

EXECUTIVE SUMMARY





Background and Methodology

- 1. Accompanying the rapid economic growth, India has made significant improvements in health.** In the last decade, millions of Indians were alleviated from poverty. Health system and health outcomes have also significantly improved. Despite the remarkable progress, health remains a critical area that needs improvement. When benchmarked against countries with similar levels of economic development, India is lagging on some critical health indicators. Moreover, there are huge disparities across States and Union Territories (UTs). The health outcomes of some States are comparable to that of some upper middle-income countries and high income countries (for example, Neonatal Mortality Rate (NMR) in Kerala is similar to that of Brazil or Argentina), while some other States have health outcomes similar to that in the poorest countries in the world (for example, NMR in Odisha is close to that of Sierra Leone). To motivate States to improve population health and reduce disparities in the spirit of cooperative and competitive federalism, the *National Institution for Transforming India (NITI) Aayog* launched the Health Index to measure the performance of States and UTs. In February 2018, the first round of the Health Index (referred to as Health Index-2017) was released, which measured the annual and incremental performance of the States and UTs over the period of 2014-15 (Base Year) to 2015-16 (Reference Year). NITI Aayog in collaboration with MoHFW and the World Bank, is committed to establish the Health Index as an annual systematic tool to propel States towards undertaking multi-pronged interventions that will bring better health outcomes. The second round of Health Index (referred to as Health Index-2018) examined the overall performance and incremental improvement in the States and UTs for the period 2015-16 (Base Year) to 2017-18 (Reference Year), i.e., a two-year period. The details of the Health Index and indicators can be found in Tables 2.2 and 2.3.
- 2. Multiple stakeholders contributed to the Health Index-2018.** The NITI Aayog provided overall stewardship in collaboration with the Ministry of Health and Family Welfare (MoHFW), while the World Bank continued to provide technical assistance, the States and UTs, national and international experts contributed to the completion of the Health Index exercise.
- 3. Health Index is a composite score incorporating 23 indicators covering key aspects of health sector performance.** The indicators, methodology and categorization of States and UTs in the Health Index-2018 are consistent with the 2017 round with a total of 23 indicators grouped into domains of Health Outcomes, Governance and Information, and Key Inputs/Processes. The interactive web portal developed and hosted by NITI Aayog with pre-specified format from the 2017 round was used by the States and UTs to submit data on identified indicators for the Health Index-2018. The States were informed about the Health Index including indicator definitions, data sources and process for data submission. Data were submitted by States on the online portal hosted by NITI Aayog except for 12 indicators for which the data were pre-filled as these were available in the public domain. The data were then validated by an Independent Validation Agency (IVA) and were used as an input for

generation of Index values and ranks. For generation of ranks, the States were classified into three categories (Larger States, Smaller States and UTs) to ensure comparability among similar entities.

