

NOTES FROM THE FIELD - PUBLIC HEALTH

EFFECT OF COMPREHENSIVE PRIMARY HEALTHCARE RANKING SYSTEM ON THE PERFORMANCE OF PRIMARY HEALTH CENTRES IN TAMIL NADU, INDIA

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Abstract

BACKGROUND : There is always a need for a multidimensional approach to performance evaluation in health sector. Directorate of Public Health developed a multi-dimensional comprehensive primary healthcare ranking system to monitor the performance of PHCs in the state with twenty crucial programmatic indicators – 15 at PHC level covering institutional and community services and 5 at Health Unit District level for NCDs. Each PHC was scored on each indicator as the percentile of a maximum score of 10, which is given for the best-performing PHC among the PHCs of the same type – Upgraded PHC, Urban PHC, or Additional PHC. We compared the median scores of each of the fifteen PHC level indicators during September 2022 and May 2023 by the type of PHC, to understand whether the new ranking system used during the review meetings improved the performance and documented our experiences. Overall, eight out of the 15 PHC level indicators showed an increase in the median (IQR) score, four showed no difference, and three showed a decrease in the median score. Based on our experiences, the new ranking system helped the administrators to concentrate on the weak domains by type of facilities and by districts, understand the challenges in the implementation of those domains and rectify them as required. It was also observed that during the review meetings, the district officials were able to articulate better on the reasons for low scores and helped them to get much involved and motivated to improvise focusing on the weaker domains.

KEYWORDS : Health Services Administration, India, Primary Health Care, "Quality Assurance, Health Care"

MAIN ARTICLE

The increase in complexity of health organisations, the increase in health expenditure after the COVID-19 pandemic, the prioritisation of programs and the importance of efficiency and effectiveness of the services provided have made performance evaluation of health centres a time-bound need for policymakers.¹ The World Health Organization (WHO) made the first effort to evaluate the performance of health systems in 2000 among 191 countries.² A timely management of the performance and, monitoring and evaluation of the programs guarantees the continuous improvement of programs and the reduction of inequalities in health outcomes.³

The performance evaluation of health programs seems to be a simple endeavour, starting with what to measure, identifying the proper measures along with their respective data sources, and conducting analysis, aggregation, understanding, and dissemination of the results. However, as simple as it may seem, the difficulty lies in the details. There is always a need for a multidimensional approach to performance evaluation in the health sector.⁴ Several countries use performance evaluation as an important

indicator for prioritization of the expenditure of funds.

The Directorate of Public Health & Preventive Medicine (DPH&PM), Tamil Nadu, India, administers public health activities and health programs in the state through 45 Health Unit Districts (HUDs), each headed by a Deputy Director of Health Services (DDHS). The primary health care in urban areas is delivered through urban primary health centres (UPHCs) for every 50,000 population and in rural areas by Upgraded Primary Health Centres (UGPHC) and Additional PHCs for every 100,000 and 30,000 population respectively. The PHC areas are further divided into sectors in urban areas and Health Sub Centres (HSCs) in rural areas with 10,000 and 5000 population each as per IPHC standards.⁵ Overall, Tamil Nadu state has 2127 PHCs, of which 424 are UGPHCs, 1379 are Additional PHCs and 324 UPHCs.



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Additional Directors and Joint Directors who are the State program managers of different health programs and domains and the Director of Public Health (DPH) review the performance of 2127 PHCs in 45 HUDs every week and month by online meetings and in-person review meetings respectively among the DDHS. However, the performance of each domain (e.g., maternal and child health, non-communicable diseases) was reviewed separately. In August 2022, DPH developed a multi-dimensional comprehensive primary healthcare ranking system to monitor the performance of primary health centres (PHCs) in the state with inputs from the state-level program managers managing different domains under the DPH.

The ranking system was based on twenty crucial programmatic indicators from the major domains covering both institutional and community services of PHCs – Eight Maternal and Child Health (MCH) care services, four Non-Communicable Diseases (NCDs), and three general institutional services. Eight MCH indicators selected were based on Antenatal (AN) registration, early AN registration, Iron & Folic Acid (IFA) supplementation to pregnant women, institutional deliveries conducted, immunisation coverage, and sterilisation procedures done and, two negative indicators – higher order birth and low birth weight reported. Four NCD indicators were based on new hypertension, diabetes and cancer cervix and breast cases detected through screening in the PHCs among the eligible population. Three general institutional indicators were based on outpatient, inpatient and laboratory services. The remaining five indicators were on the diagnostic gap for NCDs - hypertension, diabetes, both hypertension & diabetes, cervical cancer and breast cancer which were assessed at the level of HUDs. The details and data source for all the twenty indicators are explained in Table 1 and 2. Data for all indicators were acquired from various Digital Health Platforms run by both the State and Government of India.

