

## ***CHAPTER 2***

### ***Human Resources***



## Chapter 2: Human Resources

*The State Government did not conduct gap analysis for assessing the requirement of manpower in Health Care Institute as per Indian Public Health Standards. In the primary and secondary healthcare sector, under Public Health Department (PHD), the shortage of doctors, nurses and paramedical staff was 22 per cent, 35 per cent and 29 per cent respectively. 42 per cent of posts of specialist doctors were vacant in the State under the jurisdiction of PHD. Whereas in respect of Women Hospitals under PHD the shortage of doctors, nurses and paramedical staff was 23 per cent, 19 per cent and 16 per cent respectively. The shortage of doctors/specialists, nurses and paramedical staff under the jurisdiction of Medical Education and Drugs Department (MEDD) was 37 per cent, 35 per cent and 44 per cent respectively. The overall shortage of doctors, nurses and paramedics in the State under PHD and MEDD was 27 per cent, 35 per cent and 31 per cent respectively.*

*The shortage of doctors, nurses and paramedics and others in AYUSH colleges and hospitals was 21 per cent, 57 per cent and 55 per cent respectively.*

*The Trauma Care Centres under the jurisdiction of PHD and MEDD in the State had 23 per cent and 44 per cent shortage of staff respectively.*

*Shortages in imparting trainings to doctors, nurses and paramedics under PHD were noticed in seven selected districts.*

### 2.1 Planning and assessment of Human Resources

World Health Report, 2006 published by World Health Organisation (WHO) defined health human resources or health workforce as all people engaged in actions whose primary intent is to enhance health. These human resources include clinical staff such as physicians, nurses, pharmacists, and dentists as well as management and support staff<sup>13</sup>.

The delivery of quality healthcare services in HCIs largely depends on the adequate availability of manpower, especially doctors, nurses, paramedical and other support staff. As per the Indian Public Health Standards, 2012 (IPHS), a gap analysis was to be done for assessing the requirement of manpower. Audit observed that no such gap analysis was done by the GoM. In the absence of gap analysis, the future requirement of human resources was not assessed as evident in shortage of manpower in cadres of doctors, nurses and paramedics.

The Joint Director, Commissionerate of Health Services stated (November 2023) that gap analysis of manpower was in progress at facility level.

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<sup>13</sup> Support staff includes those who do not deliver services directly but are essential to the performance of healthcare systems, such as managers, ambulance drivers, and accountants.

## 2.2 Manpower in Health Care Institutions

The availability of manpower in the State and test-checked HCIs in selected districts under the jurisdiction of PHD, MEDD and Municipal Corporations is discussed in the succeeding paragraphs. Apart from regular recruitment, GoM also made contractual appointments under the National Health Mission.

### 2.2.1 Availability of Human resources

The World Health Organisation (WHO) recommended benchmark for doctor-population ratio is 1:1,000 and three nurses and midwives per doctor. As per the benchmark recommended by WHO, the requirement of doctors in Maharashtra was 1,25,411<sup>14</sup>. As per records of the Maharashtra Medical Council, 1,71,282 doctors were registered in the State as of March 2022. Accordingly, the doctor-population ratio in the Maharashtra worked out to 1:732 as against the WHO benchmark of 1:1,000. Thus, the State had doctors above the stipulated WHO norms (higher by 37 per cent).

There were 2,18,159 nurses<sup>15</sup> registered in the State against the requirement of 5,13,846<sup>16</sup> nurses for 1,71,282 registered doctors. This reflected 58 per cent shortage of nurses in Maharashtra against the WHO benchmark. The availability of doctors and nurses in the State *vis-à-vis* WHO benchmark is shown in **Table 2.1**.

**Table 2.1: Availability of doctors and nurses in the State *vis-à-vis* WHO benchmark**

Category	Projected State population (2022)	Manpower required as per WHO norms	Registered Doctors/Nurses in the State	Excess (+) / Shortfall (-) (per cent)
Doctors	12,54,11,000*	1,25,411	1,71,282#	(+) 45,871 (37)
Nurses		5,13,846	2,18,159**	(-) 2,95,687 (58)

Source: \*Comprehensive Note of the Public Health Department (March 2022)

# Information (as of March 2022) received from Maharashtra Medical Council

\*\*Information (as of March 2022) received from Maharashtra Nursing Council

## 2.3 Human resources under Public Health Department

### 2.3.1 Availability of Human Resources in Primary and Secondary Health Care Institutions

Audit compiled and consolidated the data pertaining to sanctioned strength and persons in position in the cadres of doctors, nurses, and paramedics in District Hospitals, Women Hospitals, Sub-District Hospitals, Rural Hospitals, Primary Health Centers, and Sub-centres, furnished (May 2023) by the District Civil Surgeons and District Health Officers in the State. IPHS recommends the number of doctors, nursing staff and paramedics for District Hospitals, Sub-District Hospitals and Rural Hospitals depending on bed capacity. IPHS also recommends one doctor, three nurses and two paramedics for a PHC and one nurse for a Sub-centre.

