Anemia Mukt Bharat

Insights from Ranking of Key Performance Indicators, NFHS 2015–16 and NFHS 2019–21

INDIA POLICY insights

If you can see a problem, you can solve it.

Introduction

In India, anemia is exceedingly common in all age groups and genders. To address this widespread public health concern, the Anemia Mukt Bharat (AMB) program was launched in 2018, focusing on reducing anemia from 50% in 2016 to 32% by 2022. The programme follows a 6×6×6 strategy estimated to reach 450 million beneficiaries.

It focuses on "six target beneficiary groups through six interventions and six institutional mechanisms" to achieve the envisaged target under the POSHAN Abhiyaan. The six beneficiary groups are children aged 6–59 months, children aged 5–9 years, adolescent girls and boys, women of reproductive age, pregnant women, and lactating women."

The Program is focused on six primary interventions: "providing prophylactic iron and folic acid supplements, carrying out deworming, intensifying the year-round behaviour change communication (BCC) campaign and ensuring delayed cord clamping in new-borns, increasing testing and treatment of anemia, mandating the provision of iron and folic acid-fortified foods in government-funded health programs, and intensifying the awareness, screening, and treatment of non-nutritional causes of anemia focusing on malaria, hemoglobinopathies, and fluorosis." The six institutional mechanisms are: Intra-Ministerial Coordination, National Anemia Mukt Bharat Unit, National Centre of Excellence and Advanced Research on Anemia Control (NCEAR-A), Convergence with other Ministries, Strengthening Supply Chain and Logistics, and Anemia Mukt Bharat Dashboard and Digital Portal – One-Stop Shop on Anemia.[1]

Objective

"Once a problem can be seen, it can be solved." With this motivation, this policy brief aims to present an overview of key performance indicators (KPIs) in the Anemia Mukt Bharat programme. For this purpose, we offer a KPI Index of state and district rankings to facilitate a rapid review of the AMB to date and promote awareness of the programme across states and districts. This effort is part of the broader objective of the India Policy Insights (IPI) team to promote evidence-based policy deliberation, formulation and action using its comprehensive online geo-visual data platform.

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Data and Method

This analysis uses data from the National Family Health Survey (NFHS 2019–21 and NFHS 2015–16), which provides a diverse range of salient indicators for reviewing the performance of India's developmental policies and programmes.

The following method was used to calculate the Key Performance Indicators (KPI) for the AMB. The first step was reviewing and selecting the indicators most relevant for the AMB. Second, we identified which indicators were available for both NFHS 2015–16 and NFHS 2019–21 and determined whether they were available for most districts. Indicators that met both criteria were then selected and are listed as follows:

- Children aged 6–59 months who are anemic (%)
- Non-pregnant women aged 15–49 years who are anemic (%)
- Mothers who consumed iron-folic acid for 100 days or more when they were pregnant (%)
- All women age 15–19 years who are anemic (%)

These selections reflect the core challenges in anemia prevention and control in India, focusing on key groups of women and children. All indicators are transformed in the same direction (either positive or negative). To develop the KPI index, these indicators were then normalised to enable the comparison of districts across multiple indicators: states and districts were given a value between 0 and 1, with 0 being allotted to the lowest-performing district/state and 1 to the highest-performing district/state. Each indicator was normalised using the standard min-max method. After repeating this process for every indicator, the KPI for a district/state was calculated by taking a simple average of the normalised values for each indicator.

To review the district-level distribution of prevalence for each indicator, we also present a box plot based on NFHS 2019–21. To identify which indicators were *slow-moving*, the difference between the median for each indicator's values can be compared in the box plot. The indicators with the lowest median values are among the *slow-moving* indicators.

