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Implementing Principles of Public Health Management Cadre (PHMC) in Jammu & Kashmir: A SWOT Analysis

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Abstract:
This study conducts a comprehensive SWOT analysis to evaluate the feasibility of implementing the Public Health Management Cadre (PHMC) in the Union Territory of Jammu and Kashmir. The PHMC aims to enhance healthcare delivery by establishing a dedicated cadre of public health professionals. The study combines primary and secondary data collection methods, including site visits and interviews with healthcare personnel. The results indicate strengths such as diverse cadres and political commitment, along with weaknesses like the absence of defined Terms of Reference. Opportunities lie in creating a specialized management cadre, while challenges include difficulties in recruiting public health-trained manpower. Recommendations include the constitution of a Task Force committee, transparent selection criteria, and collaboration with institutes for public health trainin

Keywords: Public Health, PHMC, Jammu and Kashmir, SWOT Analysis, Healthcare System, Human Resources for Health, National Health Policy

Introduction

The public health domain is extensive, involving diverse professionals from distinct backgrounds and perspectives. Healthcare researchers, practitioners, and government representatives work together to promote and protect health and mitigate the adverse effects of health issues. The "Alma Ata Declaration" in 1978 represented a paradigm shift in understanding health, moving beyond the conventional focus on doctors and hospitals. (1) It emphasized the significance of social determinants and justice in shaping health outcomes. The declaration advocated for comprehensive primary healthcare services that are universally accessible, equitable, and community-oriented; the need for community participation and intersectoral collaboration to address the broader determinants of health. The WHO's Workforce 2030 acknowledges public health professionals' vital role in disease surveillance, health promotion, and policy. They address social determinants, prevent diseases, and respond to emergencies crucial for population health and sustainable healthcare. (2) National committees and expert groups in India have consistently recommended establishing a dedicated public health cadre to strengthen healthcare delivery. The Bhore

Committee of 1946 proposed integrating services and primary health centers, while the Mudaliar Committee of 1959 advocated for an all-India health service cadre. (3) (4) the Eleventh and Twelfth Five Year Plans and the High-Level Expert Group in 2010 emphasized the need for central and state-level public health service cadres. (3)

India has made several policy changes to address social determinants of health and to promote convergence across sectors through initiatives like the National Health Mission (NHM). NHM aims to improve healthcare access, focusing on maternal and child health, immunization, and disease control. (5) the healthcare system faces challenges, including a human resource shortage and inequitable distribution, exacerbated by the COVID-19 pandemic.

To address these issues, the National Health Policy 2017 proposed the creation of a Public Health Management Cadre in all states. (6) This policy suggested strategies to attract multi-disciplinary professionals to the public health system. (7) With political commitment, the Ministry of Health and Family Welfare launched the implementation of PHMC in April 2022.

States were advised to map their requirements for specialists, managers, and teaching faculty across four major cadres. While progress varies, the goal is to complete the implementation nationwide. Jammu and Kashmir also intend to establish the Public Health Management Cadre.

The Union Territory holds significant importance within the Himalayan region, showcasing various demographics and dynamic systems across economic, environmental, social, and political domains. The Jammu and Kashmir Reorganization Act of 2019 facilitated the transformation of the former State of Jammu and Kashmir into two separate Union Territories: Jammu and Kashmir and Ladakh. (8) The fact that the Union Territory was previously functioning as a State was a primary driver leading to its selection for this study. Its prior status as a State gave it an advantage compared to other Union Territories, particularly in having established authorities dedicated to healthcare management, service provision, public health, and governance.

Objectives of the study

1. To understand the existing public health system and provisions related to Human Resources for Health
2. To assess the feasibility of implementing PHMC in the UT utilizing existing provisions using SWOT analysis.

Methodology

Study Design: The study utilized an observational approach, combining primary and secondary data collection methods.

Sites visited: The assessment included visits to JLNM Hospital in Srinagar, CHC Pampore in Pulwama, CHC Tangmarg in Baramulla, and PHC Gulmarg.

