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Analysis of NITI AAYOG (National Institution for Transforming India) health index report on the ranking of states and union territories: Round 1 (2014 – 2016)-V1

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Abstract

India has committed to adopting the Sustainable Development Goals (SDGs) for ending poverty, protecting the planet, and ensuring prosperity for all to be fulfilled by year 2030. Goal 3 of SDGs is about ensuring healthy lives with promoting well-being for all. National Institution for Transforming India- (NITI) Aayog had started the Health Index initiative for achieving desirable health outcomes. The key objective of the whole exercise is to track development on health, to develop healthy competition and cross learning among states and UTs. Health Index Scores and rankings are generated to assess Incremental Performance (year-to-year progress) and Overall Performance of state/UT for achievement of health-related Sustainable Development Goals (SDGs) as well as Universal Health Coverage (UHC). This novel study was a cross-sectional retrospective observational epidemiological study. The Health Index consists of a set of indicators in the domains of Health Outcomes, Governance and Information, and Key Inputs/Processes. Health Outcomes are assigned the highest weight, indicators were selected on the basis of their importance and availability of reliable data at least annually from pre- existing data sources such as the Sample Registration System (SRS), Civil Registration System (CRS) and Health Management Information Systems (HMIS). Data on indicators is included for Index calculations only after validation by the IVA.

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Analysis of NITI AAYOG report on the ranking of States-V1

Public Health / Review

1. India has committed to adopting the Sustainable Development Goals (SDGs) for ending poverty, protecting the planet, and ensuring prosperity for all to be fulfilled by year 2030. Goal 3 of SDGs is about ensuring healthy lives with promoting well-being for all. National Institution for Transforming India- (NITI) Aayog had started the Health Index initiative for achieving desirable health outcomes. The key objective of the whole exercise is to track development on health, to develop healthy competition and cross

learning among states and UTs. Health Index Scores and rankings are generated to assess Incremental Performance (year-to-year progress) and Overall Performance of state/UT for achievement of health-related Sustainable Development Goals (SDGs) as well as Universal Health Coverage (UHC). This novel study was a cross-sectional retrospective observational epidemiological study. The Health Index consists of a set of indicators in the domains of Health Outcomes, Governance and Information, and Key Inputs/Processes. Health Outcomes are assigned the highest weight, indicators were selected on the basis of their importance and availability of reliable data at least annually from pre- existing data sources such as the Sample Registration System (SRS), Civil Registration System (CRS) and Health Management Information Systems (HMIS). Data on indicators is included for Index calculations only after validation by the IVA.

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Introduction

2. Background/rationale

India has committed to adopting the Sustainable Development Goals (SDGs) for ending poverty, protecting the planet, and ensuring prosperity for all to be fulfilled by year 2030. Goal 3 of SDGs is about ensuring healthy lives with promoting well-being for all. National Institution for Transforming India- (NITI) Aayog had started the Health Index initiative for achieving desirable health outcomes. India's improvement in life expectancy, maternal and child mortality, reducing fertility, are falling short on several national and global targets. There are variations across States and Union Territories of India in their health needs and systems performance. NITI Aayog aims to bring change in population health by spirit of co-operative and competitive federalism; NITI Aayog measures the annual performance of States and Union Territories (UTs), and rank States and UTs on the basis of incremental change. Healthy States and union territories can make India able to reap demographic dividend is the key motto. In year 2017 the NITI Aayog with the Ministry of Health and Family Welfare (MoHFW) and the World Bank initiated an annual Health Index for knowing Performance and Incremental Performance across all 36 states and UTs. NITI Aayog has been mandated as the nodal agency responsible for attaining the commitments under the SDGs. It was necessary to develop a tool for measuring outcomes in the health sectors to provide feedback to all stakeholders on what we have set out to achieve, deviations, if any, to be pointed out in time to ensure necessary correction. It is true that summarizing the complexities and condensing it in an Index has limitations. Health Outcomes Index seeks to capture the annual progress of States and Union Territories (UTs) through 3 varieties of indicators – Outcomes, Governance and Processes. The NITI Aayog works in collaboration with the Ministry of Health and Family Welfare, with technical assistance from the World Bank.

3. Objectives

AIM To promote a co-operative and competitive spirit amongst the States and UTs to rapidly bring about transformative action in achieving the desired health outcomes. The key objective of the whole exercise is to track development on health, to develop healthy competition and cross learning among states and UTs. Health Index Scores and rankings are generated to assess Incremental Performance (year-to-year progress) and Overall Performance of state/UT for achievement of health-related Sustainable Development Goals (SDGs) as well as Universal Health Coverage (UHC). Objectives- 1 to develop a composite Health Index based on key health indicators. 2. To ensure States' participation and ownership. 3. Transparency by using an independent validation of data by an independent agency. 4. To generate Health Index scores and rankings for the States and UTs.

Methods

4. Study design

This novel study was a cross-sectional retrospective observational epidemiological study.The Health Index consists of a set of indicators in the domains of **Health Outcomes, Governance and Information**, and Key Inputs/Processes. **Health Outcomes are assigned the highest weight**, indicators were selected on the basis of their importance and availability of reliable data at least annually from pre- existing data sources such as the Sample Registration System (SRS), Civil Registration System (CRS) and Health Management Information Systems (HMIS). Data on indicators is included for Index calculations only after validation by the IVA. A composite Index is calculated as a weighted average of various indicators, for a base year (BY) and a reference year (RY). The change in the Index score of each State from the base year to a reference year is the annual incremental progress of each State. States and UTs were grouped in 3 categories to ensure comparison among similar entities, namely 21 Larger States, 8 Smaller States, and 7 UTs.

5. Setting

For calculation of Index values and ranks, data was submitted online and validated by an Independent Validation Agency (IVA). The States were previously sensitized about the process for data submission through workshops and mentor agencies (Table-1). Data was submitted by participants States and UTs through online portal hosted by NITI Aayog and data from pre-existing sources in the public domain was pre-entered. After validation of data by an IVA it was used as an input into automated generation of Index values and ranks on the web-portal. The data was verified by IPE Global, an IVA prior to computing the Index and ranks for all States and UTs of India.

Table-1- List of mentor agencies

Agency	States
United States Agency for International	Uttar Pradesh, Uttarakhand, Odisha, Chhattisgarh, Punjab, Himachal Pradesh, Bihar,
Development (USAID)	Jharkhand, Rajasthan, Madhya Pradesh, Haryana, Chandigarh, West Bengal
Regional Resource Centre for North Eastern States (RRC-NE)	Assam, Meghalaya, Arunachal Pradesh, Mizoram, Manipur, Nagaland, Sikkim, Tripura
Centre for Innovation in Public Systems (CIPS)	Andhra Pradesh, Telangana
The Energy Research Institute (TERI)	Delhi

This novel study was the first of its kind which was conducted over a period of eighteen months. The World Bank, experts in statistics and health systems, public health, and economics were consulted for the development of the Index. The States and UTs participated for finalization of the indicators/variables, workshops for sharing the methodology, process of data submission.

6. Participants

All states and UTs of India were participants. Multiple stakeholders as discussed above contributed to the Index development: The various Index was developed by NITI Aayog with help of World Bank, States and UTs, the Ministry of Health and Family Welfare (MoHFW), domestic and international sector experts and other development partners Categorization of States and UTs for ranking were based on the size, and administration. The States were ranked in three categories, namely Larger States, Smaller States and UTs [1] (table-2).

Table-2- Categorization of States and UTs

Category	Number of States and UTs	States and UTs
Larger States	21	Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, West Bengal
Smaller States	8	Arunachal Pradesh, Goa, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura
Union Territories	7	Andaman & Nicobar, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Delhi, Lakshadweep, Puducherry

This categorization was adopted due to the following reasons: • The SRS data on health outcomes (NMR, U5MR, TFR and SRB) were not available for 8 Smaller States and 7 UTs, • reliable estimates for these outcome indicators/variables based on raw data obtained from SRS for the Smaller States and UTs could not be derived due to statistically small sample size and insufficient number of events.