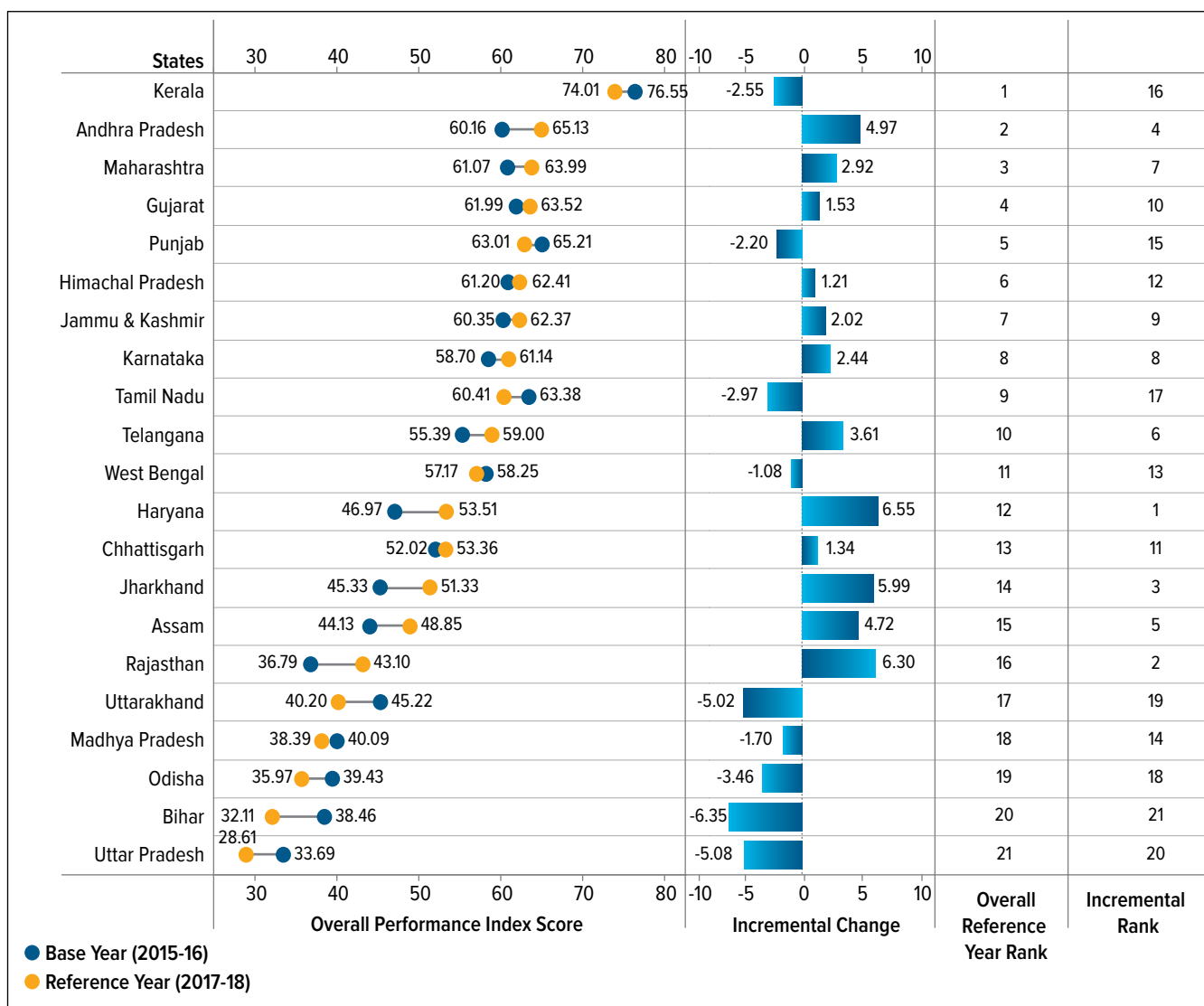
Key Results

- The Health Index scores for 2017-18 (Reference Year) revealed large disparities in overall performance across States and UTs.** Among the Larger States, the overall Health Index score of the best-performing State is more than two and half times of the overall score of the least-performing State. Kerala championed the Larger States with an overall score of 74.01, while Uttar Pradesh was the least performing State with an overall score of 28.61 (Figure E.1). Among the Smaller States, scores varied between 38.51 in Nagaland and 74.97 in Mizoram (Figure E.2). Among the UTs, the scores varied between 41.66 in Daman and Diu to 63.62 in Chandigarh (Figure E.3). Overall, there is room for improvement in all States, even among the best-performing States there is substantial room for improvement. Among the least performing States/UTs, particularly, there is an urgent need to accelerate efforts to narrow the performance gap between States and UTs.
- States vary in progress towards achieving Sustainable Development Goals (SDG).** Several States have made good progress towards achieving SDG goals included in the Index. Kerala and Tamil Nadu have already reached the 2030 SDG target for NMR, which is 12 neonatal deaths per 1,000 live births. Maharashtra and Punjab are also close to achieving the target. Kerala, Tamil Nadu, Maharashtra and Punjab have already achieved the SDG target related to Under-Five Mortality Rate (U5MR), which is 25 deaths per 1,000 live births. Other States and UTs still need significant improvements to meet SDG targets.
- The changes in Health Index scores from 2015-16 to 2017-18 varied significantly across States and UTs, implying different levels of momentum to improve performance.** Only about half the States and UTs had an improvement in the overall score between 2015-16 and 2017-18. The degree of change in incremental performance scores differed across the three categories of States. The magnitude of change was bigger in UTs compared to Larger and Smaller States. The indicators which contributed to increase or decrease in overall performance scores can be found from the snapshot of State-wise performance on indicators (Annexure 2).

