

Chapter-II

Human Resources

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The Government of Rajasthan did not have a long-term plan for recruitment and staffing in the healthcare sector. In the Primary and Secondary healthcare institutions, there was shortage of Doctors (35.51 per cent), Specialist Doctors (38.55 per cent), Nurses (18.56 per cent) and Paramedics (55.88 per cent), which was more pronounced in the desert and tribal areas of the State. Similarly, there was shortage of Doctors (21.45 per cent), Specialist Doctors (24.89 per cent), Nurses (21.02 per cent) and Paramedics (44.93 per cent) in Tertiary Care institutions also. The shortage of manpower was especially severe in case of Contractual Staff (50.19 per cent).

2.1 Planning and Assessment of Human Resources

The health workforce includes clinical staff such as physicians, nurses, pharmacists and dentists, as well as management and support staff, i.e. those who do not deliver services directly but are essential to the performance of health systems, such as managers, ambulance drivers and accountants.

Audit observed that the Government of Rajasthan did not have a long-term plan for recruitment and staffing in the health sector.

The State Government stated (January 2024) that the recruitment is being done according to the budget announcements and directions received from the State Government from time to time. However, no reasons for not framing a long-term plan for recruitment and staffing in the health sector has been furnished.

2.2 Availability of Human Resources

The delivery of quality healthcare services in hospitals largely depends on the adequate availability of doctors, staff nurses and para medical staff.

The World Health Organization (WHO) recommended benchmark for doctor-population ratio is 1:1,000. The requirement of doctors in Rajasthan is 82,506¹¹ as per the norm recommended by WHO. As per the Indian Medical Register of National Medical Commission, a total of 49,242 doctors were registered upto 2021 in Rajasthan. This shows that doctor-population ratio of Rajasthan is 1:1676

11 Requirement of Doctors = Projected Population 8,25,06,000/1000, as 8,25,06,000 is the Projected Population of Rajasthan (as of July 2021) (Source: Progress Report of Medical Health and National Health Mission Rajasthan for 2021-22 issued by Department of Medical, Health & Family Welfare, Government of Rajasthan).

against the WHO benchmark of 1:1000. Thus, there was a 40 *per cent* shortage of doctors in the State.

The State Government stated (May 2023) that the reasons for shortfall are newly created posts, voluntary retirement, superannuation, resignation and deaths. GoR had replied for shortfall in doctors in Government Sector only. Moreover, the reply is not tenable as the GoR did not prepare recruitment plan for filling up the vacancies of doctors.

The reply is silent about shortage of doctors in Private Sector.

2.2.1 Availability of Human Resources in Primary and Secondary Healthcare across the state

Comparison of person-in-position vis-à-vis sanctioned strength of doctors, nursing staff and paramedics in Primary and Secondary healthcare in the State (as of March 2022) shows that the shortage of doctors, nurses and paramedics was 35.51 *per cent*, 18.56 *per cent* and 55.88 *per cent* respectively, as shown in **Table 2.1** below:

Table 2.1: Availability of Human Resources

Category	Sanctioned Strength	Persons in Position	Shortfall (<i>Per cent</i>)
Doctors	15,459	9,969	5,490 (35.51)
Nursing Staff ¹²	26,770	21,802	4,968 (18.56)
Paramedics	14,344	6,328	8,016 (55.88)
Total	56,573	38,099	18,474 (32.66)

