Intensified Mission Indradhanush

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

The Mission Indradhanush (MI) aspires to cover all children who are either unvaccinated or partially vaccinated against vaccine-preventable illnesses. Despite MI's relative success with the goal of full immunisation coverage, it was not sufficient to achieve the initial set target of 90% by 2020. Further, certain selected districts/cities report slow progress despite repeated phases of the MI program. While acknowledging some progress, a second phase, Intensified Mission Indradhanush (IMI), was launched in October 2017.

IMI's primary objective was to provide all available vaccinations to unreached populations, thereby accelerating the complete immunisation of children and pregnant women in the identified critical districts and sustaining these gains. Intensified Mission Indradhanush will be implemented in all identified districts and urban cities to ensure >90% full immunisation coverage. The IMI focuses on the districts/urban cities with lower coverage as per the major national surveys and other monitoring data such as the Health Management Information System and the World Health Organization concurrent monitoring statistics. The Mission is a collaborative effort of various Ministries of the Government of India. The IMI seeks to overcome the challenges of the original Mission Indradhanush through improved gap assessments, supervision and concurrent monitoring by government and developmental partners.

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 Intensified Mission Indradhanush (IMI) programme. For this purpose, we offer a KPI Index of state and district rankings to facilitate a rapid review of the IMI 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.

Atif Amin

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 population and health developmental indicators. The following method was used to calculate the Key Performance Indicators (KPI) for the IMI. The first step was reviewing and selecting the indicators most relevant for the IMI. 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[1] were then selected and are listed as follows:

- Mother with last birth protected against tetanus (%)
- Children age 12–23 months who received BCG (%)
- Children age 12–23 months who received 3 doses of polio vaccine13 (%)
- Children age 12–23 months who have received the first dose of measles-containing vaccine (MCV) (%)
- Children age 12–23 months who have received 3 doses of Penta or hepatitis B vaccine (%)
- Children aged 12–23 months fully vaccinated (%)
- Children age 12–23 months who received most of their vaccinations in a public health facility (%)

These selections reflect the core challenges in IMI with its focus on 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.

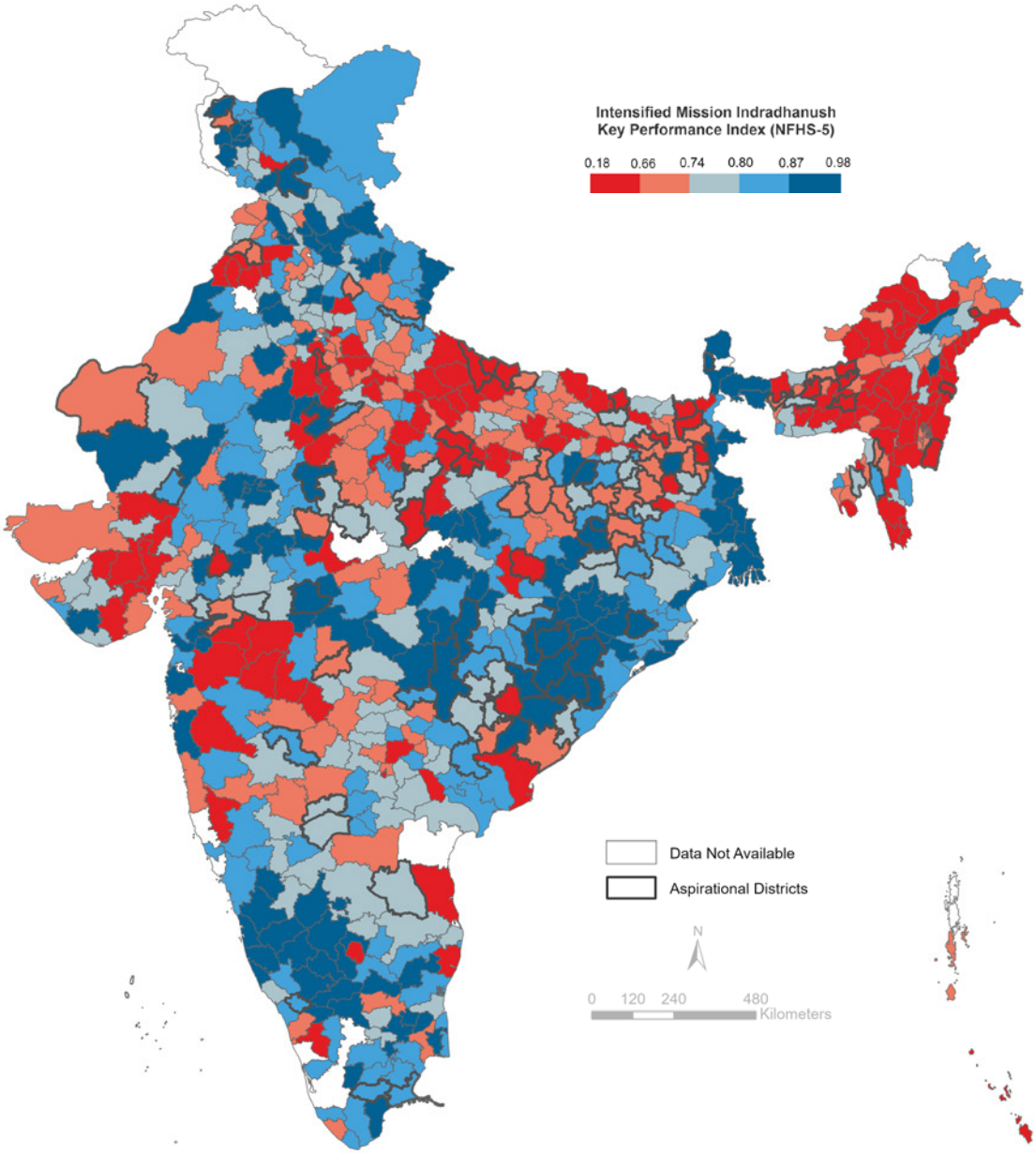
Table 1: Intensified Mission Indradhanush KPI Index Values and Rankings for Indian States, NFHS 2019-21

