Learnings from developing a comprehensive primary health care facility performance dashboard

Harsha Joshi, Akriti Mehta, Krishna D Rao, Jacob Marak, M D Malaviya, Binod Patro

Evidence informed decision making using routine health information systems has been an ongoing challenge due to various factors. In the current context of Health and Wellness Centres (HWCs), information is available across multiple, disease- or program-specific data portals; however, there is no integrated system that can enable facility and block/district managers to make decisions on comprehensive health of the population. A facility performance dashboard based on data collected in routine data systems can address this gap. In this note, we will briefly discuss the process adopted for developing such dashboard for three districts and key learnings.

Routine health information systems in India generate abundant data on the performance of health facilities and programs. Further, significant efforts have been made in digitizing these routine health information systems. Yet, primary healthcare facility managers face challenges in comprehensively understanding the performance of their health facilities or the health of communities served by these facilities. There are several reasons for this:

- information needs to be sourced from several different data portals, which prevents an easy and comprehensive understanding of how well a health facility is performing (see Table 1 for a snapshot of the routine, digital systems used at HWCs across the country and reporting data on service delivery).
- the digital data portals are designed to monitor specific vertical programs and do not lend themselves well for comprehensive service delivery planning by health workers.
- the digital data portals present a different interface and summary dashboard to each health system stakeholder, hindering transparency and limiting their ability to effectively coordinate and monitor care.
- the lack of integration among the different digital data portals prevents a comprehensive view of health facility performance from a single, one-stop portal or source.
- the same catchment households form the base of different data portals. For example, the RCH portal and the NCD app (see Table 1) are based on the survey of the same catchment households. However, it is currently not possible to link information on the same household across different portals to produce a comprehensive picture of a household's health.
- the lack of integration also prevents linking performance of a primary healthcare facility to service coverage outcomes of its catchment population.

All these factors limit the utility of the available routine health information systems to inform primary health care facility service planning, delivery and monitoring. District or state level performance dashboards based on key performance indicators are commonly used by managers to monitor health system performance. However, there is no such dashboard that provides a comprehensive picture of primary healthcare facility performance that can aid decision making among managers at district, block and facility levels.

As part of the IPSI project, we developed a prototype digital dashboard based on indicators from existing data portals to provide a comprehensive view of primary healthcare facility (Health and Wellness Centres-HWC) performance.

The objectives of this dashboard are to: (1) present health facility managers with a comprehensive set of key indicators related to their HWC in a user-friendly manner to facilitate data driven decision making; and (2) explicitly connect facility-based performance indicators with catchment population health indicators.

Table 1: Key HWC service delivery related data available in national, routine health information systems*[1]

Digital application/ portal	Type of records	Key data elements Brief description	Frequency of reporting	HWC team member responsible for data collection
RCH app/portal	Line listing of individual patients/ beneficiaries utilizing the service	Purpose: Monitoring and tracking of reproductive and child health service beneficiaries Key data elements include services delivered to eligible couples (family planning), pregnant women (antenatal care and delivery), mothers (postnatal care) and children (immunization)	Real time	ANM/MPW-F
NCD app/portal		Purpose: Monitoring and tracking of NCD services Key data elements include- total population of the catchment area, risk assessment scores, screening and management for common NCDs (hypertension, diabetes, oral, cervical and breast cancer)		ASHA, CHO, MO
e-Nikshay		Purpose: Monitoring and tracking of TB services Key data elements include treatment details of diagnosed TB patients		MPW-M, CHO, MO
e-Sanjeevani		Purpose: Monitoring of teleconsultation services		CHO, MO
HMIS	Facility aggregate reports	Purpose: Monitoring NHM and other health programs Key data elements include human resources, infrastructure (updated annually), service delivery records for all services provided at the facility- outpatient department, RCH services, laboratory services, mortality.	Monthly	ANM, CHO, MO
AB-HWC/AAM portal		Purpose: Monitoring of inputs and services at HWCs Key data elements include- total catchment population of the HWC, essential medicines and diagnostics, OPD, NCD screening, service availability on expanded packages at HWCs, including wellness, teleconsultation services, and Jan Arogya Samiti meetings.	Variable: daily or monthly depending on data point	CHO, MO
IDSP/IHIP		Key data elements include syndromic, presumptive, and lab confirmed cases for disease surveillance	Daily	CHO, MO