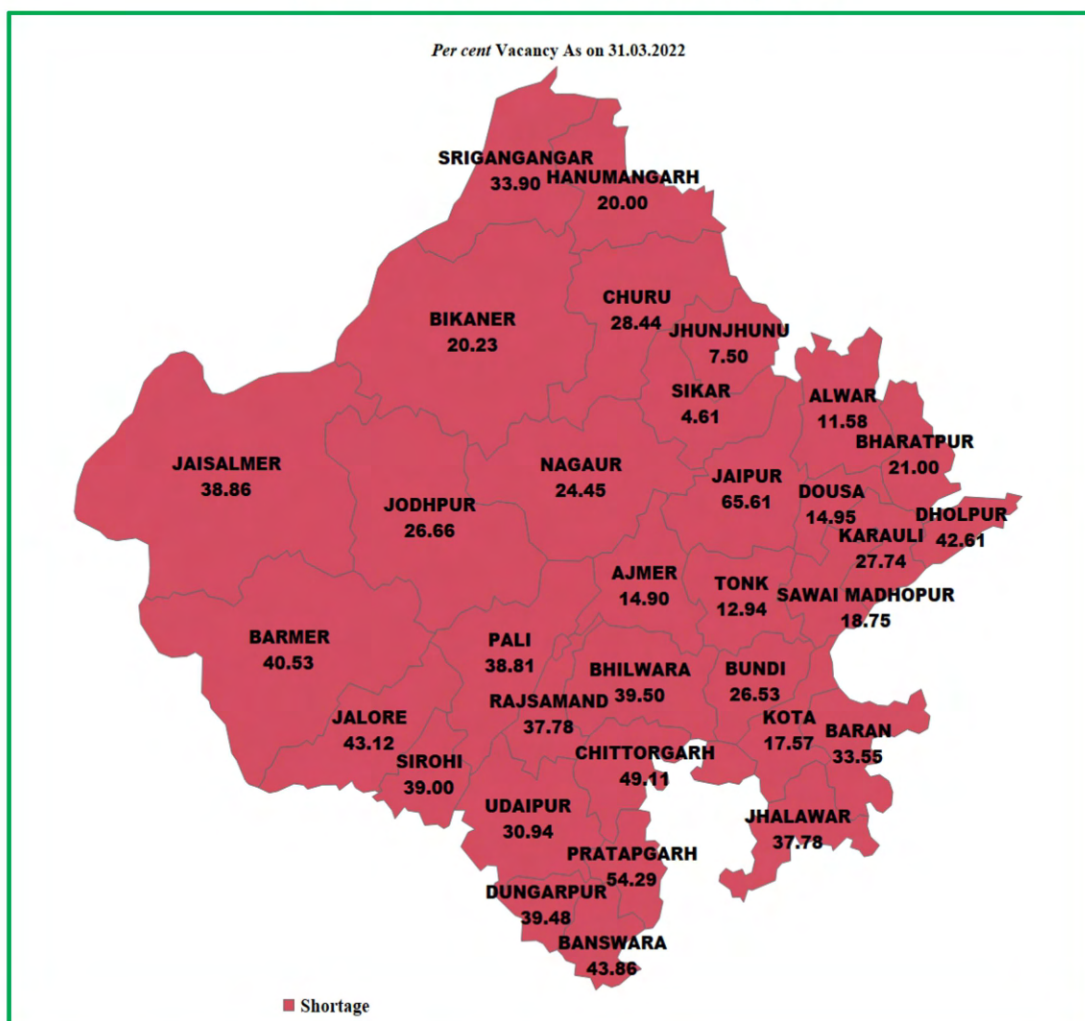
Source: Information provided by Director, Public Health.

i. Availability of Doctors in the State

Analysis of district-wise status of sanctioned, working and vacant posts of doctors in the State as on 31 March 2022 revealed geographical disparities in availability of doctors, which is shown in terms of percentage of vacancies in **Chart 2.1**:

12 As of June 2022.

Chart 2.1: Geographical distribution of vacancies of doctors (31.03.2022) pertains to Primary and Secondary care