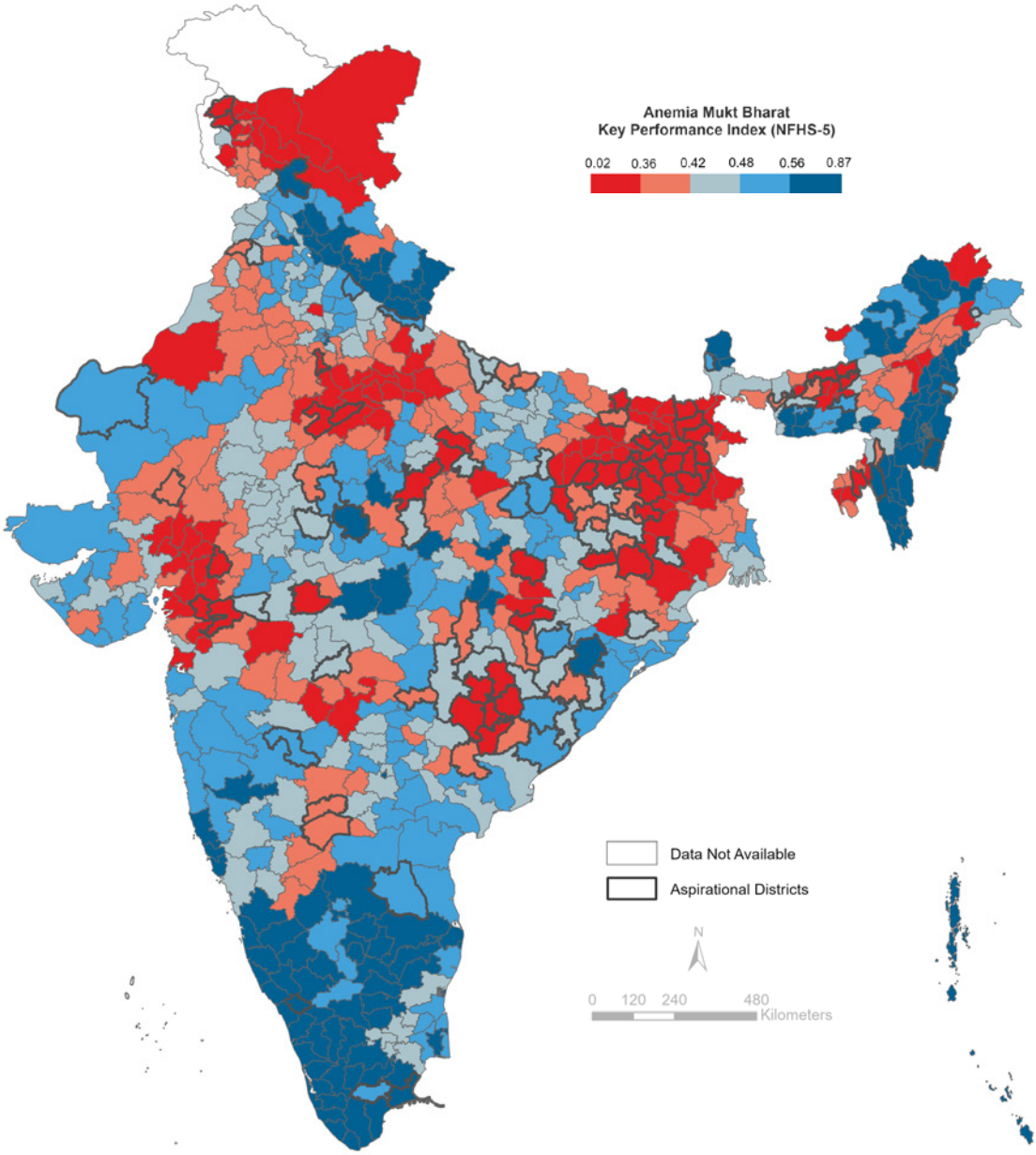
Table 1: Anemia Mukt Bharat KPI Index Values and Rankings for Indian States, NFHS 2019–21

State	2015–16		2019–21		Rank Change
	KPI	Rank	KPI	Rank	
Kerala	0.805	3	0.897	1	▲ 2
Manipur	0.831	2	0.845	2	= 0
Goa	0.792	4	0.838	3	▲ 1
Mizoram	0.909	1	0.818	4	▼ -3
Nagaland	0.698	5	0.711	5	= 0
Tamil Nadu	0.550	9	0.694	6	▲ 3
Sikkim	0.687	6	0.694	7	▼ -1
Himachal Pradesh	0.508	13	0.657	8	▲ 5
Uttarakhand	0.486	14	0.653	9	▲ 5
Meghalaya	0.459	18	0.620	10	▲ 8
Arunachal Pradesh	0.468	16	0.604	11	▲ 5
Andhra Pradesh	0.452	19	0.587	12	▲ 7
Karnataka	0.551	8	0.576	13	▼ -5
Telangana	0.464	17	0.524	14	▲ 3
Maharashtra	0.531	11	0.522	15	▼ -4
Madhya Pradesh	0.381	23	0.513	16	▲ 7
Odisha	0.521	12	0.511	17	▼ -5
Punjab	0.474	15	0.503	18	▼ -3
Haryana	0.303	26	0.480	19	▲ 7
Uttar Pradesh	0.367	24	0.479	20	▲ 4
Chhattisgarh	0.548	10	0.471	21	▼ -11
Rajasthan	0.444	20	0.463	22	▼ -2
West Bengal	0.352	25	0.441	23	▲ 2
Assam	0.584	7	0.435	24	▼ -17
Gujarat	0.423	21	0.431	25	▼ -4
Jharkhand	0.232	28	0.382	26	▲ 2
Tripura	0.401	22	0.379	27	▼ -5
Bihar	0.282	27	0.354	28	▼ -1
Union Territories (UTs)					
Lakshadweep	0.682	1	0.959	1	= 0
A & N Islands	0.440	5	0.741	2	▲ 3
Puducherry	0.599	2	0.654	3	▼ -1
Chandigarh	0.217	6	0.630	4	▲ 2
NCT of Delhi	0.493	3	0.621	5	▼ -2
DNH & DD	0.204	7	0.467	6	▲ 1
Jammu & Kashmir	0.488	4	0.355	7	▼ -3
Ladakh	0.081	8	0.013	8	= 0

