3	Kozhikode	44,788
4	Ernakulam	41,750
5	Thrissur	36,969

No. of districts with public health concern<sup>2</sup>: 6 of 14

## Map 6. Underweight women



Number of underweight women<sup>1</sup> = 880,407

Note: Number in '000s in the above figure

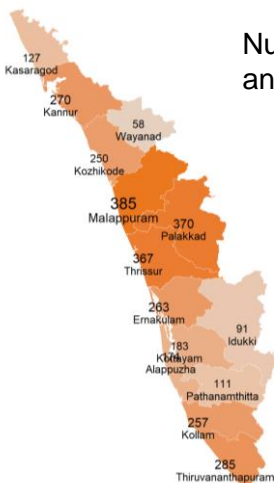
### Highest burden districts

1	Malappuram	114,933
2	Palakkad	95,411
3	Thrissur	89,118
4	Alappuzha	77,820
5	Kozhikode	69,642

No. of districts with public health concern<sup>2</sup>: 7 of 14

# Map 7 & 8. Number of anemic women (15-49y), 2019-2021

## Map 7. Anemia among non-pregnant women



Number of non-pregnant anemic women<sup>1</sup> = 3,191,849

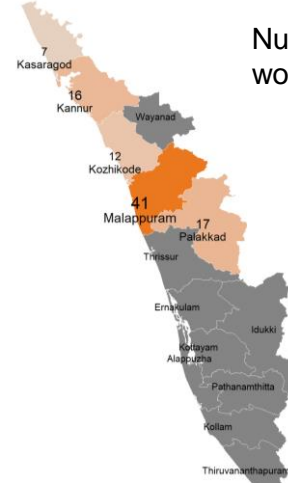
Note: Number in '000s in the above figure

### Highest burden districts

1	Malappuram	384,970
2	Palakkad	369,809
3	Thrissur	367,099
4	Thiruvananthapuram	285,079
5	Kannur	270,122

No. of districts with public health concern<sup>2</sup>: 2 of 14

## Map 8. Anemia among pregnant women



Number of pregnant anemic women<sup>1</sup> = 92,716

Note: Number in '000s in the above figure

### Highest burden districts

1	Malappuram	40,810
2	Palakkad	17,281
3	Kannur	16,023
4	Kozhikode	11,604
5	Kasaragod	6,998

No. of districts with public health concern<sup>2</sup>: 2 of 5

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 (2019-2021) district factsheets, and the projected population for 2019 was estimated using Census 2011. <sup>1</sup>The total number of children <5 years is 2,458,750, pregnant women 15-49 years is 519,615, and non-pregnant women 15-49 years is 8,232,282. <sup>2</sup>Public health concern is defined as  $\geq 20\%$  for underweight (children),  $\geq 10\%$  for underweight (women),  $\geq 40\%$  for anemia among non-pregnant women, and  $\geq 40\%$  for anemia among pregnant women (WHO 2011 Note: Data on anemia among pregnant women are not available for 9 districts in Kerala. Gray area in Map 8 indicates districts for which data are not available.

Figure 2. Trends in overweight/obesity & NCDs<sup>1</sup>  
2005-2006, 2015-2016, 2019-2021