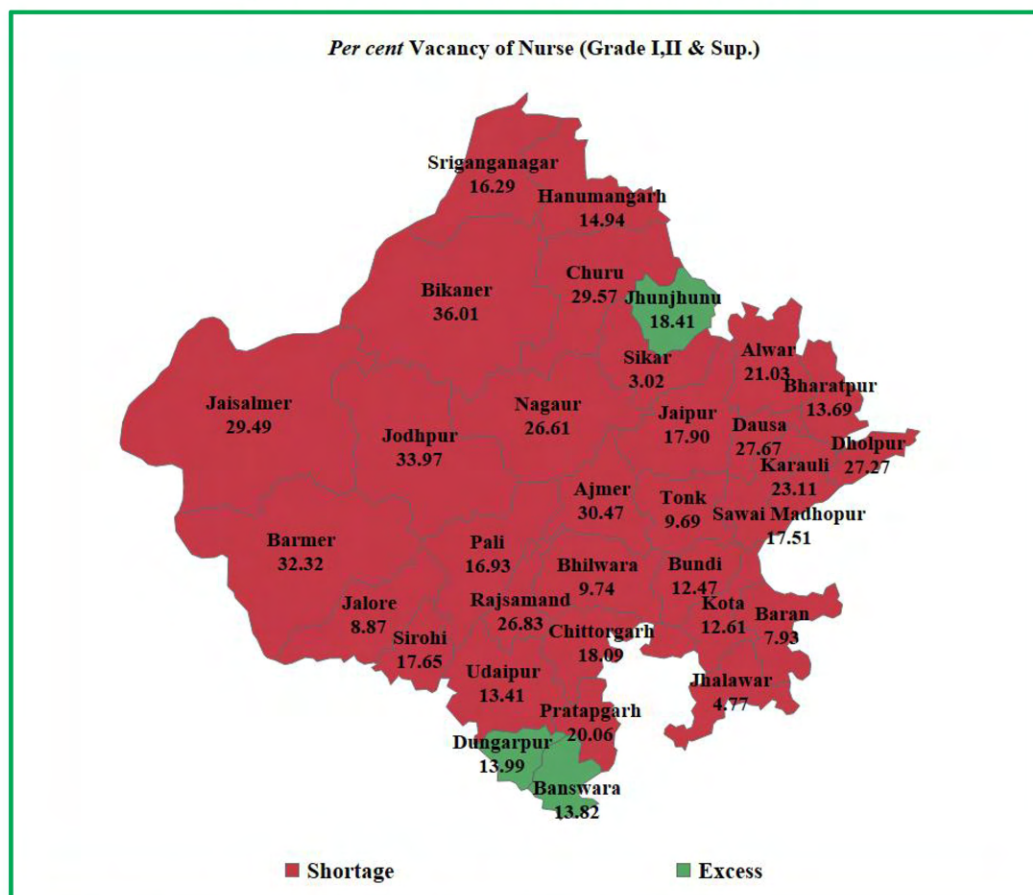
Source: Information provided by Director, Public Health.

The chart depicts that the vacancies were more pronounced in the districts of Pratapgarh, Chittorgarh, Banswara, Dholpur, Jalore and Barmer. Severe shortage in case of Jaipur was due to sudden increase in the number of sanctioned posts in March 2021 which could not be filled up. Details are given in *Appendix 2.1*.

ii. Availability of Nurses in the State

The district-wise status of vacancy positions of nurses in terms of the percentage in the State is depicted in **Chart 2.2**:

Chart 2.2: Geographical distribution of vacancies of Nurses as of June 2022 pertains to Primary and Secondary care



Source: Information provided by Director, Public Health.

The chart shows that the shortage of nurses was relatively higher in the desert districts of Barmer, Jaisalmer, Jodhpur and Bikaner.

Details are given in *Appendix 2.2*.

The State Government stated (January 2024) that recruitment of 8,750 nurses is in progress and shortage of nurses in Barmer, Jaisalmer, Jodhpur and Bikaner districts will be fulfilled.

iii. Availability of other clinical staff

Persons-in-position against sanctioned strength of Lab Technician, Lady Health Worker, Pharmacist and Dental Technician in Primary and Secondary healthcare in the State (as of June 2022) are shown in **Table 2.2** below:

Table 2.2: Availability of other clinical staff as of June 2022

Category	Sanctioned Strength	Persons in Position	Shortfall (per cent)
Lab Technician	4,054	2,106	1,948 (48)
Lady Health Worker	22,411	18,690	3,721 (17)
Pharmacist	4,183	2,175	2,008 (48)
Dental Technician	223	70	153 (69)

Source: Information provided by Director, Public Health.

The above table depicts that there is an acute shortage of lab and dental technicians and pharmacists in the State.

The State Government stated (January 2024) that out of 18,026 sanctioned specialist/doctors, 14,033 are working as of 31 October 2023. It was further stated that recruitment of eight cadres i.e. Auxiliary Nurse Midwife, Nursing Officer, Pharmacist, Assistant Radiographer, Lab Assistant, Electro Cardio Gram Technician, Dental Technician and Ophthalmic Assistant are under process.