State-wise factsheets depicting their respective position according to the overall performance and incremental performance, level of each indicator, and their incremental performance from 2015-16 to 2017-18 is included in Annexure 3. The changes in Health Index scores can be contributed by many factors. For example, a decline of a State's Health Index score from Base Year to Reference Year could be due to worse performance on some indicators in the Reference Year that outweighs the improvements on other indicators.

- Among the Larger States, Haryana, Rajasthan and Jharkhand are the top three States in terms of incremental performance, while Kerala, Andhra Pradesh, and Maharashtra are the top three States in terms of overall performance.** In terms of incremental performance in Index scores from Base Year to Reference Year, the top three ranked States in the group of Larger States are Haryana (up 6.55 points), Rajasthan (up 6.30 points) and Jharkhand (up 5.99 points). However, in terms of overall performance, these States are among the bottom two-third of the range of Index scores, with Kerala (74.01), Andhra Pradesh (65.13) and Maharashtra (63.99) showing the highest scores. Andhra Pradesh and Maharashtra are the only two States that are among the top one-third States on both overall performance as well as incremental performance. Andhra Pradesh has the highest proportion of indicators (63 percent) among the Larger States which fall in the category of "Most Improved" or "Improved".

FIGURE E.1 Larger States - Incremental scores and ranks, with overall performance scores and ranks in Base and Reference Years



Note: As West Bengal did not submit data on the portal, the overall and incremental performance scores were generated based on pre-filled indicator data for 12 indicators and for the remaining 11 indicators the data from the Base Year were repeated for the Reference Year.

8. Among the Larger States, seven of the top ten States on overall performance also continued to improve on their Health Index scores from the Base Year (2015-16) to the Reference Year (2017-18), while several of the least-performing States (mostly EAG¹ States) further deteriorated, leading to a wider performance gap across Larger States (Table E.1). Among the top ten performers, seven had made further improvements in overall performance scores (Andhra Pradesh, Maharashtra, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka and Telangana). However, among the six least-performing States (Uttar Pradesh, Bihar, Odisha, Madhya Pradesh, Uttarakhand, and Rajasthan), five had decline in the overall performance scores, with the exception of Rajasthan which improved the score by 6.30 points. Among the eight EAG States, only three of the States Rajasthan, Jharkhand and Chhattisgarh showed improvement in the overall performance between 2015-16 and 2017-18. While it is important to identify the challenges faced by the EAG States that hinders improvement in performance, the impressive improvement in some EAG States provides learning opportunities for the rest to identify effective actions to improve their overall performance scores.

1. EAG States - Empowered Action Group States includes Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand, Uttar Pradesh, and Odisha.

TABLE E.1 Categorization of Larger States on incremental performance and overall performance

Incremental Performance	Overall Performance		
	Aspirants	Achievers	Front-runners
Not Improved (0 or less)	Madhya Pradesh Odisha Uttarakhand Uttar Pradesh Bihar	West Bengal	Kerala Punjab Tamil Nadu
Least Improved (0.01-2.0)	–	Chhattisgarh	Gujarat Himachal Pradesh
Moderately Improved (2.01-4.0)	–	–	Maharashtra Jammu & Kashmir Karnataka Telangana
Most Improved (more than 4.0)	Rajasthan	Haryana Jharkhand Assam	Andhra Pradesh