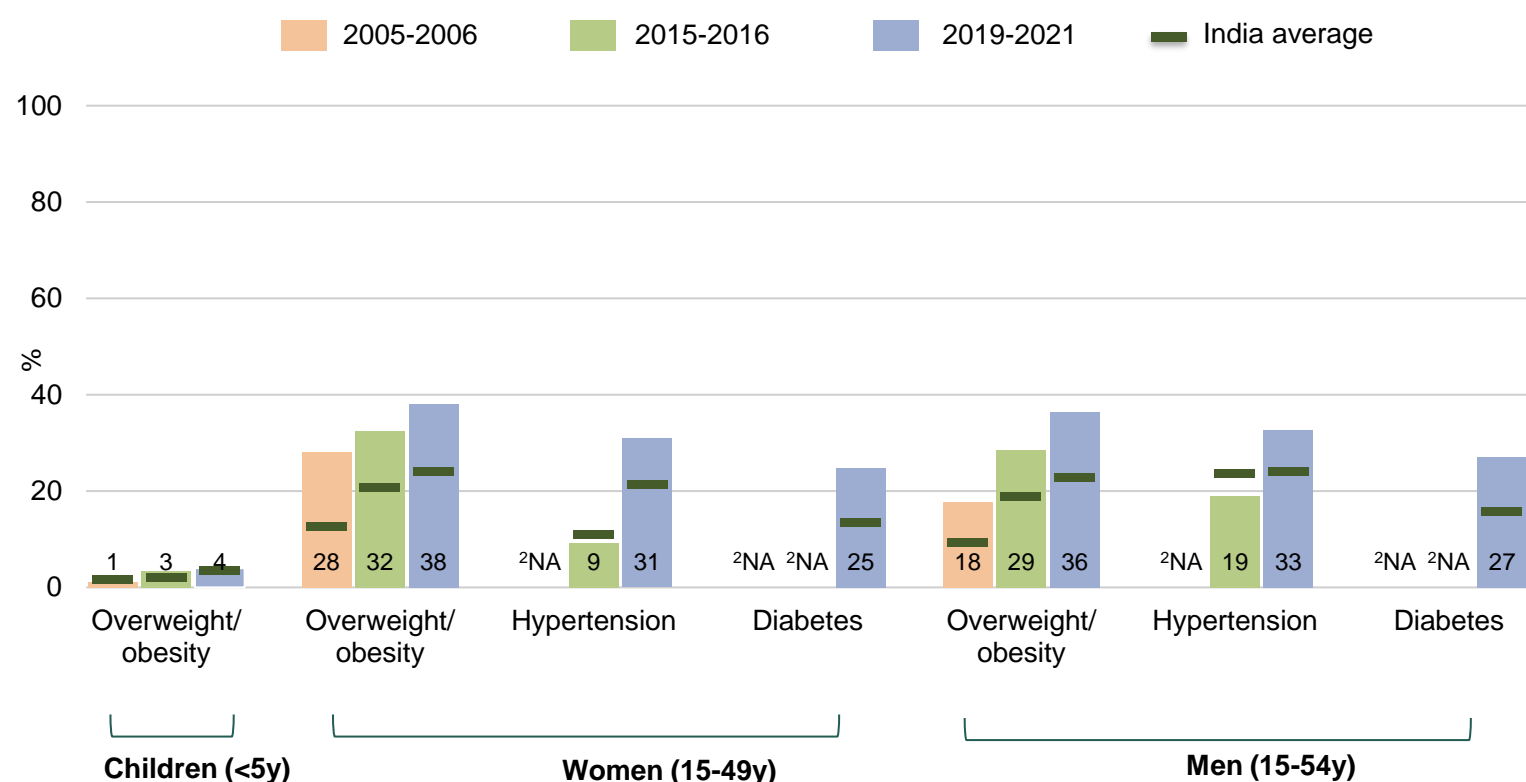
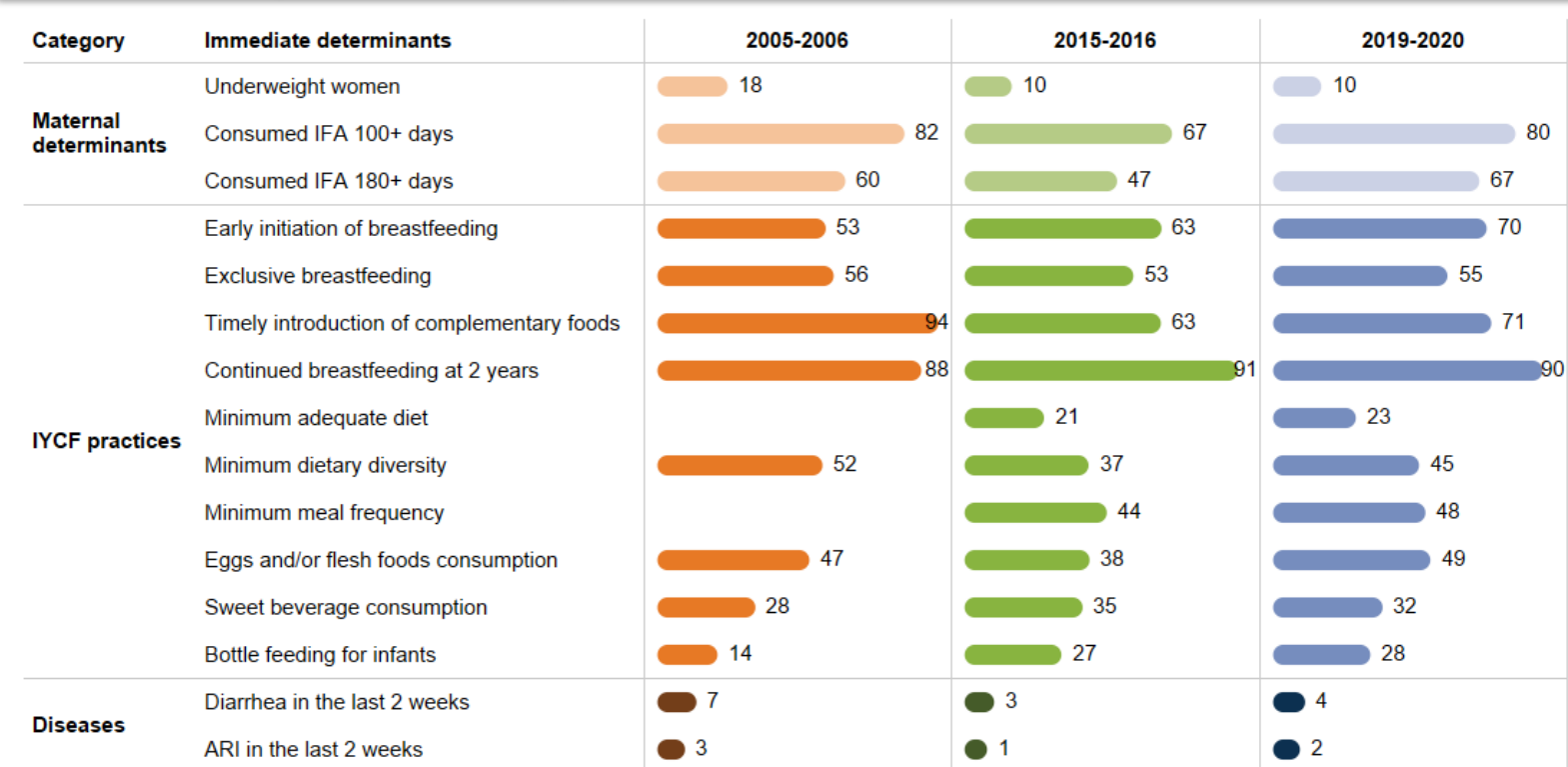


Table 1. Overweight/obesity & NCDs<sup>1</sup> at district-level  
2015-2016, 2019-2021

Category	Outcomes	Worst performing districts (pp)	Best performing districts (pp)	Highest burden districts (thousands) <sup>4</sup>	No of districts with public health concern <sup>5</sup> (total=14)
		<i>Difference between (2019-2021) &amp; (2015-2016)<sup>3</sup></i>	<i>Difference between (2019-2021) &amp; (2015-2016)<sup>3</sup></i>	2019-2021	2019-2021
Children <5 years	Overweight/obesity	Kollam: +5.6 Wayanad: +4.9	Kannur: -3.7 Kozhikode: -3.0	Kollam: 17 Malappuram: 13	0
	Overweight/obesity	T-thapuram <sup>6</sup> : +17.0 Thrissur: +14.8	<i>Not Applicable<sup>7</sup></i>	T-thapuram <sup>6</sup> :444 Malappuram:408	14
Women (15-49 years)	Hypertension	P-thitta <sup>6</sup> : +30.0 Idukki: +25.3	<i>Not Applicable<sup>7</sup></i>	Malappuram:283 T-thapuram <sup>6</sup> :276	14
	Diabetes	<i>Not Available<sup>2</sup></i>		Malappuram:239 Thrissur: 231	13
	Overweight/obesity	<i>Not Available<sup>2</sup></i>			
Men (15-54 years)	Hypertension	Thrissur: +24.1 Kottayam: +22.2	Wayanad: -8.7 Kasaragod: -1.5	Thrissur: 359 Malappuram:343	14
	Diabetes	<i>Not Available<sup>2</sup></i>		T-thapuram <sup>6</sup> :384 Thrissur: 310	13