2.2.2 Availability of Human Resources in Government Medical Institutions of Primary and Secondary healthcare

i. Availability of Doctors, Nurses and Paramedics in the DHs

Analysis of sanctioned, working and vacant posts in the 34 DHs as on 31 March 2022 shows that the shortage of doctors, nurses and paramedics was 26.03 per cent, 11.71 per cent and 41.22 per cent respectively as shown in **Table 2.3** below, with details in **Appendix 2.3**.

Table 2.3: Availability of Human Resources as of March 2022

Category	Sanctioned Strength	Persons in Position	Shortfall (per cent)
Doctors	2,071	1,532	539 (26.03)
Nurses	3,757	3,317	440 (11.71)
Paramedics	1,589	934	655 (41.22)
Total	7,417	5,783	1,634 (22.03)

Source: Information provided by 34 DHs.

ii. Availability of Doctors, Nurses and Paramedics in CHCs

Analysis of sanctioned, working and vacant posts¹³ shows that the shortage of doctors, nurses and paramedics was 33.01 per cent, 22.75 per cent and 54.77 per cent respectively, as shown in **Table 2.4** below, with details in **Appendix 2.4**.

Table 2.4: Availability of Human Resources as of 31 January 2023

Category	Sanctioned Strength	Persons in Position	Shortfall (per cent)
Doctors	5,431	3,638	1,793 (33.01)
Nurses	9,247	7,143	2,104 (22.75)
Paramedics	5,121	2,316	2,805 (54.77)
Total	19,799	13,097	6,702 (33.85)

Source: Information provided by Director, Public Health.

13 In the 804 CHCs of the State as on 31 January 2023.

iii. Availability of Doctors, Nurses and Paramedics in PHCs

Analysis of sanctioned, working and vacant posts¹⁴ shows that the shortage of doctors, nurses and paramedics was 7.48 *per cent*, 32.22 *per cent* and 63.18 *per cent* respectively, as shown in **Table 2.5**, below, with details in **Appendix 2.4**:

Table 2.5: Availability of Human Resources as of 31 January 2023

Category	Sanctioned Strength	Persons in Position	Shortfall (<i>per cent</i>)
Doctors	2,606	2,411	195 (7.48)
Nurses	10,182	6,901	3,281 (32.22)
Paramedics	4,650	1,712	2,938 (63.18)
Total	17,438	11,024	6,414 (36.78)

Source: Information provided by Director, Public Health.

iv. Availability of Nurses in HSCs

Analysis of sanctioned, working and vacant posts of nurses¹⁵ shows that there was shortage of 2,680 nurses (17.27 *per cent*) against the sanctioned 15,520 nurses. Details are given in **Appendix 2.4**.

The shortage of Doctors, Nurses and Paramedics has an adverse impact on the delivery of health services and health outcomes.

2.2.3 Vacancy position of doctors under DMH&FW

The minimum essential and desirable requirements of human resources for primary and secondary level are prescribed in Indian Public Health Standards (IPHS) 2012.

IPHS requires the services of at least one Medical Officer at a Primary Health Centre level. IPHS prescribes Specialty services from the secondary level hospital and minimum requirement of 32 to 68 doctors¹⁶ and 20 to 24 doctors¹⁷ at district level and sub district hospitals respectively depending on the bed strength of the hospital. In the case of Community Health Centres, the minimum requirement was 10 doctors. Status of availability of doctors in the test-checked Government Medical Institutions under Department of Medical, Health and Family Welfare are as shown in **Table 2.6**:

14 In the 2,361 PHCs of the State as on 31 January 2023.

15 In the 15,250 HSCs of the State as on 31 January 2023.

16 Minimum requirement of doctors at DHs: (100 beds: 29, 200 beds: 34, 300 beds: 50, 400 beds: 58 and 500 beds: 68).

17 Minimum requirement of doctors at SDHs: (31-50 beds: 20 and 51-100 beds: 24).

Table 2.6: Availability of doctors in GMIs under DMH & FW as of 31 March 2022

Particulars	No. of test-checked GMIs	Required as per IPHS	Sanctioned Strength	Person in Position	Vacancy against sanctioned strength		Excess (+)/Shortage (-) of person in position against IPHS (<i>Per cent</i>) (Col.5 (-) Col.3)
					Number	<i>Per cent</i>	
1	2	3	4	5	6	7	8
DHs	34	1,385	2,071	1,532	539	26.03	(+) 147 (10.61)
SDHs	4	92	58	36	22	37.93	(-) 56 (60.86)
CHCs	8	80	66	50	16	24.24	(-) 30 (37.50)
PHCs	16	16	19	17	2	10.53	(+) 1 (6.25)
Total		1,573	2,214	1,635	579	26.15	

Source: Information furnished by test-checked GMIs.