Study period: A team of five members from the National Health Systems Resource Centre (NHSRC) visited Jammu and Kashmir's Union Territory (UT). The visit took place from 2 May 2023 to 4 May 2023.

Data Collection

A checklist after piloting was used for primary data to understand the existing public health system and provisions related to HRH in the UT.

During the visit the team conducted one-on-one interviews with various healthcare personnel at State, district, and block-level health facilities, including Chief Medical Officers (CMOs), Block Medical

Officers Charge (BMO-I/Cs), and Program Management Officials. The objective of these interviews was to gain insights into the perspectives and experiences of health functionaries regarding several aspects, such as recruitment processes, career progression opportunities, time-bound promotions, transfer policies, remuneration, in-service training, and additional incentives. The team also aimed to understand the existing on-ground issues and challenges faced in the implementation of PHMC.

Secondary data was collected from various reports such as Rural Health Statistics (2021-22), National Health Accounts Report (2019-20), and National Family Health Survey Factsheets 2015-16 and 2019-20 to gather demographic, health system financing, and health-related data for the region. This secondary data provided a broader context for the study.

Sampling Strategy:

A random sampling strategy was employed to select healthcare facilities in Jammu & Kashmir, specifically District Hospitals (DH), Community Health Centers (CHC), and Primary Health Centers (PHC).

Data Analysis: primary data, gathered through interviews and direct observations, were analyzed to identify strengths, weaknesses, opportunities, and threats/challenges in the current public health system.

Results

1. Existing Public Health System in Jammu and Kashmir

Health Indicators

Jammu and Kashmir (J&K) is a Union Territory (UT) of India, located in the country's northern part with an area of 222,236 sq. km. The UT is divided into two Divisions for administrative purposes: Jammu and Kashmir. The divisions are further subdivided into 20 districts, which are further subdivided into 207 Tehsils. (9) This Union Territory is home to a diverse population, encompassing various marginalized and vulnerable groups. A substantial 69% of the total population resides in rural areas, leading to a pronounced gap in healthcare services between rural and urban areas. (10) According to the 2011 census, the average life expectancy for men and women in the country is 63.95 and 67.08 years, respectively. However, in the State of Jammu and Kashmir, the life expectancy for men and women is higher than the national average, standing at 66.5 and 69.3 years, respectively. (11) As per the latest National Family Health Survey (2019-21; NFHS-5), the UT has an Infant Mortality Rate of 16.3/1000 live births. (12)

Current status of HR vacancies in UT

Presently, there are significant vacancies in key healthcare positions within the UT. This includes a shortage of 40% of Medical Officers at Primary Health Centers (PHCs) and 19% at Community Health Centers (CHCs), a shortage of 43% of Specialists at CHCs, and 19% of Doctors at District Hospitals (DHs) or Sub-District Hospitals (SDHs). (10)

Table 1: Demographic and health system data for the UT of J & K and India.

Indicators	India	Jammu and Kashmir	Source
Health System Financing (NHA 2019-20) (13)			
Total Health Expenditure (THE) as % of GDP	3.3	2.5 as % of GSDP	

Government Health Expenditure (GHE) as % of THE	41.4	50.0	**NHA (2019-20)**
Out of Pocket Expenditure (OOPE) as % of THE	47.1	46.6	
Out-of-pocket expenditure (OOPE) per capita in Rs.	2,289	1,450	
Demographics (RHS 2021-22) (10)			
The population as per the 2011 Census	1210854977	12541302	**RHS (2021-22)**
Population density (Persons/Sq.km.)	421	83	
Birth Rate (14)	19.5	14.6	**SRS 2022**
Death Rate (14)	6.0	4.6	
Health System Capacity			
Vacant positions of doctors at different facilities (2022) (10)	PHC- 9451 (23.8%) DH- 5375 (15.2%)	PHC- 620 (40.6%) DH- 165 (19.4 %)	**RHS (2021-22)**

