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Strengthening Post Graduate Medical Education in India

Key interventions to respond to increasing demand for specialist and super specialist doctors

November 2024

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Swasth Bharat, Viksit Bharat

Foreword by FICCI

The future of healthcare in India hinges on a strong foundation in medical education, particularly at the postgraduate level. As a nation with an ever-expanding healthcare landscape, India faces both challenges and unique opportunities to bridge gaps in healthcare accessibility and quality.

With the largest network of medical institutions globally, India has made commendable strides in training healthcare professionals. However, ongoing gaps- amplified by the COVID-19 pandemic- highlight the urgent need for systemic reforms. Issues such as disparities in the availability of postgraduate seats, regulatory challenges, and an acute shortage of specialized medical professionals remain critical roadblocks. Addressing these concerns requires a cohesive and progressive approach from central and state governance structures, regulatory bodies, and healthcare institutions.

FICCI has long been at the forefront of advocating for healthcare workforce reforms and capacity-building, ensuring that systemic changes support the goals of universal healthcare. FICCI's Healthcare Services Committee has consistently championed initiatives to bridge these gaps by facilitating cross-sectoral dialogues and policy recommendations.

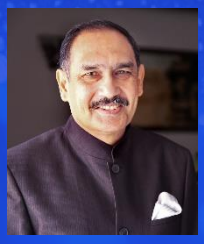
This FICCI-KPMG in India knowledge paper titled, "The Future of Post Graduate Medical Education in India: The 2047 Roadmap," presents a significant step in charting a sustainable future for India's medical education. It has been crafted to provide a comprehensive assessment of the current landscape of postgraduate medical education and offer a roadmap to transform India's healthcare workforce by 2047.

Through in-depth analyses, this paper highlights strategic areas such as the integration of technology, regulatory improvements, and innovations in medical education infrastructure. Case studies from leaders in healthcare education underscore the potential for India to emerge as a center of medical expertise, not only catering to domestic needs but also positioning itself as a global talent hub.

This FICCI-KPMG in India Paper will be released during the 18th edition of FICCI's annual healthcare conference- FICCI HEAL 2024, scheduled on November 5-6, 2024 on the central theme 'Swasth Bharat, Viksit Bharat'. We hope that this paper sparks meaningful deliberation and action at both the policy and institutional levels, ultimately contributing to a robust and future-ready healthcare workforce.

Dr. Sanjeev Singh

Co-Chair- FICCI Health Services Committee



Dr. Harsh Mahajan

Chair- FICCI Health Services Committee

Dr. Anupam Sibal

Co-Chair- FICCI Health Services

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Foreword by KPMG in India

With the ever-changing ecosystem and healthcare landscape, the demands of the healthcare sector are constantly evolving. India's healthcare ecosystem is vast and multifaceted, encompassing pharmaceuticals, medical devices, and insurance sectors, all of which play a crucial role in shaping the healthcare landscape.

In today's world, where health infrastructure demands the attention of authorities globally, its importance has also increased at national level, Human Resources for Health (HRH) cannot be overlooked. Developing a robust HRH system aligns with the continuous evolution of undergraduate (UG) and postgraduate (PG) courses, which help medical students enhance their skillsets.

The landscape of medical education is continuously evolving, driven by advancements in medical science, technology, and the ever-changing needs of society. Post-graduation medical education, in particular, plays a pivotal role in shaping the future of healthcare by equipping physicians with the specialized knowledge and skills necessary to address complex medical challenges. Despite the country's rich heritage of medical education and its production of world-class doctors, there are notable disparities in educational quality and resource availability. Addressing these disparities is essential to ensure that all medical graduates receive a uniformly high standard of education. As we navigate through an era marked by rapid medical advancements and global health crises, it is imperative to reassess and innovate our educational strategies.

This KPMG in India – FICCI paper delves into the current state of post-graduation medical education, exploring its strengths and challenges. It aims to provide valuable insights and recommendations for educators, policymakers, and healthcare institutions committed to enhancing the quality and effectiveness of post-graduation medical education.

Mr. Lalit Mistry

Partner and Co-head, Healthcare Sector

KPMG in India

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Voice of Industry Experts

Whilst it is a laudable step to increase the number of seats of PG students, it is important to ensure that strict audit mechanisms and quality measures are enforced so that the output is of the highest possible quality. A specialist doctor has onerous responsibilities and it must be ensured he/she is capable of delivering them.

Dr. Narottam Puri

Advisor- FICCI Health Services Committee; Principal Advisor- QCI; Board Member & Former Chairman- NABH and Advisor-Medical Operations, Fortis Healthcare

For one lakh UG seats, we have half the number of PG seats in India. But given the increasing burden of chronic lifestyle diseases, we need to increase the PG seats by at least 50% in a short period of time. To achieve this, we must promote and increase the DNB seats in the private sector significantly.

(Hony) Brig Dr Arvind Lal

Executive Chairman, Dr. Lal Path Labs Ltd

India stands at the cusp of a healthcare revolution, with the potential to reshape medical education for generations to come. This roadmap highlights the key areas where innovation, collaboration, and strategic reforms can help us build a future-ready healthcare workforce. Together, we can create a system that not only meets today's needs but anticipates tomorrow's challenges, ensuring that every patient, in every corner of the country, receives the care they deserve.

Dr. Anupam Sibal

Co-Chair, FICCI Health Services Committee and Group Medical Director and Senior Pediatrician, Apollo Hospitals

The white paper on strengthening PG medical education in India highlights urgent needs in the healthcare system: despite a doubling of PG seats and greater recognition of DNB professionals, the supply of specialists remains insufficient to meet rising demands. Factors like population growth, increasing non-communicable diseases, and improved access to healthcare have intensified the need for qualified specialists. Challenges include limited seats, a lack of qualified faculty, high costs, and insufficient hands-on training.

Gautam Khanna

CEO of P.D. Hinduja Hospital

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Voice of Industry Experts

Postgraduate medical education in India faces several complex challenges. Strong educational frameworks and expanded training opportunities are urgently needed to address these issues. However, tackling this problem comprehensively is no simple task. A data-driven approach and innovative thinking are essential to devise effective solutions.

Dr. Nandakumar Jairam

Advisor Shyamrad, President GAPIO and President RBANMS

Research and innovation are crucial for advancing specialized and personalized care, ensuring that medical treatments are tailored to the unique needs of each patient. To achieve this, it is imperative to integrate these elements into India's PG medical education system, equipping future healthcare professionals with the skills and knowledge to lead in a rapidly evolving field.

Dr. Ravindranath K

Chairman Global University Foundation, and Founder of Global Hospitals Group

As we stand at this pivotal moment in India's healthcare journey, we must embrace continuous innovation and strategic reforms. The need for specialised care is growing rapidly, driven by advancements in medical science and the increasing complexity of health conditions. This demand will only intensify in the future, requiring us to adapt and enhance our capabilities. International collaborations will play a crucial role in this evolution, ensuring we stay at the forefront of global healthcare advancements and deliver the highest quality of specialised care to patients worldwide.

Dr. Anna Van Poucke

Global Head of Healthcare, KPMG International, and Healthcare Senior Partner
KPMG in the Netherlands

The healthcare landscape in India is progressing with a significant shift toward specialised and super specialised care with increasing numbers of super speciality hospitals and out of hospital specialised care models. To meet the growing demand, India will need to increase the numbers of doctors with PG medical education and training in various fields, improve PG medical education infrastructure, and ensure attractive professional prospects for retaining talent within the country.

Lalit Mistry

Partner & Co-Head, Healthcare, KPMG in India

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Executive summary

The Indian healthcare ecosystem has progressed drastically over the last three decades. Currently, it is poised at a critical juncture, underpinned by the three essential pillars of healthcare: Affordability, Accessibility, and Availability. These pillars are fundamental to ensuring that healthcare services are within reach for all segments of the population, both in terms of cost and physical access, while maintaining a consistent supply of necessary medical resources. Achieving these 3As is imperative for the continued progress and sustainability of India's healthcare system, addressing both current needs and future challenges.

The Government of India has introduced several healthcare policies to achieve successful implementation of universal health coverage (UHC) through National Health Policy 2017 like launch of Ayushman Bharat Yojana. Also, with the recent launch of National Digital Health Mission (NDHM), Government is also creating digital health infrastructure in the country. As India re-imagines healthcare with UHC and NDHM, it is vital for the Government and national medical authorities to ensure that the country produces the right quality of doctors. Also, an acute shortage of qualified doctors has been impeding equitable access of quality healthcare to all the citizens of the country. Therefore, there is a parallel need to look deeper into medical education system in the country and align it with evolving healthcare needs and global academic standards.

Medical education forms the bedrock on which any disparities in human resources for healthcare are addressed. Recent years have seen several initiatives taken by the Government that aim to build more strength into undergraduate (UG) medical education in India. During the recent time, the focus has been increased on developing the postgraduate (PG) courses to improve medical students' skills. Despite India's rich heritage in medical education, disparities in educational quality and resources persist. Addressing these disparities is crucial to ensure a uniformly high standard of education for all medical graduates.

Key Challenges

India's postgraduate medical education system encounters numerous challenges that hinder its capacity to produce a skilled, well-distributed, and high-quality medical workforce. These systemic issues range from the number and quality of medical seats to geographic and specialty-related disparities. Addressing these challenges is essential for strengthening the healthcare system.

In addition to uneven seat distribution across geographies and underutilization of medical seats, other challenges include the migration of medical students abroad, which exacerbates the shortage of specialists in key fields, especially in rural and underserved regions. There is also a preference for MD/MS over DNB, a lack of research, issues with regulatory compliance, and a mismatch between the selection of specialties and healthcare demand, among other challenges.

Key recommendations for strengthening PG medical education in India

Strengthening postgraduate medical education in India is an urgent and complex necessity. By addressing educational disparities, modernizing curricula, enhancing practical training, and balancing both quantity and quality, India can cultivate a highly skilled healthcare workforce equipped to meet the challenges of its diverse healthcare landscape. As the nation evolves, so must its approach to medical education, ensuring it addresses current needs while anticipating future demands. Investing in postgraduate medical education is fundamentally an investment in the nation's health, fostering a healthier and more equitable society.

