Chief Minister's Rajasthan Economic Transformation Advisory Council

Government of Rajasthan

Policy Brief

PHRN

A study to assess the gaps and challenges in health care service delivery in Rajasthan in order to inform policy

INTRODUCTION

Rajasthan has an intricate public health system with concerted investments in the last few years indicating the high priority accorded to improving the health status of the state's residents. Initiatives such as the Chief Minister's schemes for free medicines and diagnostics scheme have ensured universal and free access to these essential services. The state's expansive network of healthcare institutions is testimony to the vastness of the system, as well as indicative of the possible challenges that arise in its administration. In general, the secular trends indicate that Rajasthan has made improvements across all health indicators. However, in comparison to other similar states as well as the national average, the state fares poorly in terms of health process and outcomes.

This study was conceptualized and developed following an invitation from the Chief Minister's Economic Transformation Advisory Council in order to arrive at health policy recommendations to improve the quality of medical services in the public health sector as well as the overall provision of health care. In particular, the government indicated a special interest in relatively low-cost and 'doable' in the short term innovations such as telemedicine that have been used in settings similar to Rajasthan.

METHODOLOGY

Aim: To develop health policy recommendations for the state of Rajasthan based on a systematic study using a health systems approach to make public health services more accessible and responsive to the population, especially to the most vulnerable communities, with special reference to doable, short-term innovations.

Objectives:

- To understand the existing structure and functioning (infrastructure, human resource, supplies) of health services at different levels in Rajasthan.
- To gain an understanding of the existing barriers and challenges in the health facilities and services at primary, secondary and tertiary levels and critically analyze the factors affecting health service delivery from the point of view of the community being served.
- To examine the relevance of health sector innovations, including the use of telemedicine, that have been made in other states and countries facing similar challenges and barriers to the context of Rajasthan.
- To develop policy recommendations based on these findings.

Both primary and secondary research were used for this study. The primary research element was qualitative in nature, drawing upon sociomedical healthcare research. Data was collected through in-depth individual interviews and focus-group discussions with key informants, including health department officials, health personnel at all levels, district and block health officials, representatives of civil society or community-based organizations, community health workers, and community members. Participant observation was also used throughout the study. Secondary research included both published and unpublished literature through an iterative process. Jaipur and Karauli districts were selected for primary field research and nine facilities were visited in the month of October 2020 for this purpose.

FINDINGS AND RECOMMENDATIONS

The study findings were categorized into five themes of interest: public health facilities, health services and schemes, human resources for health, programme management, and governance. Overall, the study suggested that there have been considerable improvements in the processes within the health sector and this has resulted in favourable outputs and outcomes. However, the gaps that remain require simultaneous, concerted action on multiple fronts. To this end, five seminal recommendations are proposed below that have the potential to address a multitude of challenges[1]. One of the main constraints noted across the state was a glaring deficit of data, especially at the sub-state level, across all issues. This needs to be rectified at the earliest since it does not allow for nuanced need-based corrections, and the need for a data repository and utilisation system is reiterated in all the following sections.

Public health facilities

Overall, all facilities visited by the study team were functional although to differing extents. On the whole, the team noticed that centres were open and functional with the appointed personnel being largely present, if not out on field duty. The schemes for drugs and diagnostics were found to be functional with seemingly adequate supplies. The observed footfall at the centres varied according to the type and location of the centre; the CHC level centres were well attended by patients and the centres located in Jaipur were also well attended. Additionally, the information on out-patient attendance confirmed fair utilization of most the of the centres excluding the sub-centres.

Key findings emerging from the literature review, interviews, and field visits included disparities in distribution of facilities, with a clustering of facilities in urban areas and infrastructure that required upgradation or maintenance. The study also revealed a possibility of collaborating with the Armed Forces, ESI, Railways, or other state agencies to improve access to health services in the most remote, vulnerable areas. With respect to public-private partnerships, the study suggests that the PPP model in healthcare works better when implementing agencies have some health background and experience in the field. Additionally, successful implementation requires capacity building of the public sector to monitor the private sector with outcome-based evaluations of the processes. In terms of improving access to facilities, the study found that the current status of norms based on population fail to account for difficulties in access faced in remote areas, with civil society organizations and groups demanding that 'commute time' be used to redefine the norms. Looking into innovations, the study found 'haat' clinics to be a feasible model for use in hard-to-reach hamlets and postulate that Janta clinics will be a useful model if scaled up with adequate infrastructure and human resources.

