WHAT IS A HEALTH SYSTEM?

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A health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health (reference-1). The four key goals of a health system are improved health, responsiveness to people's expectations, Social and financial risk protection, and improved efficiency. The health system delivers preventive, promotive, curative and rehabilitative interventions through a combination of public health actions and the pyramid of health care facilities (primary, secondary and tertiary care facilities) that deliver health care. (reference-2)

What are the building blocks of a health system?

The world health organization identifies the following as the key building blocks or core components of a health system (reference-2).

1. Service Delivery
2. Health Workforce
3. Health Information Systems
4. Medical Products, Vaccines, and Technologies
5. Health Financing
6. Leadership and Governance

The overall goals of the health system is improved health, responsiveness, social and financial risk protection and improved efficiency.

The strength of a health system is determined by how these six building blocks interact. For instance, Leadership and Financing provide the necessary foundation and fuel, while Health Information Systems offer the data needed for evidence-based decision-making. These supports allow Human Resources to utilize Medical Products and Technologies to provide high-quality Service Delivery to the population.

How do we measure health ?

Health is a "multidimensional" concept, we need to use various indicators to capture the full picture. The oldest and simplest measures of population health are death records from which mortality related measures can be derived. (reference-3). Later it has evolved from a narrow focus on mortality to a much broader understanding of well-being and quality of life. Some measures consider specific health outcomes and patient care in specific groups while others are at the population level. The traditional measures are mortality and morbidity indicators . It has evolved to qualitative parameters like quality of life and expanded to measurement of indicators on coverage of services, health resources, economic cost, health financing, insurance, governance, policies and health management. These measurements help in monitoring, evaluating as well as making comparisons with other systems.

How do we evaluate a health system?

Evaluating a health system with just one measure is one composite way of expressing it. The National Institution for Transforming India (NITI) Aayog, Govt of India has developed a health index in collaboration with the Ministry of Health and Family Welfare (MoHFW) and the World Bank initiated an annual Health Index for tracking Overall Performance and Incremental Performance across all states and Union Territories (UTs). It is designed to measure health performance across 24 specific indicators which are organized into three primary domains; Health Outcomes, Governance and Information, and Key Inputs and Processes. The source of information is established from institutional sources like the Sample Registration System (SRS), the Civil Registration System (CRS), and Health Management Information Systems (HMIS). This is an indigenously developed health metric that can be used at the state and national levels. The metrics are given in figures 1,2 and 3 for comparison and ranking of states.

Few key indicators that have been selected from the core building blocks as provided by the World Health Organization's framework for evaluation of health system is summarised in table.1. Though there are other very detailed theoretical frameworks for

evaluation of health, the best measure of a health system's performance is its impact on health outcomes and is summarised in table 2.

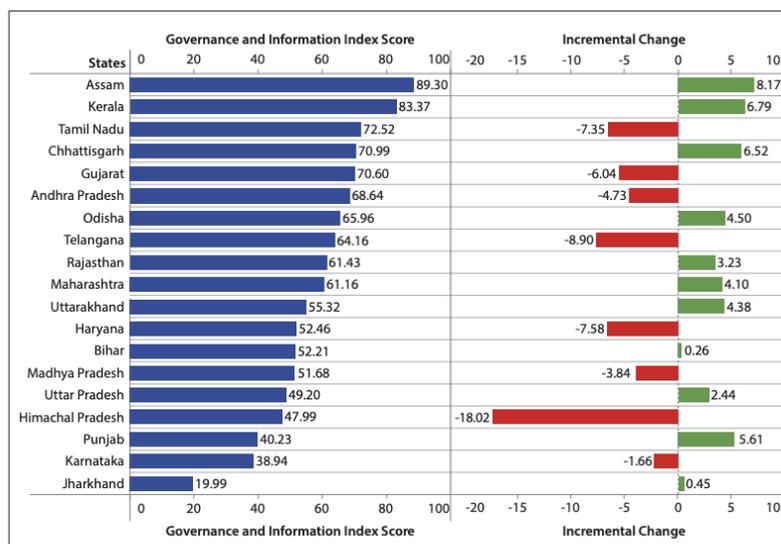## How does Kerala perform in Health as measured by the key indicators?.