Source: NFHS-3 (2005-2006) national report, NFHS-4 (2015-16) national report and data [IFPRI estimates], and NFHS-5 (2019-2021) national and state factsheets. <sup>1</sup>NCDs: non-communicable diseases. <sup>2</sup>Indicates unavailability of data for a particular indicator in the specified NFHS round. Diabetes data for NFHS-4 are not included in the NFHS-5 factsheet because definition of diabetes is not comparable between NFHS-4 and 5 <sup>3</sup>The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2021. <sup>4</sup>Burden: The headcount was calculated as the product of prevalence, and the total eligible projected population for each district in 2019. Prevalence estimates were obtained from NFHS-5 (2019-2021) district factsheets, and the projected population for 2019 was estimated using Census 2011. <sup>5</sup>Public health concern is defined as prevalence  $\geq 15\%$  for overweight/obesity (children),  $\geq 20\%$  for overweight/obesity (women and men),  $\geq 20\%$  hypertension (women and men), and  $\geq 20\%$  diabetes (women and men) (WHO 2011). <sup>6</sup>District codes: T-thapuram: Thiruvananthapuram P-thitta: Pathanamthitta. <sup>7</sup>Prevalence did not increase or decrease in any of the districts.

**Figure 3. Trends in immediate determinants (%)  
2005-2006, 2015-2016, 2019-2021**



**Table 2. Immediate determinants at district-level  
2015-2016, 2019-2021**

Category	Immediate determinants	Worst performing districts (pp)	Best performing districts (pp)	Top coverage districts (%) <sup>2</sup>
		<i>Difference between (2019-2021) &amp; (2015-2016)<sup>1</sup></i>	<i>Difference between (2019-2021) &amp; (2015-2016)<sup>1</sup></i>	<i>2019-2021</i>
Maternal determinants	Underweight women	Kottayam: +7.0 Kollam: +2.8	Kozhikode: -3.9 Kasaragod: -3.6	T-thapuram <sup>3</sup> : 6.6 Ernakulam: 8.0
	Consumed IFA 100+ days	Kottayam: -8.3 Palakkad: -7.6	Kollam: +32.3 Malappuram: +28.4	Wayanad: 94.9 Malappuram: 92.3
IYCF practices	Early initiation of breastfeeding	Kottayam: -35.2 Kannur: -11.3	Kollam: +47.6 P-thitta <sup>3</sup> : +39.1	Idukki: 85.0 Kozhikode: 84.3
	Exclusive breastfeeding	<i>Not Available<sup>4</sup></i>		Kasaragod: 68.2
	Timely introduction of complementary foods	<i>Not Available<sup>4</sup></i>		
	Minimum adequate diet	Kasaragod: -16.9 Ernakulam: -13.6	P-thitta <sup>3</sup> : +29.2 Kannur: +18.3	P-thitta <sup>3</sup> : 52.0 Kannur: 38.4
Diseases	Diarrhea in the last 2 weeks	Kottayam: +9.6 Thrissur: +7.4	Kasaragod: -4.8 Palakkad: -4.1	Kannur: 0.7 Wayanad: 1.4
	ARI in the last 2 weeks	Kollam: +4.9 T-thapuram <sup>3</sup> : +3.8	Kasaragod: -0.8 Malappuram: -0.3	Kasaragod: 0.3 Malappuram: 0.6

Source: NFHS-3 (2005-2006) national and state reports and data [IFPRI estimates], NFHS-4 (2015-2016) state report and data [IFPRI estimates], and NFHS-5 (2019-2021) national and state reports, factsheets, and data [IFPRI estimates].

pp: percentage points.

Note: Definitions of IYCF indicators are based on WHO guidelines.

<sup>1</sup>The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2021.

<sup>2</sup>For all indicators, top coverage districts refer to the districts with the highest prevalence in immediate determinants, underweight women, diarrhea in the last 2 weeks, and ARI in the last 2 weeks, for which it refers to the districts with the lowest prevalence in coverage.

<sup>3</sup>District codes: P-thitta: Pathanamthitta; T-thapuram: Thiruvananthapuram. <sup>4</sup>NA refers to the unavailability of data for a particular indicator in the specified NFHS round. Data not available for all districts for exclusive breastfeeding.

**Figure 4. Trends in underlying determinants (%)**  
2005-2006, 2015-2016, 2019-2021



**Table 3. Underlying determinants at district-level**  
2015-2016, 2019-2021

Category	Underlying determinants	Worst performing districts (pp)	Best performing districts (pp)	Top coverage districts (%) <sup>2</sup>
		<i>Difference between (2019-2021) &amp; (2015-2016)<sup>1</sup></i>	<i>Difference between (2019-2021) &amp; (2015-2016)<sup>1</sup></i>	2019-2021
<b>Maternal determinants</b>	Women with ≥10 years education	Palakkad: -0.2	T-thapuram <sup>3</sup> : +14.4 Kozhikode: +11.0	Kottayam: 85.8 P-thitta <sup>3</sup> : 84.5
	Women 20-24 years married before age of 18 years	T-thapuram <sup>3</sup> : +3.6 Idukki: +3.4	Malappuram: -8.1 Wayanad: -5.4	P-thitta <sup>3</sup> : 0.0 Thrissur: 1.0
	Women 15-19 years with child or pregnant	Kottayam: +2.8 Idukki: +2.7	Ernakulam: -2.4 Thrissur: -1.8	3 Districts <sup>4</sup> : 0.0
<b>Household determinants</b>	HHs with improved drinking water source	Idukki: -11.0 Kozhikode: -3.4	Alappuzha: +4.6 Malappuram: +4.1	Alappuzha: 98.4 Ernakulam: 98.2
	HHs using improved sanitation facility	T-thapuram <sup>3</sup> : -1.7 Kollam: -0.6	Idukki: +2.7 Wayanad: +2.4	Malappuram: 99.9 Kozhikode: 99.6
	HHs with electricity	Idukki: -0.4 Palakkad: -0.2	Kollam: +1.6 Kannur: +0.9	Ernakulam: 100.0 Thrissur: 100.0

Source: NFHS-3 (2005-2006) national and state reports and data [IFPRI estimates], NFHS-4 (2015-2016) national and state reports and data [IFPRI estimates], and NFHS-5 (2019-2021) state and district factsheets, state report, and data [IFPRI estimates].