RECOMMENDATION 1: URGENT ESTABLISHMENT OF A GEOGRAPHIC INFORMATION SYSTEM FOR RATIONALIZATION OF FACILITIES, SERVICES, AND HUMAN RESOURCES

As a first step to ensuring equitable and rational distribution of facilities, the study recommends urgent geospatial mapping (every district, every facility) be undertaken for the rationalization of location to fulfil population norms. Some published literature is already available for this, suggesting it is entirely feasible to accomplish this using available data. Furthermore, this mapping should include facilities of potential partner agencies such as the Armed Forces, ESIC and not-for-profit organizations (e.g., NGOs and Mission Hospitals). The rationalization of facilities should also ensure that the services match the current gap and demand, for instance, in access to institutional delivery, contraceptive and child health services. This mapping would then form the backbone of a geographic information system (GIS) that includes the mapping of HR and services.

[1] Please see the unabridged report for detailed findings and recommendations.

Health services and schemes

Overall, the study found that outpatient services exist and function across all levels of facilities with some physical presence of sanctioned human resources. The state-initiated schemes and programmes (Mukhyamantri Nishulk Dawa Yojana, Mukhyamantri Nishulk Jaanch Yojana, Bhamashah Swasthya Bima Yojana/Chiranjeevi Insurance) are functioning across all facilities. In urban areas, the mix of patients attending across class seem to suggest fair quality of services. However, there is a poor utilization of in-patient services as well as a dearth of specialized services. The study also found that user charges apply across all levels of services. The division of services across the three-tiered system with the NRHM-initiated focus on institutional deliveries (at SC-PHC) appears to be less appropriate and somewhat dated in current circumstances suggesting that revisioning is required. The study team found a paradoxical overmedicalization within the system suggesting that further regulation is required.

RECOMMENDATION 2: REVISIONING OF THE HEALTH SYSTEM: CREATING RELEVANCE FOR THE THREE-TIERED SYSTEM USING PUBLIC HEALTH SERVICES

The study suggests that there is a pathway to reintroduce rationalization in at least two different ways that would potentially result in better access to people, better management and more efficiency. The first of these is the process of geospatial rationalization as mentioned above. The study team suggests the use of a fully integrated sub-system of telemedicine as the second important way, as discussed in the following section.