State	2015–16		2019–21		Rank Change
	KPI	Rank	KPI	Rank	
Odisha	0.829	4	0.887	1	▲ 3
Himachal Pradesh	0.744	8	0.853	2	▲ 6
West Bengal	0.894	1	0.841	3	▼ -2
Sikkim	0.883	2	0.774	4	▼ -2
Goa	0.822	6	0.768	5	▲ 1
Tamil Nadu	0.582	15	0.746	6	▲ 9
Rajasthan	0.531	20	0.730	7	▲ 13
Karnataka	0.581	16	0.706	8	▲ 8
Chhattisgarh	0.827	5	0.693	9	▼ -4
Uttarakhand	0.574	17	0.685	10	▲ 7
Madhya Pradesh	0.556	18	0.681	11	▲ 7
Haryana	0.619	14	0.649	12	▲ 2
Telangana	0.647	10	0.612	13	▼ -3
Kerala	0.756	7	0.586	14	▼ -7
Jharkhand	0.644	11	0.585	15	▼ -4
Tripura	0.527	21	0.573	16	▲ 5
Andhra Pradesh	0.700	9	0.562	17	▼ -8
Punjab	0.883	3	0.551	18	▼ -15
Bihar	0.630	12	0.550	19	▼ -7
Gujarat	0.398	25	0.548	20	▲ 5
Uttar Pradesh	0.426	23	0.477	21	▲ 2
Assam	0.421	24	0.464	22	▲ 2
Maharashtra	0.532	19	0.447	23	▼ -4
Manipur	0.627	13	0.423	24	▼ -11
Mizoram	0.364	26	0.335	25	▲ 1
Arunachal Pradesh	0.151	27	0.284	26	▲ 1
Meghalaya	0.503	22	0.194	27	▼ -5
Nagaland	0.108	28	0.125	28	= 0
Union Territories (UTs)					
A & N Islands	0.881	2	0.874	1	▲ 1
Chandigarh	0.429	8	0.852	2	▲ 6
Puducherry	0.953	1	0.809	3	▼ -2
Jammu & Kashmir	0.753	5	0.783	4	▲ 1
Ladakh	0.863	3	0.766	5	▼ -2
NCT of Delhi	0.822	4	0.632	6	▼ -2
DNH & DD	0.718	6	0.607	7	▼ -1
Lakshadweep	0.700	7	0.563	8	▼ -1