GDP- Gross Domestic Product, **GSDP- Gross state domestic product, **RHS**- Rural Health statistics (2021-2022), **NFHS**- National Family Health Survey- 5 (2019-2021), **NHA**- National Health Accounts Estimates for India (2019-20), **PHC**- Primary Health Centres, **DH**- District Hospital*

2. Governance structure

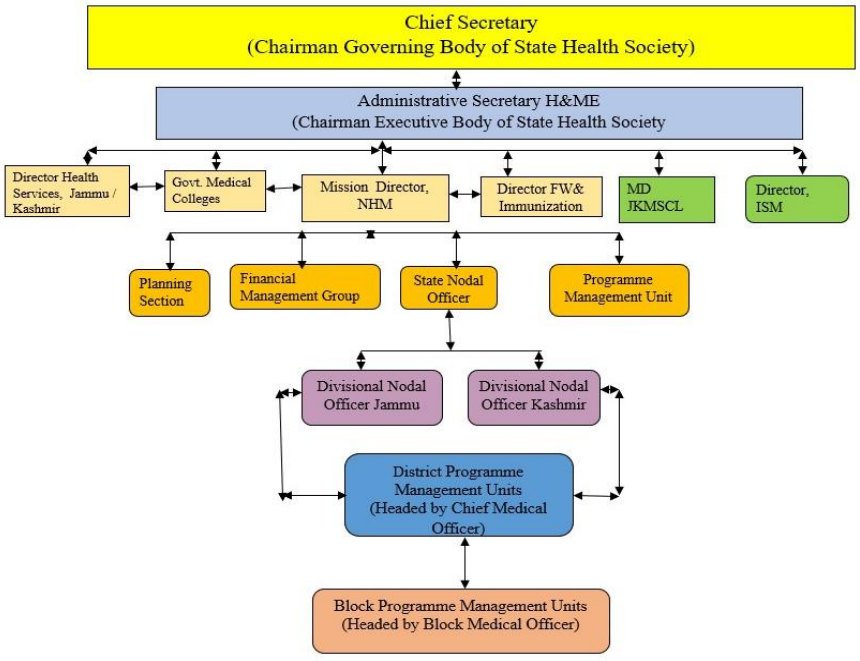

Figure I: 0rganogram of State Health Society, Jammu & Kashmir

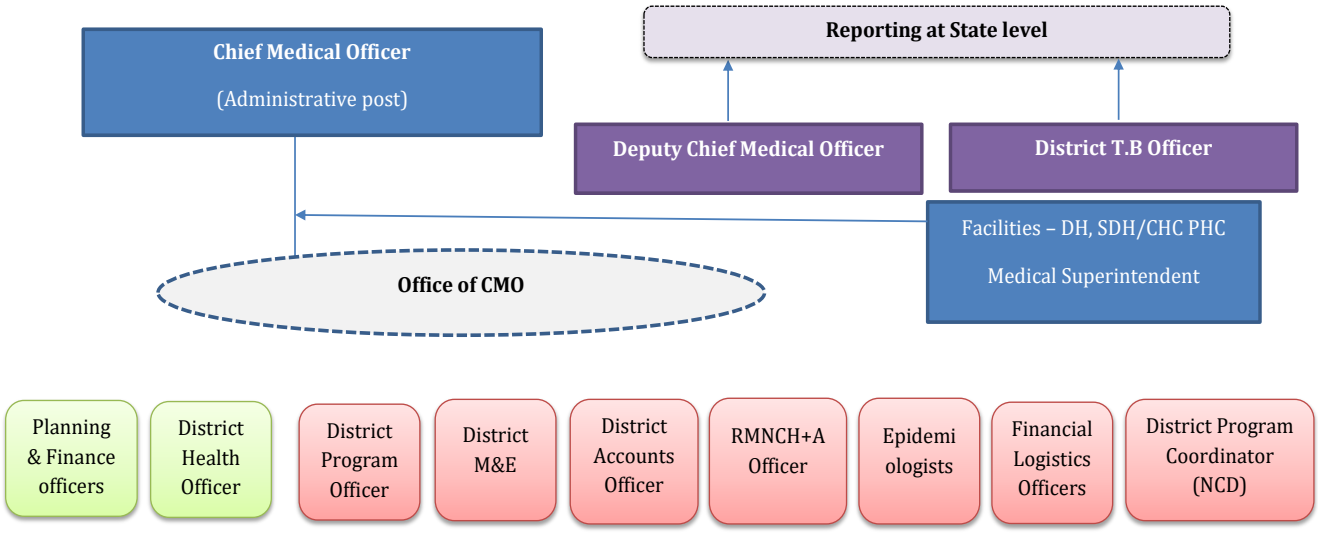

Figure II: Existing District Level Structure Organogram of J & K