Table 2a: 10 Highest Ranking Districts (as per NFHS 2019–21)	2015–16		2019–21	
	KPI	Rank	KPI	Rank
Wayanad, Kerala	0.684	25	0.874	1
Kozhikode, Kerala	0.637	37	0.856	2
Champhai, Mizoram	0.872	1	0.829	3
Kasaragod, Kerala	0.691	23	0.824	4
Kollam, Kerala	0.767	5	0.823	5
Thoubal, Manipur	0.705	18	0.821	6
Ernakulam, Kerala	0.710	16	0.821	7
Idukki, Kerala	0.739	9	0.815	8
Thiruvananthapuram, Kerala	0.784	4	0.798	9
Malappuram, Kerala	0.592	65	0.791	10

Table 2b: 10 Lowest Ranking Districts (as per NFHS 2019–21)	2015–16		2019–21	
	KPI	Rank	KPI	Rank
Jamui, Bihar	0.272	598	0.235	695
Badgam, Jammu & Kashmir	0.366	431	0.225	696
Pakur, Jharkhand	0.165	695	0.211	697
Kulgam, Jammu & Kashmir	0.470	252	0.208	698
Dantewada, Chhattisgarh	0.287	567	0.201	699
Sukma, Chhattisgarh	0.197	688	0.181	700
Kishtwar, Jammu & Kashmir	0.480	226	0.168	701
Ganderbal, Jammu & Kashmir	0.471	251	0.164	702
Kargil, Ladakh	0.573	79	0.086	703
Leh(Ladakh), Ladakh	0.565	91	0.021	704

Map 1: Anemia Mukt Bharat KPI Index Values and Rankings for Indian Districts, NFHS 2019–21