In the new ranking system, each PHC was scored on each indicator as the percentile of a maximum score of 10, which is given for the best-performing PHC for that indicator among the PHCs of the same type - UGPHC, UPHC, or Additional PHC. Ranking done among the same type was because of the difference in the population catered, services delivered and availability of resources. Thus, each PHC could get any score between zero to ten for each indicator. The total score for each PHC was the addition of scores from all the indicators. The maximum score for the fifteen indicators was 150 for UGPHCs and 140 for UPHCs and additional PHCs. The five HUD level indicators on the diagnostic gap for NCDs were given any

score between zero to five for each indicator, and the scores obtained by the HUD for these five indicators will be added on to each of the PHCs in the respective HUD consolidating to a maximum score of 175 for UGPHCs and 165 for UPHCs and Additional PHCs. The lower maximum score for UPHC and Additional PHCs is because the sterilization services are provided only at UGPHCs with availability of operation theatres. Finally, the Health Unit District score was calculated as the total score of all the PHCs in that HUD. The HUDs were then ranked based on the average score.

This ranking system provided a birds-eye view of the performance of each HUD on all the domains and the overall performance of each HUD compared with other HUDs during review meetings. The review of HUDs based on the new ranking system started in September 2022. The statistics department of the Directorate of Public Health & Preventive Medicine analysed the data from different sources every month to calculate the scores and ranks, which the Director and Joint Directors used to review on the performance of HUDs. The same ranking system was also used for the high-level health department review meetings by the hon'ble Health minister, Chief Secretary and Health Secretary of the state.

Table 1 : Fifteen Indicators at PHC level used in implementation of the comprehensive primary health care ranking system, Tamil Nadu.

Domain	Sl.No	Indicator	Indicator definition	Data Source	
MCH Indicators	1	Percentage of Antenatal (AN) Registration	Proportion of estimated target pregnant mothers registered in PICME portal	PICME Portal(State)	
	2	Percentage of Early AN Registration	Proportion of estimated target pregnant mothers registered in their 1st trimester in PICME portal		
	3	Percentage of Iron & Folic Acid supplementation (IFA) to AN mothers	Proportion of registered pregnant mothers given IFA supplementation		
	4	Percentage of Fully Immunized Children	Proportion of estimated infant target fully immunized		
	5	No. of Low birth weight reported (Negative Indicator)	No. of Low birth weight babies delivered		
	6	No. of Higher Order Birth reported per month (Negative Indicator)	No. of pregnant mothers with three or more children		
	7	No. of Institutional Deliveries conducted in PHC	No. of deliveries conducted in PHC per month		TNHMIS portal(State)
	8	No. of Sterilization procedures performed in functional Operational Theaters	No. of sterilization done per month		
NCD Indicators	9	New Hypertension cases diagnosed among target to be screened per month	Proportion of estimated screened individuals diagnosed with hypertension per month	NCD-MTM portal(State)	
	10	New Diabetes cases diagnosed among target to be screened per month	Proportion of estimated screened individuals diagnosed with diabetes per month		
	11	New Cervical Cancer cases diagnosed among target to be screened per month	Proportion of estimated screened women diagnosed with cervical cancer per month		
	12	New Breast cancer cases diagnosed among target to be screened per month	Proportion of estimated screened women diagnosed with breast cancer per month		
General Institutional services	13	Outpatient services	Average outpatient per Medical Officer per day in PHC	TNHMIS portal(State)	
	14	Inpatient services	No. of Inpatient per month in PHC		
	15	Laboratory tests done	No. of Lab tests done per month in PHC	IHIP Portal(Government of India) & LMIS portal(State)	

PICME - Pregnancy & Infant Cohort Monitoring & Evaluation; TNHMIS - Tamil Nadu Health Management Information System; NCD-MTM - NCD - Makkalai Thedi Maruthuvam - State flagship programme on doorstep delivery of NCD services; IHIP - Integrated Health Information Portal

In this study, we compared the median scores of each of the fifteen PHC level indicators during September 2022 and May 2023 by the type of PHC, to understand whether

the new ranking system used during the review meetings improved the performance of the PHCs and we documented our experiences in the implementation. The five HUD level indicators were the cumulative performance of all PHCs in each HUDs and hence only the 15 PHC level indicators were taken for analysis.

Table 2 : Five Indicators at Health Unit District (HUD) level used in implementation of the comprehensive primary health care ranking system, Tamil Nadu.