Comparison of the requirement of doctors, nursing staff and paramedics as per IPHS *vis-à-vis* the sanctioned strength revealed that the sanctioned strength of doctors was less than the requirement as per IPHS (**Table 2.2**) by 15 per cent

<sup>14</sup> Requirement of doctors=Projected population 12,54,11,000/1,000 (projected population as of March 2022).

<sup>15</sup> As per records of Maharashtra Nursing Council.

<sup>16</sup> Registered Doctors as of March 2022 (1,71,282) × 3 Nurses per doctor=5,13,846 Nurses.

However, the sanctioned strength of nurses and paramedics was more than the requirement as per IPHS. Comparison of sanctioned strength *vis-à-vis* persons in position in primary and secondary healthcare under PHD showed shortage of 22 per cent, 35 per cent and 29 per cent in the cadre of doctors, nurses and paramedics respectively. The category-wise details are shown in **Table 2.2** and district-wise details of doctors, nurses and paramedics are shown in **Appendix 2.1 A, 2.1 B and 2.1 C** respectively.

**Table 2.2: Availability of Human Resources in Primary and Secondary HCIs under PHD *vis-à-vis* requirement as per IPHS and sanctioned strength as of May 2023**

Category	Requirement as per IPHS	Sanctioned Strength (SS)	Percentage of shortfall (-)/ Excess (+) <i>vis-à-vis</i> requirement as per IPHS	Persons in Position	Shortfall <i>vis-à-vis</i> SS	Percentage of shortfall <i>vis-à-vis</i> SS
Doctors	8,668	7,381	(-) 15	5,765	1,616	22
Nursing Staff	24,114	26,578	(+) 10	17,314	9,264	35
Paramedics	11,550	15,809	(+) 37	11,282	4,527	29
<b>Total</b>	<b>44,332</b>	<b>49,768</b>	<b>(+) 12</b>	<b>34,361</b>	<b>15,407</b>	<b>31</b>

Source: Information furnished by District Civil Surgeons and District Health Officers

In addition to **Table 2.2**, there were 19 Women Hospitals in Maharashtra functional under PHD. The details of manpower available in these 19 WHs are shown in **Table 2.3**.

**Table 2.3: Availability of Human Resources in Women Hospitals under PHD**

Category	Sanctioned Strength(SS)	Persons in Position	Shortfall	Percentage of shortfall <i>vis-à-vis</i> SS
Doctors	291	224	67	23
Nursing Staff	1,011	822	189	19
Paramedics	270	228	42	16
<b>Total</b>	<b>1,572</b>	<b>1,274</b>	<b>298</b>	<b>19</b>

Source: Information furnished by Medical Superintendent of respective Women Hospitals

### 2.3.2 Availability of Specialist Doctors under the jurisdiction of PHD

As per the information furnished by the Director of Health Services, Mumbai there was shortage of specialist doctors<sup>17</sup> under the jurisdiction of PHD. The vacancies in the various cadres of specialist doctors as of March 2023, are shown in **Table 2.4**. District-wise details are shown in **Appendix 2.2**.

IPHS also recommends the number of specialist doctors for district hospitals sub-district hospitals and rural hospitals depending on the bed capacity.

Comparison of the requirement of Specialist Doctors as per IPHS *vis-à-vis* the sanctioned strength revealed that the sanctioned strength of Specialist Doctors was more than the requirement as per IPHS in most of the cadre except in the cadre of Ear Nose Throat, Radiologist, Surgeon and Physician, where the shortage in sanctioned strength as per IPHS was 52 per cent, 10 per cent and 66 per cent respectively as shown in **Table 2.4**.

<sup>17</sup> Specialist doctors are in pay scale S 20 and pay scale S-23 only.