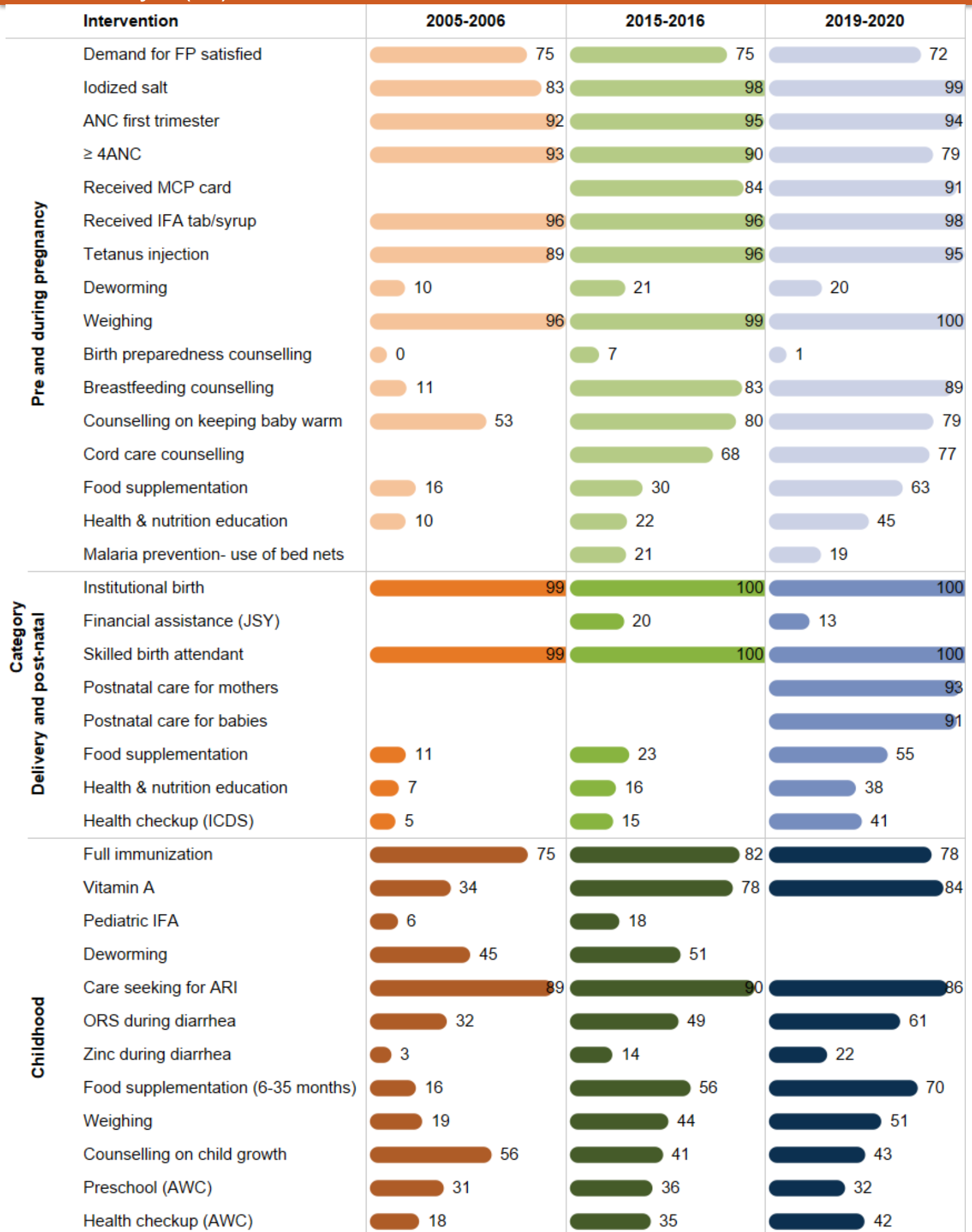
<sup>1</sup>The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2021.

<sup>2</sup>For all indicators, top coverage districts refer to the districts with the highest prevalence in underlying determinants, except for women 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.

<sup>3</sup>District codes: P-thitta: Pathanamthitta; T-thapuram: Thiruvananthapuram.

<sup>4</sup>3 Districts: Pathanamthitta, Kollam, Ernakulam

Figure 5. Trends in coverage of interventions across the first 1,000 days (%) 2005-2006, 2015-2016, 2019-2021



Source: NFHS-3 (2005-2006) national and state reports and data [IFPRI estimates], NFHS-4 (2015-2016) national and state reports and data [IFPRI estimates] and NFHS-5 (2019-2021) state factsheet, state and national report, and data [IFPRI estimates]. Note 1: Refer to district dashboard for the inter-district variability in the coverage of interventions.