Table 2a: 10 Highest Ranking Districts (as per NFHS 2019–21)	2015–16		2019–21	
	KPI	Rank	KPI	Rank
Subarnapur, Odisha	0.962	10	0.982	1
Debagarh, Odisha	0.844	176	0.981	2
Chamba, Himachal Pradesh	0.809	282	0.981	3
Jharsuguda, Odisha	0.885	96	0.979	4
Bilaspur, Himachal Pradesh	0.740	446	0.976	5
Koraput, Odisha	0.822	237	0.973	6
Kandhamal, Odisha	0.866	126	0.973	7
Puri, Odisha	0.931	32	0.972	8
Kulgam, Jammu & Kashmir	0.889	87	0.969	9
Nuapada, Odisha	0.908	58	0.967	10

Table 2b: 10 Lowest Ranking Districts (as per NFHS 2019–21)	2015–16		2019–21	
	KPI	Rank	KPI	Rank
Udalguri, Assam	0.757	408	0.392	674
Saiha, Mizoram	0.723	479	0.380	675
Banas Kantha, Gujarat	0.551	649	0.351	676
Ukhrul, Manipur	0.590	635	0.325	677
East Khasi Hills, Meghalaya	0.769	375	0.313	678
Longding, Arunachal Pradesh	0.610	621	0.312	679
Wokha, Nagaland	0.504	663	0.294	680
Kiphire, Nagaland	0.529	658	0.287	681
Tuensang, Nagaland	0.604	628	0.231	682
North Garo Hills, Meghalaya	0.531	656	0.187	683

Map 1: Intensified Mission Indradhanush KPI Index Values and Rankings for Indian Districts, NFHS 2019-21