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The following four levers underpin the future roadmap for PG medical education in India to make it more robust and future ready:

1. Quality of PG medical education

The quality of PG medical education is critical for developing proficient healthcare professionals. Modernization and standardization ensures curriculum development, emphasizing competency-based education and integration of soft skills and ethics, equips students for holistic patient care. Faculty development and enhanced teaching experiences also play a vital role.

Strengthening clinical training and practical exposure provides essential hands-on experience. Incorporating technology and digital health into the curriculum aligns education with contemporary advancements in medical science. Promoting public-private partnerships (PPP) also elevates the quality of PG medical education.

2. Improving access to PG medical education

Enhancing access to postgraduate (PG) medical education is crucial for meeting healthcare needs. Expanding PG seat capacity and ensuring equitable distribution across specialties and states are essential steps. Strengthening public-private partnerships (PPPs) by leveraging private sector capacity and securing government funding and support for PG programs can improve educational infrastructure. Diversifying entry pathways and selection criteria will create more opportunities for aspiring medical professionals. Additionally, providing financial aid and scholarships is vital to support students from diverse backgrounds, ensuring that financial constraints do not impede access to quality medical education.

3. Incentives for less popular specialties

Encouraging professionals to enter less popular medical specialties is essential for a balanced healthcare system. Financial incentives can attract more professionals to these fields. Loan repayment programs offer significant relief, making these specialties more appealing. Providing career growth and professional development opportunities ensures long-term engagement and satisfaction.

Introducing early exposure to these specialties in medical education can spark students' interest. Enhancing the prestige and societal value of these specialties through recognition and awareness campaigns can further motivate medical professionals to pursue them.

4. Incentives for less popular specialties

Expanding and enhancing alternative postgraduate (PG) medical programs is essential for broadening access to advanced medical education. Optimising pathways such as the Diplomate of National Board (DNB) by positioning it as a prestigious and viable option alongside MD/MS programs is crucial. The DNB offers a wide network of training opportunities, particularly in private hospitals, which can significantly expand access to PG education in underserved regions. Elevating the status of DNB programs through recognition and support will enhance their appeal. Providing financial support and stipends is vital to attract and retain talented medical professionals in these alternative pathways.

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5. Research and innovation opportunities

Enhancing research and innovation opportunities in medical education is vital for advancing healthcare. Establishing research-supporting environments and integrating clinical training fosters a culture of inquiry and practical application. Providing research grants encourages exploration and development of new medical knowledge. Collaborations with academic institutions and government bodies can facilitate resource sharing and multidisciplinary research initiatives. These efforts collectively enhance the quality of medical education and contribute to significant advancements in medical science and patient care.

Strengthening postgraduate medical education in India is pivotal for developing a competent healthcare workforce capable of addressing the nation's diverse health challenges. By focusing on quality, accessibility, incentives for less popular specialties, alternative programs, and research opportunities, India can create a robust and future-ready medical education system. This strategic investment will not only enhance healthcare delivery but also promote a healthier and more equitable society.

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Chapter 1

The Growing Demand for Specialists and Super Specialists Doctors in India

Chapter 1

The Growing Demand for specialists and Super Specialists Doctors in India

In recent years, the demand for healthcare services across the globe, and particularly in countries with rapidly growing populations like India, has soared substantially. Moreover, the demand for secondary and tertiary care across urban and rural areas of India has swelled, due to several factors like government led healthcare coverage, increasing insurance coverage for secondary & tertiary care, and expansion of healthcare infrastructure. As the landscape of healthcare, evolves, the need for augmenting the supply of both general practitioners and specialized doctors becomes increasingly urgent apart from nurses and paramedical workforce.

India is indeed moving toward a healthcare system focused on specialist and super-specialist doctor-driven care, and this shift marks a critical transition from a predominantly generalist-based approach to one where specialized expertise plays a central role in healthcare delivery. The demand and supply of specialists and super-specialists in healthcare are increasingly mismatched in India. Several factors contribute to the heightened demand for these skilled professionals, while various barriers impede the ability to meet this demand through an adequate supply of trained specialists and super-specialists.

Key Factors Fueling the Demand for Specialists and Super-Specialist Doctors in India

Growing Population

- India has a population of 1.38 billion and a population density of 422 in 2023. With a decadal growth of 8.4 per cent, the population is expected to reach 1.47 billion by 2031. [1,2]
- India is about to surpass China as the world's most populous nation in the coming days.[3]
- India's geriatric population has increased from 6.4 per cent in 1981 to 10.1 per cent in 2021 and is expected to reach 13.1 per cent in 2031. [4]
- This demographic growth and shift require more specialists and super specialists to cater the needs of healthcare services. [5]

Rising Chronic and Lifestyle Diseases

- India shares more than two-third of the total deaths due to NCDs in the South-East Asia Region (SEAR) of WHO. [6]
- The probability of dying between ages 30 and 70 years from four major NCDs is 26%, which means that a 30-year-old individual has a one-fourth chance of dying from these diseases before the age of 70 years. [7]
- The disease burden (DALYs) due to communicable, maternal, neonatal, and nutritional diseases (CMNNDS) has dropped substantially from 61 per cent in 1990 to 31 percent in 2019. [8]
- During the same period, the contribution of non-communicable diseases towards DALYs has increased by a significant amount from 30 percent to 58 percent. [9]
- Cardiovascular Diseases, Chronic Respiratory Disorders and Neoplasms are the leading contributors to disease burden in 2019 while they ranked substantially low in 1990. [10]
- The prevalence of obesity and overweight is also showing a rapid increase in trends.[11]
- To address growing disease burden, India will need a vast pool of specialist and super specialist doctors.

1. Report of the Technical Group of Population Projection (2011-2036), Ministry of Health and Family Welfare, July 2020
2. Calculated based on Population Projection by MoHFW and area as provided on National Portal of India
3. United Nations Report, April 2023
4. Report of the Technical Group of Population Projection (2011-2036), Ministry of Health and Family Welfare, July 2020
5. Rural Health Statistics 2021-22', Ministry of Health and Family Welfare, Government of India
6. WHO Global Status Report on NCD
7. WHO Global Status Report on NCD
8. Global Burden of disease study report, 2019
9. Global burden of disease study report, 2019
10. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019, October 2020
11. Global Burden of Disease 2019 India Compare; KPMG Analysis

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Shortage of Specialist and Super Specialist Doctors

- India has ~4.6 million HRH (doctors, nurses, and midwives), with a density of 33.5 per 10,000 population, the lowest in BRICS nations.[12]
- India has a total shortfall of ~1.5 million HRH (137,559 doctors and 1.37 million nurses and midwives) when compared with the WHO recommended density. [13]
- Out of total shortfall of 137,559 doctors, there is significant shortfall of specialist (family medicine, pediatrician, gynecologist, general surgeon, etc.) and super specialist across public and private sector. [14]

Rural-Urban Disparity of Specialist and Super Specialist

- Despite the post graduate medical seats increasing by more than 100 per cent in the last ten years, rural India still suffers from nearly 70 per cent shortage of specialist doctors (physicians, surgeons, pediatricians, Obs & Gyn, etc.) [15,16]
- All the states and Union Territories combined, there are 21,964 required posts of specialists (surgeons, Obs & Gyn, physicians, and pediatricians) at rural CHCs, 4413 are occupied, indicating an overall shortfall of 80%. [17]
- All the states and Union Territories combined, there are 5,491 required posts of surgeons at rural CHCs, but only 913 are occupied, indicating a shortfall of 83.3 per cent. [18]
- Availability of doctors and medical officers in PHCs has increased from around 20,000 (2005) to around 32,000 (2023), however, vacancy has also more than doubled in the same period. [19]

Rapidly Expanding Specialised Healthcare Infrastructure

- In the last few years, the Government and private sector have significantly invested in developing secondary and tertiary care infrastructure across India.
- The cumulative fund infusion into hospitals & diagnostic centers from April, 2000 to December, 2023 stood at USD 9.82 billion, growing from USD 8.5 billion till December, 2022. [20]
- The government has prioritised development of secondary and tertiary care infrastructure under the Ayushman Bharat health infrastructure mission (ABHIM), Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) for establishment of AIIMS and new medical colleges.
- The growing secondary and tertiary care infrastructure are bound to see shortage of specialist and super specialist doctors.

Increasing Insurance and Healthcare Coverage

- Only 1/3rd of India's population has health insurance coverage, with majority of the population still depending on various govt health coverage schemes. [21]
- Total insurance premium as a % of GDP in India has steadily increased from 2.7% in 2001 to 4.2% in 2021 and it has helped in reducing Out-of-Pocket Expenditure (OOPE) on healthcare in India. [22]
- Private health insurance expenditures proportional to the total health expenditure went up by roughly 118 per cent from 2013-14 to 2021-22. in India. [23]
- The National Health Accounts (NHA) estimates (2019–20) indicate a significant drop in Out-of-Pocket Expenditure (OOPE) on healthcare in India, from 64.2 per cent of Total Health Expenditure (THE) to 47.1 per cent between 2013–14 and 2019–20. [24]
- Increasing health insurance and healthcare coverage under the government schemes will drive access and demand for secondary and tertiary care services across public and private sector in India.