# Intervention coverage at district-level, 2019-2021

<20%      20-<40%      40-<60%      60-<80%      >=80%      Not Available

District name	Pre-pregnancy		Pregnancy										Delivery & postnatal										Early childhood													
	Demand for FP satisfied	Iodized salt	ANC first trimester	ANC ≥4 ANC	Received MCP card	Received IFA tab/syrup	Tetanus injection	De-worming	Weighing	Birth preparedness counselling	Breastfeeding counselling	Counseling on keeping baby warm	Cord care counselling	Food supplementation	Health & nutrition education	Malaria prevention- use of bed nets	Institutional birth	Financial assistance (ISY)	Skilled birth attendant	Postnatal care for mothers	Postnatal care for babies	Food supplementation	Health & nutrition education	Health checkup	Full immunization	Vitamin A	Paediatric IFA	De-worming	Care seeking for ARI	ORS during diarrhea	Zinc during diarrhea	Food supplementation (6-35 months)	Weighing	Counseling on child growth	Preschool at AWC	Health checkup
<b>Kerala</b>	72.2	99.3	93.6	78.6	91.3	98.0	95.2	19.6	99.6	0.8	89.4	78.8	76.7	62.5	44.5	19.1	99.8	13.0	100.0	93.3	91.2	54.5	37.6	40.8	77.8	84.1	16.6	22.4	86.2	61.1	22.4	70.5	51.1	42.6	31.9	42.2
Alappuzha	77.1	99.9	85.1	65.7	96.4	97.6	87.5	30.8	99.3	2.7	92.3	81.4	80.9	64.1	44.9	15.7	99.4	12.1	100.0	89.2	85.1	55.8	34.8	40.8	61.9	93.6	20.6	25.5	79.9	68.8	53.4	36.2	57.5	44.7		
Ernakulam	76.5	99.3	92.6	82.2	90.9	99.4	96.5	8.9	100.0	0.6	86.2	77.3	75.4	58.5	34.2	13.4	99.1	6.7	100.0	96.1	94.2	50.6	27.9	32.3	82.6	88.2	18.9	24.8	89.6	72.2	48.2	39.6	35.6	39.6		
Idukki	83.0	99.6	93.3	74.3	96.0	99.3	98.0	16.2	100.0	1.1	88.6	81.2	83.3	70.2	41.6	33.1	100.0	17.4	100.0	94.0	95.3	54.3	32.6	34.2	89.6	81.3	15.9	22.8	69.6	72.6	54.7	62.7	48.3	49.3		
Kannur	72.7	99.2	94.8	78.3	95.3	95.0	97.7	20.8	99.6	2.4	90.3	82.4	86.7	74.3	56.2	17.9	100.0	18.1	100.0	93.4	90.0	71.8	55.0	59.4	77.7	80.2	13.6	21.2	81.2	72.5	56.1	56.8	47.8	52.8		
Kasaragod	67.7	99.6	97.4	91.2	92.8	98.4	99.2	16.6	100.0	0.0	88.1	76.5	81.5	67.1	50.3	12.3	100.0	12.4	100.0	95.0	95.9	49.4	39.6	41.8	92.5	83.4	15.1	16.1	97.0	70.2	53.1	41.9	29.8	50.7		
Kollam	80.9	99.0	92.6	79.3	94.9	99.2	98.5	16.2	100.0	2.2	87.7	71.1	70.9	71.3	48.4	24.6	100.0	20.4	100.0	91.4	89.5	61.9	41.9	47.2	85.4	93.9	17.5	28.4	92.5	69.1	52.8	44.4	30.4	49.2		
Kottayam	66.2	97.4	81.6	55.1	90.4	96.2	83.6	16.6	99.0	1.4	82.6	73.5	64.0	50.9	32.3	26.8	98.7	15.9	99.3	85.0	83.5	38.9	26.0	19.3	91.2	18.3	23.0	86.6	57.9	34.5	30.8	36.0	31.4			
Kozhikode	75.7	99.8	98.3	91.8	96.6	98.9	96.7	12.8	99.0	0.0	92.5	85.8	88.9	83.7	54.7	12.7	100.0	20.2	100.0	91.0	89.0	68.0	43.3	48.9	88.8	80.9	14.9	10.0	91.2	76.8	61.2	50.8	47.9	51.2		
Malappuram	57.4	99.4	95.3	90.4	91.5	99.7	99.6	28.6	100.0	0.0	88.0	84.0	77.0	62.1	52.1	18.1	100.0	8.5	100.0	96.9	95.1	58.9	47.2	49.4	80.3	74.2	16.5	21.3	88.5	74.3	49.8	48.5	30.8	45.1		
Palakkad	74.5	99.7	97.7	68.4	87.3	94.7	87.9	16.6	99.5	0.5	93.2	74.9	77.4	59.1	42.9	16.9	100.0	6.8	100.0	97.5	93.2	52.6	34.8	41.0	51.8	77.6	18.1	21.0	82.5	77.1	60.0	19.9	50.4	58.2		
Pathanamthitta	76.0	99.6	92.9	83.9	92.2	98.0	94.2	39.6	100.0	0.9	89.9	86.9	79.7	58.0	42.3	27.9	99.1	19.1	99.2	95.2	93.2	44.0	28.0	24.6	90.9	16.9	26.8	78.6	73.6	42.9	38.7	40.9	42.9			
Thiruvananthapuram	63.6	99.3	87.7	55.3	79.1	98.1	91.9	12.3	98.8	0.4	90.0	59.0	56.7	49.8	27.8	21.8	99.5	7.1	100.0	86.2	88.0	35.6	22.9	26.1	72.8	91.8	18.3	32.0	80.8	50.7	38.8	37.5	28.6	31.9		
Thrissur	76.3	99.7	97.1	82.4	87.0	98.0	95.7	25.7	99.2	0.0	88.3	87.8	73.1	60.1	41.7	21.6	100.0	16.4	100.0	95.2	88.4	46.4	23.4	26.9	87.7	12.5	22.0	89.4	74.6	49.1	32.5	46.2	46.0			
Wayanad	82.3	99.0	97.6	94.2	97.7	99.5	99.4	21.3	100.0	0.9	95.8	91.0	77.9	78.1	67.0	31.9	100.0	19.4	100.0	95.9	97.2	77.5	64.0	64.0	86.4	78.1	19.7	27.5	95.5	80.2	66.4	51.7	40.7	61.6		

Source: NFHS-5 district factsheets and state reports (2019-21) and data [IFPRI estimates].

Note 1: In NFHS-5 district factsheets, estimate for indicators with sample size <25 is not reported.