1. As per the round IV (2019-20) of the rank of states and union territories Kerala ranked first among the larger states in overall performance as well as in the Health Outcomes Index Score.
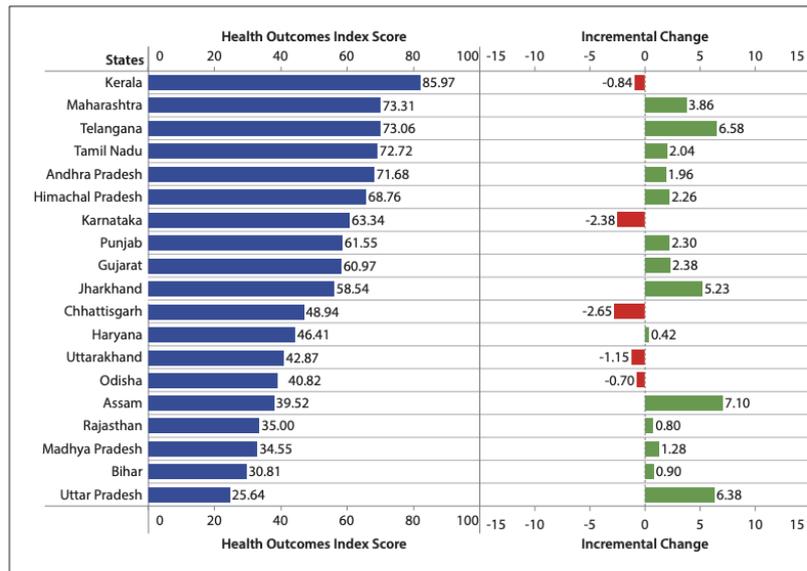
Note: *States ranked based on their Reference Year (2019-20) Score in the Health Outcome domain.*

Figure 1. Performance in Health Outcomes Index Score

2. In the governance and information index score Kerala was at 2nd place with a score of 83.3 out of 100 and showed a substantial increase of 6.79 points from the base line year.

States	Governance and Information Index Score	Incremental Change
Assam	89.30	8.17
Kerala	83.37	6.79
Tamil Nadu	72.52	-7.35
Chhattisgarh	70.99	6.52
Gujarat	70.60	-6.04
Andhra Pradesh	68.64	-4.73
Odisha	65.96	4.50
Telangana	64.16	-8.90
Rajasthan	61.43	3.23
Maharashtra	61.16	4.10
Uttarakhand	55.32	4.38
Haryana	52.46	-7.58
Bihar	52.21	0.26
Madhya Pradesh	51.68	-3.84
Uttar Pradesh	49.20	2.44
Himachal Pradesh	47.99	-18.02
Punjab	40.23	5.61
Karnataka	38.94	-1.66
Jharkhand	19.99	0.45

Note: *States ranked based on their Reference Year (2019-20) Score in the Governance and Information domain.*

Figure 2. Performance in governance and information index score

A major limitation arises when assessments give greater weightage to **incremental improvement in indicators without considering the baseline level**. For example, reducing the infant mortality rate from 90 to 50 may appear as a large percentage improvement because of the high baseline. However, reducing IMR from 10 to 5—or maintaining it at 5—often requires **much more intensive and sustained public health efforts**, including high-quality neonatal care, surveillance, and health system strengthening. Therefore, evaluation systems that rely only on percentage reductions may produce **skewed assessments**, failing to recognize the greater effort required to achieve and sustain very low levels of mortality.

A more balanced evaluation framework should therefore consider **baseline levels, quality of reporting systems, sustainability of outcomes, and preventive actions**, rather than relying solely on crude numbers or percentage changes.

Table 1.0 Status of key building block indicators with reference to selected references.

INDICATOR	KERALA	REFERENCE STANDARD	SOURCE
Health Service Delivery			
Number of health facilities per 10,000 population	2/10,000 (government Health facilities)	_	DHS Kerala
Number of inpatient beds per 10,000 population	34.6 overall (11.53 Govt.)	India- 6/10,000 (2021). 30 beds per 10,000 population (WHO) IPHS – 10/10,000 Population	National Health profile 2021 WHO IPHS 2022
Health Workforce			
Number of health workers per 10,000 population	144.03	India- 49.45	Helath.gov.in
Health Information			
Health information system performance index	Rank -2 (Governance and information domain)	-	NITI AYOG
Essential Medicines			
Average availability of 14 selected essential medicines in public and private health facilities	100% (government facilities)	-	KMSCL
Leadership and Governance			
Policy index	-Rank -2 (Governance and information domain)		NITI AYOG

Table 2. Summary of key health outcome indicators

Demographic Indicators			
Crude Birth Rate (per 1000 midyear population)	12.3	18.4	Keralahealth.gov.in, SRS 2023
Crude Death Rate (per 1000 midyear population)	7.2	6.4	SRS 2023
Life Expectancy (years)	75.1	70.3	Excerpt- Economic review 2026, Govt. of Kerala
Total Fertility Rate	1.5	2.1 (replacement level) (1.9- India)	
Sex ratio at birth (per 1000 males)	971		SRS 2023
Morbidity Indicators			
Prevalence (%) of Hypertension (age≥15yrs)	31.7	22.7	NFHS 5
Prevalence (%) of Diabetes (age≥15yrs)	26.1	14.6	NFHS 5
Nutritional Status Indicators			
Stunting (%) in under five children	23.4	35.5	NFHS
Wasting (%) in under five children	15.8	19.3	NFHS
Maternal and Child Health Indicators			
MMR (per 100,000 population)	30	88	Excerpt- Economic review 2026, Govt. of Kerala, SRS 2023
IMR (per 1000 live births)	5	25	SRS 2023
ANC Coverage % (at least 4 visits)	78.6	58.1	NFHS-5
Institutional deliveries (public and private)	99.8	88.6	NFHS-5
Delivery by caesarian section	38.9	21.5	NFHS-5