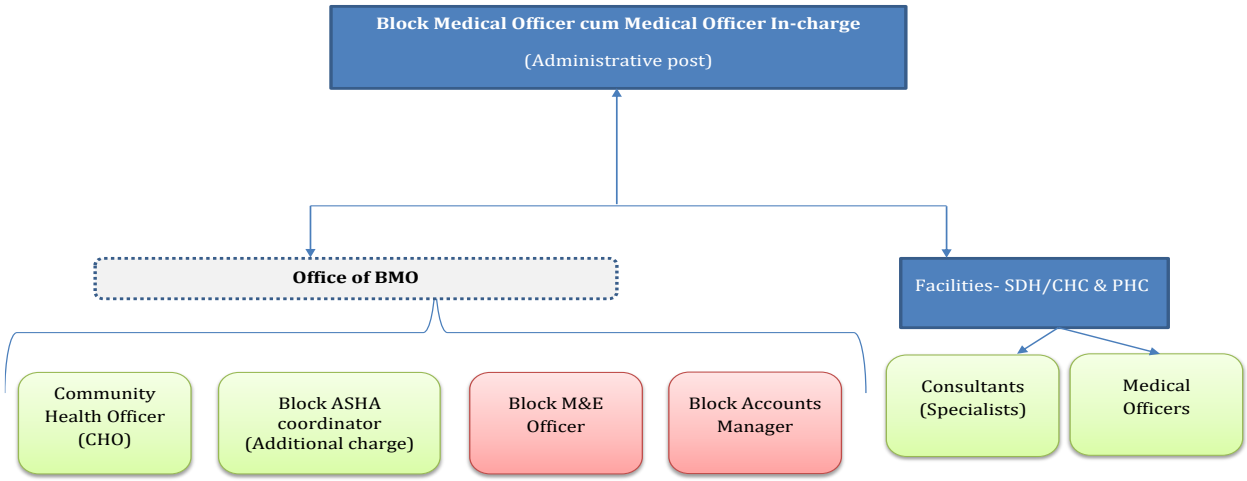

Figure III: Existing Block Level Structure Organogram of J & K

3. Service delivery

Table 2: Comparison of NFHS 4 & 5 healthcare indicators

	Jammu and Kashmir		India
Indicator	**NFHS-4 (2015-16)** (15)	**NFHS-5 (2019-20)** (12)	**NFHS-5 (2019-20)** (12)
Population and Household Profile			
The sex ratio of the total population (Females per 1,000 males)	971	948	1020
Households using iodized salt (%)	95.4	98.1	94.3
Population living in households that use an improved sanitation facility (%)	53.8	75.7	70.2