**Table 2.4: Availability of Specialist Doctors under the jurisdiction of PHD as of March 2023**

Sr. No	Cadres	Requirement as per IPHS	Sanctioned post	Percentage of shortfall (-)/Excess (+) vis-à-vis requirement as per IPHS	Persons in Position	Vacancy	Percentage of vacancy
1	Pediatrician	523	686	(+) 31	425	261	38
2	Gynecologist and Obstetrician	526	751	(+) 43	442	309	41
3	Anesthetist	504	867	(+) 72	435	432	50
4	Ophthalmologist	122	170	(+) 39	120	50	29
5	Orthopedic Surgeon	122	196	(+) 61	163	33	17
6	Ear Nose Throat	122	58	(-) 52	40	18	31
7	Radiologist	122	110	(-) 10	57	53	48
8	Psychiatrist	21	126*	(+) 500	38	88	70
9	Pathologist	50	73	(+) 46	53	20	27
10	Chest and TB	NA	42	-	11	31	74
11	Dermatologist	38	52	(+) 37	19	33	63
12	Surgeon	504	171	(-) 66	80	91	53
13	Physician	507	172	(-) 66	90	82	48
14	Forensic Medicine	9	19	(+) 111	19	0	0
15	Blood Transfusion Officer	NA	37	-	27	10	27
16	Preventive and Social Medicine	NA	112	-	101	11	10
	<b>Total</b>		<b>3,642</b>		<b>2,120</b>	<b>1,522</b>	<b>42</b>

Source: Information furnished by Director of Health Services, Mumbai

NA: Not Available in IPHS

\*There are three Regional Mental Hospitals in Maharashtra

As seen from **Table 2.4**, the overall vacancies in various cadres of specialist doctors in the State under the jurisdiction of PHD were 42 per cent. The vacancies in the cadre of Psychiatrist, Chest and TB, Dermatologist and Surgeon were more than 50 per cent.

As seen from **Appendix 2.2**, total vacancies of specialists in 35 districts ranged between three per cent (Jalna) and 74 per cent (Ratnagiri). Further, 13 districts had more than 50 per cent vacancies.

### 2.3.3 Contractual manpower under NHM

For implementation of National Health Mission (NHM) schemes, contractual manpower was hired in the State. The availability of manpower on contractual basis in the State under the NHM as of March 2023 is shown in **Table 2.5**.

**Table 2.5: Availability of manpower under NHM as on March 2023**

Cadre	Sanctioned post	Persons in Position	Vacancy	Percentage of Vacancy
Specialist Doctors	1,755	794	961	55
Medical Officers	5,785	3,907	1,878	32
Administrative Staff	8,349	6,666	1,683	20
Community Health Officers	9,884	8,196	1,688	17
Paramedics	6,522	5,349	1,173	18
Nurses	18,602	15,462	3,140	17
Group "D"	1,479	536	943	64
<b>Total</b>	<b>52,376</b>	<b>40,910</b>	<b>11,466</b>	<b>22</b>

Source: Information furnished by National Health Mission, Maharashtra, Mumbai

As seen from **Table 2.5**, the overall vacancies in various cadres ranged between 17 per cent (Community Health Officers and Nurses) and 32 per cent (Medical Officers). The percentage of vacancies in the cadre of Specialist Doctors was 55 per cent.

#### **2.4 Human Resources under Medical Education and Drugs Department**

National Medical Commission (NMC) Norms (Minimum Requirements for Annual MBBS Admission Regulations), 2020 stipulate the number of teaching faculty/doctors to be maintained in the medical colleges based on annual MBBS intake.

A comparison of the requirement of teaching faculty/doctors in medical colleges as per NMC norms *vis-à-vis* the sanctioned strength revealed that as against the requirement of 2,809 teaching faculty/doctors as per NMC, the sanctioned strength of teaching faculty/doctors under the jurisdiction of MEDD was 3,722. Thus, the availability of teaching faculty/doctors under MEDD was more than the requirement.

However, as per the information of sanctioned strength and persons in position in the cadres of teaching faculty/doctors, nurses, and paramedics as of May 2023, furnished by the MEDD, there was a shortage of 37 per cent, 35 per cent, 44 per cent in the respective cadres. The details of the Government medical college and attached hospital-wise sanctioned strength, persons in position and shortages, in the cadres of teaching faculty/doctors, nurses and paramedics are shown in **Appendix 2.3**.