12. National Health Profile, 2021
13. WHO NHWA data portal; National Health Profile, 2021
14. NMC Data (2021-22)
15. Update on Medical Education', Press Information Bureau, August 2023
16. Health Dynamics of India (Infrastructure and Human Resources) 2022-23, Statistics Division, MoHFW, Government of India
17. Health Dynamics of India (Infrastructure and Human Resources) 2022-23, Statistics Division, MoHFW, Government of India
18. Health Dynamics of India (Infrastructure and Human Resources) 2022-23, Statistics Division, MoHFW Government of India
19. Health Dynamics of India (Infrastructure and Human Resources) 2022-23, MoHFW, Statistics Division, Government of India
20. FDI inflows into hospitals & diagnostic centers grows 90% in first nine months of 2023-24, Pharmabiz, April 2024
21. NITI Aayog Releases Report on 'Health Insurance for India's Missing Middle' Posted On: 29 OCT 2021 by PIB Delhi
22. Out-of-pocket expenditure (% of current health expenditure), The World Bank, Accessed on 9 October 2023
23. Economic Survey 2022-23, Accessed on 11 October 2023
24. National Health Accounts (NHA) Estimates (2019–20), National Health Systems Resource Centre, Ministry of Health and Family Welfare, 2023

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Increasing Per Capita Healthcare Spend

- India's per capita health expense jumped 82% in last decade as per the recent National Health Accounts Estimates. [25]
- India's total health expenditure per capita has increased, even as the total health expenditure as a measure of gross domestic product (GDP) has roughly remained the same from 2013-14 to 2021-22, according to the National Health Accounts Estimates for India 2021-22. [26]
- Increasing healthcare spends is bound to drive demand for specialist and super specialist doctors based care with increasing awareness.

Medical Value Travel in India for Specialised Care

- India ranked 10th out of 46 destinations in the 2021 Medical Tourism Index. [27]
- There was an inflow of 697,453 foreign medical tourists in 2019; however, the number dropped to only 303,536 in 2021 due to COVID-19 restrictions. [28]
- With the travel restrictions now lifted, India witnessed an influx of 1.4 million patients in 2022. [29]
- Increasing number of NABH and JCI accredited hospitals are further drawing medical value travel in India, mainly for specialised care requiring specialist and super specialist doctors.

New Age Delivery Models and Technological Advancement

- The new age healthcare delivery models in the coming decade will be a combination of the metamorphosis of existing care models and the emergence of newer models like out of hospital care, specialty clinics & hospitals, and technology enabled care.
- Technological advancement across diagnostics, robotics, telemedicine, and AI in healthcare, will drive the demand for specialists to interpret complex data and provide high-end care.
- Specialized areas like robotic surgery, genomics, and personalized medicine are opening new avenues, driving the need for expertise in emerging fields.

Increasing Awareness for Specialised Care

- Indian health consumers are increasingly becoming more aware of their own healthcare needs and recognizing specialist and super specialist-based care.
- This awareness is mainly due to increased education levels as well as the easy availability of credible medical content through digital channels, insurance coverage, and access to specialised healthcare infrastructure.
- Post COVID-19 pandemic, Indian health consumers are indicting shift their behaviour and prioritising health to some extend that reflects with increasing insurance coverage and increasing healthcare per capita spend. [30]

The factors enlisted above will continue to drive the demand for specialist and super specialist doctors in India across public and private sector. Post graduate medical education matters significantly to develop sustainable supply of specialist and super specialists doctors in India. On this note, the significance of having a robust Post Graduate medical education system become utmost critical for building sustainable health system in the country.

25. National Health Account Estimates 2021- 22, Ministry of Health and Family Welfare, October 2024
26. National Health Account Estimates 2021- 22, Ministry of Health and Family Welfare, October 2024
27. Medical Tourism Index, Government of India, 2021
28. Open Data Government Platform
29. Quoted by Shri Shripad Naik, Minister of State for Tourism
30. KPMG Thought Leadership Paper titled 'New Age Healthcare Delivery Models in India - 20 plus healthcare delivery models, redefining healthcare landscape'

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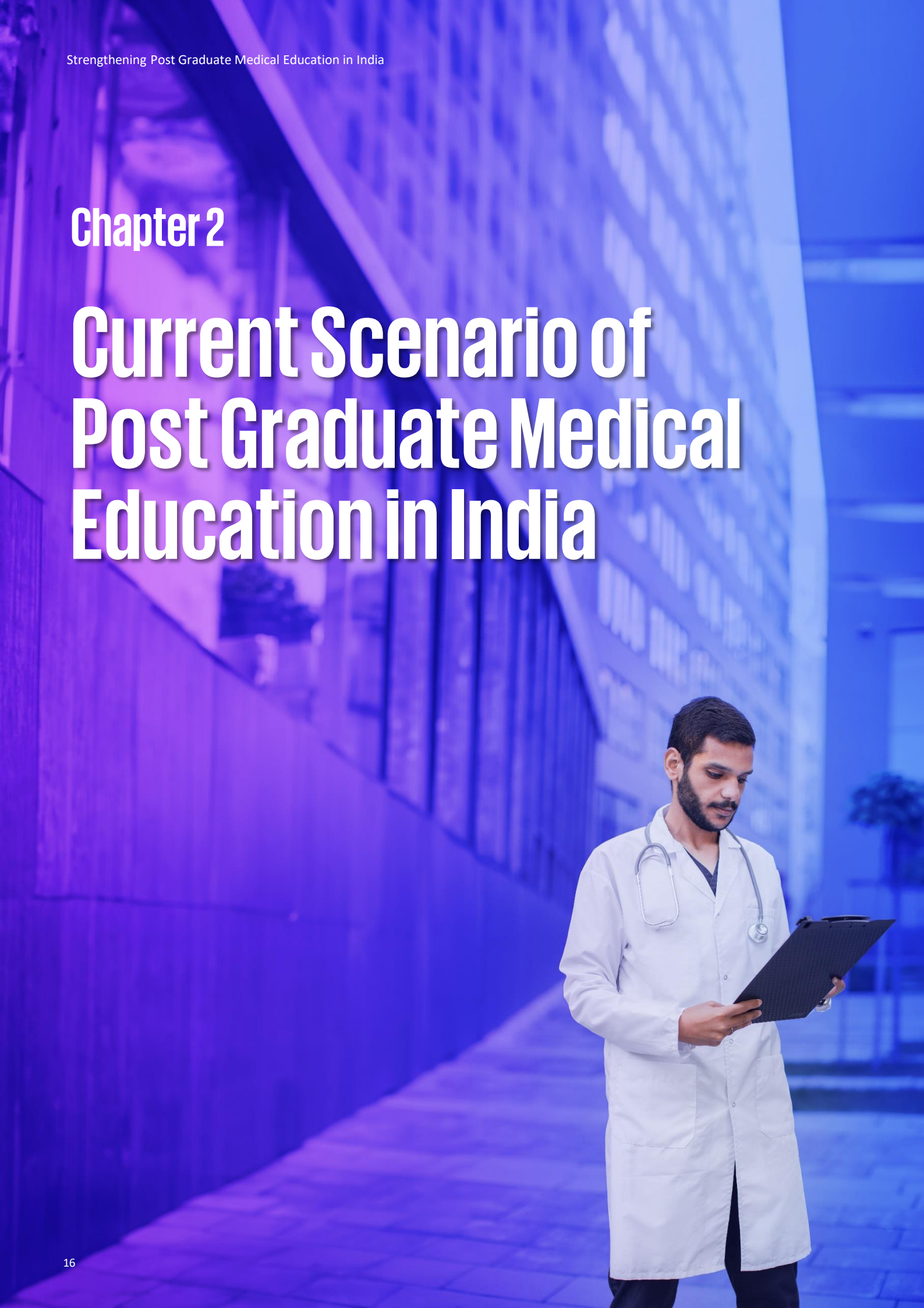
Chapter 2

Current Scenario of Post Graduate Medical Education in India



Chapter 2
Current Scenario of Post Graduate Medical Education in India

PG medical education in India has evolved over the decades, shaped by the complex healthcare challenges of a large, diverse population. From addressing the acute shortage of specialists to developing highly focused areas of expertise, the medical education landscape today emphasises the need for deep specialisation, continuous learning, and alignment with global standards. It is critical to understand the regulation, progress in PG medical education, and priority areas to further strengthen PG medical education in India.

2.1 Curriculum modernisation to build future-ready medical specialists

Medical education is regulated by two bodies in India – National Medical Commission (NMC), which replaced the Medical Council of India (MCI) in 2020 and National Board of Examinations in Medical Sciences (NBEMS). These bodies govern and regulate courses in various fields of medicine across undergraduate, postgraduate and super-specialty. Following MBBS, doctors look to specialize through MD/MS (Doctor of Medicine/Master of Surgery), which are 3 years long broad specialty courses. Admission to the same is via the NEET-PG exam conducted by National Board of Examinations in Medical Sciences (NBEMS). Post PG, further specialization is possible through DM (Doctor of Medicine) or MCh (Master of Chirurgical), with entry-based score on the National Eligibility cum Entrance Test for Super specialty courses (NEET SS) exam. While the aforementioned programs are governed by NMC, programs such as Diplomate/Doctorate/Fellow qualifications (DNB/DrNB/FNB) are awarded by the NBEMS and have been equated to postgraduate degrees and postdoctoral level qualifications of universities by the MoHFW, Government of India.