**Table 4. Intervention coverage at district-level  
2015-2016, 2019-2021**

Category	Interventions	Worst performing districts (pp)	Best performing districts (pp)	Top coverage districts (%)
		<i>Difference between (2019-2021) &amp; (2015-2016)<sup>2</sup></i>	<i>Difference between (2019-2021) &amp; (2015-2016)<sup>2</sup></i>	<i>2019-2021</i>
<b>Pregnancy</b>	ANC first trimester	Kottayam: -16.4 Alappuzha: -7.3	P-thitta <sup>1</sup> : +6.3 Palakkad: +4.3	Kozhikode: 98.3 Palakkad: 97.7
	≥4 ANC visits	T-thapuram <sup>1</sup> : -33.8 Kottayam: -30.3	Wayanad: +2.5 Kasaragod: +0.3	Wayanad: 94.2 Kozhikode: 91.8
	Received MCP Card	Kottayam: -5.2 T-thapuram <sup>2</sup> : -0.4	Malappuram: +16.5 Kozhikode: +12.9	Wayanad: 97.7 Kozhikode: 96.6
	Tetanus injection	Kottayam: -14.7 Palakkad: -9.8	Idukki: +5.4 Wayanad: +4.5	Malappuram: 99.6 Wayanad: 99.4
<b>Delivery and post-natal</b>	Institutional birth	Kottayam: -1.3 2 Districts <sup>3</sup> : -0.9	Wayanad: +0.5 Kollam: +0.5	9 Districts <sup>4</sup> : 100.0
	Skilled birth attendant	P-thitta <sup>1</sup> : -0.8 Kottayam: -0.7	Alappuzha: +1.0 Wayanad: +0.5	12 Districts <sup>5</sup> : 100.0
	Postnatal care for mothers	<i>Not Applicable<sup>8</sup></i>	<i>Not Applicable<sup>8</sup></i>	Palakkad: 97.5 Malappuram: 96.9
	Postnatal care for babies	<i>Not Applicable<sup>8</sup></i>	<i>Not Applicable<sup>8</sup></i>	Wayanad: 97.2 Kasaragod: 95.9
<b>Early childhood</b>	Full immunization	Palakkad: -36.2 Kannur: -9.4	Kozhikode: +18.8 Wayanad: +13.6	Kasaragod: 92.5 Idukki: 89.6
	Vitamin A supplementation	Idukki: -14.0 Malappuram: -1.4	Thrissur: +15.2 2 Districts <sup>6</sup> : +14.9	Kollam: 93.9 Alappuzha: 93.6
	Care seeking for ARI	P-thitta <sup>1</sup> : -15.5 Alappuzha: -8.5	Wayanad: +2.7	Kasaragod: 97.0 Wayanad: 95.5
	ORS treatment during diarrhea	<i>Not Available<sup>7</sup></i>		
	Zinc treatment during diarrhea	<i>Not Available<sup>7</sup></i>		

## Key takeaways

**Children:** Stunting prevalence declined by 5 percentage points (pp) between 2006 and 2016 but increased by 3pp between 2016 and 2021. Wasting remained stable between 2006 and 2021. Underweight and anemia prevalence declined by 7pp and 9pp between 2006 and 2016 but increased by 4pp and 3pp between 2016 and 2021, respectively. Overweight/obesity prevalence increased by 2pp between 2006 and 2016 and by 1pp between 2016 and 2021.

**Women:** Underweight prevalence declined by 8pp between 2006 and 2016 and remained stable thereafter. Anemia among pregnant women declined by 11p but increased by 2pp among non-pregnant women between 2006 and 2016; it increased by 8pp in pregnant women and by 2pp in non-pregnant women. Overweight/obesity prevalence increased by 4pp between 2006 and 2016 and by 6pp between 2016 and 2021.

**Men:** Overweight/obesity increased by 11pp between 2006 and 2016 and by 7pp between 2016 and 2021.

**Attention is needed to improve** (%s in 2021):

- **Outcomes:** Anemia in children (39%); overweight/obesity (38%) and hypertension (31%) in women
- **Immediate determinants:** Minimum adequate diet (23%); minimum dietary diversity (45%)
- **Coverage of interventions:** Deworming during pregnancy (20%); malaria prevention during pregnancy (19%) health and nutrition education for women (38-45%); zinc during diarrhea (22%) and preschool (AWC) (32%)

Source: NFHS-3 state and national reports and data [IFPRI estimates], NFHS-4 (2015-2016) state and national reports and data [IFPRI estimates], and NFHS-5 (2019-2021) state and national reports/factsheets and data [IFPRI estimates].  
<sup>1</sup>District codes: P-thitta: Pathanamthitta; T-thapuram: Thiruvananthapuram. <sup>2</sup>The difference is calculated only between districts that are comparable between 2015-2016 and 2019-2021. <sup>3</sup>2 Districts: Ernakulam, Pathanamthitta <sup>4</sup>9 Districts: Malappuram, Wayanad, Kasaragod, Kollam, Idukki, Kannur, Kozhikode, Thrissur, Palakkad. <sup>5</sup>12 Districts: Malappuram, Wayanad, Kasaragod, Kollam, Idukki, Kannur, Kozhikode, Thrissur, Palakkad, Thiruvananthapuram, Alappuzha, Ernakulam. <sup>6</sup>2 Districts: Kozhikode, Kasaragod <sup>7</sup>Indicates unavailability of data for a particular indicator in the specified NFHS round. <sup>8</sup>Indicators postnatal care for women and babies are not comparable between NFHS-4 and 5.