7. Variables

The main criteria for inclusion of indicators/variables were the availability of reliable data with at least an annual frequency. The output Index is a weighted composite Index based on indicators/variables in 3 fields: (1) Health Outcomes; (2) Governance and Information; and (3) Key Inputs/Processes. Each domain was assigned a weight based on its importance. The indicator values are scaled from 0 to 100 for generating composite Index scores and performance rankings for base year (BY) (2014-15) and RY (reference year) (2015-16). The annual incremental progress made from BY to RY is used to generate incremental ranks. Table 3 shows the number of indicators/variables in each domain and sub-domain along with weights, while Table-4 provides the detailed Health Index with indicators/variables, their definitions, data sources, and specifics of base and reference years.

Table 3 - Health Index: Summary

Domain	Sub-domain	Larger States		Smaller States		Union Territories	
		Number of Indicators/variables	Weight	Number of Indicators/variables	Weight	Number of Indicators/variables	Weight
Health Outcomes	Key Outcomes	5	500	1	100	1	100
	Intermediate Outcomes	6*	300*	6*	300*	5*	250*
Governance and Information	Health Monitoring and Data Integrity	1	70	1	70	1	70
	Governance	2	60	2	60	2	60
Key Inputs/ Processes	Health Systems/Service Delivery	10	200	10	200	10	200
TOTAL		24	1130	20	730	19	680

* The data for indicator no. 1.2.6 related to out of pocket expenditure was available only for 2015-16 and hence was used to calculate independently the RY Index and rank.

8. Data sources/measurement

The Health Index consists of 24 indicators/variables related to Health Outcomes, Governance and Information, and Key Inputs/Processes (Table 4 provides Health Index-indicator details and data sources).

Table-4-Health Index: Indicators/variables, definitions, data sources, base and reference years

S.No.	Indicator	Definition	Data Source	BY & RY	Remarks
DOMAIN 1 – HEALTH OUTCOMES					
Sub-domain 1.1 - Key Outcomes (Weight: Larger States – 500, Smaller States & UTs – 100)					
1.1.1	Neonatal Mortality Rate (NMR)	Number of infant deaths of less than 29 days per thousand live births during a specific year.	SRS [pre-entered]	BY: 2014 RY: 2015	Indicators/variables 1.1.1, 1.1.2, 1.1.3, and 1.1.5 are not applicable for category of Smaller States and UTs
1.1.2	Under-five Mortality Rate (U5MR)	Number of child deaths of less than 5 years per thousand live births during a specific year.	SRS [pre-entered]	BY: 2014 RY: 2015	
1.1.3	Total Fertility Rate (TFR)	Average number of children that would be born to a woman if she experiences the current fertility pattern throughout her reproductive span (15-49 years), during a specific year.	SRS [pre-entered]	BY: 2014 RY: 2015	
1.1.4	Proportion of Low Birth Weight (LBW) among newborns	Proportion of low birth weight (<=2.5 kg) newborns out of the total number of newborns weighed during a specific year born in a public health facility.	HMIS	BY: 2014 RY: 2015	
1.1.5	Sex Ratio at Birth (SRB)	The number of girls born for every 1,000 boys born during a specific year.	SRS [pre-entered]	BY: 2014 RY: 2015	
Sub-domain 1.2 - Intermediate Outcomes (Weight: Larger & Smaller States – 300, UTs – 250)					
1.2.1	Full immunization coverage	Proportion of infants 9-11 months old who have received BCG, 3 doses of DPT, 3 doses of OPV and one dose of measles against estimated number of infants during a specific year.	HMIS	BY: 2014-15 RY: 2015-16	
1.2.2	Proportion of institutional deliveries	Proportion of deliveries conducted in public and private health facilities against the Number of estimated deliveries during a specific year.	HMIS	BY: 2014-15 RY: 2015-16	
1.2.3	Total case notification rate of tuberculosis (TB)	Number of new and relapsed TB cases notified (public + private) per 100,000 population during a specific year.	Revised National Tuberculosis Control Programme (RNTCP) MIS, MoHFW [pre-entered]	BY: 2015 RY: 2016	
1.2.4	Treatment success rate of new microbiologically confirmed TB cases	Proportion of new cured and their treatment completed against the total number of new microbiologically confirmed TB cases registered during a specific year.	RNTCP MIS, MoHFW [pre-entered]	BY: 2014 RY: 2015	
1.2.5	Proportion of people living with HIV (PLHIV) on antiretroviral therapy (ART)	Proportion of PLHIVs receiving ART treatment against the number of estimated PLHIVs who needed ART Treatment for the specific year.	Central MoHFW Data [pre-entered]	BY: 2014-15 RY:2015-16	Indicator not applicable for Category of UTs.
1.2.6	Average out-of-pocket expenditure per delivery in public health facility (in INR)	Average out-of-pocket expenditure per Delivery in public health facility (in INR).	National Family Health Survey (NFHS)-4 [pre-entered]	RY: 2015-16	Indicator applicable only for reference year ranking. Not considered for generating incremental performance scores/ranks or drawing comparison between base and

					reference years scores/ranks.	
DOMAIN 2 – GOVERNANCE AND INFORMATION **Sub-domain 2.1 – Health Monitoring and Data Integrity (Weight: 70)**						
2.1.1	Data Integrity Measure: a. Institutional deliveries b. ANC registered within first trimester	Percentage deviation of reported data from standard survey data to assess the quality/ integrity of reported data for a specific period.	HMIS and NFHS-4	BY & RY: 2015-16 (NFHS) BY & RY: 2011-12 to 2015-16 (HMIS)	The NFHS data was available only for RY and the data for this was repeated for the BY and reference year.	
Sub-domain 2.2 – Governance (Weight – 60)						
2.2.1	Average occupancy of an officer (in months), combined for following three posts at State level for last three years 1. Principal Secretary 1. Mission Director (NHM) 2. Director (Health Services)	Average occupancy of an officer (in months), combined for following posts in last three years: 1. Principal Secretary 2. Mission Director (NHM) 3. Director (Health Services)	State Report	BY: April 1, 2012-March 31, 2015 RY: April 1, 2013-March 31, 2016		
2.2.2	Average occupancy of a full-time officer (in months) for all the districts in last three years - District Chief Medical Officers (CMOs) or equivalent post (heading District Health Services)	Average occupancy of a CMO (in months) for all the districts in last three years.	State Report	BY: April 1, 2012- March 31, 2015 RY: April 1, 2013-March 31, 2016		
DOMAIN 3 – KEY INPUTS/PROCESSES						
Sub-domain 3.1 – Health Systems/Service Delivery (Weight – 200)						
3.1.1	Proportion of vacant healthcare provider positions (regular + contractual) in public health facilities	Vacant healthcare provider positions in public health facilities against total sanctioned healthcare provider positions for following cadres (separately for each cadre) during a specific year: 1. Auxiliary Nurse Mid-wife (ANM) at sub-centres (SCs) 1. Staff nurse (SN) at Primary Health Centres (PHCs) and Community Health Centres (CHCs) c. Medical officers (MOs) at PHCs d. Specialists at District Hospitals (Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Anaesthesia, Ophthalmology, Radiology, Pathology, Ear-Nose-Throat (ENT), Dental, Psychiatry)	State Report	BY: As on March 31, 2015 RY: As on March 31, 2016		
3.1.2	Proportion of total staff (regular + contractual) for whom an e-payslip can be generated in the IT-enabled Human Resources Management Information System (HRMIS).	Availability of a functional IT-enabled HRMIS measured by the proportion of staff (regular + contractual) for whom an e-payslip can be generated in the IT-enabled HRMIS against total number of staff (regular + contractual) during a specific year.	State Report	BY: As on March 31, 2015 RY: As on March 31, 2016		
	a. Proportion of specified	Proportion of public sector facilities conducting specified number of C-sections* per year (FRUs)	State Report on number of functional FRUs, MoHFW data on			