Domain	Sl.No	Indicator	Indicator definition	Data Source
NCD Indicators	11	Diagnostic gap for hypertension (Cumulative)	Proportion of hypertension only cases diagnosed in the HUD out of the expected prevalence as per STEPS 2020 - 23.4%	NCD-MTM portal(State)
	12	Diagnostic gap for diabetes cases (Cumulative)	Proportion of diabetes only cases diagnosed in the HUD out of the expected prevalence as per STEPS 2020 - 7.1%	
	13	Diagnostic gap for both hypertension & diabetes cases (Cumulative)	Proportion of both hypertension & diabetes cases diagnosed in the HUD out of the expected prevalence as per STEPS 2020 - 10.5%	
	14	Diagnostic gap for cervical cancer (Cumulative)	Proportion of cervical cancer cases diagnosed in the HUD out of the expected as per TNCRP CIR - 18 per lakh population	
	15	Diagnostic gap for breast cancer (Cumulative)	Proportion of breast cancer cases diagnosed in the HUD out of the expected as per TNCRP CIR - 25 per lakh population	

TNCRP – Tamil Nadu Cancer Registry Project; CIR – Crude Incidence Rate; NCD-MTM – NCD – Makkalai Thedi Maruthuvam - State flagship programme on doorstep delivery of NCD services

Overall, eight out of the 15PHC level indicators showed an increase in the median (IQR) score, four showed no difference, and three showed a decrease in the median score after implementing the ranking system. Sterilisation services which are provided at UGPHCs, showed the maximum increase (four points) from 2 (0-7) before to 6 (0-10). The next highest increase (two points) was seen in the immunisation domain, overall from 8 (6-9) to 10 (9-10) and in additional PHCs [8 (6-9) to 10 (9-10)]. Though the immunisation score increased by three points in UPHCs from 6 (3-8) to 9 (8-10) and two points in UGPHCs from 8 (6-9) to 10 (9-10), the highest increase was seen in IFA distribution [five points, 4 (1-9) to 8 (7-10)] in UPHCs and laboratory services in UPHCs [three points, 3 (0-4) to 6 (3-8)] and UGPHCs [two points, 6 (0-9) to 8 (6-10)]. The antenatal registration had the next maximum increase (two points) overall [8 (7-9) to 10 (9-10)], in UGPHCs [6 (4-6) to 8 (6-10)], additional PHCs [4 (2-6) to 6 (3-8)] and UPHCs [7 (6-9) to 10 (9-10)].

The performance of the low birth weight indicator declined in all types of PHCs – overall [two points, 9 (8-10) to 7 (6-8)],