2.2 India has witnessed a phenomenal growth of the medical education sector

The Government has significantly strengthened the medical education sector by expanding the number of medical colleges along with the MBBS and PG seats. There has been an 82 per cent increase in medical colleges, rising from 387 before 2014 to 706 as of February 2024. Furthermore, MBBS seats have surged by 112 per cent, from 51,348 before 2014 to 1,08,940. PG seats have also seen a 127 per cent rise, from 31,185 before 2014 to 70,645 by 2023-24. [31]

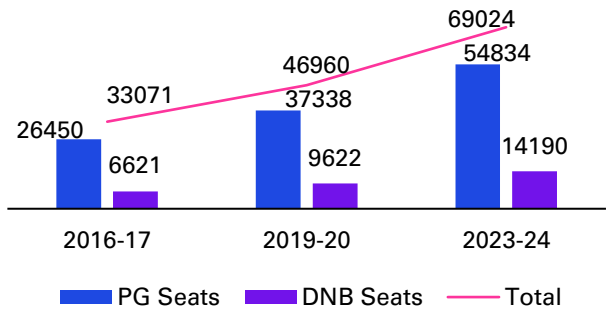
PG seats (MD/MS/MCh/DM)

As on 2023-24, the total number of PG seats in the country stands at 54,834 spreading across government medical colleges (33,416) and private medical colleges (21,418). There has been a 107 per cent increase for PG seats over 2017-24. [32]

DNB seats (DNB/DrNB/FNB)

In 2023-24, there were an estimated 14,190 DNB seats across government and private sector. The DNB seats witnessed an increase of 114% per cent over 2017-24. [33]

Exhibit 1: Distribution of PG seats and DNB Seats (2016-17 – 2023-24)



Source: NMC, NBEMS data and KPMG Analysis

31. Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024
32. 'Update on Medical Education', Press Information Bureau (PIB), August 2023
33. National Board of Examination in Medical Sciences (NBEMS)', Department of Accreditation

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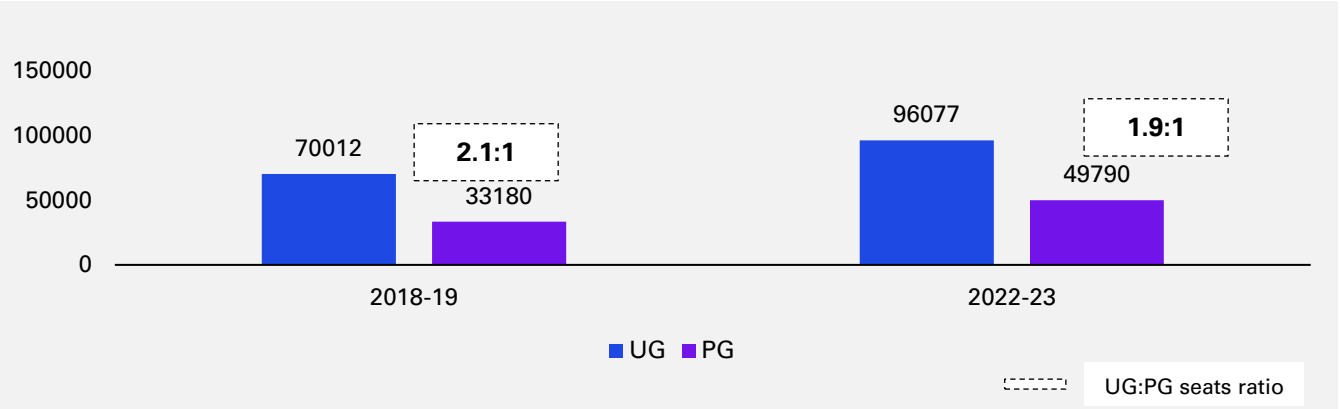
The PG seats in the government and private sector increased at a similar rate, 18.2 per cent and 19.9 per cent respectively over the last three years [34]. This parallel growth in PG medical seats in both government and private sectors indicates a strong effort to address the rising demand for medical professionals.

Some of the measures/steps taken by the government to augment the expansion of medical education in the country include: [35]

- Centrally sponsored scheme (CSS) for establishment of new medical colleges by upgrading district/ referral hospital under which 157 new medical colleges have been approved, out of which 108 are already functional.
- CSS for strengthening/ upgradation of existing state government/ central government medical colleges to increase the number of UG and PG seats.

Exhibit 2 shows the change in the number of UG and PG seats from 2018-19 to 2022-23. The improvement in the ratio of UG to PG medical seats in India from 2.1:1 in 2018-19 to 1.9:1 in 2022-23, reflects significant progress in addressing a long-standing challenge in medical education — the mismatch between the number of medical graduates and the availability of PG training opportunities.

Exhibit 2: Change in the number of UG and PG seats from 2018-19 – 2022-23 [36]



Note: PG seats also include 1,320 & 1,621 College of Physicians and Surgeons (CPS) and 6,848 & 12,648 DNB seats for years 2018-19 and 2022-23, respectively.

Furthermore, increase in the number of medical colleges over the last few years is a significant step towards addressing India's healthcare challenges. This expansion is not only producing more doctors to meet the growing healthcare demand but also contributing to the decentralization of healthcare services, improving access to medical education, and supporting government initiatives aimed at achieving universal healthcare.

2.3 Postgraduate Medical Education Regulations (PGMER) 2023

From a regulatory perspective, the shift in the number of specialties from the Postgraduate Medical Education Regulations (PGMER) 2000 to PGMER 2023 is a significant development aimed at addressing the evolving healthcare needs of the country. The focus is on interdisciplinary learning, practical training and set minimum standards to pursue modern medicine. As outlined in Exhibit 3, the number of broad specialties and diploma courses have remained similar; however, there is a huge increase of 128.5 per cent in the number of super specialties. Additionally, post-doctoral certification/ fellowships were introduced in 2023. [37] The expansion of super specialties reflects the growing complexity and diversity of healthcare demands, driven by changes in disease patterns, the need for specialised treatments, and advancements in medical technology.

34. 'Steps taken to Increase Medical Colleges and MBBS Seats', Press Information Bureau, July 2024
35. Update on opening of new medical colleges in the country, Press Information Bureau (PIB), December 2023
36. 'Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024
37. 'Quality of Medical Education in India', National Medical Commission, March 2024

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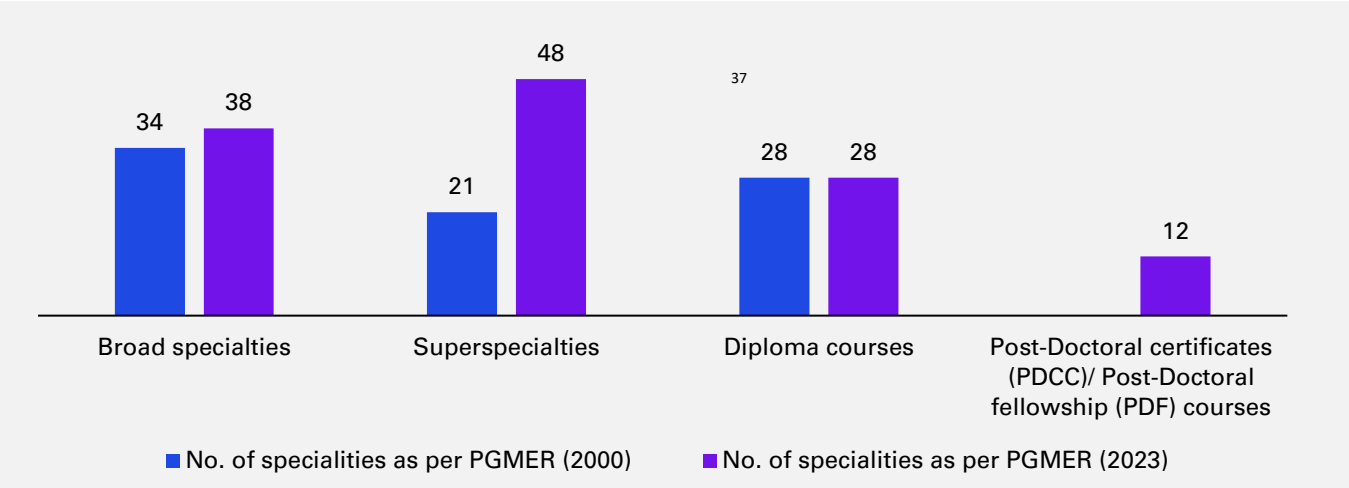
Exhibit 3: Number of specialties as per PGMER (2000 and 2023) [38]



Notes:

- **Broad specialties**: These are primary areas of medical practice that encompass a wide range of medical conditions and treatments such as general medicine, general surgery, and paediatrics.
- **Diploma courses**: These are shorter, specialised training programmes that provide focused education in a particular area of medicine and usually last for about two years and are often pursued after completing an MBBS.
- **Post-Doctoral Certifications/Fellowships**: These are advanced training programmes that doctors undertake after completing their PG degrees. They are designed to provide additional expertise and specialisation in a specific field.
- **Super specialties**: These are highly specialised fields within medicine that require additional training beyond the standard postgraduate degree such as cardiology, neurology, and oncology.

2.4 Skewed distribution of medical seats acts as a barrier to equitable access to medical education

Southern states such as Tamil Nadu, Karnataka, and Andhra Pradesh, along with Maharashtra and Uttar Pradesh host a disproportionately high number of PG medical seats. This is attributed to a higher concentration of medical colleges, better healthcare infrastructure, and the historical development of medical education in these regions.

For instance, these states together account for 46.4 per cent of the total PG seats across the country.[39] These regions are home to a large number of both public and private medical colleges that offer a broad range of PG courses. This makes them more attractive for students, leaving northern and northeastern states with fewer options for PG medical education.

Another aspect of the skewed distribution is the dominance of private medical colleges in certain regions, particularly in southern India. Southern states have seen a proliferation of private medical institutions offering PG courses, while northern and northeastern states lag in attracting private investment in medical education. For instance, in Karnataka is the only state in India where the number of PG seats in private medical colleges (4,593) outnumber the PG seats in government medical colleges (1,856). The private PG seats account for 71.2 per cent of the total PG seats available in the state.[40]

38 - 'Quality of Medical Education in India', National Medical Commission, March 2024
39 - 'Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024,
40 - 'Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024