3.1.3	type of facilities functioning as First Referral Units (FRUs) b. Proportion of functional 24x7 PHCs	specified number of C-sections* per year (FRUs) against the norm of one FRU per 500,000 population during a specific year. Proportion of PHCs providing all stipulated healthcare services** round the clock against the norm of one 24x7 PHC per 100,000 population during a specific year.	required number of (FRUs State Report on number of functional 24x7 PHCs, MoHFW data on required number of PHCs	BY: 2014-15 RY: 2015-16 BY: 2014-15 RY: 2015-16	
3.1.4	Proportion of districts with functional Cardiac Care Units (CCUs)	Proportion of districts with functional CCUs [with desired equipment (ventilator, monitor, defibrillator, CCU beds, portable ECG machine, pulse oxymeter etc.), drugs, diagnostics and desired staff as per programme guidelines] against total number of districts.	State Report	BY: As on March 31, 2015 RY: As on March 31, 2016	Indicator definition modified
3.1.5	Proportion of ANC registered within first trimester against total registrations	Proportion of pregnant women registered for ANC within 12 weeks of pregnancy during a specific year.	HMIS	BY:2014-15 RY: 2015-16	
3.1.6	Level of registration of births	Proportion of births registered under Civil Registration System (CRS) against the estimated number of births during a specific year.	Civil Registration System (CRS) [pre-entered]	BY: 2013 RY: 2014	
3.1.7	Completeness of IDSP reporting of P and L forms	Proportion of Reporting Units (RUs) reporting in stipulated time period against total RUs, for P and L forms during a specific year.	Central IDSP, MoHFW Data [pre-entered]	BY: 2014 RY: 2015	
3.1.8	Proportion of CHCs with grading above 3 points	Proportion of CHCs that are graded above 3 points against total number of CHCs during a specific year.	HMIS	BY: 2014-15 RY: 2015-16	
3.1.9	Proportion of public health facilities with accreditation certificates by a standard quality assurance program (NQAS/NABH/ISO/AHPI)	Proportion of specified type of public health facilities with accreditation certificates by a standard quality assurance program against the total number of following specified type of facilities during a specific year. 1. District hospital (DH)/Sub-district hospital (SDH) 2. CHC/Block PHC	State Report	BY: As on March 31, 2015 RY: As on March 31, 2016	
3.1.10	Average number of days for transfer of Central NHM fund from State Treasury to implementation agency (Department/Society) based on all tranches of the last financial year	Average time taken (in number of days) by the State Treasury to transfer funds to implementation agencies during a specific year.	Centre NHM Finance Data# [pre-entered]	BY: 2014-15 RY: 2015-16	

*Criteria for fully operational FRUs: SDHs/CHCs - conducting minimum 60 C-sections per year (36 C-sections per year for Hilly and North-Eastern States except for Assam); DHs - conducting minimum 120 C-sections per year (72 C-sections per year for Hilly and North-Eastern States except Assam). **Criteria for functional 24x7 PHCs: 10 deliveries per month (5 deliveries per month for Hilly and North-Eastern States except Assam) # Centre NHM Finance data includes the RCH -exi-pool and NHM-Health System Strengthening -exi-pool data (representing a substantial portion of the NHM funds) for calculating delay in transfer

of funds

9. Bias

Grouping the states according to size was not enough. The researcher feels that population density/ per capita income/ literacy rate/ health workforce/ corruption-scam index etc. should be included for ranking states.

10. Study size

All states and UTs of India were participants. Table 5 shows study period

Table 5– Study period

Sr No.	Step/Activity	2016				2017-18						
		Jun-Nov	Dec	Jan	Feb	Mar-Apr	May	Jun	Jul	Aug	Sep-Oct	Nov-Jan
1	Development of the Index											
2	Regional workshops with States											
3	Mentorship to States and submission of data on portal											
4	Validation of data and validation workshops with States											
5	Refinement of the Index											
6	Index and rank generation											
7	Report and dissemination of ranks											

11. Quantitative variables

See table-4

12. Statistical methods

Methodological details of constructing the Index-Computation of Index scores and ranks

After validation of data by the IVA, data was used for the Health Index score calculations. Indicator value was scaled, based on the nature of the indicator, for positive indicators, where higher the value, better the performance, the scaled value (Si) for the ith indicator, with data value as Xi , was calculated as follows:

Scaled value (Si) for positive indicator = (Xi – Minimum value) x 100/ (Maximum value – Minimum value)

For negative indicators where lower the value, better the performance (e.g. NMR, U5MR,) scaled value was calculated as follows:

Scaled value (Si) for negative indicator = (Maximum value – Xi) x 100/ (Maximum value – Minimum value)

The minimum and maximum values of each indicator were ascertained based on the values for that indicator across States within the grouping of States (Larger States, Smaller States, and UTs) for that year. Indicator value lies between the ranges of 0 to 100; e.g. the State with the lowest institutional deliveries will get a scaled value of 0, while the State with the highest institutional deliveries will get a scaled value of 100. For a negative indicator such as NMR, the State with the highest NMR will get a scaled value of 0, while the one with the lowest NMR will get a scaled value of 100. Accordingly, the scaled value of other States will lie between 0 and 100 in both cases. Based on these scaled values (Si), a composite Index score was calculated for the base year and reference year by application of the weights using the formula:

Composite Index = (∑ Wi *Si)/ (∑ Wi) --Where Wi is the weight for ith indicator

The composite Index score has been used for generating overall performance ranks. The difference between the composite Index score of reference and base years was the annual incremental performance. The ranking is primarily based on the incremental progress, however, rankings based on Index scores for the base year and the reference year performance calculated to provide the overall performance of the States and UTs.

13 Results

Overall performance for the BY (2014-15), the composite Health Index**ranged from 28.14 in Uttar Pradesh to 80 in Kerala** In the RY2015-16, Uttar Pradesh at 33.69 was poorest performing State, and Kerala best performing State. The top five States in the RY based on the composite Index score are Kerala (76.55), Punjab (65.21), Tamil Nadu (63.38), Gujarat (61.99), and Himachal Pradesh (61.20). On the other end, **Uttar Pradesh (33.69) scored the lowest preceded by Rajasthan (36.79), Bihar (38.46), Odisha (39.43), and Madhya Pradesh (40.09).** Among the 21 Larger States, only five States Punjab, Andhra Pradesh, Jammu & Kashmir, Chhattisgarh and Jharkhand improved their position from base to reference year. Jharkhand and Jammu & Kashmir States moved up by four positions in the ranking, Punjab improved its performance in the ranking by three positions; Andhra Pradesh and Chhattisgarh have shown modest improvement –up by one position. The rankings of Maharashtra, Madhya Pradesh, Bihar, Rajasthan, and Uttar Pradesh did not change between base and reference years. **Kerala continued to be at the top position** while remaining States fell in ranking by 1-2 positions.

14. Descriptive data

Taking into account importance, availability (at least annually) of reliable data, 28 indicators/variables were included first. The availability and quality of data for all States was reviewed and 23 indicators/variables were retained and five indicators/ variables were dropped for calculating the performance in the base and reference years. However, Index scores and ranks for the RY were also calculated independently, based on 24 indicators/variables including an additional indicator on out-of-pocket expenditure, as the data for this was available only for 2015-16. Once the data was accepted by the IVA, the ranks were automatically generated by the portal hosted by the NITI Aayog. To ensure accuracy the indices and ranks were also manually calculated and cross-checked with the results from the portal and the final values were certified by the IVA.

15. Outcome data

See table – 6,7,8,9,10,11,12,13,14,15,16 and 17.