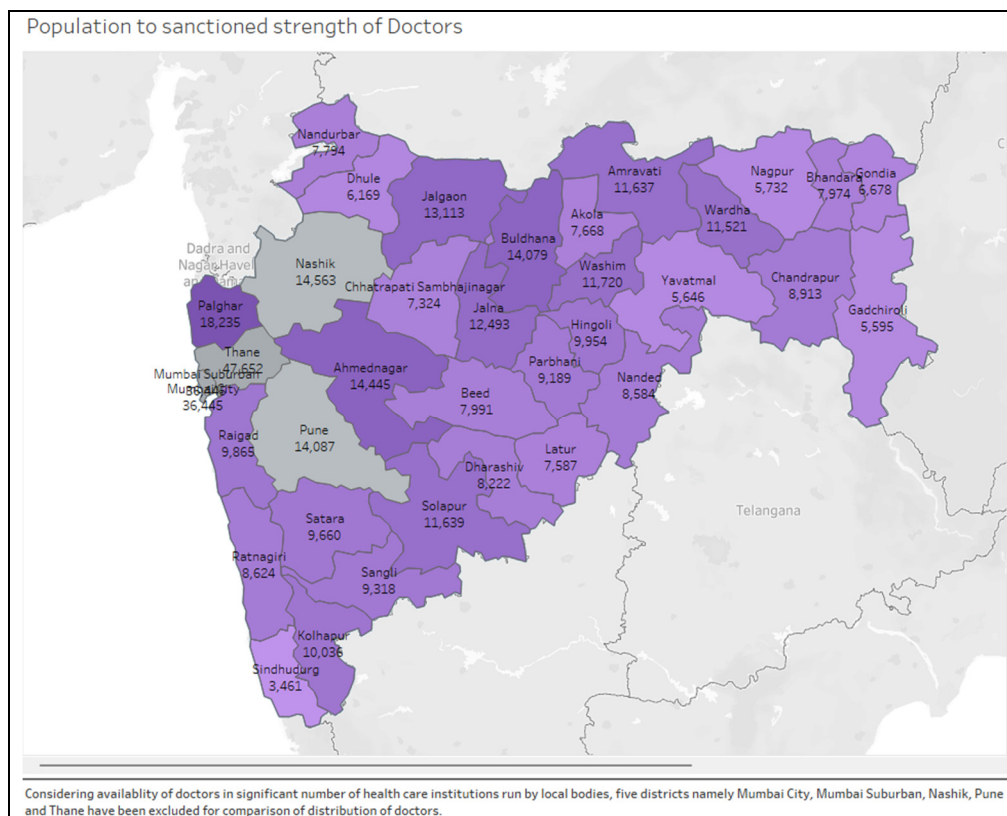
MEDD stated (January 2023) that the requisition for 1,207 posts of Dean, Professor, Associate Professor and Assistant Professor was sent to the Maharashtra Public Service Commission (MPSC). The MPSC had sent recommendations of 785 eligible candidates to the GoM for posting.

The fact, however, remained that the posts were lying vacant.

#### **2.5 Regional disparity in sanction and availability of doctors under PHD and MEDD**

Audit noticed wide disparity in sanctioned strength and availability of doctors under PHD and MEDD *vis-à-vis* population across the State as shown in **Map 2.1** and **Map 2.2**.

**Map 2.1: District-wise ratio of sanctioned strength of doctors under PHD and MEDD to population**

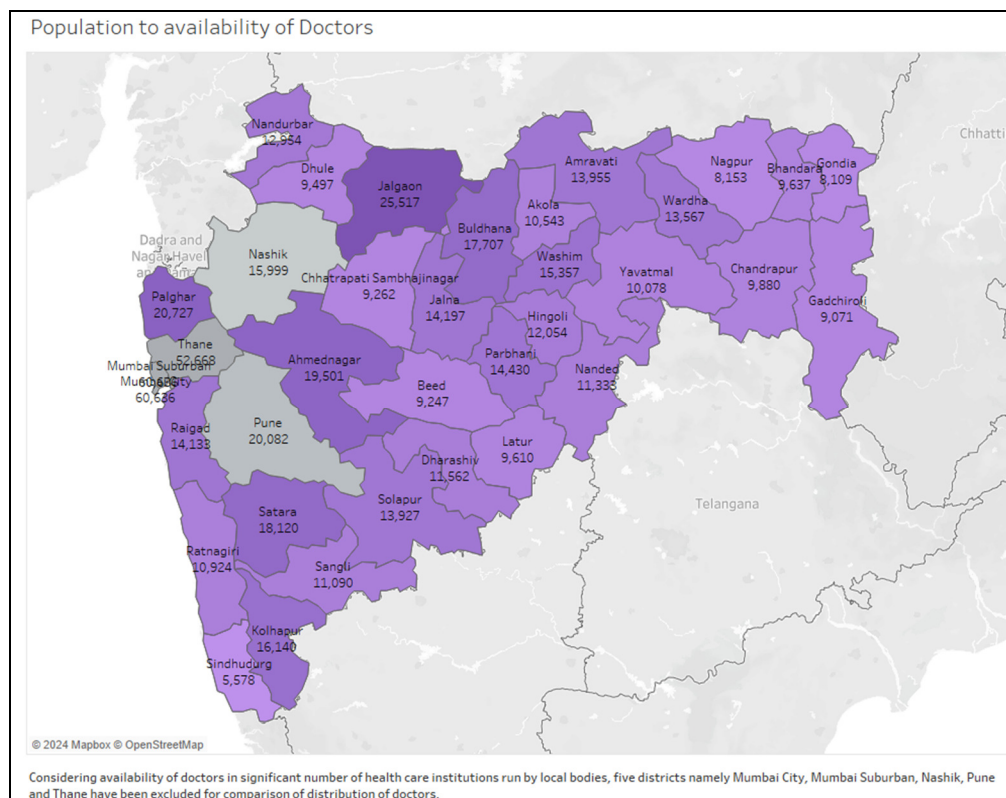


Source: Map prepared based on the information furnished by the Director of Health Services and Director of Medical Education and Research

As seen from **Map 2.1**, in Sindhudurg district the ratio of sanctioned post of one doctor to population was 3,461, while in Palghar<sup>18</sup> district, the ratio of sanctioned post of one doctor to population was 18,235.