*The table provides a snapshot of few key digital portals used across the country at HWCs, and do not include state specific data systems.
RCH: Reproductive and child health; NCD: Non communicable diseases; HMIS: Health management information system; AAM: Ayushman Arogya Mandir; IDSP: Integrated disease surveillance program, IHIP: Integrated health information platform
ANM: Auxiliary Nurse Midwife; MPW-F: Multi-purpose worker- female; MPW-M: Multi-purpose worker-male; ASHA: Accredited Social Health Activist; CHO: Community health officer, MO- Medical officer

Steps in developing the HWC facility performance dashboard

The development process for the HWC facility performance dashboard involved three iterative steps:

- **Review of:**
a. Global and Indian peer-reviewed and grey literature on primary healthcare facility performance measurement (see Figure 1 for health facility performance monitoring indicator sources in India). This review aimed to understand the selection process for indicators, their organization into domains and their presentation. An inventory of indicators and their routine data sources was built.
b. Routine data systems to determine frequency and availability of indicator data (see Table 1).

Figure 1: Sources for indicators on HWC facility performance

Indian Public Health Standards (IPHS)[2]
- Standards defined for each type of health facility in the public sector.

National Quality Assurance Standards (NQAS)[3]
- Standards defined for each facility level on quality measures including inputs, processes and outputs.

Performance linked payments to HWC teams[4]
- HWC teams report on a set of 15 indicators each month to avail performance based incentives.

NHM conditionalities- AB-HWC score[5]
- NHM conditionalities include indicators and weightages defined for HWC functionality that create a score for the facility.

PHC grading (HMIS)[6]
- Key indicators reported in HMIS are identified for primary health centres, and aggregated to produce a primary health center grade.

- **Stakeholder consultations** were held with PHC experts, in-state academic institutes and district health departments of the three districts to identify priority indicators for monitoring HWC facility performance. Indicators were organized under the following identified domains:
  - ➢ Capacity of the HWC facility to deliver services
  - ➢ Service delivery of 12 HWC package services

- ➢ Quality of care including quality assurance certifications
- ➢ Coverage of HWC services in the catchment population.

Through this process, a list of 50 indicators across 4 domains was identified. All indicators were based on routinely collected data, available across the three district sites (see Table 2).

Table 2. Components of HWC facility performance dashboard

	Domain	Indicator themes
1	Capacity to deliver HWC packages	• Staff availability as per Indian Public Health Standards • Staff training in HWC expanded packages • Essential equipment availability: blood pressure machine, glucometer • Essential medicines and diagnostics availability • Conduction of Jan Arogya Samiti meetings
2	Service delivery of HWC packages	• Service delivery for existing HWC packages • Roll out of expanded HWC packages
3	Quality of Care	• Kayakalp and National Quality Assurance Standards certification status • Baseline assessment scores on quality assurance certification, if applicable
4	Service coverage	• Completion of community based risk assessment checklists • Screening for hypertension and diabetes mellitus • Coverage of ante natal care services • Coverage of immunization services among children under 2 years of age • Monthly outpatient department visits

- **Data compilation, analysis and presentation:** Data for the 50 indicators were compiled on a quarterly basis, descriptive analysis was conducted, and results organized visually as graphs and tables. The results were presented to district officials and their feedback incorporated into an HWC facility performance dashboard prototype.

HWC facility performance dashboard prototype

The dashboard provides facility, block and district views. These enable decision making and monitoring by stakeholders at various levels. In each view, indicators can be disaggregated by the time point (i.e., quarter) and facility type. The views also depict indicators over time, i.e., across quarters.

District view

HWC Facility Performance Dashboard   IPSI

About	District		
District	Block	Facility	

District population
2,968,791

Number of blocks
10

Number of facilities
309 (245 SHCs, 48 PHCs, 14 UPHCs)

All indicators

Quarter: Q3, FY 2023-24 Facility type: All facility types

Category	Indicator	Value
Capacity	Percentage of HWCs with at least 80% of essential medicines available	98
Capacity	Percentage of HWCs with at least 80% of essential diagnostics available	2
Capacity	Percentage of HWCs with CHO/MO training completed for new 6 packages	99
Service delivery	Percentage of HWCs with all 12 service packages rolled out	95
Service delivery	Proportion of HWCs providing all six existing service packages	100
Service delivery	Proportion of HWCs providing all six new service packages	95
Quality	Percentage of HWCs certified with national NQAS	7
Quality	Percentage of HWCs certified with state NQAS	7
Quality	Percentage of HWCs awarded district Kayakalp award	11
Service coverage	Cumulative percentage of 30 and above population whose CBAC form was filled	99
Service coverage	Cumulative percentage of 30 and above population screened for hypertension	30
Service coverage	Cumulative percentage of 30 and above population screened for diabetes mellitus	30
Service coverage	Proportion of registered pregnant women who received ANC as per schedule in the quarter	100
Service coverage	Proportion of children under two years of age who received immunization as per schedule in the quarter	100