Most Improved **Improved** **No Change** **Deteriorated** **Most Deteriorated** **Not Applicable**

Table-6-Larger States: Health Outcomes domain indicators, base and reference years

States	1.1.1 NMR (per '000 live births)		1.1.2 U5MR (per '000 live births)		1.1.3 TFR*		1.1.4 LBW (percentage)		1.1.5 SRB (no. of girls born for every 1,000 boys born)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andhra Pradesh	26	24	40	39	1.8	1.7	5.62	6.73	919	918
Assam	26	25	66	62	2.3	2.3	18.19	16.68	918	900
Bihar	27	28	53	48	3.2	3.2	6.70	7.22	907	916
Chhattisgarh	28	27	49	48	2.6	2.5	11.61	12.15	973	961

Gujarat	24	23	41	39	2.3	2.2	10.58	10.51	907	854
Haryana	23	24	40	43	2.3	2.2	14.61	14.90	866	831
Himachal Pradesh	25	19	36	33	1.7	1.7	8.66	12.63	938	924
Jammu & Kashmir	26	20	35	28	1.7	1.6	6.33	5.93	899	899
Jharkhand	25	23	44	39	2.8	2.7	7.81	7.42	910	902
Karnataka	20	19	31	31	1.8	1.8	10.76	11.49	950	939
Kerala	6	6	13	13	1.9	1.8	10.81	11.72	974	967
Madhya Pradesh	35	34	65	62	2.8	2.8	14.16	14.10	927	919
Maharashtra	16	15	23	24	1.8	1.8	14.57	13.74	896	878
Odisha	36	35	60	56	2.1	2.0	20.10	19.16	953	950
Punjab	14	13	27	27	1.7	1.7	5.95	6.88	870	889
Rajasthan	32	30	51	50	2.8	2.7	27.43	25.51	893	861
Tamil Nadu	14	14	21	20	1.7	1.6	10.46	13.03	921	911
Telangana	25	23	37	34	1.8	1.8	6.11	5.70	919	918
Uttar Pradesh	32	31	57	51	3.2	3.1	11.74	9.60	869	879
Uttarakhand	26	28	36	38	2.0	2.0	7.77	7.26	871	844
West Bengal	19	18	30	30	1.6	1.6	15.48	16.45	952	951

	States	**1.2.1 Full immunization (percentage)**		**1.2.2 Institutional deliveries (percentage)**		**1.2.3 TB case notification rate (per100,00 0 population)**		**1.2.4 TB treatment success rate (percentage)**		**1.2.5 PLHIV on ART (percentage)**		**1.2.6 OOP expenditure (in INR)#**
		BY	**RY**	**BY**	**RY**	**BY**	**RY**	**BY**	**RY**	**BY**	**RY**	**RY**
	Andhra Pradesh	97.58	91.62	53.09	87.08	136	145	90.40	88.50	72.39	76.11	2138
	Assam	84.10	88.00	72.70	74.25	122	123	85.40	86.20	58.94	64.58	3210
	Bihar	82.10	89.73	52.96	57.10	72	84	89.00	89.70	30.73	37.18	1724
	Chhattisgarh	85.81	90.53	59.64	64.51	128	138	88.20	89.10	47.20	53.06	1480
	Gujarat	90.26	90.55	90.83	97.78	170	193	88.50	88.90	50.23	52.43	2136
	Haryana	82.54	83.47	80.76	80.25	165	172	86.00	87.50	52.31	51.53	1503
	Himachal Pradesh	94.90	95.22	67.50	67.49	210	207	89.70	89.60	79.22	79.89	3329
	Jammu & Kashmir	89.80	100.00	81.45	80.51	74	72	87.60	88.30	88.72	96.41	4192
	Jharkhand	80.82	88.10	60.52	67.36	100	108	89.80	90.90	36.07	39.40	1476
	Karnataka	92.30	96.24	77.12	78.78	100	105	83.30	84.70	83.25	88.68	3893
	Kerala	95.50	94.61	95.99	92.62	87	139	86.00	87.50	61.79	66.72	6901
	Madhya Pradesh	74.26	74.78	63.07	64.79	143	164	89.70	90.30	53.04	61.01	1387
	Maharashtra	98.55	98.22	89.19	85.30	155	164	83.90	84.20	83.46	87.71	3487
	Odisha	88.03	85.32	74.76	73.49	106	99	87.40	88.90	28.33	32.95	4225
	Punjab	96.08	99.64	83.23	82.33	137	136	86.90	87.20	77.22	84.62	1890
	Rajasthan	78.95	78.06	74.67	73.85	139	143	90.40	90.30	42.44	46.41	3052
	Tamil Nadu	85.54	82.66	85.97	81.82	113	125	82.30	85.40	81.93	87.06	2496
	Telangana	100.00	89.09	59.15	85.35	113	123	90.00	89.60	72.39	76.11	4020
	Uttar Pradesh	82.88	84.82	43.55	52.38	123	137	88.20	87.50	51.30	57.81	1956
	Uttarakhand	91.77	99.30	64.32	62.63	145	138	85.50	86.00	62.67	65.25	2399

	West Bengal	100.00	95.85	79.92	81.28	93	93	86.40	86.50	31.00	35.92	7782

**The data shown in grey colour is for 'not applicable' category wherein the States with TFR <= 2.1 (replacement level fertility) in both base and reference years are not considered for incremental change. #Data for this indicator is available and used only for reference year and hence this indicator comes under 'not applicable' category.

Table-7- **Larger States: Governance and Information domain indicators, base and reference years**

States	2.1.1.a Data Integrity: Institutional deliveries (percentage)		2.1.1.b Data Integrity: First trimester ANC registration (percentage)		2.2.1 Average occupancy: State-level 3 key posts (in months)		2.2.2 Average occupancy: CMOs (in months)	
	BY**	RY	BY**	RY	BY	RY	BY	RY
Andhra Pradesh	23.53	23.53	15.42	15.42	17.70	17.51	12.80	13.22
Assam	0.25	0.25	21.16	21.16	10.17	12.11	7.92	7.95
Bihar	18.21	18.21	16.33	16.33	15.00	13.01	17.62	11.88
Chhattisgarh	22.34	22.34	25.90	25.90	11.39	11.40	21.88	25.40
Gujarat	0.68	0.68	2.06	2.06	20.22	20.71	18.68	18.09
Haryana	4.62	4.62	19.08	19.08	13.80	11.21	13.43	12.56
Himachal Pradesh	12.72	12.72	7.30	7.30	11.38	12.39	13.86	10.50
Jammu & Kashmir	12.42	12.42	13.50	13.50	22.80	13.81	11.72	11.77
Jharkhand	7.95	7.95	53.48	53.48	12.98	12.00	11.19	11.46
Karnataka	21.22	21.22	8.20	8.20	6.85	6.49	14.83	13.23
Kerala	3.71	3.71	24.86	24.86	21.84	12.02	16.47	11.72
Madhya Pradesh	23.09	23.09	9.19	9.19	10.75	16.00	18.14	17.62
Maharashtra	1.16	1.16	5.61	5.61	10.86	15.74	12.25	15.64
Odisha	13.82	13.82	22.09	22.09	11.07	12.01	9.97	13.95
Punjab	12.41	12.41	9.97	9.97	20.00	20.42	9.12	10.19
Rajasthan	12.44	12.44	18.43	18.43	19.00	22.02	12.26	11.94
Tamil Nadu	10.92	10.92	22.75	22.75	11.94	16.51	6.85	7.29
Telangana	21.06	21.06	15.80	15.80	8.71	7.81	11.72	11.19
Uttar Pradesh	36.59	36.59	0.92	0.92	9.62	19.64	11.57	14.15
Uttarakhand	14.93	14.93	10.77	10.77	10.65	10.35	11.63	13.93
West Bengal	2.12	2.12	42.44	42.44	22.00	28.02	10.29	14.10

** Same data has been used for base and reference years due to overlapping periods of NFHS-4. Hence this indicator comes under 'not applicable' category.