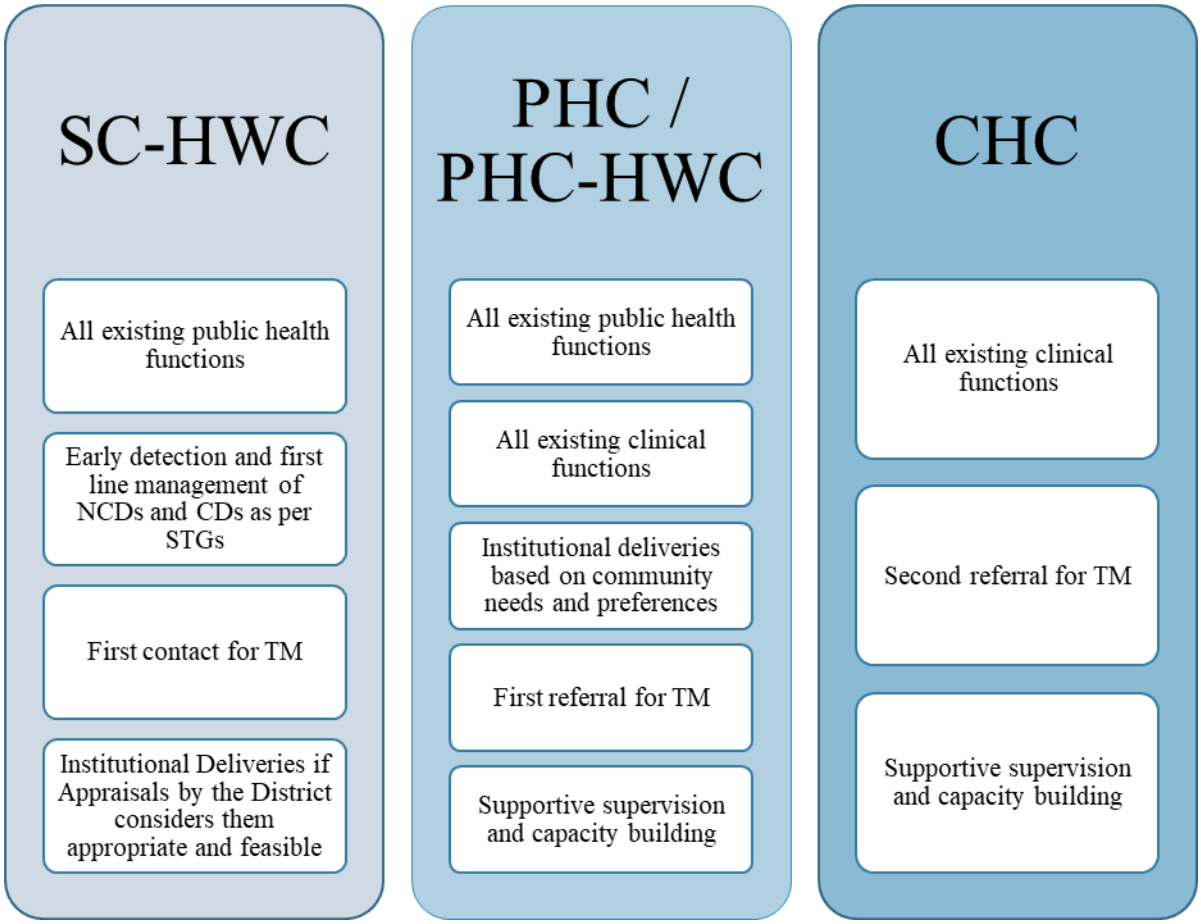

Figure 1: Recommended institutions and their functions for non-emergency care (TM=telemedicine, NCD=non-communicable disease, CD=communicable disease, STG=standard treatment guidelines)

Telemedicine

With respect to telemedicine, it is highly recommended that there is no direct and isolated contact (such as through a direct helpline) between the patient and the doctor without the intervention of a trained facilitatory health worker (box 1). This study emphasizes the need for a structured model where the HWC-SC is the spoke and the PHC acts as the first hub for telemedicine consultations (refer figure 3). This proposed strategy for telemedicine[2] requires a system that enables continuity of care for the patient as well as permanent infrastructure and equipment at all facilities meant to provide telemedicine services. It is also suggested that doctors and specialists be assigned by rotation in order to avoid burnout among providers and prevent overburdening of the system at any level. Health providers at all levels will require capacity building and orientation to the standard treatment guidelines, standard operating procedures, and protocols. Finally, it is also recommended that all ethical considerations related to telemedicine including issues of data confidentiality and informed consent be addressed while establishing the programme.