<sup>18</sup> Mumbai City, Mumbai Suburban, Nashik, Pune and Thane districts have been excluded for comparison of distribution of doctors considering the availability of doctors in significant number of health care institutions run by Local Bodies in these five districts.



**Map 2.2: District-wise ratio of available doctors under PHD and MEDD to population**

Source: Map prepared based on the information furnished by the Director of Health Services and Director of Medical Education and Research

As seen from **Map 2.2**, in Sindhudurg district the ratio of available doctor to population was 1:5,578, while in Jalgaon<sup>19</sup>, it was 1:25,517.

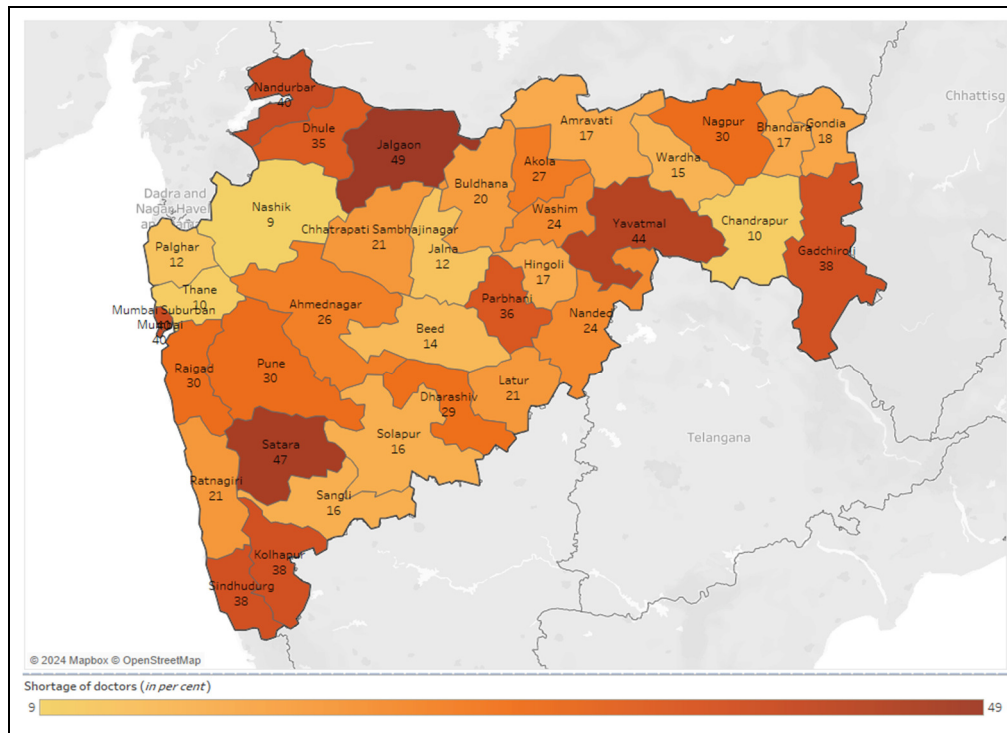
## 2.6 Regional disparity in shortage of manpower

As per the information furnished by HCIs under PHD and MEDD, there was 27 per cent shortage of doctors, 35 per cent shortage of nurses and 31 per cent shortage of paramedics in the State. District-wise analysis revealed regional disparity in the shortage of manpower.

(a) The shortage of doctors was the highest in Jalgaon (49 per cent), Satara (47 per cent) and Yavatmal (44 per cent) districts while the shortage was lowest at nine per cent in Nashik, 10 per cent in Chandrapur and Thane and 12 per cent in Jalna and Palghar districts, as shown in **Map 2.3**.

<sup>19</sup> Mumbai City, Mumbai Suburban, Nashik, Pune and Thane districts have been excluded for comparison of distribution of doctors considering the availability of doctors in significant number of health care institutions run by Local Bodies in these five districts.