Table-8- **Larger States: Key Inputs/Processes domain indicators, base and reference years**

States	3.1.1.a Vacancy: ANMs at SCs (percentage)		3.1.1.b Vacancy: SNs at PHCs and CHCs (percentage)		3.1.1.c Vacancy: MOs at PHCs (percentage)		3.1.1.d Vacancy: Specialists at DHs (percentage)		3.1.2 E-payslip (percentage)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andhra Pradesh	20.56	15.67	17.33	20.48	17.97	12.76	40.55	30.41	59.60	58.65
Assam	10.93	8.99	4.57	8.95	19.92	17.77	62.91	41.72	0.00	0.00
Bihar	67.86	59.30	86.15	50.28	63.60	63.60	64.96	60.58	0.00	0.00
Chhattisgarh	12.35	9.23	44.27	37.28	41.83	45.02	77.98	77.68	0.00	0.00
Gujarat	17.13	28.08	37.71	36.46	39.78	32.03	51.02	55.50	35.60	35.61
Haryana	9.66	15.23	45.95	43.24	38.64	25.35	0.00	0.00	0.00	0.00
Himachal Pradesh	12.57	9.87	21.51	27.19	16.19	21.73	NA	NA	3.32	8.07
Jammu & Kashm ir	17.65	10.28	42.88	27.48	34.92	30.15	24.52	22.22	0.00	0.00
Jharkhand	19.57	19.73	71.80	74.94	45.29	48.67	55.37	50.32	0.00	0.00
Karnataka	27.85	22.59	45.20	25.97	13.35	11.48	20.90	21.53	48.89	49.35
Kerala	4.88	4.49	5.54	5.30	5.59	5.86	22.15	21.48	88.61	100.00
Madhya Pradesh	8.58	14.23	36.45	33.50	57.81	58.34	50.56	50.98	0.00	0.00
Maharashtra	8.25	9.46	16.74	15.67	16.82	16.96	19.47	30.34	66.55	67.60
Odisha	0.00	0.00	0.00	0.00	23.17	26.91	43.53	19.04	75.79	75.79
Punjab	7.17	8.48	36.22	33.98	9.83	7.77	21.74	47.72	0.00	0.00
Rajasthan	36.12	19.24	48.12	47.26	14.93	14.86	41.47	45.77	0.00	0.00
Tamil Nadu	11.82	15.97	21.78	19.09	7.56	7.58	17.86	16.73	84.62	84.72
Telangana	20.20	18.01	12.79	12.79	22.31	22.31	59.83	54.81	0.00	0.00
Uttar Pradesh	14.06	0.00	1.89	1.89	36.83	26.73	35.74	32.41	0.00	0.00
Uttarakhand	15.47	16.88	13.11	20.02	37.16	12.19	38.30	60.33	0.00	0.00
West Bengal	2.16	0.77	25.72	9.70	48.43	41.23	22.97	20.18	81.78	81.23

States	3.1.3.a Functional FRUs (percentage)		3.1.3.b Functional 24x7 PHCs (percentage)		3.1.4 Districts with functional CCUs (percentage)		3.1.5 Proportion of first trimester ANC (percentage)		3.1.6 Level of birth registration (percentage)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andhra Pradesh	48.48	57.58	33.20	29.15	53.85	53.85	64.42	74.38	98.50	100.00
Assam	67.74	72.58	169.55	176.92	0.00	0.00	77.24	80.55	97.70	100.00
Bihar	12.50	11.54	70.89	73.58	0.00	0.00	51.43	55.47	57.40	64.20
Chhattisgarh	21.57	23.53	36.47	40.39	3.70	3.70	59.99	74.60	87.80	100.00
Gujarat	32.23	42.98	27.81	31.46	57.69	48.48	73.58	74.91	100.00	95.00
Haryana	52.94	50.98	73.62	77.56	19.05	19.05	57.68	62.20	100.00	100.00
Himachal Pradesh	107.14	121.43	5.80	5.80	91.67	91.67	78.62	81.39	100.00	93.10
Jammu & Kashmir	180.00	196.00	53.60	45.60	18.18	27.27	54.37	52.95	71.80	75.50
Jharkhand	15.15	22.73	33.03	33.03	0.00	0.00	33.67	36.36	77.70	82.00
Karnataka	105.74	116.39	78.07	69.23	43.33	43.33	72.82	71.22	96.00	97.80
Kerala	120.90	120.90	0.00	0.00	64.29	64.29	80.98	80.63	100.00	100.00
Madhya Pradesh	44.83	49.66	58.40	56.47	9.80	9.80	61.54	63.79	84.10	82.60
Maharashtra	31.11	32.44	48.04	46.71	22.86	22.86	63.58	66.82	100.00	100.00

Maharashtra	31.11	32.44	48.04	46.71	22.86	22.86	63.58	66.82	100.00	100.00
Odisha	61.90	65.48	30.00	30.00	3.33	3.33	68.48	75.75	93.90	98.50
Punjab	138.18	141.82	35.74	26.35	63.64	63.64	71.16	73.01	100.00	100.00
Rajasthan	23.36	29.20	67.30	68.03	2.94	70.59	58.50	60.66	98.40	98.20
Tamil Nadu	129.17	122.92	54.23	34.95	56.25	56.25	92.72	94.35	100.00	100.00
Telangana	80.00	80.00	26.99	26.99	0.00	0.00	61.26	55.90	100.00	95.60
Uttar Pradesh	15.25	15.75	17.92	17.42	0.00	0.00	51.19	48.72	68.60	68.30
Uttarakhand	100.00	95.00	56.44	54.46	0.00	0.00	59.06	62.47	76.60	86.00
West Bengal	45.36	49.18	5.70	5.91	76.92	76.92	73.03	77.00	92.80	92.50

States	3.1.7 IDSP reporting of P form (percentage)		3.1.7 IDSP reporting of L form (percentage)		3.1.8 CHC grading (percentage)		3.1.9 Quality accreditation DH-SDH (percentage)		3.1.9 Quality accreditation CHC-PHC (percentage)		3.1.10 Fund transfer (no. of days)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andhra Pradesh	94	99	94	99	1.02	37.24	0.00	0.00	0.00	0.00	97	127
Assam	92	88	92	88	4.64	31.13	0.00	0.00	0.00	0.00	97	242
Bihar	83	88	83	87	0.00	20.34	27.16	27.16	2.36	1.52	135	40
Chhattisgarh	77	84	66	82	3.23	47.74	0.00	0.00	0.00	0.00	79	57
Gujarat	96	95	98	96	10.25	49.40	6.35	2.99	1.24	0.60	58	24
Haryana	89	84	90	88	10.09	22.02	0.00	0.00	0.00	0.00	27	42
Himachal Pradesh	41	66	35	62	2.53	5.06	0.00	1.37	0.00	0.00	102	47
Jammu & Kashmir	66	80	61	75	7.14	61.90	0.00	0.00	0.00	0.00	97	107
Jharkhand	69	73	68	72	1.55	54.40	0.00	0.00	0.00	0.00	140	67
Karnataka	82	95	82	94	25.34	31.27	0.00	0.53	0.00	0.00	122	139
Kerala	94	96	93	96	NA	0.44	10.00	10.00	5.07	6.52	80	107
Madhya Pradesh	81	80	82	80	8.98	57.19	0.00	0.00	0.29	0.57	35	41
Maharashtra	71	79	72	76	16.67	38.52	0.00	0.00	0.27	0.27	140	66
Odisha	66	83	63	74	9.81	22.81	15.25	15.25	0.00	0.00	24	59
Punjab	77	73	93	85	12.00	26.67	0.00	0.00	0.00	0.00	98	78
Rajasthan	59	73	57	68	3.19	54.48	0.00	0.00	0.00	0.00	71	48
Tamil Nadu	70	90	72	87	NA	76.10	0.74	4.29	7.27	4.94	56	50
Telangana	94	97	94	95	0.00	11.63	0.00	0.00	0.00	0.00	70	287
Uttar Pradesh	64	42	70	57	4.53	44.13	0.00	0.00	0.00	0.00	30	93
Uttarakhand	88	93	84	93	1.67	8.33	0.00	0.00	0.00	0.00	97	27
West Bengal	65	78	72	80	3.49	53.74	0.00	0.00	0.00	0.00	71	51

Table-9-**Smaller States: Health Outcomes domain indicators, base and reference years**

States	1.1.4 LBW (percentage)		1.2.1 Full immunization (percentage)		1.2.2 Institutional deliveries (percentage)		1.2.3 TB case notification rate (per 100,000 population)		1.2.4 TB treatment success rate (percentage)		1.2.5 PLHIV on ART (percentage)		1.2.6 OOP expenditure (in INR)#
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY	RY
Arunachal Pradesh	5.79	6.55	60.58	64.95	55.99	56.46	186	183	88.00	86.40	18.69	28.19	6474
Goa	16.72	15.56	91.26	95.24	91.27	92.46	127	131	86.40	87.30	70.92	72.75	4836
Manipur	3.90	3.53	94.39	96.32	74.93	73.47	82	81	85.00	82.60	53.95	63.87	10076
Meghalaya	8.19	7.65	96.43	93.34	59.57	62.11	170	137	82.30	85.80	98.66	100.00	2892
Mizoram	4.73	4.65	100.00	100.00	100.00	96.29	183	186	86.50	90.60	96.68	100.00	4327
Nagaland	4.10	3.89	61.91	63.86	56.95	58.07	173	139	90.70	71.90	63.81	73.80	5834
Sikkim	6.78	7.76	74.07	74.44	71.96	70.19	222	241	78.80	77.20	32.45	33.51	2509
Tripura	10.56	11.11	87.43	84.33	78.48	79.36	195	61	88.60	88.50	23.14	5.80	4412

#Data for this indicator is available and used only for reference year and hence this indicator comes under ‘not applicable’ category.