Audit observed that:

- In all 34 DHs against a requirement of 1,385 doctors as per IPHS, 1,532 doctors were available and there was excess of 147 doctors. However, there was shortage of 539 doctors against sanctioned post of 2,071 doctors.
- In four test-checked SDHs against a requirement of 92 doctors as per IPHS, 36 doctors were available and there was shortage of 56 doctors. Further, there was shortage of 22 doctors against sanctioned post of 58 doctors.
- In eight test-checked CHCs against a requirement of 80 doctors as per IPHS, 50 doctors were available and there was shortage of 30 doctors. Further, there was shortage of 16 doctors against sanctioned post of 66 doctors.
- In test-checked 16 PHCs against a requirement of 16 doctors as per IPHS, 17 doctors were available and there was excess of one doctor. Further, there was shortage of two doctors against sanctioned post of 19 doctors.

This shows uneven distribution of manpower which further affect to medical facilities at grass root level.

2.2.4 Availability of nurses and paramedics in GMIs under DMH&FW

Audit verified the availability of the posts of nurses and essential paramedics in the test-checked GMIs.

IPHS prescribes the minimum requirement of nurses and paramedics staff¹⁸ in each level of GMIs. For SDHs and DHs, the minimum staff requirement is based on the bed strength of the hospitals. The availability of staff in the test-checked GMIs are as detailed in **Table 2.7** and **Table 2.8**:

18 Minimum requirement Nurses: 45 (100 beds) to 225 (500 beds) in DHs, 18 (31-50 beds) to 35 (51-100 beds) in SDHs, 10 in CHCs and Three in PHCs and Paramedical Staff: 31 (100 beds) to 100 (500 beds) in DHs, 21 (31-50 beds) to 30 (51-100 beds) in SDHs, Nine in CHCs and Two in PHCs.

Table 2.7: Availability of nurses in hospitals under DMH&FW as of 31 March 2022

Particulars	No. of test-checked GMIs	Required as per IPHS	Sanctioned Strength	Person in Position	Vacancy against sanctioned strength		Excess (+)/Shortage (-) of person in position against IPHS (Per cent) (Col.5 (-) Col.3)
					Number	Per cent	
1	2	3	4	5	6	7	8
DHs	34	3,240	3,757	3,317	440	11.71	(+) 77 (2.38)
SDHs	4	123	119	59	60	50.42	(-) 64 (52.03)
CHCs	8	80	105	95	10	9.52	(+) 15 (18.75)
PHCs	16	48	30	28	2	6.67	(-) 20 (41.67)
Total		3,491	4,011	3,499	512	12.76	

Source: Information furnished by test-checked GMIs.

Audit observed that there was a shortage of nurses 440 (11.71 per cent) at DHs, 60 (50.42 per cent) at SDHs, 10 (9.52 per cent) at CHCs and two (6.67 per cent) at PHCs against sanctioned strength. Further, against the requirement of 3,491 post of nurses as per IPHS, there was 3,499 nurses were posted in test-checked GMIs.

Table 2.8: Availability of paramedics in GMIs under DMH&FW as of 31 March 2022

Particulars	No. of test-checked GMIs	Required as per IPHS	Sanctioned Strength	Person in Position	Vacancy against sanctioned strength		Excess (+)/Shortage (-) of person in position against IPHS (per cent) (Col.5 (-) Col.3)
					Number	Per cent	
1	2	3	4	5	6	7	8
DHs	34	1,645	1,589	934	655	41.22	(-) 711 (43.22)
SDHs	4	111	52	27	25	48.08	(-) 84 (75.68)
CHCs	8	72	52	33	19	36.54	(-) 39 (54.17)
PHCs	16	32	30	24	6	20.00	(-) 8 (25.00)
Total		1,860	1,723	1,018	705	40.92	

Source: Information furnished by test-checked GMIs.