# Indicator definition

Nutrition outcomes	Definition
<b>Low birth weight<sup>3,5</sup></b>	% live births in 5 years (y) preceding the survey with a reported birth weight <2.5 kilograms (kg), based on either a written record or the mother's recall
<b>Stunting</b>	% children 0-59 months (m) whose height-for-age z score < -2 standard deviations (SD)
<b>Wasting</b>	% children 0-59 m whose weight-for-height z score < -2SD
<b>Severe wasting</b>	% children 0-59 m whose weight-for-height z score < -3SD
<b>Underweight children</b>	% children 0-59 m whose weight-for-age z score < -2SD
<b>Anemia among children</b>	% children 6-59 m whose haemoglobin (Hb) <11.0 g/dl
<b>Underweight women</b>	% women 15-49 y whose Body Mass Index (BMI)<18.5 kg/m <sup>2</sup> ; sample excluded pregnant women and women with a birth in the preceding 2 m
<b>Anemia among non-pregnant women<sup>1</sup></b>	% non-pregnant women 15-49 y whose Hb<12.0 g/dl
<b>Anemia among pregnant women<sup>1</sup></b>	% pregnant women 15-49 y whose Hb<11.0 g/dl
<b>Overweight/obesity – children</b>	% children 0-59 m whose weight-for-height z score > 2SD
<b>Overweight/obesity – women</b>	% women 15-49 y whose BMI ≥25.0 kg/m <sup>2</sup> ; sample excluded pregnant women and women with a birth in the preceding 2 m
<b>Overweight/obesity – men</b>	% men 15-49 y whose BMI ≥25.0 kg/m <sup>2</sup>
<b>Hypertension among women<sup>2,3,10</sup></b>	% women 15-49 y with elevated blood pressure (systolic ≥140 mm Hg or diastolic ≥90 mm Hg) or are currently taking medication to control blood pressure
<b>Hypertension among men<sup>2,3,10</sup></b>	% men 15-54 y with elevated blood pressure (systolic ≥140 mm Hg or diastolic ≥90 mm Hg) or are currently taking medication to control blood pressure
<b>Diabetes among women<sup>10</sup></b>	% women 15-49 y with high (>140 mg/dl) or very high (>160 mg/dl) blood sugar or are currently taking medication to control blood sugar
<b>Diabetes among men<sup>10</sup></b>	% men 15-54 y with high (>140 mg/dl) or very high (>160 mg/dl) blood sugar or are currently taking medication to control blood sugar
Immediate determinants	Definition
<b>Underweight women</b>	% women 15-49 y whose BMI<18.5 kg/m <sup>2</sup> ; sample excluded pregnant women and women with a birth in the preceding 2 m
<b>Consumed IFA 100+ days<sup>1</sup></b>	% women 15-49 y who consumed iron folic acid (IFA) for 100 days or more during pregnancy for the most recent live birth in the 5 y preceding the survey
<b>Consumed IFA 180+ days<sup>1</sup></b>	% women 15-49 y who consumed IFA for 180 days or more during pregnancy for the most recent live birth in the 5 y preceding the survey
<b>Early initiation of breastfeeding<sup>1,2,3,8,9</sup></b>	% youngest children <2 y who started breastfeeding <1 hour of birth
<b>Exclusive breastfeeding</b>	% youngest children 0-5 m who were fed exclusively with breastmilk the previous day
<b>Timely introduction of complementary foods</b>	% youngest children 6-8 m living with their mother who received solid or semi-solid food and breastmilk
<b>Continued breastfeeding at 2 years<sup>1,3,4,5,6</sup></b>	% youngest children 12-23 m living with their mother who were fed breastmilk during the previous day
<b>Minimum adequate diet<sup>2,3,4,5,9,10</sup></b>	% youngest children 6-23 m who consumed a minimum acceptable diet during the previous day
<b>Minimum dietary diversity<sup>1,2,3,4,5,9</sup></b>	% youngest children 6-23 m who consumed foods and beverages from at least 5 out of 8 defined food groups during the previous day
<b>Minimum meal frequency<sup>2,3,4,5,9,10</sup></b>	% youngest children 6-23 m who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) at least the minimum number of times during the previous day
<b>Eggs and/or flesh foods consumption<sup>1,2,3,4,5,9</sup></b>	% youngest children 6-23 m who consumed egg and/or flesh food during the previous day
<b>Sweet beverage consumption<sup>1,2,3,4,5,9</sup></b>	% youngest children 6-23 m who consumed a sweet beverage during the previous day
<b>Bottle feeding for infants<sup>1,2,3,4,5,9</sup></b>	% youngest children 0-23 m who were fed from a bottle with a nipple during the previous day
<b>Diarrhea in the last 2 weeks</b>	% children <5 y who had diarrhea in the 2 weeks preceding the survey
<b>ARI in the last 2 weeks</b>	% children <5 y who had symptoms of acute respiratory infection (ARI) in the 2 weeks preceding the survey
Underlying determinants	Definition
<b>Women with ≥10 years of education</b>	% women 15-49 y with ≥10 y of schooling
<b>Women 20-24 years married before age of 18 years<sup>1</sup></b>	% women 20-24 y who were married when <18 y
<b>Women 15-19 years with child or pregnant<sup>10</sup></b>	% women 15-19 y who were mothers or pregnant at the time of the survey
<b>HHS with improved drinking water source</b>	% population living in households whose source of drinking water is piped into dwelling/yard/plot, piped to neighbour, public tap/standpipe, tube well or borehole, protected dug well, protected spring, rainwater, tanker truck, cart with small tank, bottled water, or community RO plant
<b>HHS using improved sanitation facility</b>	% population living in households using flush to pipe sewer system, flush to septic tank, flush to pit latrine, ventilated improved pit (VIP)/biogas latrine, pit latrine with slab or twin pit/composting toilet, which is not shared with any other household
<b>HHS with hand washing facility<sup>2,4,10</sup></b>	% households where a place for washing hands with water and soap was present
<b>Open defecation<sup>6,7</sup></b>	% households that have no toilet facility/defecate in open space or field
<b>Safe disposal of feces<sup>3,4,5</sup></b>	% youngest children <5 y living with their mother whose stools were disposed of safely
<b>HHS with BPL card<sup>3,5,6,7</sup></b>	% households possessing a BPL card
<b>HHS with electricity</b>	% population living in households with electricity

Note: Unless specified, state and district estimates taken from NFHS-3 national/state report for NFHS-3, NFHS-4 national/state report or NFHS-5 factsheet for NFHS-4, and NFHS-5 national/state report or factsheet for NFHS-5.

<sup>1</sup>Indicator estimated using NFHS-3 unit-level data (state level)

<sup>2</sup>Indicator estimated using NFHS-4 unit-level data (state level)

<sup>3</sup>Indicator estimated using NFHS-4 unit-level data (district level)

<sup>4</sup>Indicator estimated using NFHS-5 unit-level data state level

<sup>5</sup>Indicator estimated using NFHS-5 unit-level data (district level)

<sup>6</sup>Indicator estimated using NFHS-4 unit-level data for union territories as their summary reports are not available (state level)

<sup>7</sup>Indicator estimated using NFHS-5 unit-level data for union territories as their summary reports are not available (state level)

<sup>8</sup>Indicator estimated using NFHS-5 unit-level data for union territories as their summary reports are not available (district level)

<sup>9</sup>Indicator constructed following WHO guidelines

<sup>10</sup>Indicator not available in NFHS-3 and/or 4 tool or not comparable between NFHS-3/4 and 5