Table 10 - Smaller States: Governance and Information domain indicators, base and reference years

States	2.1.1.a Data Integrity: Institutional deliveries (percentage)		2.1.1.b Data Integrity: First trimester ANC registration (percentage)		2.2.1 Average occupancy: State-level 3 key posts (in months)		2.2.2 Average occupancy: CMOs (in months)	
	BY**	RY	BY**	RY	BY	RY	BY	RY
Arunachal Pradesh	1.36	1.36	5.62	5.62	19.85	13.87	19.29	17.50
Goa	5.01	5.01	23.74	23.74	14.84	21.69	15.00	12.00
Manipur	2.87	2.87	28.19	28.19	13.29	21.02	18.64	17.31
Meghalaya	13.44	13.44	10.56	10.56	19.99	19.25	15.49	14.76
Mizoram	22.00	22.00	18.71	18.71	11.12	9.77	20.51	25.98
Nagaland	54.79	54.79	107.87	107.87	11.61	7.25	17.43	19.94
Sikkim	29.16	29.16	26.76	26.76	24.00	24.02	31.50	25.52
Tripura	3.35	3.35	10.89	10.89	11.99	10.87	14.32	17.26

Table 11 - Smaller States: Key Inputs/Processes domain indicators, base and reference years

States	3.1.1.a Vacancy: ANMs at SCs (percentage)		3.1.1.b Vacancy: SNs at PHCs and CHCs (percentage)		3.1.1.c Vacancy: MOs at PHCs (percentage)		3.1.1.d Vacancy: Specialists at DHs (percentage)		3.1.2 Epayslip (percentage)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Arunachal Pradesh	2.07	22.37	4.05	28.78	9.38	38.75	87.55	89.11	45.89	38.75
Goa	24.75	30.10	12.54	11.68	31.11	14.22	42.71	39.70	0.00	0.00
Manipur	20.57	29.89	5.08	18.98	42.76	42.76	47.67	47.67	0.00	0.00
Meghalaya	19.56	20.00	30.90	31.05	31.85	35.67	29.28	29.73	0.00	0.00
Mizoram	11.33	16.07	6.11	6.11	31.58	38.10	15.22	15.22	0.00	0.00
Nagaland	7.80	11.01	0.00	0.00	26.89	27.36	0.00	0.00	0.00	0.00
Sikkim	0.00	0.00	61.96	61.96	0.00	0.00	34.38	34.38	0.00	0.00
Tripura	15.37	38.90	22.20	0.00	17.03	2.06	NA	NA	0.00	0.00

States	3.1.3.a Functional FRUs (percentage)		3.1.3.b Functional 24x7 PHCs (percentage)		3.1.4 Districts with functional CCUs (percentage)		3.1.5 Proportion of first trimester ANC (percentage)		3.1.6 Level of birth registration (percentage)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Arunachal Pradesh	100.00	133.33	21.43	42.86	0.00	0.00	38.66	36.99	100.00	100.00
Goa	100.00	100.00	0.00	6.67	0.00	0.00	57.00	58.74	100.00	100.00
Manipur	83.33	66.67	41.38	65.52	0.00	0.00	59.07	63.23	100.00	100.00
Meghalaya	83.33	100.00	166.67	180.00	0.00	0.00	32.24	32.07	100.00	100.00
Mizoram	150.00	100.00	190.91	136.36	11.11	11.11	72.26	73.61	100.00	100.00
Nagaland	150.00	125.00	165.00	165.00	0.00	9.09	46.80	35.83	100.00	100.00
Sikkim	100.00	200.00	166.67	216.67	0.00	0.00	77.81	79.89	79.90	74.10
Tripura	42.86	57.14	124.32	116.22	0.00	0.00	62.75	61.85	91.40	81.70

States	3.1.7 IDSP reporting of P form (percentage)		3.1.7 IDSP reporting of L form (percentage)		3.1.8 CHC grading (percentage)		3.1.9 Quality accreditation DH-SDH (percentage)		3.1.9 Quality accreditation CHC-PHC (percentage)		3.1.10 Fund transfer (no.of days)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Arunachal Pradesh	43	82	33	77	0.00	0.00	5.00	5.00	0.00	0.00	98	143
Goa	65	79	67	88	25.00	75.00	0.00	0.00	0.00	0.00	149	154
Manipur	35	63	32	38	0.00	29.41	12.50	12.50	0.00	0.00	199	258
Meghalaya	62	84	63	82	3.70	7.41	0.00	0.00	0.00	0.00	216	38
Mizoram	51	48	74	58	0.00	0.00	0.00	0.00	0.00	0.00	140	177
Nagaland	80	79	61	65	0.00	0.00	0.00	0.00	0.00	0.00	101	213
Sikkim	91	97	86	100	0.00	0.00	0.00	0.00	0.00	0.00	68	153
Tripura	75	97	61	94	0.00	0.00	0.00	0.00	0.00	0.00	118	69

Table 12 - Union Territories: Health Outcomes domain indicators, base and reference years

UTs	1.1.4 LBW (percentage)		1.2.1 Full immunization (percentage)		1.2.2 Institutional deliveries (percentage)		1.2.3 TB case notification rate (per 100,000 population)		1.2.4 TB treatment success rate (percentage)		1.2.6 OOP expenditure (in INR)#
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY	RY
Andaman & Nicobar Islands	16.13	17.17	84.62	100.00	76.21	80.20	157	139	85.50	91.50	1258
Chandigarh	22.49	20.77	92.30	93.58	100.00	100.00	300	305	89.50	85.60	2357
Dadra & Nagar Haveli	34.70	29.39	75.48	77.06	88.20	87.09	138	133	85.20	86.30	471
Daman & Diu	16.91	24.37	85.04	79.67	75.29	72.00	146	166	83.10	79.50	1581
Delhi	20.85	21.43	90.88	96.21	79.41	80.60	337	348	86.20	86.70	8719
Lakshadweep	4.85	5.56	100.00	100.00	76.44	85.40	61	35	86.70	91.30	4580
Puducherry	18.48	15.50	73.93	77.60	100.00	100.00	95	103	88.50	89.20	1999

Table 13 - Union Territories: Governance and Information domain indicators, base and reference years

UTs	2.1.1.a Data Integrity: Institutional deliveries (percentage)		2.1.1.b Data Integrity: First trimester ANC registration (percentage)		2.2.1 Average occupancy: State-level 3 key posts (in months)		2.2.2 Average occupancy: CMOs (in months)	
	BY**	RY	BY**	RY	BY	RY	BY	RY
Andaman & Nicobar Islands	18.05	18.05	2.84	2.84	26.00	15.01	25.49	17.43
Chandigarh	57.98	57.98	27.88	27.88	10.80	12.01	15.53	15.55
Dadra & Nagar Haveli	15.11	15.11	22.12	22.12	14.40	14.41	18.00	18.01
Daman & Diu	17.43	17.43	15.27	15.27	20.40	21.02	36.00	36.03
Delhi	10.76	10.76	27.77	27.77	13.70	9.63	15.82	16.72
Lakshadweep	29.35	29.35	12.19	12.19	26.77	26.79	NA	NA
Puducherry	90.52	90.52	48.82	48.82	21.96	19.98	23.05	25.32

** Same data has been used for base and reference years due to overlapping periods of NFHS-4. Hence this indicator comes under ‘not applicable’ category

Table 14 - Union Territories: Key Inputs/Processes domain indicators, base and reference years