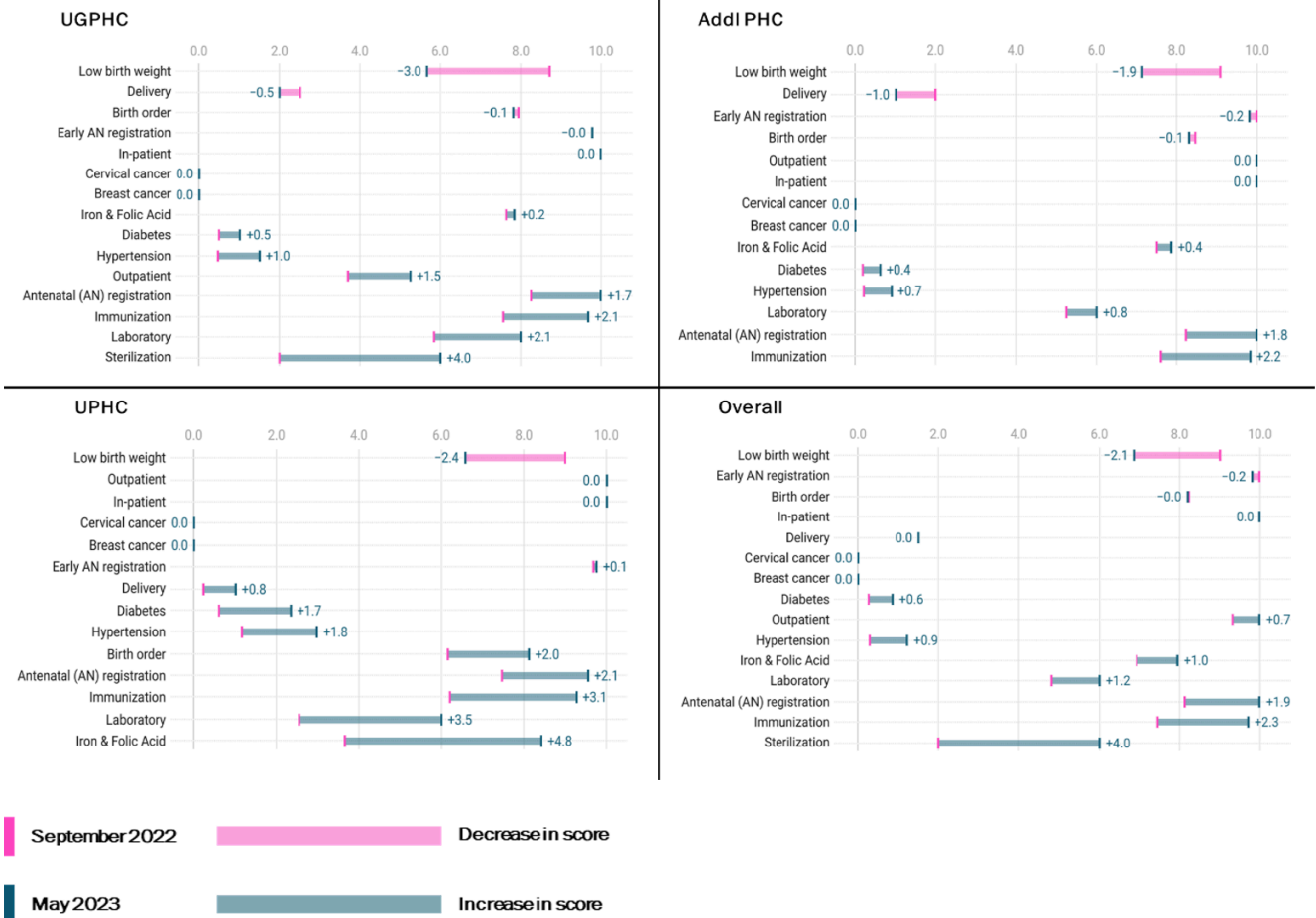


Figure 1 : Median domain scores before (Sep 2022) and after (May 2023) implementation of the comprehensive primary health care ranking system by the type of facility, Tamil Nadu

UGPHCs [three points, 9 (8-9) to 6 (4-7)], Additional PHCs [two points, 9 (8-10) to 7 (6-8)] and UPHCs [two points, 9 (8-10) to 7 (6-7)].

While eight domains improved after implementing the new ranking system, performance of few indicators related to low birth weight decreased in all types of PHCs, and institutional deliveries and birth order related performances decreased in UGPHCs and Additional PHCs.

Based on our experiences, the new ranking system helped the administrators to concentrate on the weak domains by type of facilities and by districts, understand the challenges in the implementation of those domains and rectify them as required. It was also observed that during the review meetings, the district officials were able to articulate better on the reasons for low scores and helped them to get much involved and motivated to improvise focusing on the weaker domains.

Some of the challenges faced while implementing this new ranking system were reporting of extreme values found due to underreporting for the laboratory and cancer services. However, the data quality improved over time with timely reporting and less outliers.

On way forward to improving the ranking system, few more programmatic indicators may be added like adolescent health services and communicable diseases management. Though ranking was done based on the type of PHCs, standardizing by the population catered by each PHC and the human resource availability may also be considered.

We recommend to continue the ranking system; however, we also suggest to interview all the stakeholders to explore the perceived benefits and challenges and unintended consequences. In addition, the reasons why certain indicators

didn't improve and why certain indicators declined are to be identified. The quality of this ranking system may also be evaluated by correlating the scores with the vital indicators – MMR, IMR, still birth rate, Under-5 mortality which are determined by the Sample Registration System through surveys.

This ranking system focusses on the basic crucial indicators of the public health programmes, helps in intriguing the PHC team and district officials to get more involved in understanding their performance status and to encourage their efforts to improvise on the weaker areas identified.

REFERENCES

1. Ghorbani-Kalkhaje S, Nasiripour AA, Raeissi P, Asl IM. Performance Evaluation Factors: Designing an Instrument for National Health Network in Iran. 2016;
2. Evans DB, Tandon A, Murray CJL, Lauer JA. Comparative efficiency of national health systems: cross national econometric analysis. *BMJ*. 2001 Aug 11;323(7308):307–10.
3. su6501.pdf [Internet]. [cited 2023 Jul 29]. Available from: <https://www.cdc.gov/mmwr/volumes/65/su/pdfs/su6501.pdf>
4. Loeb JM. The current state of performance measurement in health care. *Int J Qual Health Care*. 2004 Apr 1;16(suppl_1):i5–9.
5. Indian Public Health Standards :: National Health Mission [Internet]. [cited 2023 Jul 30]. Available from: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=971&lid=154>