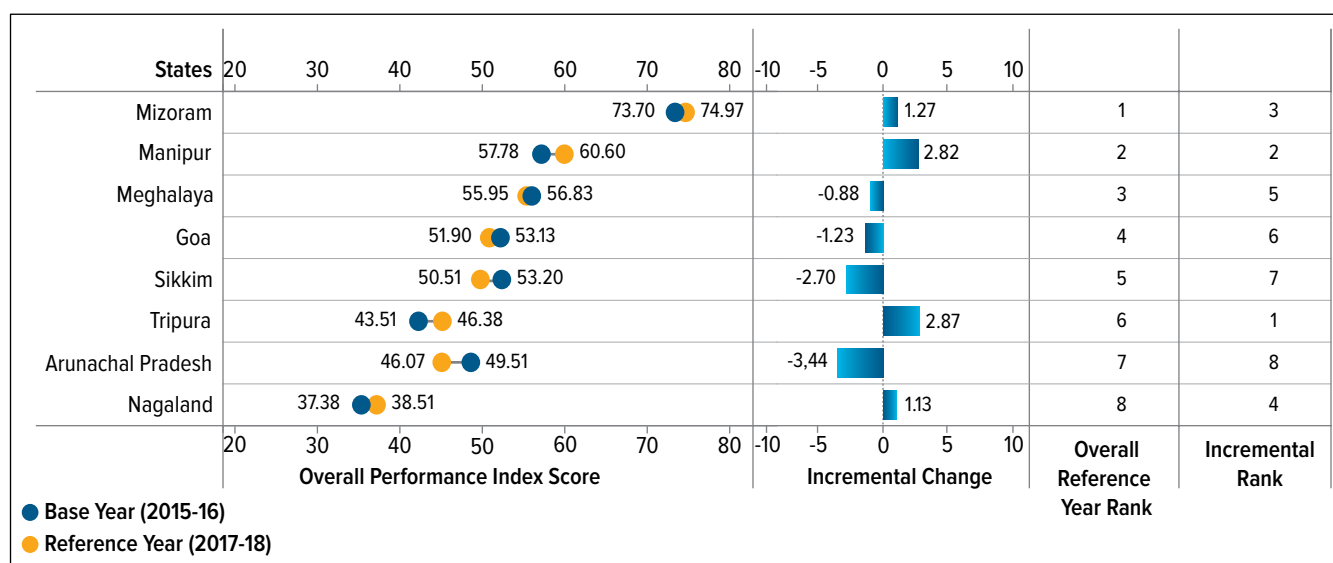
Note: The States are categorized on the basis of Reference Year Index score range: Front-runners: top one-third (Index score >58.88), Achievers: middle one-third (Index score between 43.74 and 58.88), Aspirants: lowest one-third (Index score <43.74). The States are categorized into four groups based on incremental performance: 'Not Improved' (<=0 incremental change), 'Least Improved' (0.01 to 2.0 points increase), 'Moderately Improved' (2.01 to 4.0 points increase), and 'Most Improved' (>4 points increase).

9. **The decline in the overall Health Index score for five EAG States (Bihar, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Odisha) between the Base Year and Reference Year is attributed to the deterioration of performance in several indicators.** The State-wise factsheets provide a good overview of the variations in performance (Annexure 3). For instance in Bihar, the deterioration between Base Year and Reference Year was primarily due to the performance related to total fertility rate, low birth weight, Sex Ratio at Birth, TB treatment success rate, quality accreditation of public health facilities, and time-taken for NHM fund transfer, while in the case of Uttar Pradesh the performance related to low birth weight, TB treatment success rate, average tenure of key positions at state and district level and level of birth registration accounted for the deterioration. Similarly, Uttarakhand had a decrease in Health Index score mainly because of the deterioration in NMR, U5MR, stability of tenure of key administrative positions at district level, functionality of FRUs, and NHM fund transfer. Odisha's Health Index score reduction was mostly due to worsening of the full immunization rate and TB treatment success rate, and Madhya Pradesh had a reduction in level of birth registration and TB treatment success rate, leading to lower Health Index score.

It was observed that though Under-Five Mortality and Neonatal Mortality Rates have improved in most EAG States (except for Uttarakhand where neonatal and U5MR rates increased), most intermediate outcome indicators have deteriorated. Full immunization coverage, institutional delivery and TB treatment success rate are intermediate outcome indicators that need significant improvement.