UTs	3.1.1.a Vacancy: ANMs at SCs (percentage)		3.1.1.b Vacancy: SNs at PHCs and CHCs (percentage)		3.1.1.c Vacancy: MOs at PHCs (percentage)		3.1.1.d Vacancy: Specialists at DHs (percentage)		3.1.2 Epayslip (percentage)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andaman & Nicobar Islands	7.84	7.84	7.45	7.45	36.36	36.36	100.00	100.00	0.00	0.00
Chandigarh	31.25	29.41	6.19	6.19	69.17	69.17	0.00	0.00	59.97	61.33
Dadra & Nagar Haveli	0.00	0.00	4.88	4.88	16.67	16.67	18.18	18.18	0.00	0.00
Daman & Diu	13.56	11.86	2.38	0.00	7.14	7.14	38.24	47.06	0.00	0.00
Delhi	4.88	19.75	32.00	40.75	8.33	14.21	38.74	40.21	0.00	68.81
Lakshadweep	0.00	0.00	0.00	0.00	0.00	0.00	76.47	76.47	0.00	0.00
Puducherry	7.23	8.73	1.19	2.38	12.78	12.78	23.36	20.56	80.74	78.35

UTs	3.1.3.a Functional FRUs (percentage)		3.1.3.b Functional 24x7 PHCs (percentage)		3.1.4 Districts with functional CCUs (percentage)		3.1.5 Proportion of first trimester ANC (percentage)		3.1.6 Level of birth registration (percentage)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andaman & Nicobar Islands	0.00	0.00	500.00	500.00	0.00	0.00	77.84	76.94	97.20	71.90
Chandigarh	150.00	150.00	0.00	0.00	0.00	0.00	49.63	36.79	100.00	100.00
Dadra & Nagar Haveli	100.00	100.00	100.00	133.33	0.00	0.00	47.27	84.77	71.80	65.10
Daman & Diu	100.00	100.00	50.00	50.00	0.00	0.00	47.32	49.26	98.40	76.40
Delhi	91.18	100.00	0.60	0.60	90.91	90.91	34.74	33.69	100.00	100.00
Lakshadweep	100.00	100.00	0.00	0.00	100.00	100.00	74.88	73.24	60.00	59.50
Puducherry	300.00	200.00	0.00	0.00	25.00	25.00	45.53	39.54	100.00	100.00

UTs	3.1.7 IDSP reporting of P form (percentage)		3.1.7 IDSP reporting of L form (percentage)		3.1.8 CHC grading (percentage)		3.1.9 Quality accreditation DH-SDH (percentage)		3.1.9 Quality accreditation CHC-PHC (percentage)		3.1.10 Fund transfer (no. of days)	
	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY	BY	RY
Andaman & Nicobar Islands	12	50	5	21	0.00	0.00	0.00	0.00	0.00	0.00	147	78
Chandigarh	84	78	93	88	100.00	100.00	0.00	0.00	0.00	0.00	68	35
Dadra & Nagar Haveli	100	91	100	89	0.00	NA	0.00	0.00	0.00	0.00	64	62
Daman & Diu	100	75	86	75	0.00	0.00	0.00	0.00	0.00	0.00	76	0
Delhi	40	57	42	56	0.00	0.00	1.79	8.93	0.00	0.00	92	89
Lakshadweep	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	143	0
Puducherry	82	90	77	88	25.00	25.00	0.00	0.00	0.00	0.00	101	55

16. Main results

Table-15 - Larger States: Incremental scores and ranks, with overall performance from base year to reference year and ranks

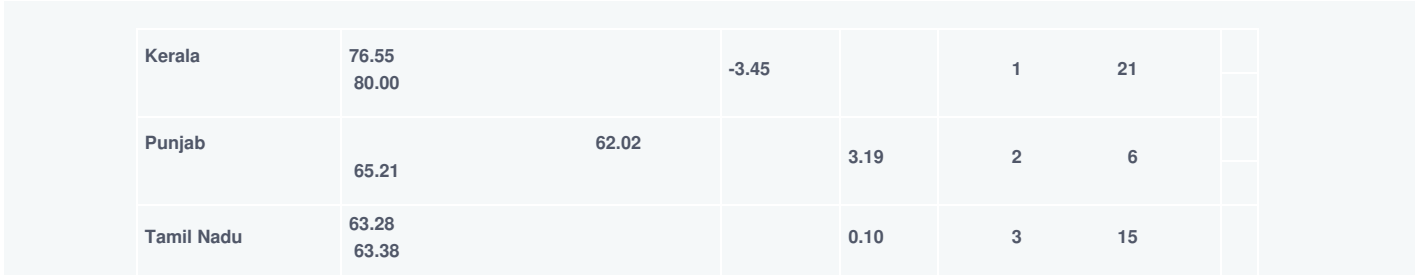

Table-16 - Smaller States: Incremental scores and ranks, with overall performance from base year to reference year and

ranks

	71.27	73.70		2.43	1	4	
Mizoram	50.60 57.78			7.18	2	1	
Manipur	51.40 56.83			5.43	3	3	
Meghalaya	53.20 53.39		-0.19		4	5	
Sikkim Goa	46.46 53.13			6.67	5	2	
Arunachal Pradesh Tripura	49.51 50.60		-1.09		6	6	
Nagaland	43.51 48.35		-4.84		7	7	
	37.38 45.26		-7.88		8	8	
	30 40 50 60 70 Base Year (2014-15) Overall Performance Index Score Reference Year (2015-16)	80	-10 0 10 Incremental Change		Overall Reference Year Rank	Incremental Rank	

Table-17 - Union Territories: Incremental scores and ranks, with overall performance from base year to reference year and ranks

		56.23	65.79		9.56	1	1
Lakshadweep		52.27 57.49		-5.22		2	6
Chandigarh		48.05 50.02			1.97	3	4
Delhi Andaman & Nicobar Islands		46.18 50.00			3.82	4	2
Puducherry Daman & Diu		46.54 47.48			0.94	5	5
Dadra & Nagar Haveli	36.10	44.77		-8.67		6	7
	31.34	34.64			3.30	7	3
Base Year (2014-15) Reference Year (2015-16)	30	40 50 60 Overall Performance Index Score	70	-10 -5 0 5 10 Incremental Change		Overall Reference Year Rank	Incremental Rank

17. Other analyses

SRS-related indicators/variables estimates such as NMR were not available for Smaller States and UTs, these estimates could not be generated due to the insufficient sample size. In the Larger States category, MMR were not available separately for 08

states, previously four undivided States, and also for Himachal Pradesh and Jammu & Kashmir. In the case of Still Birth Rate (SBR), the IVA reported that data was unreliable. In case of proportion of pregnant women age 15-49 years who are anaemic, data on the appropriate denominator was not available in the HMIS. Proportion of people living with HIV (PLHIV) on ART excluded for the UTs since no ART centre was available in four UTs. NHM funds utilized by the end of 3rd quarter, data were not valid. Central data was used for a few indicators/variables such as PLHIV on antiretroviral therapy (ART), 'average number of days for transfer of central NHM funds from State Treasury to implementation agency' and 'completeness of IDSP reporting of P and L forms'. The NFHS-4 data for out-of-pocket expenditure on drugs and diagnostics incurred per delivery in public health facilities was used in the RY Index. However, for the BY, this data was not available and could therefore not be factored in for generating BY ranks or incremental ranks or drawing comparisons between the base and reference years.

Discussion

18. Key results

There is a large gap in overall performance of States and UTs, overall performance ranged widely between 33.69 in Uttar Pradesh to 76.55 in Kerala. Similarly, among Smaller States, the Index score for overall performance varied between 37.38 in Nagaland to 73.70 in Mizoram, and among UTs this varied between 34.64 in Dadra & Nagar Haveli to 65.79 in Lakshadweep.

Among the Larger States (table-15), Jharkhand, Jammu & Kashmir, and Uttar Pradesh are the top three in terms of annual incremental performance, while Kerala, Punjab, and Tamil Nadu ranked on top in terms of overall performance. In terms of incremental performance top three are Jharkhand (up 6.87 points), Jammu & Kashmir (up 6.83 points) and Uttar Pradesh (up 5.55 points). Jharkhand, Jammu & Kashmir, and Uttar Pradesh showed the maximum gains in improvement of health outcomes from base to RY.

Among Smaller States (table-16), Manipur ranked first in terms of annual incremental performance and second in terms of overall performance. Mizoram (73.70) followed by Manipur (57.78) are the best overall performers.