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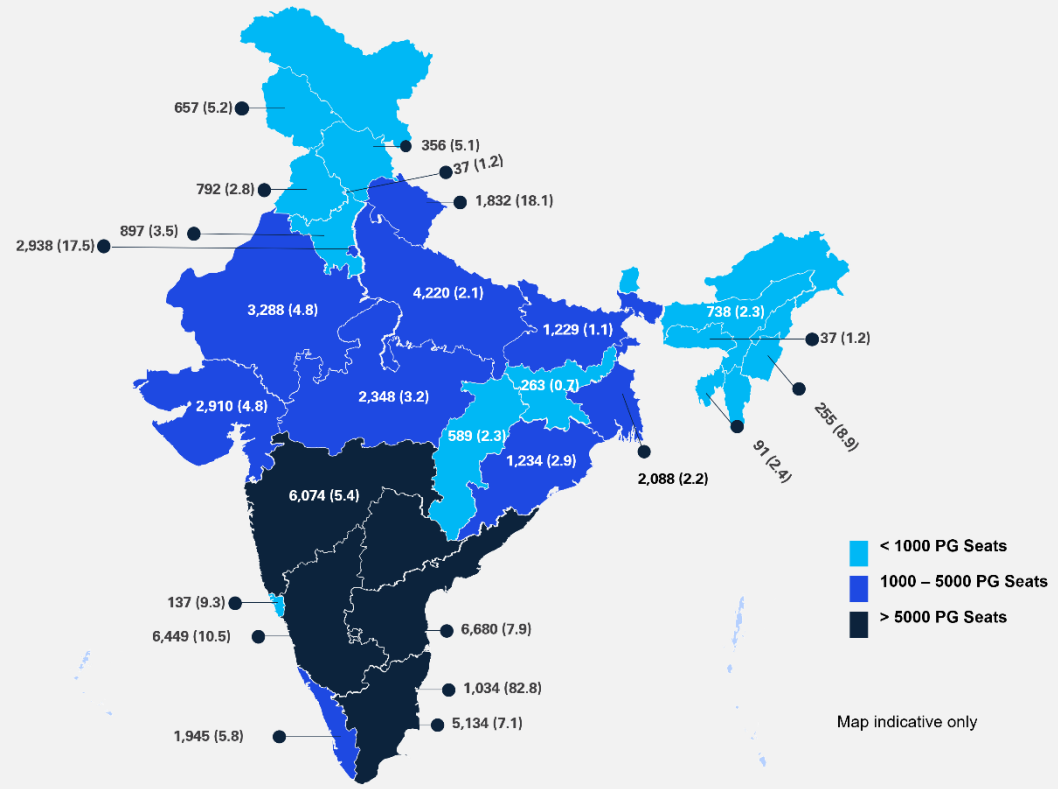
Nevertheless, the government has been working to increase the number of medical colleges in underserved regions, with a focus on expanding PG education. Initiatives such as the establishment of new AIIMS institutions and upgrading district hospitals into teaching hospitals aim to create more PG seats in northern, northeastern, and rural areas. The detailed state/UT-wise count of PG seats for the academic year 2023-24 along with the respective density of PG seats per one lakh population is provided below.

Exhibit 4: Availability of PG seats per 1 lakh population (2023–24) [41, 42]



Top 5 states/UTs in terms of PG seats per 1 lakh population

- Puducherry (82.8)
- Chandigarh (55.4)
- Uttarakhand (18.1)
- Delhi (17.5)
- Karnataka (10.5)

~7.4%

of India's population

12,838

PG Seats (23.4% of the total PG seats)

Bottom 5 states in terms of PG seats per 1 lakh population

- Jharkhand (0.7)
- Bihar (1.1)
- Meghalaya (1.2)
- Uttar Pradesh (2.1)
- West Bengal (2.2)

~35.7%

of India's population

7,837

PG Seats (14.2% of the total PG seats)

41- 'Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024,
42 - 'Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024,

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Notes:
- The population data is as per the census conducted in 2011.
- While calculating the availability of PG seats per one lakh population for the states, we combined the PG seats for Telangana and Andhra Pradesh as it was a single state in 2011 and the census was carried out accordingly.
- There are no PG medical seats in UTs such as Andaman & Nicobar Islands and Dadra & Nagar Haveli; and in states such as Arunachal Pradesh, Mizoram, and Nagaland. Thereby, these states/UTs are not considered for this analysis. On this note, there are a total of 28 states/UTs considered for the analysis.

- **5 out of 28 states/UTs reported PG seats per 1 lakh population of more than India average of 10.0.**
- **Uttar Pradesh, Maharashtra, Bihar, West Bengal and Andhra Pradesh account for about 49.1 per cent of India's population and has 37.0 per cent of India's total PG seats (20,291 out of 54,834 seats in 2023-24).**

Addressing the imbalance in the availability of PG seats across the states/UTs in India requires targeted government interventions, expansion of PG training programmes, incentivisation of medical institutions in underserved regions, and policies that encourage graduates to practice in their home states. By addressing these disparities, India can build a more equitable and efficient healthcare system, ensuring that specialised care is accessible to all.

2.5 Imbalanced distribution of PG medical seats across specialties is a challenge to comprehensive healthcare specialisation in India

There is a significant imbalance in the distribution of seats across specialties, with some specialties such as general medicine, general surgery, paediatrics, orthopaedics, and radiodiagnosis having a relatively higher number of seats, while other critical specialties such as family medicine, obstetrics and gynaecology, geriatrics, and certain super specialties such as cardiothoracic and vascular surgery (CTVS) have far fewer seats. This imbalance leads to a shortage of specialists in key areas, particularly in primary care and certain high-demand specialties, impacting the overall healthcare system and access to specialised care in underserved regions.

As we assess the current state of PG medical education in India, it becomes evident that while significant strides have been made in increasing seats and expanding specialties, several systemic challenges persist. These issues, ranging from regional disparities and inequitable distribution of seats across specialties to quality concerns and brain drain, undermine the progress achieved. Addressing these systemic issues is crucial for building a robust, equitable, and future-ready medical education system that can meet the evolving healthcare demands of the country.

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Chapter 3

Systemic Issues in Post Graduate Medical Education in India

Chapter 3
Systematic issues in post graduate medical education in India

India's PG medical education system faces several significant challenges that affect its ability to produce a skilled, well-distributed, and high-quality medical workforce. These systemic issues, spanning from the quantity and quality of medical seats to geographic and specialty-related disparities, must be addressed to strengthen the healthcare system. Below are the key challenges, illustrated with relevant examples, to help contextualise the issues.

Imbalance between quantity and quality of PG medical seats	Preference for MD/MS over DNB
State-wise disparities in PG seats	Lack of alignment between training and healthcare needs
Vacancies and underutilisation of seats in less popular specialties	Regulatory and structural challenges
Brain drain and limited retention of specialists	Lack of Research Integration and Cross-Cutting Competency

3.1 Imbalance between quantity and quality of PG medical education

While India has expanded its PG medical seats, the focus has been more on quantity than quality, with many institutions lacking proper infrastructure and experienced faculty, leading to suboptimal training.

Focus on quantity over quality

127 per cent growth in the number of PG medical seats from 31,185 before 2014 to 70,645 by 2023-24.[43]

The significant increase of seats underscores India's commitment to tackling healthcare challenges. However, there are ongoing concerns that the quality of medical education has not matched this rapid growth.

For instance, many newly established medical colleges have often faced scrutiny for inadequate infrastructure, lack of research facilities, and poor student-to-faculty ratios.

40 per cent of the newly established medical colleges are deficient in fully functional laboratories, operating theatres, and essential clinical facilities as per an assessment done by the Ministry of Health in 2022.[44]

These institutions, while filling the seat gap, are often unable to provide quality training, which affects the competency of future specialists.

43 - "Lok Sabha starred Question No. 7 to be answered on the 2nd February 2024, Setting up of medical colleges', Government of India, February 2024,
44 - "Can India maintain educational standards and meet healthcare needs?", Business Today, September 2024,

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Inadequate faculty and teaching standards

11 of 18 operational AIIMS, grapple with severe teaching faculty shortages, resulting in high teacher-student ratios exceeding the recommended ratio of **1:2 or 1:3**.[45]

1,000 is the approximate shortage of **Assistant, Associate Professors, and Professors** in the government medical colleges of **Maharashtra**[46], a state with one of the highest PG medical seats in the country.

Many institutions face a **shortage of experienced faculty, especially in super specialty areas**. Given the indispensable role of **PG guides** in shaping the academic and professional development of MD/MS students, the current **lack of qualified and available guides** has led to numerous challenges for these students, impacting their synopsis, thesis, and research activities.

Cardiology and Medicine specialties face a shortage of faculty, as doctors in these fields often prefer the higher earnings of private practice over academic roles in medical colleges.

3.2 State-wise disparities in PG medical seats

There is a significant geographic imbalance in the distribution of PG medical seats, with states such as Maharashtra and Karnataka having a surplus while north-eastern states and rural regions are severely underserved.

Uneven distribution of seats across states

The concentration of medical seats in a few states creates a geographic imbalance in opportunities. For example, states such as **Maharashtra, Karnataka, and Tamil Nadu have the lion's share of PG seats**[47], while states such as **Arunachal Pradesh, Mizoram, Nagaland, Meghalaya, and Jammu & Kashmir among others are without any PG seats**. This disparity not only limits access for students from these regions but also leads to a shortage of specialists in these areas, exacerbating regional healthcare inequalities.

Urban-rural divide in access to education

Most PG training programmes are located in urban centers, leaving rural regions underserved. For instance, while Delhi and Mumbai have multiple premier institutions, rural regions in states such as Odisha and Jharkhand face a lack of accredited training hospitals. This rural-urban divide creates challenges in accessing quality medical education, which in turn affects the availability of qualified healthcare professionals in rural India.

45 – "Why Adding Medical Colleges Isn't Enough To Improve India's Healthcare", IndiaSpend, December 2023
46 – "How mushrooming of medical colleges across the country have led to faculty crunch", Times of India, April 2024
47 – "Lok Sabha starred question no. 7 to be answered on the 2nd February 2024", Digital Sansad, February 2024,

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3.3 Vacancies and underutilisation of seats in less popular specialties

Many seats in critical, yet less popular specialties such as family medicine and community health remain vacant, leading to shortages in primary and secondary care doctors, which are essential for India's healthcare system.

PG seats vacant in key specialties

13,000 PG seats **remained vacant even after two rounds of counselling** in 2023 NEET PG. This was even after reducing the qualifying percentile to zero.[48]

Every year, thousands of PG seats in critical specialties such as **family medicine, preventive and social medicine, and community medicine remain vacant**. This underutilisation in key areas is alarming, as **these specialties are essential for strengthening primary care in India**.

Furthermore, only a few of the medical graduates opt for non-clinical specialities such as **anatomy, microbiology, physiology and pathology**. The seats earmarked for them thereby remain vacant, which has in turn caused a **shortage of teachers for these courses**[6].

Lack of incentives for low-preference specialties

Specialties such as **internal medicine, paediatrics, and obstetrics and gynaecology**, which form the backbone of secondary care, also **see fewer applicants due to perceived low career advancement**. For example, many seats in internal medicine remain unfilled, as students prioritise higher-paying and more prestigious specialties like **general medicine, orthopaedics and cardiology**. This creates a gap in the availability of doctors in critical areas of care, especially in smaller cities and towns.