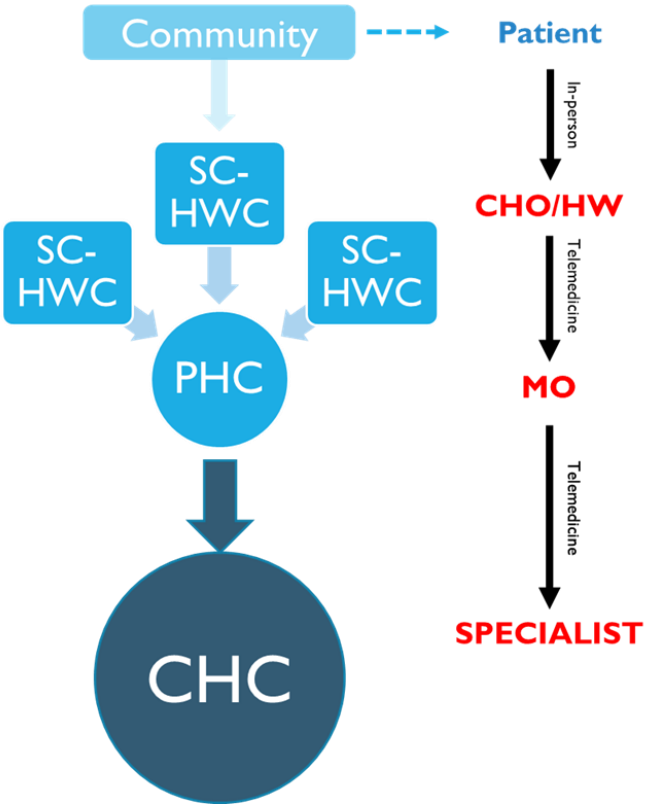

Figure 2: Recommended model for telemedicine services

Box 1: Non-negotiables of the proposed telemedicine model

- Only health worker-doctor or doctor-doctor teleconsultations.
- Continuity of care from point of entry
- First consultation should be physical
- Permanent infrastructure and equipment at all facilities meant to provide telemedicine
- Fixed slots of doctors and specialists by rotation
- Development of STGs, SOPs, protocols
- Capacity building of personnel at ALL levels
- Ethical considerations of telemedicine addressed

[2] Please see annexure 2 for a detailed description of the proposed model.

Human Resources for Health

The literature reviews and interviews revealed a significant human resource scarcity and improper utilization of existing resources. This was reinforced during the field visits. The gap is particularly large in the case of specialists, but is sizable in the case of medical officers, auxiliary nurse midwives, and the managerial cadre as well. For instance, the greatest gap is against the sanctioned specialist posts with a shortfall of 80%, followed by 63%, 61% and 52% shortage of public health nurses, lab technicians and medical officers respectively. The study identified four key themes – **rational usage** of human resources; **recruitment**, particularly for rural, remote areas; **optimization** through task shifting and telemedicine; **retention and motivation** of workers. Additionally, the study found the innovations of the Chhattisgarh Rural Medical Corp, particularly the Rural Medical Assistant cadre, and the development of a public health cadre to be useful innovations to address health worker shortages across the state. The human resources policy used in Bijapur, Chhattisgarh to be a good example of using policy to increase recruitment and retention of personnel. With respect to community health workers, the main issues stemmed from a lack of regularization, low remuneration, inadequate capacity building, and inadequate support. These same issues came up as factors affecting performance of the supervisory and management cadre as well.

RECOMMENDATION 3: DEVELOP AND IMPLEMENT A COMPREHENSIVE, FAIR, TRANSPARENT HR POLICY WITH SPECIAL REFERENCE TO POSTINGS AND TRANSFERS

The literature review as well as the primary work reinforces that a fair, transparent policy is important for the recruitment, retention, and availability of personnel at health facilities and can address most of the bottlenecks related to HR in the health sector. This policy would also help in minimizing political interference and increase transparency within the public health system. Government officials that were interviewed suggested that the absence of a comprehensive policy deters professionals, particularly specialists, from joining the public health services. Meanwhile, the absence of stringent (but fair) regulations and transparent guidelines for recruitment and postings leads to abandonment of posts and frequent requests for transfers among other issues. A comprehensive HR policy would be further enabled by a legal provision, as in the case of the Act created for better procurement.

The study emphasizes the need for a form of lateral entry for specialists, to be made explicit in the policy, which will be useful in increasing specialist recruitment at CHC level and above. Additionally, it is recommended that performance-linked incentives such as promotions, relaxations in cut-off marks be used in a transparent, comprehensible manner using the Annual Confidential Reports or other such monitoring mechanisms that are already available.

Programme Management

The study highlights the fact that the entire sector of health needs to be managed under a common umbrella arrangement regardless of the further organisational division of programmes and schemes between the centre and state. This is essential for maximizing the advantage from each programme, preventing overlaps and confusions, enabling convergence and ultimately arriving at better health outcomes for the people of Rajasthan regardless of the source and administration of the programme. However, this holistic vision requires institutional arrangements for it to be effective. During the course of the study, the team encountered several good practices and attempts at creating better coordination between various departments. However, they were ad-hoc and wholly dependent upon the individual motivation and leadership of the senior officer concerned. The study team has documented these good practices of health programme management that need to be recognized, formalized, and scaled-up, and recommended an umbrella mechanism for the programme management unit (PMU) that has been derived from the conversations with study respondents.