# Indicator definition

Interventions	Definition
<b>Demand for FP satisfied</b> <sup>1,3,5</sup>	% currently married women 15-49 years (y) with demand for family planning (FP) satisfied by modern methods
<b>Iodized salt</b>	% households using iodized salt
<b>ANC first trimester</b>	% women 15-49 y who received antenatal care (ANC) during the first trimester for the most recent live birth in the 5 y preceding the survey
<b>≥ 4ANC<sup>1</sup></b>	% women 15-49 y who received ≥4 ANC visits for the most recent live birth in the 5 y preceding the survey
<b>Received MCP card<sup>10</sup></b>	% women 15-49 y who received a mother and child protection (MCP) card during pregnancy for the most recent live birth in the 5 y preceding the survey
<b>Received IFA tab/syrup<sup>3,8</sup></b>	% women 15-49 y who received IFA (given or purchased) during pregnancy for the most recent live birth in the 5 y preceding the survey
<b>Tetanus injection<sup>1</sup></b>	% women 15-49 y whose most recent live birth in the 5 y preceding the survey was protected against neonatal tetanus
<b>Deworming- pregnancy<sup>3,8</sup></b>	% women 15-49 y who took deworming medication during pregnancy for the most recent live birth in the 5 y preceding the survey
<b>Weighing- pregnancy<sup>3,5,6,7</sup></b>	% women 15-49 y who were weighed during ANC for the most recent live birth in the 5 y preceding the survey
<b>Birth preparedness counselling<sup>1,2,3,4,5</sup></b>	% women 15-49 y with a child 0-60 months (m) who had ≥1 contacts with a community health worker in the 3 m preceding the survey and were advised on birth preparedness
<b>Breastfeeding counselling<sup>1,3,5,6,7</sup></b>	% women 15-49 y who met with a community health worker in the last 3 m of pregnancy for the most recent live birth in the 5 y preceding the survey and were advised on breastfeeding
<b>Counselling on keeping baby warm<sup>1,5,6,7</sup></b>	% women 15-49 y who met with a community health worker in the last 3 m of pregnancy for the most recent live birth in the 5 y preceding the survey and were advised on keeping the baby warm
<b>Cord care counselling<sup>5,6,7,10</sup></b>	% women 15-49 y who met with a community health worker in the last 3 m of pregnancy for the most recent live birth in the 5 y preceding the survey and were advised on cord care
<b>Food supplementation – pregnancy<sup>3,5</sup></b>	% women 15-49 y with a child <6 y who received food supplements from ICDS during pregnancy
<b>Health &amp; nutrition education – pregnancy<sup>5</sup></b>	% women 15-49 y with a child <6 y who received health and nutrition education from ICDS during pregnancy
<b>Malaria prevention- use of bed nets<sup>2,4,5,10</sup></b>	% women 15-49 y who slept under a treated bed net during pregnancy of the most recent live birth in the 5 y preceding the survey
<b>Institutional birth</b>	% live births in the 5 y preceding the survey to women 15-49 y delivered in a health facility
<b>Financial assistance (JSY)<sup>6,7,8,10</sup></b>	% women 15-49 y who received financial assistance under Janani Suraksha Yojana (JSY) for the most recent live birth that took place in a health facility in the 5 y preceding the survey
<b>Skilled birth attendant</b>	% live births in the 5 y preceding the survey to women 15-49 y that were assisted by a skilled provider
<b>Postnatal care for mothers<sup>10</sup></b>	% women 15-49 y who received postnatal care from a doctor/nurse/LHV/auxiliary nurse midwife (ANM)/midwife/other health personnel <2 days of delivery for the most recent live birth in the 5 y preceding the survey
<b>Postnatal care for babies<sup>10</sup></b>	% most recent live births in the 5 y preceding the survey to women 15-49 y with a postnatal check for the newborn from a doctor/nurse/LHV/ANM/midwife/other health personnel <2 days of delivery
<b>Food supplementation – postnatal<sup>3,5</sup></b>	% women 15-49 y with a child <6 y who received food supplements from ICDS during breastfeeding
<b>Health &amp; nutrition education – postnatal<sup>3,5</sup></b>	% women 15-49 y with a child <6 y who received health and nutrition education from ICDS during breastfeeding
<b>Health checkup (ICDS)<sup>3,5</sup></b>	% women 15-49 y with a child <6 y who received a health check-up from ICDS during breastfeeding
<b>Full immunization</b>	% children 12-23 m fully vaccinated based on information from either vaccination card or mother's recall
<b>Vitamin A – early childhood<sup>1</sup></b>	% children 9-35 m who received a vitamin A dose in the 6 m preceding the survey
<b>Pediatric IFA<sup>3,4,5,10</sup></b>	<sup>11</sup> % children 6-59 m who were given iron supplements in the 7 days preceding the survey <sup>12</sup> % children 6-36 m who were given iron supplements in the 7 days preceding the survey
<b>Deworming – early childhood<sup>3,4,5,10</sup></b>	<sup>11</sup> % children 6-59 m who received deworming medication in the 6 m preceding the survey <sup>12</sup> % children 6-36 m who received deworming medication in the 6 m preceding the survey
<b>Care seeking for ARI</b>	% children <5 y with fever or symptoms of ARI in the 2 weeks preceding the survey taken to a health facility or health provider
<b>ORS during diarrhea</b>	% children <5 y with diarrhea in the 2 weeks preceding the survey who received Oral Rehydration Solutions (ORS)
<b>Zinc during diarrhea</b>	% children <5 y with diarrhea in the 2 weeks preceding the survey who received zinc
<b>Food supplementation (children 6-35 months)<sup>1,2,3,4,5</sup></b>	% youngest children 6-35 m who received food supplements from ICDS in the 12 m preceding the survey
<b>Weighing – early childhood<sup>3,5</sup></b>	% children <5 y who were weighed at an anganwadi centre (AWC) or ICDS centre in the 12 m preceding the survey
<b>Counselling on child growth<sup>3,5,10</sup></b>	% mothers with a child <5 y who received counselling from an ICDS/anganwadi worker or ANM after they were weighed at an AWC in the 12 m preceding the survey
<b>Preschool (AWC)<sup>3,5</sup></b>	% children 36-71 m who went for early childhood care/preschool at an AWC in the 12 m preceding the survey
<b>Health checkup (AWC)<sup>3,5</sup></b>	% children <6 y who received health checkups from an AWC in the 12 m preceding the survey

Note: Unless specified, state and districts estimates taken from NFHS-3 national/state report for NFHS-3, NFHS-4 national/state report or NFHS-5 factsheet for NFHS-4, and NFHS-5 national/state report or factsheet for NFHS-5.

<sup>1</sup>Indicator estimated using NFHS-3 unit-level data (state level)

<sup>2</sup>Indicator estimated using NFHS-4 unit-level data (state level)

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<sup>4</sup>Indicator estimated using NFHS-5 unit-level data state level

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<sup>8</sup>Indicator estimated using NFHS-5 unit-level data for union territories as their summary reports are not available (district level)

<sup>9</sup>Indicator constructed following WHO guidelines

<sup>10</sup>Indicator not available in NFHS-3 and/or 4 tool or not comparable between NFHS-3/4 and 5

<sup>11</sup>Definition as per NFHS-3 and 4 construction

<sup>12</sup>Definition as per NFHS-5 construction

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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 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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