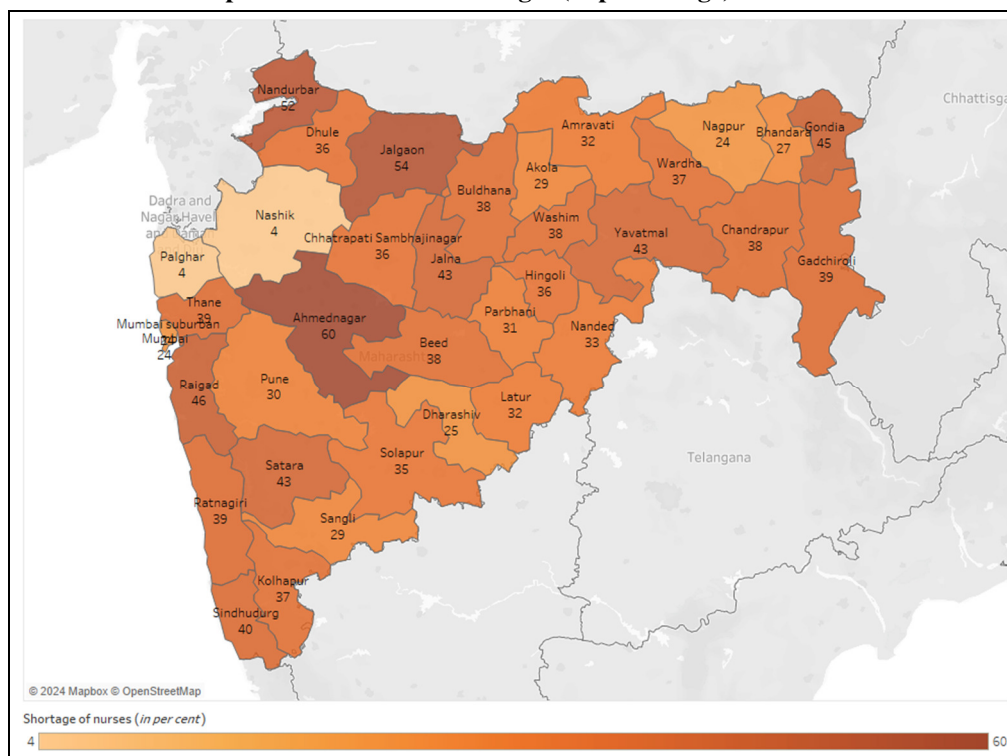
Map 2.3: District-wise shortages (in percentage) of doctors



Source: Map prepared based on the information furnished by the Director of Health Services and Director of Medical Education and Research

(b) The shortage of nurses was the highest in the Ahmednagar (60 per cent), Jalgaon (54 per cent) and Nandurbar (52 per cent) districts while the shortage was lowest in Nashik and Palghar (four per cent) districts, as shown in Map 2.4.

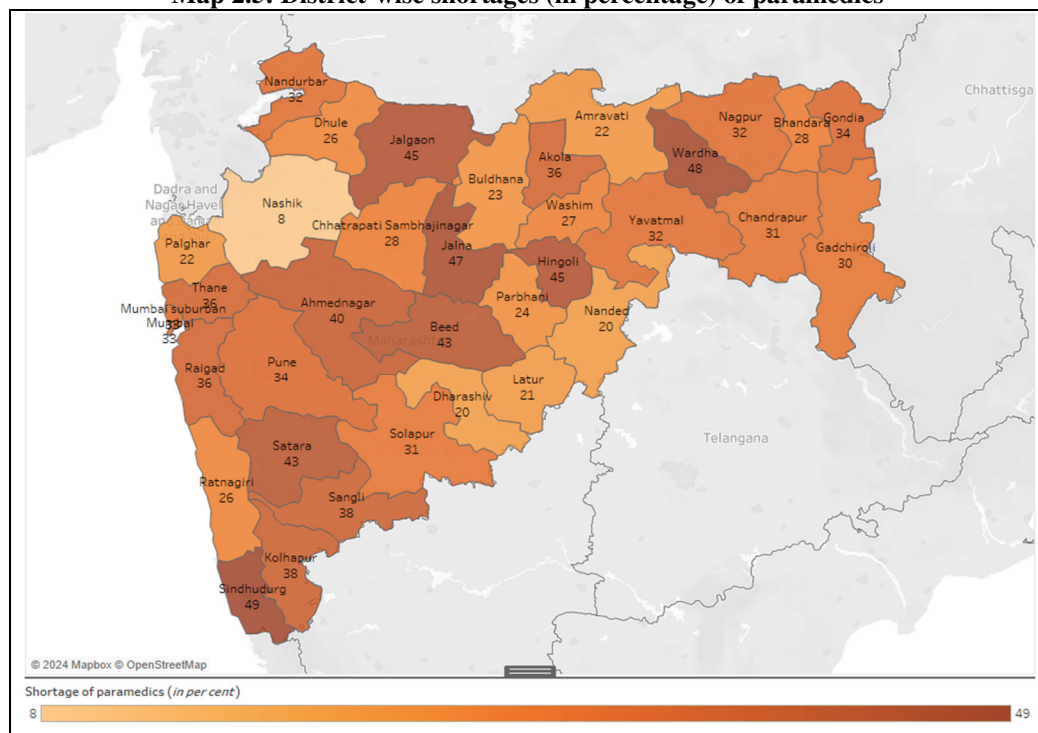
Map 2.4: District-wise shortages (in percentage) of nurses