RECOMMENDATION 4: INSTITUTE A COORDINATING BODY – A PMU – TO IMPROVE COORDINATION BETWEEN THE NATIONAL HEALTH MISSION (CENTRE) AND THE DIRECTORATE OF HEALTH AND MEDICAL SERVICES (STATE), AS WELL AS CONVERGENCE BETWEEN SECTORS RELATED TO HEALTH

The review of literature and primary information from interviews suggests that this would have to be an interdisciplinary body set up in a legitimate manner, with political mandate, and given the responsibility of coordination, integration, prioritisation and resource generation. Multiple interviewees recommended that this body be led by a secretary level person, preferably with a public health background. It would also house senior officials from the NHM stream and the DMHS and may invite technical assistance from bodies such as the WHO.

The envisaged roles include to act as a translatory mechanism, contextualize the implementation of national programmes within the state; coordinate the horizontal integration of the health system; conduct operational research to inform programme and policy; develop intersectoral, integrated models of care such as multidisciplinary health workforce teams; identify needs and facilitate capacity building; monitor services, activities, processes and outcomes, including monitoring of rational treatments and quality control of health care services; and advise policy makers on health policy. The PMU would need a strong integrated comprehensive database alongside a GIS as reinforced throughout the study. Some models are available that point to the usefulness of such an agency, such as the State Health Resource Centre (SHRC), Chhattisgarh which is expected to be an apex body for technical support to the health system at all levels within the state. It is also meant to be responsible for systems strengthening activities at the district level, development of strategies, programme planning, and supporting innovations. The options to position this PMU are as follows:

1. Within the Health department itself
2. Within the State Institute of Health and Family Welfare
3. Within the newly emerging Center of Public Health Excellence or at a School of Public Health in the state
4. Within a semi-autonomous body specially created for the purpose, e.g., SHRC, Chhattisgarh

Governance

Evidence from across the world indicates a strong association between governance and health outcomes. One of the major factors affecting health governance is the existence of strong leadership and political will at the highest levels of government. Efforts towards health governance in Rajasthan is demonstrated by the government's prioritization in health over the last few years. However, despite these efforts, Rajasthan fares poorly on indices that measure health governance. For instance, Rajasthan scores 61.43 on the governance and information sub-index in the Niti Aayog Health Index IV report. Despite an incremental gain of 3.23 since the reference year 2019-20, it ranks 9th among the 19 larger states. Among the states that scored better than Rajasthan are Kerala and Chhattisgarh with scores of 83.37 and 70.99 respectively. Given that a stable tenure is essential to good governance, it is a red-flag that the average occupancy of key state-level posts and the average occupancy of CMOs both went down since 2019-20 (15.99 to 15.01 months and 18.08 to 15.97 months respectively). Rajasthan, however, improved against the indicator of number of days taken to transfer NHM funds from the state treasury to the implementing agency (69 to 33 days). Similarly, the state received a score of 0.249 on the public health governance index, a part of the composite Good Governance Index. Ranked 6th out of 8 states in its category, it fares worse than West Bengal, Jharkhand, Bihar, Odisha, and Chhattisgarh. These indices and rankings indicate a potential for improving health governance on multiple fronts.

RECOMMENDATION 5: CREATE A HIGH-LEVEL GROUP IN CM OFFICE – FOR HEALTH GOVERNANCE

If the recommendations of the study are to gain ground, the creation of a high-level group in the Chief Minister's Office, i.e., a governing body, that oversees health and supports the PMU in its tasks through leadership and higher-level policy and administrative decision-making is required. This body, constituted by implementers, technical agencies, civil society groups and key decision makers (CMO, task forces, standing committees) would also provide strategic oversight and conduct a biannual review of the health system and policies. The PMU, positioned as the apex technical and

implementing body, would be well able to represent the overlap between the 'implementers' and 'technical agencies'.