Population living in households with an improved drinking-water source (%)	89.1	91.9	95.9
Total fertility rate (children per woman)	2.0	1.4	2.0
Infant and Child Mortality Rates (per 1,000 live births)			
Infant Mortality Rate	32.4	16.3	35.2
Under-five mortality rate (U5MR)	37.6	18.5	41.9
Family Planning Methods			
Currently, married women (aged 15-49 years) using any modern contraceptive method (%)	45.8	52.5	56.5
Maternal and Child Health			
Mothers who had at least 4 antenatal care visits (%)	81.2	80.9	58.1
Births attended by skilled health personnel (%)	87.4	95.1	89.4
Children aged 12-23 months fully vaccinated (%)	84.4	96.5	83.8
Children with diarrhea who received oral rehydration salts (ORS) (%)		80.8	60.6
Nutritional Status			
Children under 5 years who are stunted (height-for-age) (%)	27.4	26.9	35.5
Children under 5 years who are wasted (weight-for-height) (%)	12.2	19.0	19.3
Children under 5 years who are underweight (weight-for-age) (%)	16.6	21.0	32.1
Children under 5 years who are overweight (weight-for-height) (%)	5.7	9.6	3.4
All women aged 15-49 years who are anaemic (%)	48.9	65.9	57.0
All women aged 15-19 years who are anaemic (%)	49.9	76.2	59.1
Men aged 15-49 years who are anemic (<13.0 g/dl) (%)	20.4	36.7	25.0

The health indicators in Jammu and Kashmir surpass the national level in several aspects. This is particularly notable in life expectancy, infant mortality rate, under-five mortality rate, births attended by skilled health personnel, and the percentage of children aged 12-23 months who are fully vaccinated.

According to the National Family Health Survey (NFHS), there have been changes in the nutritional status of children between NFHS-4 and NFHS-5. (12) (15) The percentage of children who are wasted, meaning those having low weight for their height, has increased from 12.2 percent to 19.0 percent. Similarly, the percentage of underweight children has increased from 16.6 percent to 21.0 percent. Additionally, the percentage of children who are overweight has also increased from 5.7 percent to 9.6 percent. However, there has been a slight decrease in the percentage of stunted children, meaning they have low height for their age, from 27.4 percent to 26.9 percent during the same period.

4. SWOT/SWOC stands for Strengths, Weaknesses, Opportunities, and Threats/Challenges.

Strengths: It represents the positive aspects of the healthcare system in Jammu & Kashmir, emphasizing advantageous features and resources that enhance efficiency and effectiveness.

Key strengths: Diverse Cadre, Time-bound promotions, gender-sensitive structures, strong political will

1. **Diverse Cadres:** The availability of three distinct cadres, namely Specialists, General Duty Medical Officer (GDMO), and Teaching Cadre, contributes to a diverse pool of healthcare professionals with different skills and expertise.
2. **Time-bound promotion:** The presence of defined time-bound promotions at specific intervals for GDMOs and specialists provides a clear career progression path for healthcare professionals. This structured career advancement system encourages motivation, dedication, and professional growth among healthcare personnel, contributing to their overall job satisfaction and improved service delivery.
3. **Political and Administrative Commitment:** The study identified a strong political and administrative commitment toward improving public health in the State of Jammu & Kashmir. This commitment indicates a supportive environment for healthcare initiatives and policy implementation.
4. **Gender-Sensitive Structures:** Implementing gender-sensitive structures, like reserving 50% of administrative positions for female candidates, reflects a dedication to gender equality and inclusivity in the healthcare sector. This commitment not only fosters gender balance in the workforce but also fosters diverse perspectives and expertise, enhancing the overall inclusivity of the healthcare system. Allocating administrative roles to women has significant potential to impact public health outcomes positively. With increased female representation in decision-making positions, policies can become more attuned to gender-specific health issues, such as reproductive and maternal health. (16) This strategy also contributes to a more balanced healthcare workforce, challenging gender stereotypes and encouraging women to pursue leadership roles in healthcare administration. In summary, these measures contribute to a more inclusive and comprehensive approach to public health, ensuring that women's unique perspectives and priorities are integrated into policy decisions and programs.

5. **Strengthened Educational Landscape:** The availability of Diplomate of National Board (DNB) courses in the Union Territory (UT) of Jammu & Kashmir strengthens the educational landscape.

These strengths can be leveraged to maximize opportunities, overcome weaknesses, and address the challenges within the existing health system in the UT.

Weaknesses: It highlights the internal factors within the healthcare system in Jammu & Kashmir that hinder the creation of PHMC.