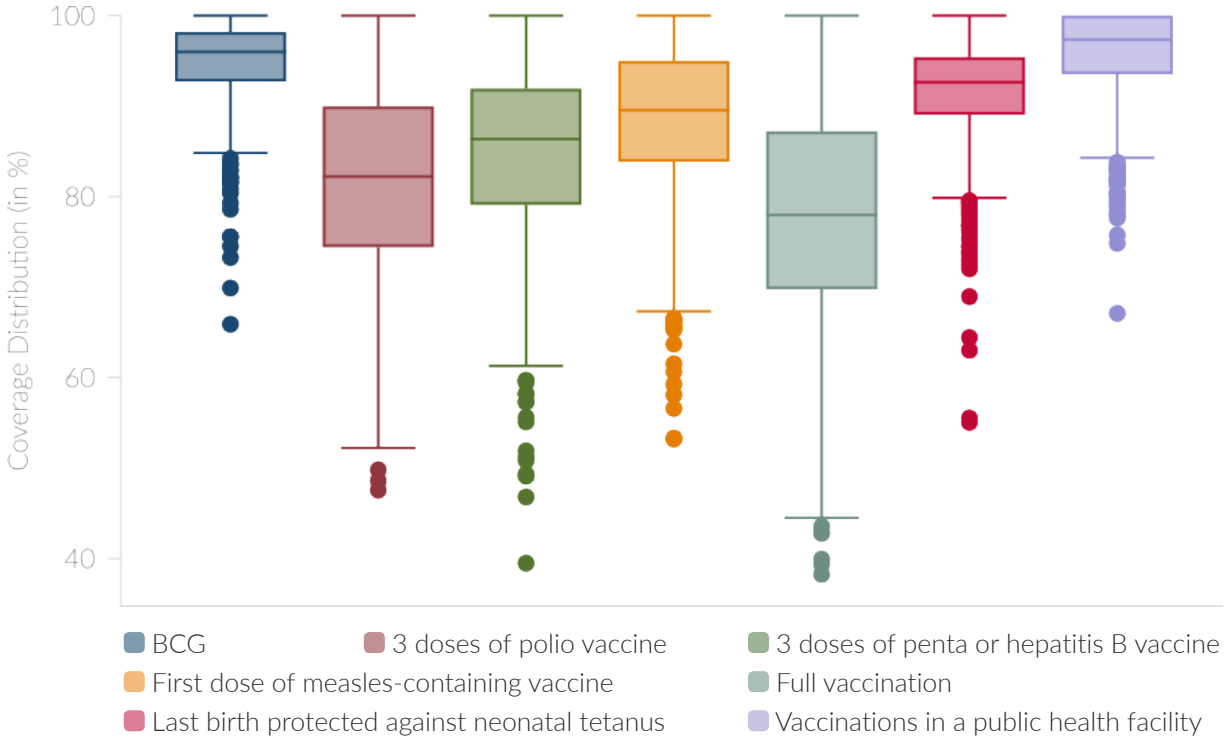
Key Findings

Odisha (KPI 0.887), Himachal Pradesh (0.853) and West Bengal (0.841) are among the best performing states in the IMI KPI index for NFHS 2019–21 (Table 1). In contrast, Nagaland (0.125), Meghalaya (0.194) and Arunachal Pradesh (0.284) have relatively low KPI index values and are at the bottom of the state-level rankings. In NFHS 2015–16, West Bengal and Sikkim were ranked first and second. For change in KPI index rank, Rajasthan shows a significant gain of 13 places, followed by Tamil Nadu and Karnataka with improvements of nine and eight places, respectively. Conversely, Punjab and Manipur slip in their rankings by 15 and 11 places, respectively. Among union territories, Andaman and Nicobar Islands (0.874) and Lakshadweep (0.563) were the highest and lowest performers in 2019–21.

The Subarnapur district leads the district-level KPI index rankings for NFHS 2019-21 in Odisha (0.982), followed by the Debagarh (0.9814) district of Odisha and the Chamba (0.9811) district of Himachal Pradesh (Table 2a). With a KPI index value of 0.187, the North Garo Hills district in Meghalaya places at the bottom of the district level rankings (Table 2b). It is followed by the Tuensang district (0.231) and the Kiphire district (0.287) from Nagaland as two other low performers. Notably, seven of the top ten districts are from Odisha. Except for the Banas Kantha district of Gujarat, all of the ten poorest-performing districts are from the North-eastern states of India.

Finally, among the seven KPIs reviewed here, the indicator *children age 12–23 months fully vaccinated* shows the highest disparities across districts (standard deviation of 12.1).

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 plan of action under IMI still needs comprehensive implementation. North-eastern states need targeted attention, as they not only place at the bottom of the KPI index rankings but have also not shown any improvement since the last survey round. The majority of the poorest performing districts are from the North-eastern states.
- The decline in the KPI scores of Union Territories represents a loss of performance gains from previous phases of IMI. Routine immunisation should be aggressively planned to maintain these performance gains.
- Regular review and tracking of KPIs can be an effective way forward to provide inputs and insights for policymaking. While KPIs may have received priority attention in the annual reviews of the program, a broader discussion of these indicators can generate much-needed community attention and support to improve KPI performance—significantly intertwined with health system performance—across states and districts.

Contributions

Conceptualization, Design, Supervision: **S V Subramanian, William Joe**
Data Analysis and Visualization: **Akhil Kumar, William Joe, Md Juel Rana**
Data Interpretation: **William Joe, S V Subramanian, Mohit Chaurasiya**
Writing and Editing: **William Joe, Mohit Chaurasiya, Sarah, Raiyan Arshad, Jody Blackwell**
Critical Revisions: **S V Subramanian, Rockli Kim, Laxmikant Dwivedi, Sunil Rajpal, Md Juel Rana**

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. *Intensified Mission Indradhanush - Insights from Ranking of Key Performance Indicators*, NFHS 2015–16 and NFHS 2019–21. India Policy Insights Policy Brief #03, July/2022. Cambridge, MA: Geographic Insights Lab, Harvard University. https://doi.org/10.7910/DVN/NEMMUL

Footnote

1 13 NFHS 2019–21 districts and 4 NFHS 2015–16 districts have missing data for 6 indicators and were thus excluded while calculating the KPIs.

GEOGRAPHIC INSIGHTS
POPULATION • PRECISION • POLICY

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*.

For more information contact *Professor S V Subramanian* at geographicinsights@iq.harvard.edu

Layout and Design: Atif Amin