Apart from giving political legitimacy to key decisions, it is expected that its creation and placement will result in the adoption of a whole-of-government approach to health, leading to the consideration of health in all policies. The literature review also revealed that this approach addresses a perceived lack of command as well as improves prioritization of health, a gap that was articulated by several of the study participants.

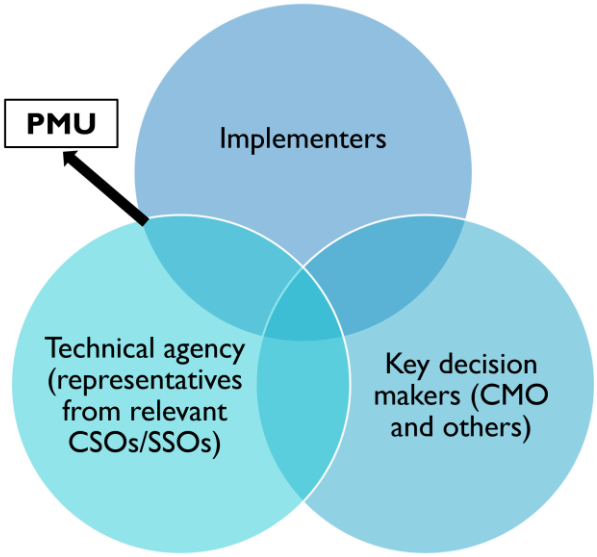

Figure 3: Recommended constitution of high-level executive body (CSO = Civil society organization; SSO = Social sector organization; CMO = Chief Minister's Office; PMU = Programme Management Unit)

Essentially, the five key recommendations[3] may be further classified into the WHAT being detailed under the themes of health facilities, services and human resources, and the HOW; being detailed as the creation of a hierarchy of two systems/structures to satisfy the functions of programme management and governance. The study team trusts that these recommendations will be duly considered and found well implementable in the short-term, and assures the State of Rajasthan of its support in the continuation of the work to improve health services for the people of the State.

[3] See Annexure 1 for key recommendations at-a-glance

Annexure 1: Key recommendations at a glance

Governance

Main recommendation: Create a high-level group in CM Office – for health governance

Decentralized governance

- Support the reactivation and strengthening of VHSNCs with adequate capacity building of the members and outcome-based incentives for the committees to ensure they remain functional
- Pilot devolution of health financing, planning, monitoring to PRIs
- Create a support institution for decentralization/devolution of health system

Health financing

- Increase total expenditure on health as percentage of GSDP to at least 8%
- Invest in strengthening of public health systems with capital expenditure, taking into account the expenditure required for all facilities to meet the IPHS 2012 norms

Programme Management

Main recommendation: Institute a coordinating body – a PMU – to improve coordination between the NHM stream (centre) and the DHMS (state), as well as convergence between health-related sectors

Coordination and convergence

- Horizontal integration of the Rajasthan health system: integration of services, information, finance, planning, training, contracting
- Convergence with other related ministries such as Water and Sanitation, Women and Child Development, Food and Public Distribution, etc.

Monitoring of HR

- Utilize genuine supportive supervision, ACR-linked monitoring, and periodic review meetings for monitoring of HR

Monitoring and evaluation of programmes

- State-level monitoring and evaluation activities, including monitoring of rational treatments and quality control of health care services
- Development of a district-level monitoring and evaluation cadre
  > Capacity building on data analysis, public health management
  > Expanding role of data entry operator, with adequate remuneration; adding positions at PHC level

Data systems

- Establish a GIS that includes components of facilities, services, human resources, etc. to enable PMU functions
- Use disaggregated, block-level data for district health planning
- Develop a data dashboard for public domain with disaggregated data available for analysis
- Make parallel investments in technology upgradation, capacity building, and system of data quality assessment
- Data digitization at source with adequate capacity building for frontline workers
- Single, integrated HMIS to reduce duplication, conserve time and resources
- Increase data entry operator posts at PHC, regularize personnel, and provide adequate remuneration

Participatory monitoring and evaluation

- Strengthen VHSNCs and build capacities for participatory monitoring
- Involve CSOs in capacity building, mobilization activities
- Utilize the SHG platform for community-based monitoring