Registration of Pregnancy for which received MCP card	91.3	95.9	NFHS-5
FIC 12-23 months (fully immunized child)	85.2	83.8	NFHS-5

Insurance – Karunya Arogya Suraksha Padhathi (KASP)

Sl No.	Indicator	Outcome
1	Total families covered	43.07 lakh families
2	Total beneficiaries covered	78.84 lakh beneficiaries
3	Total empanelled hospitals	834 hospitals
4	Total Health Benefit Packages	1,669 packages
5	FY 2024–25 claim amount	₹1,592.13 Cr
6	Public share of claims 2024-2025	66%
7	Public Hospitals' claim value 2024-25	₹ 1093.15 Cr

*Source: SHA

Inference & Conclusion

The health system of Kerala is a robust, well-funded, and highly efficient healthcare ecosystem. Kerala is not just meeting national benchmarks but is actively competing with global standards, particularly in bed capacity and workforce density. Kerala maintains two government health facilities per 10,000 population. The state offers 34.6 inpatient beds per 10,000 population. This significantly exceeds the national average of 6/10,000 and even surpasses the WHO reference standard of 30/10,000. Kerala has 144.03 health workers per 10,000 population, nearly triple the national average of 49.45. The state reports 100% average availability of 14 essential medicines in its government facilities. Health expenditure as a proportion of general government expenditure stands at 8.01%, significantly higher than the reference standard of 4.98%.

Kerala citizens live nearly five years longer than the national average of 70.3. Kerala's Maternal Mortality Ratio is an impressive 30 per 100,000, nearly three times lower than the national figure of 88. The state has achieved a remarkably low Infant Mortality Rate of 5 per 1,000 live births, significantly better than the national average of 25. With a Total Fertility Rate of 1.5, Kerala has successfully stabilized its population growth well below the replacement level (2.1). The state maintains a stable Crude Birth Rate (12.3) and a controlled Crude Death Rate (7.2), indicating a highly developed healthcare infrastructure. Only 23.4% of children in Kerala face stunting, compared to a much higher national average of 35.5%. The state also reports lower rates of wasting (15.8%) compared to the rest of the country (19.3%), showcasing effective grassroots nutritional programs. While Kerala reports higher prevalence rates for lifestyle-related conditions like Hypertension (31.7%) and Diabetes (26.1%) compared to national averages, this is often attributed to the state's superior screening and diagnostic culture, where more people are aware of their health status than in other regions.

The indicators also reflect a governance structure that allocates significant portions of its budget to healthcare that may be attributed to the health outcomes.

We can infer several critical points regarding the state's socio-economic and healthcare health:

Effective Public Health Delivery: The low IMR and MMR suggest that Kerala has a highly efficient and accessible primary healthcare system that ensures safe childbirth and neonatal care.

The "Detection" Advantage: The higher reported prevalence of chronic conditions like diabetes and hypertension is likely an inference of better health literacy and diagnostic screening. Rather than indicating a "sicker" population, it often reflects a system that identifies and records cases early, whereas national figures may suffer from under-reporting.

Demographic Dividend Transition: With a TFR of 1.5 and high life expectancy, Kerala is transitioning into an "aging society" faster than the rest of India. This implies a future shift in healthcare focus toward geriatric care and long-term management of non-communicable diseases.

Socio-Economic Well-being: The superior nutritional indicators for children (stunting and wasting) infer a successful implementation of social safety nets, such as effective Anganwadi systems and school mid-day meal programs, which shield the youngest citizens from the worst effects of poverty.

As of 2026, Kerala's health journey remains a global benchmark in public health, often compared more closely to developed nations than to other Indian states. Despite a high aging demographic and NCD burden, the state continues to achieve record-breaking health outcomes through a unique blend of public health governance and interventions.

The Kerala Health team does not stop here but continues to identify areas for further improvement and implement evidence-based interventions to provide quality health services to people. These achievements are due to the committed efforts of people, local self-governments, volunteers, grassroots-level functionaries of Health and all other line departments, civil society, and leadership at panchayath, block, district, and State levels.

Reference:

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3. National Research Council (US) Panel to Advance a Research Program on the Design of National Health Accounts. Accounting for Health and Health Care: Approaches to Measuring the Sources and Costs of Their Improvement. Washington (DC): National Academies Press (US); 2010. 5, Defining and Measuring Population Health. Available from: https://www.ncbi.nlm.nih.gov/books/NBK53336/
4. NFHS-5
5. SRS 2023