Among UTs (table-17), Lakshadweep showed both the highest annual incremental performance as well as the best overall performance

The incremental measurement shows that about one-third of the States declined in their Health Indices in the RY as compared to the BY. Tables 18, 19, 20 provide a categorization of States and UTs based on the level of annual incremental performance and the overall performance.

Table-18-Categorization of Larger States on incremental performance and overall performance

Table-19-Categorization of Smaller States on incremental performance and overall performance

Not improved	Least improved	Moderately improved	Most improved
Sikkim		Mizoram	Manipur
Arunachal Pradesh	-		Goa
Tripura Nagaland			Meghalaya

Table-20-Categorization of Larger States on incremental performance and overall performance

	Not improved	Least improved	Moderately improved	Most improved
	Uttarakhand	Madhya Pradesh	Bihar	Jharkhand
Pradesh	Himachal	Maharashtra	Chhattisgarh	Jammu & Kashmir
	Karnataka	Assam	Punjab	Uttar Pradesh
	Gujarat	Telangana	Andhra Pradesh	
	Haryana	West Bengal	Rajasthan	
	Kerala	Odisha Tamil Nadu		

Categorization of Smaller States on incremental performance and overall performance

Union Territories: Overall performance in RY- Categorization

Table21- Union Territories: Incremental performance from base to RY- Categorization

	Not improved	Least improved	Moderately improved	Most improved
	Chandigarh	Delhi	Andaman and Nicobar Islands	Lakshadweep
Diu	Daman and	Puducherry	Dadra and Nagar Haveli	

Note: The States are categorized on the basis of RY Index score range: Front-runners: top one-third (Index score>61.60), Achievers: mid one-third (Index score between 49.49 and 61.60), Aspirants: lowest one-third (Index score<49.49). Note: Overall Performance: The UTs are categorized on the basis of RYIndex score range: Front-runners: top one-third (Index score>55), Achievers: middle one-third (Index score between 45 and 55), Aspirants: lowest one-third (Index score<=0), ‘Least Improved’ (incremental Index score between 0.01 and 2), ‘Moderately Improved’ (incremental Index score between 2.01 and 4), ‘Most Improved’ (incremental Index score>4.0). Note: Overall Performance: The States are categorized on the basis of RYIndex score range: Front-runners: top one-third (Index score>61.60), Achievers: middle one-third (Index score between 49.49 and 61.60), Aspirants: lowest one-third (Index score <=0), ‘Least Improved’ (incremental Index score between 0.01 and 2), ‘Moderately Improved’ (incremental Index score between 2.01 and 4), ‘Most Improved’ (incremental Index score>4.0).

The indicators/variables where most States and UTs need to focus include vacancies in key staff, establishment of functional district Cardiac Care Units (CCUs), quality accreditation of public health facilities, and institutionalization of Human Resources Management Information System (HRMIS). Additionally, almost all Larger States need to focus on improving the Sex Ratio at Birth (SRB).

Note: Overall Performance: The States are categorized on the basis of RY Index score range: Front-runners: top one-third (Index score>62); Achievers: middle one-third (Index score between 48 and 62), Aspirants: lowest one-third (Index score<=0), ‘Least Improved’ (incremental Index score between 0.01 and 2), ‘Moderately Improved’ (incremental Index score between 2.01 and 4), ‘Most Improved’ (incremental Index score>4.0).

19. Limitations

There is need for making outcome data available for smaller states, updated outcomes for non-communicable diseases and financial protection, robust programmatic data for continuous monitoring, were important issues, could not be addressed optimally in this first round.

LIMITATIONS OF THE INDEX 1-non-availability of acceptable quality of data on an annual basis. 2. Paucity and uneven availability of private sector data in the HMIS. 3. Analytical tools could not be used to derive domain-specific weights 4.For SRS data was available only for Larger States.

20. Interpretation

The Health Index score ranking is the first attempt at establishing an annual systematic tool for measurement of performance across States and UTs of health parameters. The results provide an important insight into the areas in which States have improved, stagnated or declined which will help in better targeting of interventions.

21. Generalisability

The States and UTs rank differently on performance, States and UTs at lower levels of the Health Index (lower levels of development of their health systems) are at an advantage in notching up incremental progress over States with high Health Index score. For example, Kerala ranks on top in terms of overall performance and at the bottom in terms of incremental progress mainly as it had already achieved a low level of Neonatal Mortality Rate (NMR) and Under-five Mortality Rate (U5MR) and replacement level fertility, leaving limited space for any further improvements.

Other information

This is the first simple version of the report. From next version next rounds of report and more analysis will be presented. This version is just for awareness. There are loopholes and drawbacks in this report of Niti Aayog of which few are displayed.

22. Funding

The author declares that no funds are taken from any individual or agency-institution for this research study.

Reference

1. The World Bank- **https://issuu.com/worldbankindia/docs/health_states_progressive_india**

2. Niti Aayog - https://www.niti.gov.in/

Declarations

-This version of paper has not been previously published in any peer reviewed journal and is not currently under consideration by any journal. The document is Microsoft word with English (India) language & 9001 words excluding reference and declaration etc. (7027 words Total including all).

-Ethics approval and consent to participate: Not applicable. This study has not involved any human or animals in real or for experiments. The submitted work does not contain any identifiable patient/participant information.

-**Consent for publication:** The author provides consent for publication.

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Abbreviations

AHPI Association of Healthcare Providers (India), ANC Antenatal Care ,ANM Auxiliary Nurse Midwife, ART Antiretroviral Therapy, BCG Bacillus Calmette–Guérin ,CCU Cardiac Care Unit ,CHC Community Health Centre ,CIPS Centre for Innovation in Public Systems, CMO Chief Medical Officer, CRS Civil Registration System, C-Section Caesarean Section, DH District Hospital, DPT Diphtheria, Pertussis, and Tetanus, EAG Empowered Action Group, ENT Ear-Nose-Throat, GBD Global Burden of Disease, FLV First Level Verification, FRU First Referral Unit, Hb Hemoglobin, HIV Human Immunodeficiency Virus, HMIS Health Management Information System, HRMIS Human Resources Management Information System, IDSP Integrated Disease Surveillance Programme, IMR Infant Mortality Rate ,INR Indian Rupees, IVA Independent Validation Agency, ISO International Organization for Standardization, IT Information Technology, JSSK Janani Shishu Suraksha Karyakram, JSY Janani Suraksha Yojana, LBW Low Birth Weight ,L Form IDSP Reporting Format for Laboratory Surveillance ,MCTS Mother and Child Tracking System ,MCTFC Mother and Child Tracking Facilitation Centre ,MIS Management Information System ,MMR Maternal Mortality Ratio, MO Medical Officer, MoHFW Ministry of Health and Family Welfare ,NA Not Applicable, NABH National Accreditation Board for Hospitals, and Healthcare Providers ,NACO National AIDS Control Organization, NCDs Non-communicable Diseases, NE North-Eastern, NFHS National Family Health Survey, NHM National Health Mission, NHP National Health Policy ,NITI National Institution for Transforming India, NMR Neonatal Mortality Rate, NQAS National Quality Assurance Standards ,OPV Oral Polio Vaccine ,ORGI Office of the Registrar General and Census Commissioner, India ,OOP Out-of-Pocket ,PCPNDT Pre-Conception and Pre-Natal Diagnostic Techniques ,P Form IDSP Reporting Format for Presumptive Surveillance ,PHC Primary Health Centre ,PLHIV People Living with HIV ,RRC-NE Regional Resource Centre for North Eastern States ,RNTCP Revised National Tuberculosis Control Programme ,RU Reporting Unit,SBR Still Birth Rate ,SC Sub-Centre ,SDGs Sustainable Development Goals ,SDH Sub-District Hospital ,SLV Second Level Verification ,SRB Sex Ratio at Birth ,SRS Sample Registration System ,SN Staff Nurse ,SNO State Nodal Officer ,TA Technical Assistance ,TB Tuberculosis ,TERI The Energy Research Institute ,TFR Total Fertility Rate ,U5MR Under-Five Mortality Rate ,USAID United States Agency for International Development, UTs Union Territories