Source: Map prepared based on the information furnished by the Director of Health Services and Director of Medical Education and Research

(c) The shortage of paramedics was the highest in the Sindhudurg (49 per cent), Wardha (48 per cent) and Jalna (47 per cent) districts while it was lowest at eight per cent in Nashik district, as shown in **Map 2.5**.

**Map 2.5: District-wise shortages (in percentage) of paramedics**



Source: Map prepared based on the information furnished by the Director of Health Services and Director of Medical Education and Research

## 2.7 Human Resources under Municipal Corporations in selected districts

The manpower position in HCIs under the jurisdiction of Municipal Corporations in the selected districts as of March 2022 is summarised in **Table 2.6** and details of cadre-wise shortages are shown in **Appendix 2.4**.

**Table 2.6: Availability of manpower in HCIs in test-checked Municipal Corporations**

Sr. No	Name of the Municipal Corporation	Sanctioned Strength	Persons in Position	Vacant post	Percentage of vacant post
1	Amravati	85	24	61	72
2	Chhatrapati Sambhajnagar	383	261	122	32
3	Chandrapur	70	70	0	0
4	Jalgaon	240	115	125	52
5	Kolhapur	460	325	135	29
6	Brihanmumbai Municipal Corporation (test-checked hospitals)	10,158	7,015	3,143	31
7	Nanded	177	75	102	58
8	Pune	1,672	810	862	52
9	Pimpri-Chinchwad	839	583	256	31
	<b>Total</b>	<b>14,084</b>	<b>9,278</b>	<b>4,806</b>	<b>34</b>

Source: Information furnished by respective Municipal Corporations

As seen from **Table 2.6**, as against the sanctioned strength of 14,084 posts in selected districts, 9,278 posts were filled leaving a vacancy of 4,806 posts

(34 per cent) in various cadres. The maximum shortage was in Amravati Municipal Corporation (72 per cent).

As seen from **Appendix 2.4**, the vacancies in the post of Medical Officers (Class I and II), Paramedics and Nursing staff was 43 per cent, 49 per cent and 18 per cent respectively.

## 2.8 Position of manpower in Trauma Care Centres

### 2.8.1 Position of manpower in Trauma Care Centres under PHD

PHD, GoM accorded (between 1997 and 2017) approval for the construction of 109 Trauma Care Centres (TCCs). As per the information furnished by PHD, out of 109 TCCs, only 73 TCCs were constructed, of which, 60 TCCs were functional in 26 districts of the State.

As per the information furnished by PHD, as against the sanctioned strength of 852 in the cadre of Anaesthetist, Orthopaedic Surgeon, Medical Officer and Nurses, etc., in these 60 TCCs, the person-in position was 657 leaving vacancies of 195 posts (23 per cent) as of December 2022. Audit further noticed that five TCCs<sup>20</sup> were functioning without Orthopedic Surgeon as of December 2022.

### 2.8.2 Position of manpower in Trauma Care Centres under MEDD

Apart from 109 TCCs under PHD, there were three Level II TCCs under the MEDD at Kolhapur, Nagpur, and Pune.

As per the information furnished by MEDD, 37 posts for each TCC at Pune and Kolhapur and 86 posts for TCC, Nagpur were sanctioned. Audit noticed that against these 37 sanctioned posts, only 11 posts in respect of TCC, Pune and six post in respect of TCC, Kolhapur were filled. In TCC, Nagpur as against 86 sanctioned posts, 73 posts were filled.

Thus, there was shortage of 70 per cent, 84 per cent and 15 per cent of manpower in TCCs at Pune, Kolhapur and Nagpur respectively. The overall shortage of manpower in these TCCs was 44 per cent.

## 2.9 Position of manpower in AYUSH Colleges and Hospitals

There were 16<sup>21</sup> AYUSH colleges and hospitals under the control of MEDD as of May 2023. The manpower position in these 16 colleges and hospitals is shown in **Table 2.7**.