3.4 Brain drain and limited retention of specialists

A large number of Indian medical graduates migrate abroad for better career prospects, exacerbating the shortage of specialists in key fields, especially in rural and underserved regions.

High rate of brain drain

A substantial number of **Indian medical graduates choose to pursue a PG degree abroad and settle there**, especially in countries such as the **United States, United Kingdom, Australia, and Canada**.[49]

Medicine and Surgery are the most popular career options desired by the medical students moving overseas for Postgraduation[7]. More career opportunities, better pay grade, and an overall better life abroad are the key reasons attracting talented medical graduates abroad.

Limited career pathways and opportunities in India

Many Postgraduates, especially in less popular specialties, face limited career advancement opportunities in India. For example, **public healthcare institutions often offer lower salaries, and fewer research or teaching opportunities** compared to private hospitals. This leads many graduates to opt for international roles or positions in private healthcare, which often results in an oversupply of specialists in urban areas but a shortage in rural regions.

48 – "Two rounds of counselling over; 13,000 postgraduate medical seats remain vacant", The Economic Times, September 2023,
49 - "A nationwide survey on the preference of Indian undergraduate medical students to go abroad for higher studies and residency", PubMed Central, September 2023,

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3.5 Preference for MD/MS over DNB

DNB is often less preferred than the traditional MD/MS programmes. Several factors contribute to this perception, despite DNB being equivalent in terms of qualification and recognition.

Perception of quality

MD/MS programmes are offered by well-established medical colleges and universities, often with better infrastructure and a higher number of experienced faculty members. In contrast, **DNB programmes are offered in a variety of hospitals, including private and smaller healthcare institutions**, where **resources and quality of teaching may vary**.

Lack of incentives for low-preference specialties

The **DNB exams are considered tougher**, with lower pass rates compared to MD/MS exams. This has created a **perception that DNB graduates may struggle to qualify**, adding to the hesitation among students when choosing DNB over MD/MS.

Bias in hiring and career progression

In certain parts of India, there remains a bias in hiring, where **MD/MS graduates are preferred over DNB graduates for positions in teaching institutions and hospitals**, despite the government's recognition of their equivalence. This bias influences the choice of DNB over MD/MS and also affects DNB graduates' career growth in academics and in senior hospital roles.

3.6 Lack of alignment between choice of specialty by the creamier aspirants and healthcare needs of the country

There has been an ongoing shift in the preference for specialties by the PG aspirants driven by a multitude of reasons. However, these specialties often do not often align with the healthcare needs of the country, leading to an oversupply in few areas while primary and preventive care specialties remain underrepresented.

Mismatch between choice of specialties and healthcare demand

There is often a mismatch between the specialties that students pursue, and the healthcare demands of the country. For instance, specialties such as **radiology and dermatology are currently attracting more medical graduates**[50] in addition to the traditional **general medicine** specialty. However, India's healthcare system **urgently requires specialists in family medicine and community medicine for addressing its primary healthcare gaps**[51].

>50% of the PG medical aspirants within the top 100 ranks opted for **general medicine**, followed by **35 per cent for radiology** in 2023 [52].

4 aspirants only, within the top 100 ranks opted for **general surgery** in 2023 [53]. Despite being a popular specialty once, creamier aspirants are losing interest as it requires more commitment, longer duration to settle, and a huge investment for independent practice. A mere degree in surgery now is almost like a plain MBBS, and does not mean anything without a super specialty, which has limited seats and tough competition.

The choice for **general medicine** emanates from sought-after super specialties such as **cardiology, nephrology, and gastroenterology**[8] which require lower investments for independent practice and bring in early stability for doctors.

50 – "Over 50% of MBBS top rankers pick general medicine specialty", Times of India, August 2023,
51 - Inducting family physicians to offer primary care in remote areas of India is neither feasible nor necessary", The Lancet, September 2023,
52 – "Medical Counselling Committee's list, 2023
53 – "Medical Counselling Committee list, 2023

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Flexible work schedule, lucrative private sector opportunities, and negligible patient facing scenarios (especially for radiology) on account of the recent incidents of violence against doctors are also some the primary contributing factors for the skewed selection of specialties.

Furthermore, from a secondary care perspective, India requires specialists in geriatrics to take care of its growing elderly population emanating from increase in life expectancy and burden of chronic diseases [54].

20 geriatricians produced annually in India due to the limited PG seats and has only a handful of fully functioning geriatric departments in the public healthcare sector [55].

The lack of alignment between training and national healthcare priorities leads to an oversupply in certain areas while critical fields face shortages.

Insufficient focus on public health and preventive care

While non-communicable diseases (NCDs) such as diabetes and hypertension are on the rise in India, there is **insufficient emphasis on public health and preventive care in PG training programmes**. For instance, despite the rising need for preventive healthcare specialists, PG courses in public health or community medicine remain under-enrolled. Addressing this gap is vital for combating the growing burden of NCDs and improving population health.[54]

3.7 Regulatory and structural challenges

The dual accreditation system and inconsistencies in regulatory oversight create confusion and uneven quality in PG medical education, further complicated by a complex and often non-transparent admission process.

Inconsistent regulatory oversight

India's medical education system suffers from inconsistent regulatory frameworks across institutions. For example, medical colleges accredited by the **National Medical Commission (NMC)** are subject to different regulations than those accredited by the **Diplomate of National Board (DNB)**. This dual accreditation system, without uniform standards, creates confusion regarding the recognition of degrees and the quality of education.

Complex admission process and limited transparency

The process of **securing a PG seat in India**, particularly through the **NEET-PG counselling system**, is often seen as cumbersome and lacking transparency. Several reports have highlighted issues with the examination pattern and counselling process, such as **seat allotment errors and delays**, affecting students' ability to make informed decisions about their specialisations and training locations [56, 57]. The complexity and delays in the system further exacerbate the systemic issues in PG medical education

The systemic issues in PG medical education in India are multifaceted and deeply entrenched. Addressing these challenges requires targeted reforms, including **improving the quality of education and faculty, addressing state-wise and urban-rural disparities**, and **aligning PG education with national healthcare needs**. With a focus on making less popular specialties more attractive, addressing the brain drain, and improving regulatory oversight, India can build a resilient PG medical education system that effectively meets the country's growing healthcare demands.

54 - "Elderly Empowerment: Why Geriatric Care Needs More Focus in India", PLOS Blogs, October 2023,
55 - "Home to 1/4th of world's elderly, India gets only 20 geriatricians/year", Times of India, May 2022,
56 – "Is current NEET PG Counselling process full of LUCK and GAMBLING?", PubMed Central,
57 – "NEET PG Counselling 2024 delayed: IMA seeks Health Ministry's urgent attention", India Today,

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3.8 Lack of Research Integration and Cross-Cutting Competency

PG medical education training provides immense medical learning and experience however, it lacks all-around development and exposure to diverse emerging healthcare ecosystem and competencies required to develop into a competent medical workforce.

A missed opportunity of Research Integration

PG medical education curriculum and institutes provide very limited emphasis and opportunity to integrate research into postgraduate training. Majority of the PG students in India lack an opportunity to work on various clinical and non-clinical research that not only to hones diagnostic and treatment skills but also encourages the development of new medical technologies and therapies. A missed opportunity of collaborating with research institutions to enhances innovation in clinical practices and medical education

Cross-Cutting Competency

The National Medical Commission (NMC) has issued new competency-based medical education (CBME) curriculum guidelines for 2024, updating the graduate medical education regulations. These guidelines aim to enhance medical education by focusing on learner-centric and patient-oriented approaches. However, PG curriculum currently has limitation of multi-competency skill set development and exposure to better train and prepare a specialists and super specialist doctor to the emerging medical advancement, technological innovation, research mindset, soft skills and patient centric care.

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Chapter 4

Robust Implementation and Expansion of Recent Reforms and Interventions in PG Medical Education of India

Chapter 4
Robust Implementation and Expansion of Recent Reforms and Interventions in PG Medical Education of India

Despite systemic challenges, India has seen several positive trends and reforms in PG medical education aimed at improving access, quality, and the alignment of medical training with the country's healthcare needs. These reforms, spearheaded by government initiatives and changing healthcare dynamics, have begun addressing the gaps and enhancing the overall PG medical education ecosystem.

Emerging trends and recent reforms paving the way for a promising future

PG medical education in India is evolving rapidly, shaped by the needs of a dynamic healthcare sector and advancements in technology. New specialisations and innovative teaching methodologies are being introduced to prepare future medical professionals for the complexities of modern medicine. These changes underscore a commitment to producing competent and ethical healthcare providers, ensuring the continued growth and improvement of the medical field in India.

4.1 Curriculum modernisation to build future-ready medical specialists

Enhanced training programme for Doctor of Medicine (MD) in emergency medicine

In response to the rising fatalities in hospital emergency rooms, the **National Medical Commission (NMC) has revised the MD Emergency Medicine curriculum**. The new curriculum encompasses essential competencies in **knowledge, skills, and attitudes required for autonomous and effective performance in diverse situations**. This updated course aims to **foster empathetic communication with patients and caregivers, enhance teamwork, and strengthen interdepartmental relationships**. [58]

Introduction of modern-era specialisations

The National Medical Commission (NMC), under the updated 2023 regulations, has set the guidelines for introducing **new specialised PG courses** in the medical institutions. These courses include **clinical allergology, neuroendocrinology, palliative medicine, and neuropsychology**[59]. This development ensures that medical professionals are equipped with the knowledge and skills necessary to tackle complex and evolving health issues of a diverse patient population.