Audit observed that there was a shortage of paramedics 655 (41.22 per cent) at DHs, 25 (48.08 per cent) at SDHs, 19 (36.54 per cent) at CHCs and six (20 per cent) at PHCs against sanctioned strength. Further, against the requirement of 1,860 post of paramedics staff as per IPHS, there was 1,018 paramedical staff in test-checked GMIs.

2.2.5 Recruitment of Medical Staff

Analysis of information provided by Director, Public Health (November 2022) revealed that DMH&FW undertook recruitment of Medical Staff during the period 2016-17 to 2021-22 as per the details provided in **Table 2.9** below:

Table 2.9: Recruitment of Medical Staff by GoR during 2016-22

Year	Doctor/ Medical Officer ¹⁹	Nursing Staff ²⁰	Paramedics ²¹	Pharmacist	Total
2016-17	2,445	16,818	0	1,209	20,472
2017-18	1,359	-	674	-	2,033
2018-19	-	-	199	-	199
2019-20	735	11,482	112	-	12,329
2020-21	1,998	-	1,664	-	3,662
2021-22	-	-	633	-	633
	6,537	28,300	3,282	1,209	39,328

Source: Information provided by Director, Public Health.

The above table depicts that a significant number of human resources were recruited by DMH&FW during 2016-22 to address the shortfall. However, even after these efforts, the shortfall of Medical Staff could not be fully addressed in the State.

2.2.6 Availability of Human Resources in Tertiary Healthcare Institutions

- i. Availability of Doctors, Nurses and Paramedics in State:** In the Medical College Hospitals at the Tertiary level across the State, the shortage of doctors, nurses, paramedics was 21.45 *per cent*, 21.02 *per cent* and 44.93 *per cent* respectively as of 31 December 2021 as shown in **Table 2.10** below:

Table 2.10: Human Resources in Tertiary Healthcare Institutions across the State as of December 2021

Category	Sanctioned Strength	Persons in Position	Shortfall (<i>per cent</i>)
Doctors	6,559	5,152	1,407 (21.45)
Nurses	15,955	12,601	3,354 (21.02)
Paramedics	3,737	2,058	1,679 (44.93)

Source: Information provided by Department of Medical Education and Rajasthan University of Health Sciences, Jaipur.

- ii. Availability of Doctors, Nurses and Paramedics in MCHs**

Analysis of sanctioned, working and vacant posts of doctors in the six MCHs as of 31 December 2021 shows that the shortage of doctors, nurses and paramedics was 4.17 *per cent*, 17.98 *per cent* and 42.49 *per cent* respectively, as shown in **Table 2.11** below:

19 Including 110 Medical Officers (Dental) during 2017-18.

20 Includes Nurse-II and ANM.

21 Includes Lab technician, Assistant radiographer, ECG technician, Ophthalmic Assistant, Physiotherapist and Laboratory Assistant.

Table 2.11: Availability of Human Resources in Six Medical College Attached Hospitals as of December 2021

Category	Sanctioned Strength	Persons in Position	Shortfall (per cent)
Doctors	96	92	4 (4.17)
Nursing Staff	2,319	1,902	417 (17.98)
Paramedics	393	226	167 (42.49)
Total	2,808	2,220	588 (20.94)

Source: Information provided by Six MCHs.

Details are given in **Appendix 2.5**.

The State Government (August 2023) attributed the vacancies in six MCHs to procedural issues such as retirement/voluntary retirements and departmental promotions. The State Government also stated that at present, the process of filling vacant posts is being carried out on an urgent/temporary basis till the availability of regular staff.

2.2.7 Availability of Specialist Doctors in Hospitals

(i) Availability of Specialist doctors under the jurisdiction of DMH&FW: As per the information furnished by the Director, Public Health there is a shortage of specialist doctors under the jurisdiction of Department of Medical, Health and Family Welfare. The vacancies in the various cadres of specialist doctors as of 21 March 2024 are shown in **Table 2.12**.