**Table 2.7: Manpower position in AYUSH colleges and hospitals as of May 2023**

Category	Sanctioned Strength	Persons in Position	Vacancy (Per cent)
Doctors	402	317	85 (21)
Nurses	329	142	187 (57)
Paramedics	117	53	64 (55)
Others	948	535	413 (44)
<b>Total</b>	<b>1,796</b>	<b>1,047</b>	<b>749 (42)</b>

Source: Information furnished by Director of AYUSH

<sup>20</sup> (i) RH, Bhokar, District Nanded, (ii) SDH, Kalam bani, District Ratnagiri, (iii) SDH, Pandharkavada, District Yavatmal, (iv) DH, Pune and (v) DH, Satara.

<sup>21</sup> Seven AYUSH colleges; seven attached hospitals to these seven AYUSH colleges; one 20 bedded Ayurved hospital, Pune and one Government Homeopathy hospital, Mumbai.

Analysis of data revealed the following:

- There was shortage of doctors in all the 16 AYUSH colleges and hospitals. The percentage of shortages ranged between six *per cent* (Government Ayurved College, Baramati) and 100 *per cent* (four AYUSH hospitals in Jalgaon, Baramati, Pune and Mumbai). In reply, the Director, AYUSH stated (December 2023) that draft recruitment rules for appointment of doctors has been sent to Government for approval and the work in Jalgaon and Baramati AYUSH hospital is being attended by professors and post graduate students of AYUSH colleges.
- There was shortage of nurses in nine AYUSH hospitals. The percentage of shortages ranged from 25 *per cent* (R A Podar Hospital, Mumbai) to 87 *per cent* (Government Ayurved Hospital, Baramati).
- There was shortage of paramedics in 14 AYUSH colleges and hospitals. The percentage of shortages ranged from 14 *per cent* (Government Ayurved College, Nanded) to 100 *per cent* (three AYUSH colleges and three hospitals attached to these three colleges in Baramati and Jalgaon districts).

The details of sanctioned strength, persons in position and vacancies in government AYUSH colleges and hospitals is shown in **Appendix 2.5**.

***Recommendation 1: Government may fill up the vacancies in the health sector in a time-bound manner to ensure optimal and qualitative delivery of health services to public. Government may also increase the sanction strength of doctors under Public Health Department as recommended in Indian Public Health Standards.***

### **2.10 Recruitment of manpower**

During 2016-17 to 2021-22, 2,730 doctors were recruited under PHD out of which 54 *per cent* (1,479) were recruited during 2021-22. No recruitment was done during 2019-20 and 2020-21.

In MEDD, during 2016-17 to 2021-22, 576 doctors were recruited. No recruitment was done during 2019-20 and 2020-21. Further, based on the advertisement published by Maharashtra Public Service Commission for filling the post of doctors in 2021-22, 1,063 doctors were recruited during 2022-23 and 2023-24. Recruitment of 328 nurses was done during 2018-19 while 23 paramedics were recruited during 2016-17 to 2021-22.

### **2.11 Training Programmes**

Regular training and capacity building activities are essential to enhance the knowledge and skills of medical officers, specialist doctors, para-medics and link workers working in the field of maternal and child health. Training of all the cadres at periodic intervals is an essential component of IPHS.

At the national level, National Rural Health Mission (NRHM) conducted various training programmes. In Maharashtra, one nodal apex training institution<sup>22</sup> and seven regional training institutes<sup>23</sup> under the control of PHD

<sup>22</sup> Public Health Institute, Nagpur.

<sup>23</sup> Health and Family Welfare Training Centers at Amravati, Chhatrapati Sambhajinagar, Kolhapur, Nagpur, Nashik, Pune and Thane.

were imparting training to the medical and para-medical staff. The State also has well-established District Training Centers functioning at 33 districts and Hospital Training Centers functioning at 23 districts. The details of trainings conducted in seven out of nine<sup>24</sup> selected districts under PHD during 2017-18 to 2021-22 are shown in **Table 2.8**.

**Table 2.8: Position of district-wise training conducted**

Districts	Training Planned	Training conducted	Excess (+)/ Shortfall (-)	Shortfall in training (percentage)
Amravati	110	92	(-) 18	16
Chhatrapati Sambhajinagar	226	140	(-) 86	38
Chandrapur	251	249	(-) 2	1
Jalgaon	376	346	(-) 30	8
Kolhapur	2,151	2,106	(-) 45	2
Nanded	723	201	(-) 522	72
Pune	1,904	1,597	(-) 307	16

*Source: Information furnished by District Health Officer, Zilla Parishads of selected districts*

As seen from **Table 2.8**, the shortages in imparting training ranged from one *per cent* (Chandrapur) to 72 *per cent* (Nanded).

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<sup>24</sup> No training was conducted in Mumbai city and Mumbai suburban.