Introduction of the district residency scheme

The district scheme mandates **three months of training for second/third-year PG medical students** at **district hospitals** as part of their curriculum. This ensures each district gains 4–8 junior residents, enhancing specialist care and providing students with diverse case exposure. It will also bolster district hospitals with additional medical support.[60]

58 – "NMC brings new syllabus for PG students to deal with medical health emergency", Livemint, October 2024
59 – "Medical colleges can now offer new PG courses: 4 new-age specialisations that can be offered in India at the post-grad level in medicine", Times of India, October 2024,
60 – "Governance Reforms in Medical Education (2014-2023)", Press Information Bureau (PIB), March 2023,

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4.2 Embracing technology to revolutionise learning experiences

Technology-driven learning modules

PG medical education programmes have started to embrace digital learning platforms, virtual labs, and telemedicine exposure as part of the curriculum. For instance, All India Institute of Medical Sciences (AIIMS), New Delhi pioneered the SET (Skills E-learning and Telemedicine) facility which provides a simulation-based skill learning and e-learning platform to improve the current teaching mechanism for Undergraduate and PG students. [61]

The National Medical Commission (NMC) has mandated simulation-based skills training for undergraduate education and recommends its implementation for PG programmes[62]. Furthermore, the advent of virtual learning and gamification strategies is boosting student engagement. Modern curricula now incorporate interactive technologies, such as polling features, virtual environments, and the flipped classroom model, to heighten student interest and participation.

For instance, institutions such as JSS AHER Skill and Simulation Centre and Sri Ramachandra Institute of Higher Education and Research (SRIHER) are leveraging virtual reality to provide students with immersive, hands-on learning experiences.

4.3 Expanding access to PG medical education

Conducting DNB courses at district hospitals

The National Board of Examinations (NBE) has granted permission to district hospitals, to start DNB courses in various specialties, provided they meet the eligibility criteria and infrastructure requirements. This will pave the way for MBBS doctors to advance their education while contributing to patient care. On a futuristic note, this will boost medical education and healthcare services at the district level.[63]

Collaborations with private hospitals

The expansion of **PG training programmes through partnerships with private hospitals** has allowed for better utilisation of private healthcare infrastructure. Under this model, **private hospitals are accredited to provide training for DNB programmes**, which expands capacity without needing to build new government medical colleges.

For instance, large healthcare chains **have become key players in providing DNB training programmes**, especially in super specialties such as **cardiology and oncology**, thus broadening the scope of PG education.

4.4 Gradual advancements in enhancing the quality of PG education

Detailed reporting on quality adherence by the medical institutions

The National Medical Commission (NMC) has mandated all medical colleges and institutions offering PG medical courses to submit an **annual self-declaration** in accordance with the **Postgraduate Medical Education Board (PGMEB) guidelines of 2023**. This requires comprehensive reports on their PG programmes, encompassing both broad and super specialty courses. This declaration will act as a pivotal tool for regulating educational institutions, ensuring adherence to NMC standards, and producing highly trained medical professionals equipped to meet the nation's healthcare demands[64].

[61] - "SET (Skills E-learning and Telemedicine) Facility", AIIMS New Delhi, , May 2024
[62] - "Bridging the gap: Revolutionising post-graduate medical education in India", Hindustan Times, September 2024,
[63] - "Noida: Sector 39 district hospital to start DNB course", The Hindustan Times, August 2024,
[64] - "Explained, NMC's annual self-declaration mandate: How this will affect PG medical education in India", The Times of India, October 2024

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4.5 Going global by aligning with international standards and forging collaborations

Global recognition of the National Medical Commission (NMC)

The National Medical Commission (NMC) has secured the prestigious World Federation for Medical Education (WFME) recognition status for a decade, empowering Indian medical graduates to practice and pursue PG studies in countries such as the US, Canada, Australia, and New Zealand. This recognition also ensures that all 706 existing medical colleges in India will receive WFME accreditation, and any new medical colleges established in the next 10 years will automatically be accredited[65].

Collaborations with renowned global universities are paving the way for a globally relevant medical education system

Indian medical institutions are increasingly seeking international collaborations with global universities to improve the quality of PG medical education. For instance, partnerships between AIIMS and international institutions among others have led to knowledge exchange, collaborative research, and exposure to global best practices for Indian PG students[66,67,68].

4.6 Conducive regulatory reforms to strengthen PG medical education

Introduction of Diploma courses by NBEMS

To address the shortage of specialists, the National Board of Examinations in Medical Science (NBEMS) has introduced 2-year PG Diplomas in eight key disciplines, increasing the annual seat capacity by 2,000. These disciplines, chosen to fill gaps at the secondary care level, include anaesthesiology, gynaecology and obstetrics, paediatrics, ENT, ophthalmology, family medicine, tuberculosis and chest diseases, and radiodiagnosis. [69]

Recognition of DNB for appointment as faculty

DNB has been recognised for appointment as faculty, to overcome faculty shortages and provide wider academic opportunities[12].

Promoting family medicine as a specialised discipline

The NBEMS has significantly expanded PG programmes, emphasising family medicine as a specialised discipline. MD and Diploma courses are now offered in this field, aiming to develop specialist family physicians with extensive knowledge in medicine, surgery, obstetrics, and gynaecology.

Uniformity in examination for medical licensure and PG pathways

The **National Exit Test (NeXT)** is a significant development in India's medical education landscape. It will replace both NEET PG and FMGE from 2025 onwards and will serve as a **single gateway for both Indian and foreign medical graduates to obtain a license to practice medicine in India and pursue PG medical programmes**. By standardising the assessment process, NeXT aims to enhance the quality and uniformity of medical education, ensuring that graduates are well prepared for their professional roles. This exam is expected to have a substantial impact on the calibre of medical graduates, emphasising practical skills and abilities over theoretical knowledge[13].

India's PG medical education system is undergoing significant reforms to address its systemic challenges. These reforms focus on expanding capacity, improving quality, and aligning PG education with national and global healthcare needs. With a strong emphasis on enhancing faculty development, fostering international collaborations, integrating technology to enhance learning experiences, and backed by forward-looking regulatory reforms, India is on the path to building a robust and equitable PG medical education system capable of supporting the country's growing healthcare demands.

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67 - "University of Bolton, Institute of Medicine and AIIMS Delhi Forge Strategic Partnership to Advance Global Healthcare", News, University of Bolton, Institute of Medicine, August 2024,
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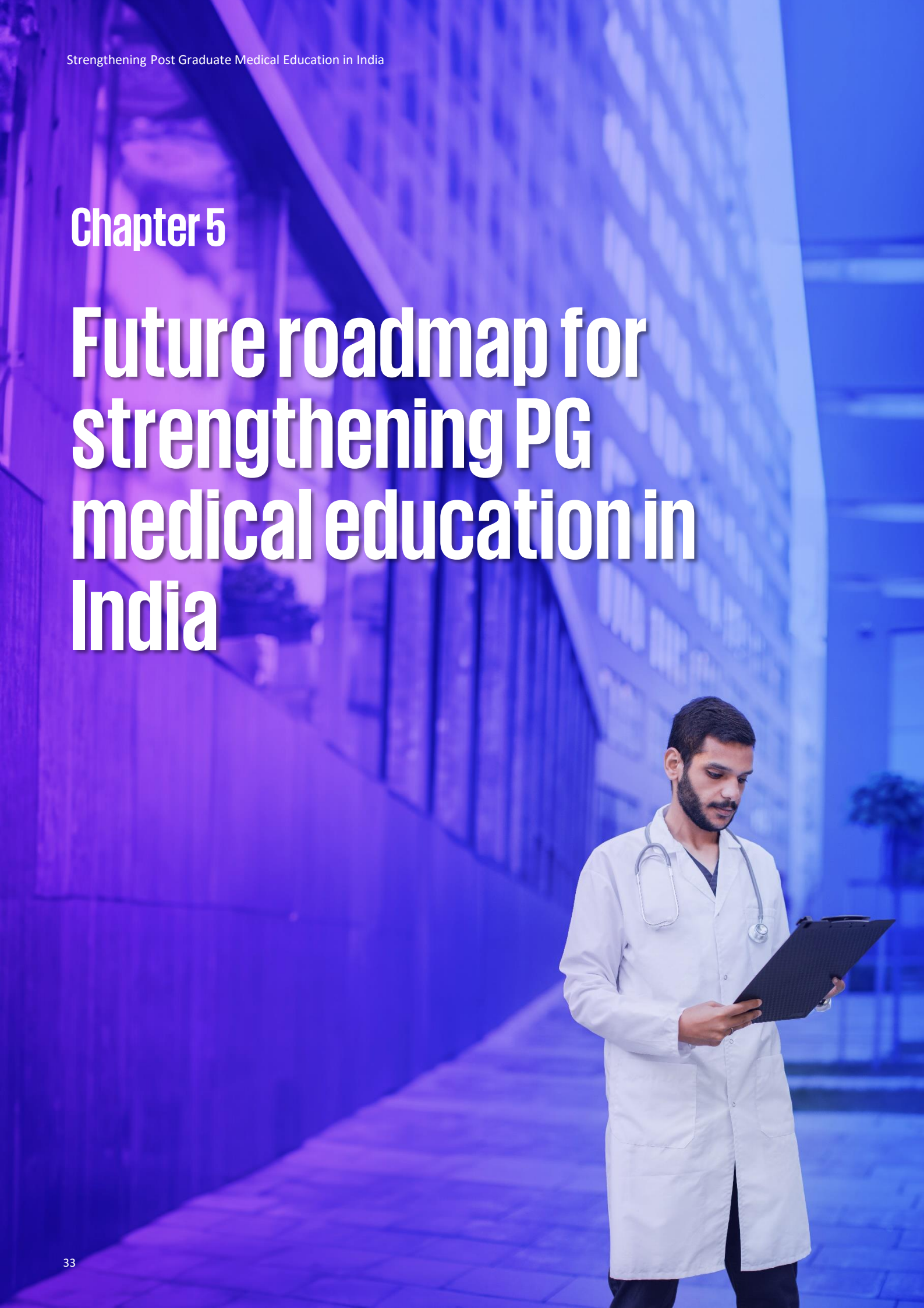
Chapter 5

Future roadmap for strengthening PG medical education in India



Chapter 5
Future roadmap for strengthening PG medical education in India

The need to strengthen PG medical education in India is urgent and multifaceted. By addressing disparities in medical education, modernising curricula, enhancing practical training, and focusing on both quantity and quality, India can develop a highly skilled healthcare workforce ready to tackle the complexities of the Indian healthcare landscape. As the nation continues to evolve, so too must its approach to medical education, ensuring that it not only meets current demands but is also prepared for future challenges. Investing in PG medical education is an investment in the health of the nation, ultimately leading to a healthier and a more equitable society.