All service coverage indicators are 'average proportions across HWCs'

Facility view

HWC Facility Performance Dashboard   IPSI

About	District	Block	Facility

District | Block | Facility type: PHC | Facility

Full scorecard

Capacity	Q1	Q2	Q3
Infrastructure branding	Yes	Yes	NA
BP machine present	Yes	Yes	Yes
Glucometer present	Yes	Yes	Yes
% essential medicines available	100.0%	100.0%	100.0%
% essential diagnostics available	27.0%	27.0%	27.0%
Monthly JAS meeting conducted	Yes	Yes	Yes
Medical Officer in position	Yes	Yes	Yes
% of expanded packages in which MO is trained	100.0%	100.0%	100.0%
Staff nurse in position	No	No	No
Lab technician in position	No	No	No
% required ASHA available	80.8%	80.8%	11.4%

Service delivery	Q1	Q2	Q3
% of existing package services available	100.0%	100.0%	100.0%
% of new package services available	100.0%	100.0%	100.0%

Quality	Q1	Q2	Q3
NQAS baseline assessment done	Yes	Yes	No
NQAS baseline score	61.1%	61.1%	0.0%
Kayakalp award received	Yes	Yes	Yes

Service coverage	Q1	Q2	Q3
Cumulative prop >30y screened with CBAC	100.0%	167.4%	169.2%
Cumulative prop >30y screened for HTN	7.1%	11.7%	17.3%
Cumulative prop >30y screened for DM	7.1%	11.7%	17.3%
ANC coverage	--	--	102.7%
Immunization coverage	--	--	125.7%
Average monthly OPD per 1000 population	--	--	NA

Key learnings

1. Integrating the multiple digital data portals offers several important benefits for monitoring health facility performance. A one-stop portal can provide a comprehensive view of primary healthcare facility performance to all district and sub-district managers, enhance transparency and provide a basis for better coordination and evidence informed decision making.

2. A facility performance dashboard that integrates these portals should comprise a carefully selected set of indicators. Considerations include:
   a. Indicators should be derived from existing data sources and accountability mechanisms such as team-based incentives and NHM conditionalities.
   b. Indicators should be aligned with policy and operational priorities of the district and state.
   c. The selected indicators should help the facility managers understand linkages between facility level inputs and community service coverage.

3. Indicators selection and construction process needs to account for limitations of routine data sources.

   Since the dashboard included indicators derived from routine data sources, we had to adapt to its limitations. To ensure uniformity of indicators and their interpretation, we used SMART (Specific, Measurable, Achievable, Relevant, Time-bound) indicators derived from national portals and applications. Indicators that are absolute numbers (e.g., total OPD visits) were adjusted for population size.

   Other limitations in routine data systems included time lags in data entry from paper to digital systems and variable data quality. Additionally, certain data points were captured in more than one routine system and their values differed across these systems, e.g., facility catchment population numbers. These limitations were overcome through consultations with district health officials to determine their preferred data sources for routine monitoring.

4. An integrated dashboard while important, is not useful if it does not present information to primary healthcare workers in a way that is easy to understand, actionable and can be integrated into their day-to-day workflow and service delivery planning processes. A holistic process of stakeholder engagement, human centered design and pilot testing are integral to address these considerations.

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Contributors
All India Institute for Medical Sciences, Bhuvaneshwar: Binod Patro, Pradip Kumar Jana, Anshuman Dash
State Health Systems Resource Center, Gujarat: A M Kadri
Indian Institute of Public Health, Gandhinagar: Anish Sinha, K Shruti Lekha
Indian Institute of Public Health, Shillong: Tiameren Jamir, Rajiv Sarkar, Dolly Sunn Nongbet, Amit Sangma
West Garo Hills district health department: Jacob Marak, Yvonne Sangma
Bhavnagar Zilla Parishad: Chandramani Kumar Prasad, M D Malaviya, Dhaval Dave
All India Institute for Medical Sciences, Delhi: Mohan Bairwa
Johns Hopkins University: Akriti Mehta, Krishna D. Rao, Tim Roberton, Austin Shmidt, Yifeng Zhao
Johns Hopkins India Pvt. Ltd.: Harsha Joshi