10. **Kerala, despite the decrease in overall Health Index score, maintained its ranking as the top performing among the Larger States.** However, Tamil Nadu dropped from third position to ninth position, while Punjab dropped from second position to the fifth. The decline in the overall Health Index score in Tamil Nadu and Punjab is largely attributed to the decline in several health outcome indicators.

FIGURE E.2 Smaller States - Incremental scores and ranks, with overall performance scores and ranks in Base and Reference Years



11. Among the Smaller States, Mizoram ranked first in overall performance, while Tripura and Manipur were top two States in terms of incremental performance (Figure E.2 and Table E.2). The overall performance score of four Smaller States declined in 2017-18. Arunachal Pradesh registered largest decline in the overall performance score from 49.51 to 46.07. Mizoram remains the best performer in terms of overall performance, and registered an increased from 73.70 to 74.97 in overall performance. Compared to the Larger States, the magnitude of change in the overall performance scores among the Smaller States was smaller.

Among the Smaller States, Sikkim and Arunachal Pradesh had bigger decrease in overall Health Index scores. Health Index score in Sikkim deteriorated due to poor performance of several indicators such as institutional deliveries, TB case notification rate, TB treatment success rate, 1st trimester ANCs, level of birth registration, and IDSP reporting of L-form. However, the decrease in the overall Health Index score in Arunachal Pradesh was largely attributable to significant deterioration in performance of five indicators - TB treatment success rate, e-pay slip for all staff, functional 24x7 PHCs, IDSP reporting of L-form, and quality accreditation of public health facilities.

TABLE E.2 Categorization of Smaller States on incremental performance and overall performance

Incremental Performance	Overall Performance		
	Aspirants	Achievers	Front-runners
Not Improved (0 or less)	Arunachal Pradesh Sikkim	Meghalaya Goa	–
Least Improved (0.01-2.0)	Nagaland	–	Mizoram
Moderately Improved (2.01-4.0)	Tripura	Manipur	–
Most Improved (more than 4.0)	–	–	–

Note: The States are categorized on the basis of Reference Year Index score range: Front-runners: top one-third (Index score >62.82), Achievers: middle one-third (Index score between 50.67 and 62.82), Aspirants: lowest one-third (Index score <50.67). The States are categorized into four groups based on incremental performance: 'Not Improved' (<=0 incremental change), 'Least Improved' (0.01 to 2.0 points increase), 'Moderately Improved' (2.01 to 4.0 points increase), and 'Most Improved' (>4 points increase).

12. Among the UTs, Chandigarh ranked first in overall performance, while Dadra and Nagar Haveli improved the most (Figure E.3 and Table E.3). Chandigarh, and Dadra and Nagar Haveli ranked first and second in terms of overall performance ranking because of the impressive 11 and 22 points increase respectively in the overall performance.
13. Three UTs registered decline in their overall Health Index scores: Lakshadweep, Andaman and Nicobar Islands, and Delhi. The large decline in the overall Health Index scores of Lakshadweep and Andaman & Nicobar Islands is largely driven by the deterioration of health outcome indicators. Of the five health outcome indicators, 3 indicators deteriorated in Lakshadweep (low birth weight, full immunization, institutional delivery), and 4 indicators in Andaman & Nicobar (full immunization, institutional deliveries, TB case notification, and TB treatment success rate).

FIGURE E.3 UTs - Incremental scores and ranks, with overall performance scores and ranks in Base and Reference Years