Public Health Facilities

Main recommendation: Urgent geospatial mapping (every district, every facility) required to enable rationalization of location to fulfil population norms

Location

- Geospatial mapping of facilities by location.
- Geospatial mapping should include facilities of potential partner agencies such as the Armed Forces, ESIC and not-for-profit organizations (e.g., NGOs and Mission Hospitals).
- Rationalization of facilities to also ensure that the services match the current gap and demand, for instance, in access to institutional delivery, contraceptive and child health services

Infrastructure

- Funds be made available for structural improvement and infrastructure upgradation, including for the development of staff quarters on-site
- Facilities upgraded from a lower to higher tier require urgent funding to upgrade infrastructure in line with norms
- High priority be accorded to making basic infrastructure, such as toilets, functional at all facilities
- User fees at any public health facility be made obvious through conspicuous signage. Citizen's charters be displayed prominently

Collaborations and PPPs

- Scoping exercise and engagement with Armed Forces, Railways, ESI to provide services in remote, border, desert areas
- Limited and careful use of PPPs in healthcare with stringent screening and selection, conducted by an independent panel
- Not-for-profit agencies with public health expertise and experience to be given preference

Improving access for specially vulnerable populations and innovations

- Redefine norms for facilities on the basis of commute time and distance
- Adherence of mobile services with national guidelines and investments in HR and equipment
- Scoping exercise to determine utility and feasibility of 'Haat' clinic model in remote areas
- Rigorous evaluation of Janta clinics to determine adequacy of HR, utilization patterns, outcomes, and cost-effectiveness, followed by scale-up through a sustainable financing model

Health Services and Schemes

Main recommendation: Revisioning of the health system: recreating relevance for the three-tiered system keeping public health services, including telemedicine, in mind

Broad services

- Geospatial mapping of services per location
- Context-based rationalization of services for institutional deliveries
- Telemedicine, as detailed further, can be one approach to rationalization
- Supportive supervisory mechanism to be instituted at all levels with periodic field visits
- Incentive of relaxation in cut-off marks for PG entrance be linked to performance
- ACRs to be linked to outcomes and have performance-based indicators
- Annual 'surprise' prescription audit of a proportion (10%) with detailed, disaggregated analysis of prescribing practices
- Restrict unwarranted prescriptions for medicines that are not available under MNDY
- Capacity building of all personnel on rational prescription
- Development of SoPs, STGs, protocols and capacity building on the same
- Participatory, decentralized planning and monitoring mechanisms to improve quality and acceptability

State-specific schemes and programmes

- Expansion of the scope of MNDY and MNJY
- Quick upgradation of scheme-related equipment and infrastructure for upgraded facilities
- Stricter regulation of private sector in relation to the insurance scheme to ensure adoption of all packages and discourage cherry-picking
- Strict monitoring of OOPEs within the scheme
- Strengthen public health facilities as a more cost-effective, rational approach to service delivery, especially in rural areas
- Allow flexibility for proof of identity allowing for non-biometric identification, identification that does not entail proof of residence in the case of migrant, slum and homeless populations

Telemedicine

- Only health worker-doctor or doctor-doctor teleconsultations.
- Continuity of care from point of entry
- First consultation should be physical
- Permanent infrastructure and equipment at all facilities meant to provide telemedicine
- Fixed slots of doctors and specialists by rotation
- Development of STGs, SOPs, protocols
- Capacity building of personnel at ALL levels
- Ethical considerations of telemedicine addressed

Human Resources for Health

Main recommendation: Develop and implement a comprehensive, fair, transparent HR policy

Rational usage of HR

- Rationalize HR to services and facilities as per identified gaps and needs
- A comprehensive, fair and transparent HR policy with political will is imperative to achieve the above

Recruitment, particularly for rural, remote areas

- Allow lateral entry of specialists into the system
- An increase in educational institutions in all districts, including tribal and backward areas with service bonds
- Medical education curriculum should include more practical exposure to the field to encourage rural posting
- Recruitment of health workers from local communities
- Regularization of staff throughout the system
- Increase number of data entry operator posts with better remuneration