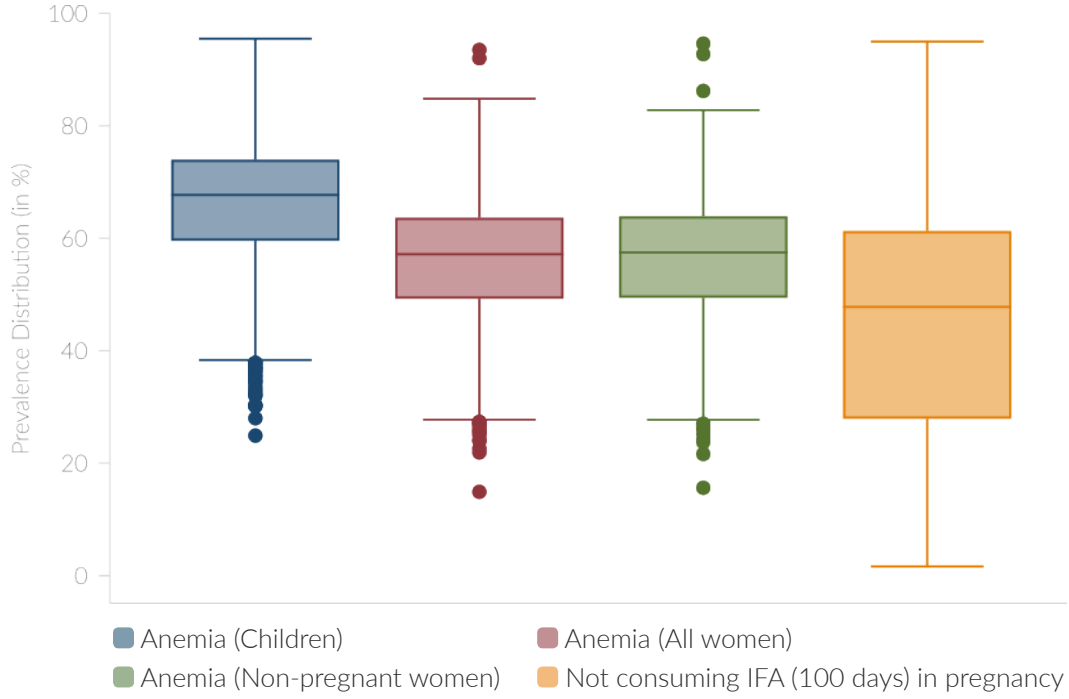
Key Findings

Kerala (KPI 0.897), Manipur (0.845) and Goa (0.838) are among the best performing states in the AMB KPI index for NFHS 2019–21 (Table 1). In contrast, Bihar (0.354), Tripura (0.379) and Jharkhand (0.382) have relatively low KPI index values and are at the bottom of the state-level rankings. In NFHS 2015–16, Mizoram was ranked first in the AMB Index but placed fourth. For a change in the KPI index rank, Meghalaya shows a gain of eight places, followed by Andhra Pradesh, Madhya Pradesh and Haryana, all with an increase of seven places. Conversely, Assam and Chhattisgarh slip in their rankings by 17 and 11 places. Lakshadweep (0.959) and Ladakh (0.013) are the highest and lowest performers among union territories in 2019–21.

The district-level KPI index rankings for NFHS 2019–21 are led by Wayanad, Kerala (0.874), followed by Kozhikode (0.856), Kerala and Champhai (0.829) in Mizoram (Table 2a). With a KPI index value of 0.021, the Leh district in Ladakh places at the bottom of the district level rankings (Table 2b). It is followed by the Kargil district (0.086) from the same union territory and the Ganderbal district (0.164) from Jammu and Kashmir as two other low performers. Eight out of the top ten districts are from Kerala. In contrast, four of the ten poorest-performing districts are from Jammu and Kashmir.

Finally, among the four KPIs reviewed here, the indicator *mothers who consumed iron-folic acid for 100 days during pregnancy* shows the highest disparities across districts (standard deviation of 21.1).

Figure 1: Box plot for distribution of prevalence of key indicators across districts, NFHS 2019-21



Note: The median value is denoted by the horizontal line in the box. The lower and upper end of the box represents 25th and 75th percentile, respectively. Whisker lengths are suggestive of distribution bias towards lower or upper end.

Conclusion and Recommendations

- The burden of anemia among women and children is very high. This requires a continuum of care approach with a greater focus on curbing anemia prevalence during pregnancy and its transmission to the next generation.
- Iron and Folic Acid (IFA) supplementation efforts should be strengthened, particularly for the consumption of IFA tablets for 180 days or more. This will require improvements in both availability of IFA supplements across states and districts and more effective behaviour change communication to promote adherence to IFA tablet consumption.
- The practices adopted by the best-performing districts in Kerala should be examined to understand success in lower prevalence in the state. Similarly, the high burden of anemia prevalence among certain districts should be reviewed to identify the nutritional and non-nutritional causes of anemia.
- The highest burden of anemia is concentrated in certain endemic regions of Bihar, Jharkhand, Gujarat, Uttar Pradesh and Chhattisgarh. This finding can be examined more comprehensively to understand the challenges of implementing the AMB strategy in the region and any needed policy actions.
- The extremely high burden of anemia prevalence in Ladakh and selected districts of Jammu and Kashmir requires a priority focus for reviewing local dietary factors and IFA supplementation efforts for women and children.

Contributions

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Acknowledgment

We wish to acknowledge the support of Demographic and Health Surveys and International Institute for Population Sciences for the data.

Citation

Geographic Insights Lab. *Anemia Mukt Bharat - Insights from Ranking of Key Performance Indicators*, NFHS 2015–16 and NFHS 2019–21. India Policy Insights Policy Brief #01, July/2022. Cambridge, MA: Geographic Insights Lab, Harvard University. https://doi.org/10.7910/DVN/NEMMUL

Footnote

1 Anemia Mukt Bharat. (2020, May 18). 6×6×6 STRATEGY. Anemia Mukt Bharat Dashboard. https://anemiamuktbharat.info/home/6x6x6-strategy/

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India Policy Insights (IPI) is a web-based knowledge platform for policy research in population health and development. IPI provides tools to visualize and analyze performance of policy indicators at district, parliamentary and assembly constituency, and village levels in India, with the aim of fostering evidence-based policy deliberation, formulation and action. It is led by the *Geographic Insights Lab* at the *Harvard Center for Population and Development Studies*, *Center for Geographic Analysis* at *Harvard*, and *Korea University*.

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Layout and Design: Atif Amin