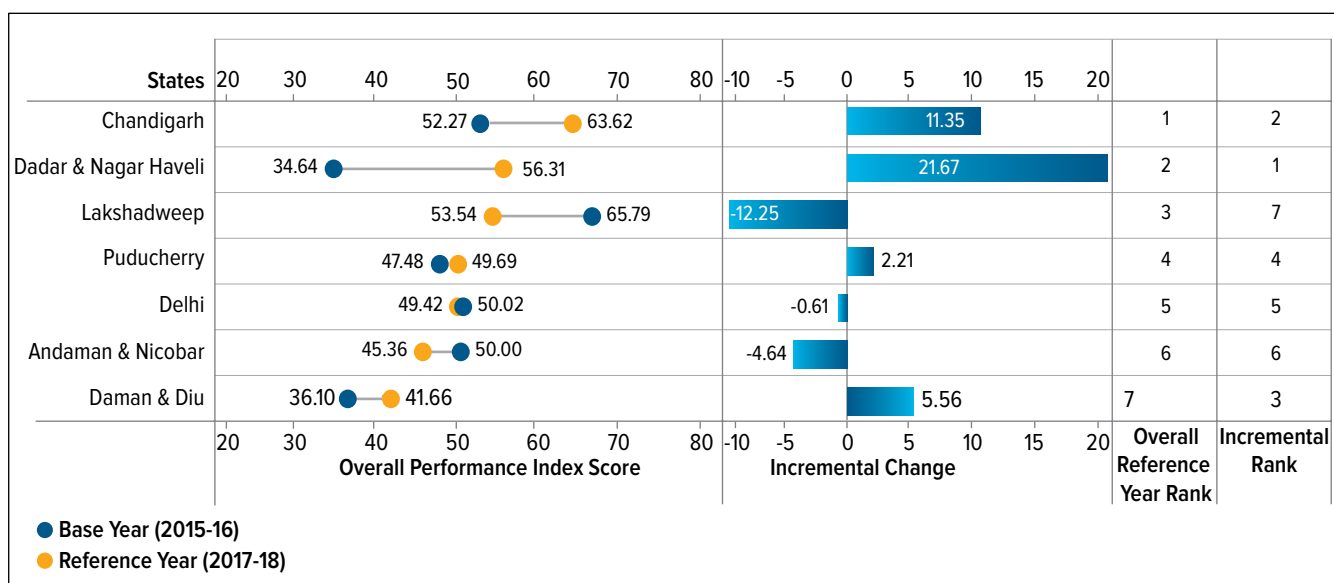


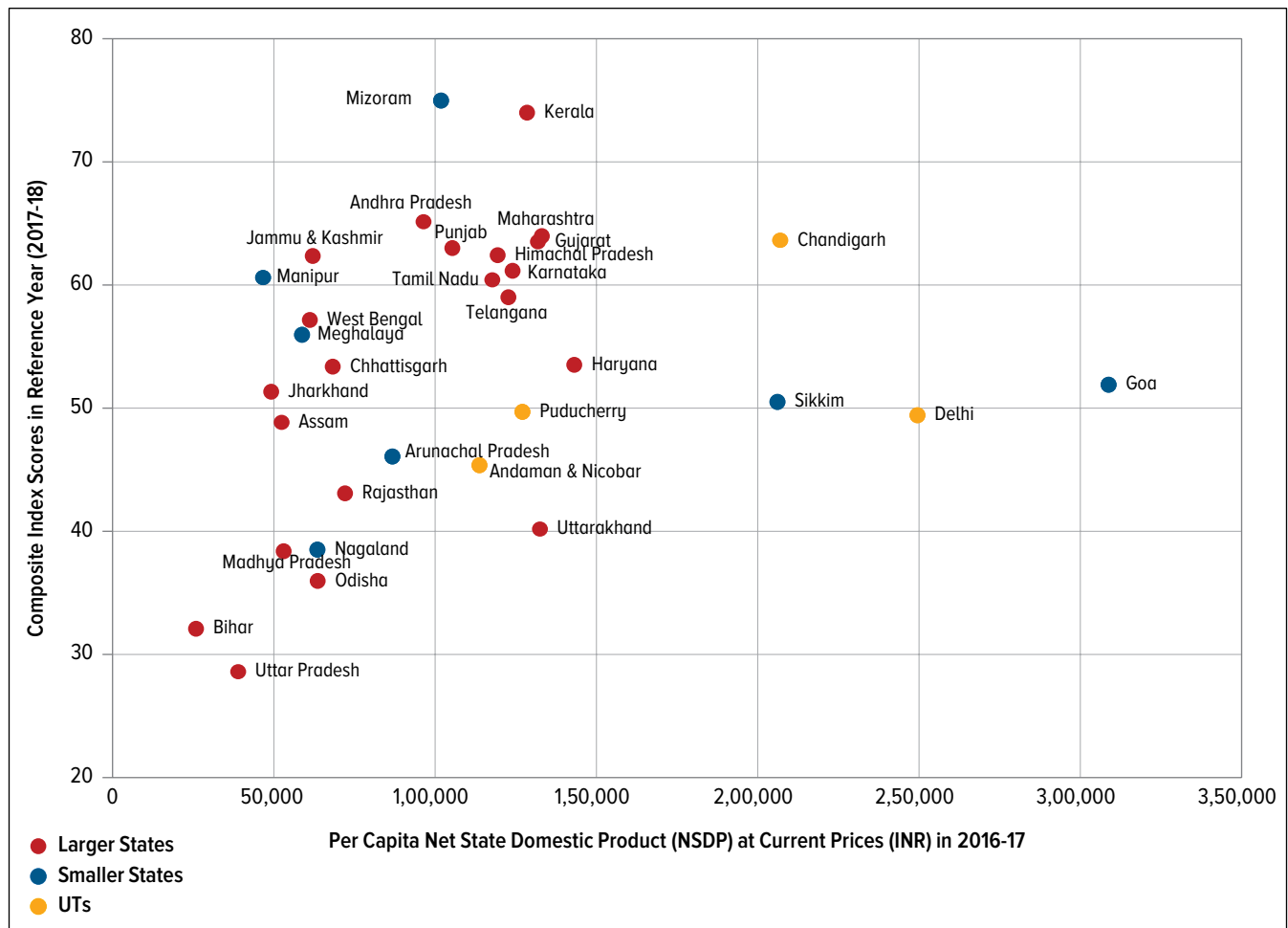
TABLE E.3 Categorization of UTs on incremental performance and overall performance