Key weaknesses: No defined ToRs, Lack of Pay Protection, Limited Specialist Cadre Seats, undefined management cadre, Limited Availability of Seats and Institutes for Public Health Courses, Lack of Provision for In-Service Training

1. **Absence of Clearly Defined or Structured ToRs:** The lack of clearly defined or structured Terms of Reference (ToRs) specifying the job responsibilities of healthcare personnel is a weakness. This ambiguity can lead to confusion, inefficiencies, and variations in job performance, affecting the overall effectiveness and coordination of healthcare services.
2. **Lack of Pay Protection and Limited Specialist Cadre Seats:** The absence of pay protection and limited seats in the specialist cadre can result in a mismatch between qualifications and job roles. This situation can lead to underutilization of specialized skills.

3. **Lack of Defined Management Cadre:** The lack of a defined management cadre poses challenges in effectively managing and overseeing healthcare facilities and programs. The absence of a specialized management cadre can lead to inadequate leadership, decision-making, and strategic planning, hindering the efficient functioning and improvement of healthcare services.
4. **Limited Availability of Seats and Institutes for Public Health Courses:** The limited availability of seats and institutes for public health courses is a weakness. This scarcity restricts opportunities for healthcare professionals to pursue specialized education in public health, impacting the overall capacity to address public health challenges effectively.
5. **Lack of Provision for Continuing Education and In-Service Training:** A weakness is the absence of continuing education, in-service, or short training programs. This may hinder the acquisition of new skills, knowledge, and advancements in healthcare practices, limiting the ability to deliver high-quality and up-to-date healthcare services.

Opportunities are external factors or circumstances that, if leveraged, can lead to favorable outcomes and improvements in Jammu and Kashmir's healthcare system.

Key opportunities: Creation of a Public Health Management Cadre

Creation of a Public Health Management Cadre: Creating a Public Health Management Cadre provides an opportunity to utilize trained public health professionals, particularly those with MD (PSM) qualifications, in key administrative positions at the district and block levels. This opportunity can enhance the healthcare system's leadership, decision-making, and strategic planning capabilities, leading to more effective management and coordination of public health initiatives.

Opportunities can be leveraged to maximize the potential for growth, development, and improvement within the healthcare system in Jammu & Kashmir.

Threat: Challenges are external factors or conditions that, if left unaddressed, can pose risks and negatively impact the success and stability of the healthcare system in Jammu and Kashmir.

1. **Difficulty Recruiting Public Health-Trained Manpower:** The eligibility criteria of NMC recognition for the GDMO cadre threaten recruitment, as public health training is given in UGC-recognized institutions.
2. **Ongoing Conflicts and Political Instability:** The region's ongoing conflicts and political instability pose a significant threat to the healthcare system.

Discussion

The health indicators in Jammu and Kashmir exceed those at the national level in several aspects, including life expectancy, birth rate, death rate, and infant mortality rate. The birth and death rates in Jammu and Kashmir are lower at 14.6 and 4.6, respectively, compared to the national averages of 19.5 and 6.0. However, the state health system still faces significant challenges in achieving other public health goals. Despite a slight decline in the percentage of stunted children from NFHS-4 to NFHS-5, there has been an increase in the proportions of children classified as wasted, underweight, and overweight during the same period. (12) (15)

One important factor contributing to improved health outcomes in the leading Indian states is the presence of a dedicated, efficient, and well-supported public health cadre. These cadres comprise professionally trained public health experts crucial in enhancing health, environment, and development outcomes. This is in alignment with the WHO's Global Strategy on Human Resources for Health: Workforce 2030, which includes public health professionals as a crucial group of health workers responsible for delivering

essential public health services such as disease surveillance, outbreak investigation, health promotion, environmental health, and health policy. (2) Their role is pivotal in addressing the social factors influencing health, preventing and managing both communicable and non-communicable diseases, and responding to emergencies and disasters.