Retention and motivation

- Use of 'hardship' posting concept similar to that in Armed Forces to increase motivation for rural service
- Staff quarters within the premise or close to the facility must be created along with other infrastructure to enable a decent quality of life for health personnel positioned in remote and rural areas
- Regularization of staff throughout the system
- Performance-based incentives linked to promotions and postings
- Annual Confidential Reports (ACRs) should be a genuine tool for career progression
  > ACR should be in electronic mode to enable easy access for reviews and feedbacks.
  >Public health functions should be included as one of the indicators in the ACR, to ensure delivery of primary health care services.
- Relaxation in cut off marks for post-graduation to be linked with performance based on their ACR
- The PG entrance exam itself needs to give due importance to practical field experience that has been gained by the in-service applicants to create a level playing field
- Capacity building of medical officers on public health management and of non-medical officers on public health

Optimization and task shifting

- Task-shifting and upskilling of locally recruited health workers to increase efficiency
- The IMNCI process and experience may be brought to play for all health issues such as non-communicable diseases as well as common illnesses and primary trauma care.
- Training and capacity building, especially using protocols and standard guidelines and supportive supervision from the higher levels would be required to establish such systems.
- Telemedicine would provide support to these upskilled health workers engaged in public facilities

Community health workers

- Regularize posts of CHWs with adequate remuneration and employment benefits
- Facilitate transportation and logistics to support ANMs in their field work
- Revival of MPW (M) post

Annexure 2: Telemedicine model

At present, telemedicine is provided through e-Sanjeevani under the aegis of the National Health Mission (Dash et al., 2021). In addition, e-Sanjeevani currently works by allowing the patient to directly consult with the doctor through virtual OPD in selected slots. A limited number of doctors, specialists particularly, are available to provide teleconsultations to the patients, leading to long waiting times. Furthermore, with direct patient-doctor consultations, there might be little to no physical examination of the patient, leading to misdiagnosis and inappropriate/inadequate treatment.

This study emphasizes the need for a structured model where the HWC-SC is the spoke and the PHC acts as the first hub for telemedicine consultations (refer figure 4). At the HWC-SC, telemedicine should be provided according to standard operating procedures, protocols, and STGs like those developed for IMNCI. This first requires a separate room at the HWC with OP hours. The first physical consultation might be undertaken by the CHO who will require capacity building on telemedicine as well as the SOPs, STGs, and protocols.

The CHO, upon completing the history and physical examination will contact the MO at the first referral point – the PHC. Thus, the MO has the results of the examination including vital signs, SpO_2, blood pressure, height, weight, haemoglobin, etc to assist them to recommend a treatment course, along with direct access to the patient for further history taking. The MO would also be able to direct examination under video supervision. To undertake this, the PHC will also require a dedicated telemedicine room, as well as slots for doctors' appointments and their presence.

Some special situations and recommendations in the context of this model may be as follows:

- For any new diagnosis of NCDs, one teleconsultation to be undertaken within the first 15 days, followed by a bi-annual consultation.
- All adult red flags be reviewed periodically.
- Review of pregnant women at the time of registration, followed by once every trimester in the absence of red flags.
- Periodic review of children with severe acute malnutrition, growth faltering, and red flags.

The second point of referral will be from the doctor/MO to the specialist at the CHC for complicated cases as a preliminary to transporting the patient if required. This is related to the 'forward triage' concept that is particularly useful during times of crisis such as disasters and epidemics. The whole process involves determining a patient's condition before the patient arrives at the emergency department. In the case of this telemedicine model, it would amount to the MO consulting the specialist on management advice and also apprising them on the patient's condition, treatment needs etc. prior to a referral to the higher-tier facility. This will require dedicated space with the necessary infrastructure at the CHC.

It is recommended that a calendar of doctor availability (on rotational basis) be developed at the CHC level with clinical specialists providing telemedicine services in periodic, convenient, fixed slots. This study suggests that a dedicated team is likely to get frustrated with simply doing telemedicine full time and also the patient needs are unlikely to be integrated well into the entire CHC system unless the doctors are common. Having a rotating system will also allow for better task-management among the specialists. Further, adequate and appropriate capacity building of workers at all levels is required to implement the telemedicine programme successfully.