Incremental Performance	Overall Performance		
	Aspirants	Achievers	Front-runners
Not Improved (0 or less)	Andaman and Nicobar	Delhi Lakshadweep	
Least Improved (0.01–2.0)			
Moderately Improved (2.01–4.0)		Puducherry	
Most Improved (more than 4.0)	Daman and Diu		Chandigarh Dadra and Nagar Haveli

Note: The States are categorized on the basis of Reference Year Index score range: Front-runners: top one-third (Index score >56.30), Achievers: middle one-third (Index score between 48.98 and 56.30), Aspirants: lowest one-third (Index score <48.98). The States are categorized into four groups: 'Not Improved' (<=0 incremental change), 'Least Improved' (0.01 to 2.0 points increase), 'Moderately Improved' (2.01 to 4.0 points increase), and 'Most Improved' (>4 points increase).

14. There was a general positive correlation between the Health Index scores and the economic development levels of States and UTs as measured by per capita Net State Domestic Product (NSDP) (Figure E.4). However, a few States with relative low level of economic development performed well in the Health Index, such as Jammu and Kashmir, Manipur, Mizoram, Andhra Pradesh, and Punjab. The lessons from these States may provide some insights on how to improve Health Index scores in States with similarly low level of economic development. On the other hand, some States and UTs with relative high level of economic development did not perform as well in Health Index score, such as Goa, Delhi and Sikkim.