The establishment of the Public Health Management Cadre in J&K possesses various strengths and opportunities; one of the major strengths of the existing healthcare structure is the availability of three distinct cadres: Specialists, GDMOs, and Teaching Cadre. This diversity provides a pool of healthcare professionals with varied skills and expertise, enabling comprehensive healthcare service delivery. The presence of defined time-bound promotions within the cadres further supports career progression for healthcare professionals, ensuring motivation and stability in their roles. Additionally, the strong political and administrative commitment to improving public Health at UT is a significant strength. Furthermore, including gender-sensitive structures, such as reserving 50% of administrative positions for female candidates, promotes gender equality and diversity within the healthcare system. Also, the lack of a defined management cadre can create challenges in effectively managing and overseeing healthcare facilities and programs in UT, as it may not be feasible for health professionals currently engaged in clinical services to seamlessly transition and acquire the necessary health management skills that are essential for effective health administration.

In contrast, the public health cadre in Tamil Nadu comprises professionals from various disciplines, including medical officers, public health nurses, health inspectors, health educators, and other supporting staff. These professionals work under the Department of Public Health and Preventive Medicine and are responsible for planning, implementing, and monitoring various public health programs and initiatives in the State. Similarly, the WHO's Global Strategy on Human Resources for Health: Workforce 2030 emphasizes the vital role of the health workforce as a key factor in achieving coverage targets for all healthcare services. It recognizes that this workforce extends beyond the commonly known professions like midwives, nurses, and physicians, encompassing various levels and specialties, including community-based practitioners, dentists, hearing and eye care workers, laboratory technicians, pharmacists, public health professionals, and others. Emphasizing diversity in the health workforce highlights the potential of collaborative efforts in social accountability, inter-professional education and practice, and integration with social services to enhance long-term care for aging populations. (2) For a suggestive action, it is necessary to establish clear categories for the healthcare workforce based on the nature of their work. This would involve classifying them as either "service delivery staff" directly involved in providing healthcare services at the facility level or "program management staff" who focus on facilitating, planning, and implementing all National Health Programs. This distinction would enable better organization and coordination within the healthcare system.

The UT's findings show that the training and capacity-building needed a more structured approach. More provisions for ongoing education are needed, including induction training for new staff members, in-service or short training programs on the latest clinical and technical advancements in healthcare, and regular refresher training. This finding is consistent with the findings from Northeast states (Assam, Manipur, Meghalaya, and Nagaland), where there is a lack of provision of public health training following recruitment. (17) On a suggestive note, continuing education should be provided, particularly induction training for the new joiners, in-service or short training programs on the latest clinical and technical advancements in healthcare, and regular refresher training. To effectively address the population's healthcare needs, it is crucial to bolster the foundational healthcare infrastructure, particularly by

enhancing the availability of Human Resources for Health (HRH) by establishing a dedicated public health management cadre. This would also involve improving accessibility, availability, and affordability of healthcare services for the people. By establishing a dedicated cadre of well-trained public health professionals and enforcing robust public health regulations, the Public Health Management Cadre can significantly contribute to better health outcomes, environmental well-being, and overall developmental progress.

Recommendations

1. **Short-term approaches:**

- Constitution of a Task Force committee under the chairpersonship of the Secretary (Health) or equivalent rank to implement the PHMC following the national guidelines.
- Exercise must be undertaken to systematically map the sanctioned positions at State, district, and block levels to reduce any programmatic verticals and ensure the division of responsibilities for clinical service delivery and program management in a phased manner.
- There is a need to revisit the reporting channels. Every official working in a block, district or State should report through the BMO, CMO, and director.
- The capacity-building of the health workforce to undertake short courses intended to fill perceived and assessed gaps in competencies before occupying various program positions, both in the public health and medical services streams, should be prioritized.

2. **Mid-Term Approaches**

- Develop transparent selection criteria for administrative positions, including seniority, Annual Confidential Reports (ACR), publications, innovations, and rural experience.
- The UT can collaborate with national and international institutes offering public health courses to provide public health training. This partnership would facilitate sharing knowledge and resources, allowing for the effective delivery of public health education.
- The designations should be revised accordingly with each promotion. For instance, a Medical Officer (MO) who receives a promotion may be designated as a Senior Medical Officer (SMO) or as a higher-level position such as Senior Specialist Medical Officer (Sr SMO). Similarly, a specialist who is promoted may be designated Specialist Grade I, II, or III, indicating their level of expertise and experience within their specialized field.