Table 2.12: Availability of Specialist Doctors in DMH&FW

S. No.	Cadres	Sanctioned Post	Persons in Position	Vacancy	Percentage of Vacancy
1	Pediatrician	431	308	123	28.54
2	Gynecologist and Obstetrician	496	336	160	32.26
3	Anesthetist	437	344	93	21.28
4	Ophthalmologist	325	190	135	41.54
5	Orthopaedic Surgeon	523	289	234	44.74
6	ENT	199	129	70	35.18
7	Radiologist	232	139	93	40.09
8	Psychiatrist	49	44	5	10.20
9	Pathologist	154	124	30	19.48
10	Chest & TB	58	47	11	18.97
11	Dermatologist	70	53	17	24.29
12	Surgeon	1,491	721	770	51.64
13	Physician	1,267	790	477	37.65
14	Forensic Medicine	37	31	6	16.22
	Total	5,769	3,545	2,224	38.55

Source: Data provided by Director, Public Health.

As seen from **Table 2.12**, the overall vacancies in various cadres of specialist doctors in the State under the jurisdiction of Department of Medical, Health and Family Welfare were 38.55 *per cent*. The vacancies among Surgeon, Orthopaedic Surgeon, Ophthalmologist were more than 40 *per cent*.

(ii) Availability of Specialist doctors under the jurisdiction of DME : As per the information furnished by the Director, Medical Education, out of 458 sanctioned strengths of specialist doctors, 344 are person in position. Hence, there is a 24.89 *per cent* shortage of specialist doctors in Medical Colleges and Attached Hospitals.

2.2.8 Availability of Surgeons in Hospitals

Out of the test-checked 46 GMIs²², General Surgeon in 10 GMIs, Orthopaedic Surgeon in seven GMIs, ENT Surgeon in 12 GMIs and Eye Surgeon in 14 GMIs were not available. Details are given in **Appendix 2.6**.

2.2.9 Shortage of Manpower in Trauma Centers

Department of Medical, Health and Family Welfare, GoR accorded approval for construction of 101 Trauma Centres up to March 2024. Out of 101 Trauma Centers, 74 Trauma Centers were constructed and are functional. The remaining 27 Trauma Centres are also functioning in existing Government Medical Institutions buildings with available staff.

Out of the eight test-checked District Hospitals, Trauma Centre/unit was not functional in 50 *per cent* of the District Hospitals²³. These Trauma Centers were not functional due to lack of human resources. As a result, a high percentage of the patients in accident cases were being referred to the nearest operational Trauma Care Centers. Precious time was thus lost in transferring the patients, which in turn delayed their medical care. In the remaining operational Trauma Centers, there was a shortage of dedicated staff.

The State Government stated (February 2023) that to meet the shortage of manpower in Trauma Centres, staff is being deployed through transfer from other hospitals. It was further stated (January 2024) that out of the sanctioned 498 posts of doctors/specialists, 294 posts are vacant in Trauma Centres.

2.3 Shortage of Contractual Staff

The Framework Guidelines for Implementation of NHM 2012-17 envisaged sustainability of contractual human resources and planned for their inclusion in the State budget.

The Manpower availability in the State on contractual basis under National Health Mission as on 6 March 2024 is shown in **Table 2.13**:

22 46 GMIs: 34 DHs, Four SDHs/SHs and Eight CHCs.

23 Four DHs: Phalodi, Baran, Kotputli and Salumber.

Table 2.13: Manpower availability in the State on contractual basis under National Health Mission as on 6 March 2024

S. No.	Cadre	Sanctioned post	Person in Position	Vacancy	Percentage of Vacancy
1	Administrative Staff	7,090	4,951	2,139	30.16
2	Medical Officers	2,332	1,530	802	34.39
3	Nursing staff	18,367	9,383	8,984	48.91
4	Para Medical	7,586	2,007	5,579	73.54
5	Others	803	146	657	81.81
	Total	36,178	18,017	18,161	50.19

Source: Information furnished by National Health Mission, Jaipur, Rajasthan.

As seen from Table 2.13, the overall vacancies in various cadres ranged between 30 per cent and 81 per cent. The percentages of vacancies in the cadres impacts the availability of healthcare services in the Government Medical Institutions in the State.

Audit also noticed that in the eight test-checked districts, there were 5,121 persons in position against 6,482 sanctioned posts as of 31 March 2022, reflecting a shortage of 21 per cent. The shortage was most acute in Baran district where 61.80 per cent posts were vacant. Details are given in **Appendix 2.7**.

Recommendation 1: The State Government should address the shortage of healthcare professionals in a time bound manner by adopting a clearly defined recruitment strategy as well as ensuring their equitable distribution across the State.