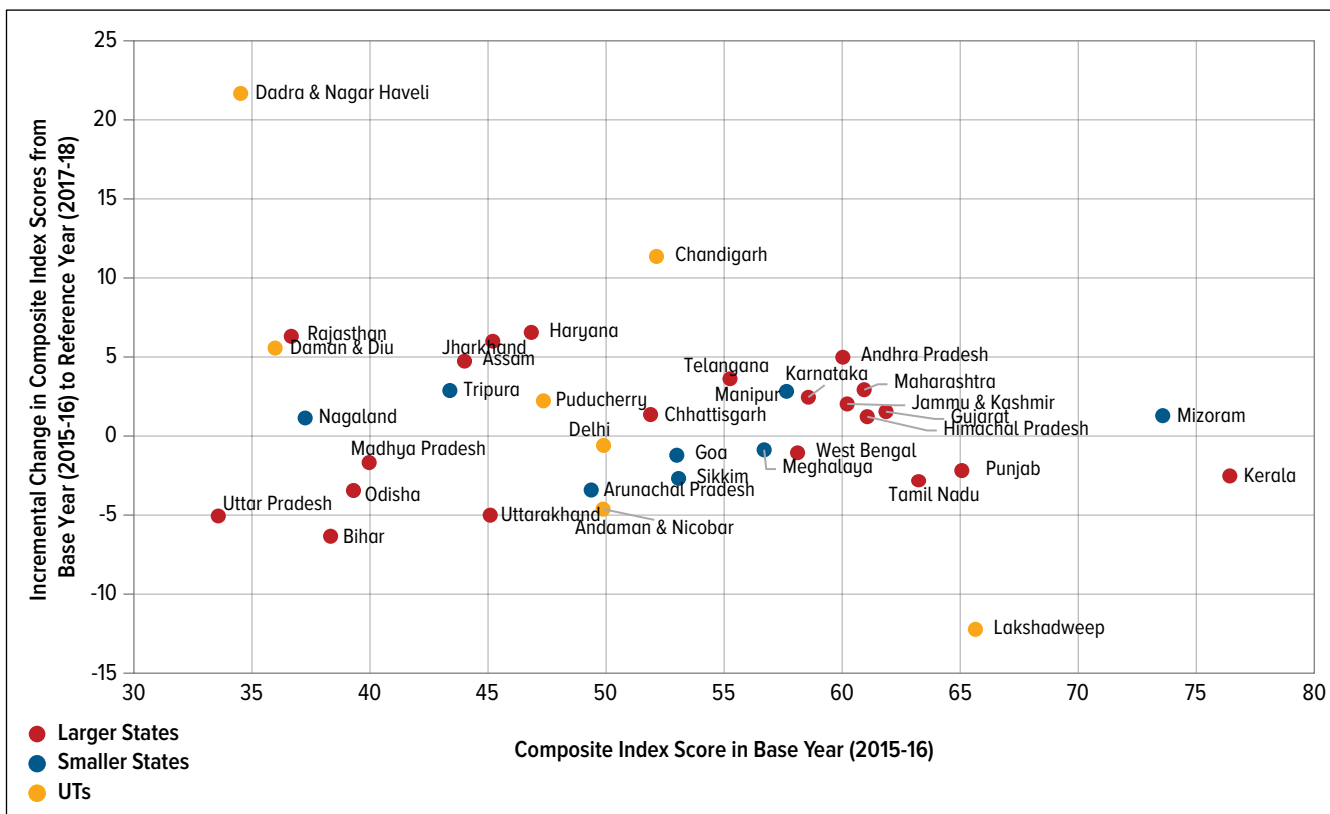
FIGURE E.4 Composite Index scores in Reference Year and per capita Net State Domestic Product at current prices (INR) in 2016-17



Source: Directorate of Economics & Statistics of respective State Governments.

15. There is narrowing gap in performance from Base Year to Reference Year among UTs (Figure E.5). There was a convergence in Health Index scores from Base Year to Reference Year across UTs, that is, UTs with higher Health Index scores in the Base Year tended to deteriorate whereas least-performing UTs in the Base Year tended to improve their performance in the Reference Year. Among the Larger and Smaller States, there was neither divergence nor convergence in Health Index scores over time.

FIGURE E.5 Incremental change in Composite Index scores from Base to Reference Year and Composite Index score in Base Year



Conclusion and Way Forward

16. **The Health Index is a useful tool to measure and compare the overall performance and incremental performance across States and UTs over time.** The Health Index is an important instrument in understanding the variations and complexity of the nation's performance in health. The first round of Health Index had triggered many useful discussions, including how best to measure health performance, how to strengthen the data collection system, how to identify barriers and motivate actions using data, and how to promote positive competition and learning among the States and UTs. The report in the second round highlights the areas each State/UT should focus on to facilitate improvement in overall health outcomes.