3. **Long-Term Approaches:**

- Continue Task Force for monitoring and accountability for assessing progress towards PHMC implementation.
- Institutionalize the revised position mapping to maintain efficiency.
- The healthcare service delivery system should be restructured like a pyramid with a wider base of public health and management professionals to carry out the health program activities at the block level.

References

1. Rifkin SB. Alma Ata after 40 years: Primary Health Care and Health for All—from consensus to complexity. BMJ Glob Health. 2018 Dec 20;3(Suppl 3):e001188.

2. World Health Organization. Global strategy on human resources for health: workforce 2030 [Internet]. Geneva: World Health Organization; 2016 [cited 2023 7 October]. 64 p. Available from: https://iris.who.int/handle/10665/250368
3. Kumar S, Bothra V, Mairembam DS. A Dedicated Public Health Cadre: Urgent and Critical to Improve Health in India. Indian J Community Med. 2016;41(4):253–5.
4. Public health cadre in India: The need of the hour | Indian Journal of Community Health [Internet]. [cited 2023 7 October]. Available from: https://iapsmupuk.org/journal/index.php/IJCH/article/view/433
5. Impact of National Health Mission of India on Infant and Maternal Mortality: A Logical Framework Analysis - Rajesh Kumar, 2021 [Internet]. [cited 2023 7 October]. Available from: https://journals.sagepub.com/doi/full/10.1177/0972063421994988
6. [Internet]. [cited 2023 7 October]. Available from: https://nhsrcindia.org/sites/default/files/2023-01/Booklet%20for%20PHMC%20BOOKLET%20%28revised%29guideline.pdf
7. [Internet]. [cited 2023 7 October]. Available from: https://main.mohfw.gov.in/sites/default/files/9147562941489753121.pdf
8. [Internet]. [cited 2023 7 October]. Available from: https://www.indiacode.nic.in/bitstream/123456789/15242/1/re-organisation_act%2C2019.pdf
9. OFFICIAL PORTAL | UT OF JAMMU & KASHMIR [Internet]. [cited 2023 7 October]. Available from: https://jk.gov.in/jammukashmir/districts/
10. Rural Health Statistics 2020-21 | Ministry of Health and Family Welfare | GOI [Internet]. [cited 2023 7 October]. Available from: https://main.mohfw.gov.in/newshighlights-90
11. Hamid Mir Ab, Ahmad Bhat S. Health Status and Access to Health Care Services in Jammu and Kashmir State. ARSS. 2018 Nov 5;7(3):52–7.
12. [Internet]. [cited 2023 7 October]. Available from: http://rchiips.org/nfhs/factsheet_nfhs-5.shtml
13. [Internet]. [cited 2023 7 October]. Available from: https://nhsrcindia.org/sites/default/files/2023-04/National%20Health%20Accounts-2019-20.pdf
14. SRS - BULLETIN | Government of India [Internet]. [cited 2023 7 October]. Available from: https://censusindia.gov.in/census.website/data/SRSB
15. Kashmir J. Ministry of Health and Family Welfare National Family Health Survey -4 [Internet]. [cited 2023 26 December]. Available from: http://rchiips.org/nfhs/pdf/NFHS4/JK_FactSheet.pdf
16. Mousa M, Boyle J, Skouteris H, Mullins AK, Currie G, Riach K, et al. Advancing women in healthcare leadership: A systematic review and meta-synthesis of multi-sector evidence on organizational interventions. EClinicalMedicine [Internet]. 2021 1 September;39. Available from: https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00364-3/fulltext
17. [Internet]. [cited 2023 26 December]. Available from: https://cbps.in/wp-content/uploads/Pathways-to-a-successful-Public-Health-Cadre-in-the-North-East-1.pdf