The following five levers underpin the future roadmap for PG medical education in India to make it more robust and future ready: [71]

1. Quality of PG medical education
2. Improving access to PG medical education
3. Incentives for less popular specialties
4. Expanding and enhancing alternative PG medical programmes
5. Research and innovation opportunities

1. Quality of PG medical education

Enhancing the quality of PG medical education requires a comprehensive and structured approach, focusing on various aspects of curriculum design, faculty development, infrastructure, research, and evaluation.

1.1. Curriculum modernisation and standardisation

Updated curriculum framework

Revise the curriculum to reflect the latest advancements in medical science and technology. Include modules on evidence-based practice, patient-centred care, digital health, telemedicine, and interdisciplinary collaboration.

Competency-based education

Shift towards a competency-based curriculum that focuses on practical skills and real-world problem solving, rather than merely theoretical knowledge. Align PG training outcomes with the evolving healthcare needs of the country, including primary care, geriatric care, and chronic disease management.

Inclusion of soft skills and ethics

Integrate communication skills, ethics, leadership, and teamwork into the curriculum to prepare doctors for holistic care delivery and leadership roles in healthcare institutions

71. KGS Insights and insights derived from primary interviews

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1.2. Faculty development and teaching experience

Continuous professional development for faculty

Establish **mandatory programmes for faculty members to stay updated with the latest teaching methodologies, technological tools, and medical advancements**. Offer incentives such as fellowships, research grants, and leadership training for faculty members to enhance their skills and career growth.

Faculty exchange programmes

Facilitate **faculty exchange programmes** between medical institutions in India and abroad, enabling exposure to global best practices in medical education

1.3. Faculty development and teaching experience

Simulation-based learning

Introduce **simulation-based training programmes** to enhance clinical decision-making and procedural skills. State-of-the-art simulation labs can help students practice skills in a controlled, risk-free environment before treating real patients.

Hands-on clinical experience

Emphasise practical, hands-on training by increasing student exposure to real-world healthcare settings, such as tertiary care hospitals, community health centers, and rural postings. Ensure students receive adequate supervision and mentorship from senior faculty and practicing clinicians during their clinical rotations.

1.4. Technology integration and digital health

E-learning and online resources

Develop **national e-learning platforms** where PG students can access lectures, clinical case studies, and other learning materials online. This will ensure uniform access to high-quality content, even for students in remote areas.

Virtual training modules

Offer **virtual reality (VR)-based modules for complex surgeries or clinical situations**. This can provide students with immersive learning experiences, particularly in super specialties such as **cardiothoracic surgery, oncology, and neurology.**

1.5. Accreditation, quality assurance, and regulatory reforms

Regular accreditation of medical colleges

Strengthen the role of regulatory bodies such as the National Medical Commission (NMC) in ensuring that all **PG medical colleges adhere to standardised quality benchmarks**. Accreditation should be regularly reviewed based on stringent criteria.

Institutional accountability

Encourage accountability for educational outcomes by **linking the performance of medical institutions to their accreditation status, student satisfaction, and pass rates in qualifying exams**.

71 - KGS Insights and insights derived from primary interviews

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1.6. International collaboration and global best practices

Collaborative training programmes

Foster partnerships with international medical institutions and universities to incorporate global best practices into PG medical education. Exchange programmes, joint degrees, and collaborative research initiatives can enrich the learning experience.

Recognition of international standards

Encourage alignment with international PG medical education standards, such as those of the WHO or other advanced healthcare systems, to ensure that Indian doctors are equipped with skills that match global benchmarks.

1.7. Promoting public-private partnerships (PPP)

Engage the private sector

Collaborate with private healthcare providers to enhance the training capacity of medical students. PPPs can facilitate better access to advanced clinical settings, more faculty, and improved practical training opportunities. Furthermore, specialists and super specialists of the country may be incentivised for teaching PG medical students.

Incentivising private investment in medical education

Encourage private sector investment in medical colleges, research centers, and teaching hospitals to increase overall capacity and improve the quality of PG medical education.

1.8. Involvement of the expatriate Indian doctors

Competitive honorariums

Offer attractive honorariums, travel allowances, and other financial incentives to expatriate Indian doctors who conduct lectures, workshops, or short-term teaching assignments in India. This could include tax benefits or payment for online teaching sessions

Joint appointments and academic titles

Provide opportunities for expatriate Indian doctors to hold joint appointments or adjunct faculty positions at Indian medical institutions. Titles such as ‘Visiting Professor’, ‘Honorary Faculty’, or ‘International Advisor’ can boost their professional standing while encouraging them to contribute to teaching.

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2. Improving access to PG medical education

Improving access to PG medical education in India is crucial to addressing the healthcare workforce gap, ensuring better distribution of specialists, and meeting the growing healthcare needs of the country.

2.1. Equitable increase in the number of PG medical seats

Expand PG seat capacity and ensure equitable distribution across specialties

There is a significant disparity between the number of MBBS graduates and the available PG seats. To bridge this gap, India should focus on increasing the number of seats in medical institutions, both in public and private sectors.

Expansion of PG seats in less popular specialties (e.g., **family medicine, CTVS, geriatrics, obstetrics and gynaecology, and neonatology**, among others) should be prioritised.

State-wise equitable distribution

Disparities in PG medical education exists across states, with some states having a concentration of medical institutions while others face shortages. Ensuring a more **equitable distribution of PG seats** across states is essential, particularly in underserved and rural areas.

2.2. Strengthen public-private partnerships (PPPs)

Leverage private sector capacity

Collaborate with private medical institutions and hospitals to increase the number of PG medical seats. Private institutions should be incentivised to offer PG courses in specialties where there is a shortfall.

Implement regulatory oversight to ensure that private institutions meet high standards of quality in education, faculty, and infrastructure.

Government funding and support for PG programmes

Provide **financial incentives or subsidies to private institutions that offer PG programmes** in **underrepresented specialties or in rural and semi-urban areas**. This can encourage more institutions to contribute to the expansion of Postgraduate seats in areas where access is limited.

2.3. Diversify entry pathways and selection criteria

Introduction of alternative entry mechanisms

Diversify the entry pathways to PG medical education by considering alternative selection mechanisms that go beyond entrance exams. For instance, admission could factor in clinical experience, service in underserved areas, or contributions to public health initiatives.

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2.4. Financial aid and scholarships for students

Affordable PG education

Introduce more **government-funded scholarships, grants, and low-interest education loans for students from economically weaker sections**. The high cost of PG medical education in private institutions often makes it inaccessible to students from disadvantaged backgrounds

Bond schemes linked to government services

Offer **fee waivers or subsidised education in exchange for a commitment to serve in government hospitals or rural health centers** for a fixed number of years post-graduation. Such bond schemes can help retain talent within the country while improving access to PG education..

3. Incentives for less popular specialities

Making less popular medical specialties more attractive and lucrative for students requires a multi-faceted approach. Here are several strategies that can be implemented:

3.1. Financial Incentives

Increased salaries and stipends

Government and healthcare institutions should look to offer **higher salaries and stipends** for students and professionals choosing these specialties. Establishing minimum salary standards and competitive pay can make these fields financially attractive.

Loan repayment programme

Introduce **loan repayment programmes for graduates who commit to working in primary care or community health settings** for a specified number of years. This could alleviate the financial pressures associated with PG medical education.

3.2. Career growth and professional development

Clear career advancement pathways

Create well-defined career progression opportunities for these specialties, **including leadership positions in public health, hospital management, academic roles, and government policy advisory roles**. Highlighting diverse career paths can make these fields more appealing.

Professional development programmes

Offer continuous **professional development programmes and training for specialists in primary and community care**. This could include advanced training in specific areas of interest (e.g., chronic disease management, geriatric care) to enhance their skills and marketability.

Specialty recognition and certifications

Establish certifications or special recognition for excellence in these specialties, such as Fellowships or Diplomas that can distinguish professionals in these fields and provide an edge in their career growth.

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Infrastructure support

Ensure **better-equipped hospitals, clinics, and public health centers** for professionals in these specialties. Access to modern technologies and a well-functioning work environment can make these fields more desirable.

3.3. Early exposure in medical education

Curriculum reform

Integrate more hands-on experience and exposure to these specialties early in medical education. By offering students **immersive experiences in family medicine, internal medicine, and community health settings**, they can better appreciate the role these specialties play in patient care.

3.4. Enhance prestige and societal value

Public awareness campaigns

Run campaigns that emphasise the critical role these specialties play in improving public health, reducing disease burden, and supporting community health. Elevating the perceived value of these specialties can enhance their appeal.

Highlight the success stories

Showcase professionals in these fields who have made significant impacts in healthcare delivery, public health, or innovative research. Recognising and celebrating these contributions in national and international platforms will motivate others.

4. Expanding and enhancing alternative PG medical programmes

It is critical to optimise alternative pathways such as Diplomate of National Board (DNB), positioning it as a prestigious and viable option alongside MD/MS programmes. The DNB offers a broad network of training opportunities, particularly in private hospitals, which can significantly expand access to PG education across underserved regions.

4.1. Elevating the status of DNB programmes

Equivalence with MD/MS Programmes

DNB programmes should be promoted as equivalent to MD/MS degrees. The government and National Medical Commission (NMC) can issue clear guidelines affirming this equivalence, which will enhance the credibility and appeal of DNB courses among medical students.

Recognition in academic and teaching roles

Many medical professionals feel that DNB graduates are overlooked in teaching and academic roles compared to MD/MS counterparts. Policies should be updated to ensure **DNB graduates are equally considered for teaching positions, enhancing career prospects in academic institutions**.

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4.2. Career growth and professional development

Higher stipends and scholarships

Offering competitive stipends and scholarships for DNB candidates would help make these programmes more attractive. Often, DNB residents in private hospitals are underpaid compared to their MD/MS counterparts in public institutions, which needs to be addressed to ensure fairness.

5. Research and innovative opportunities

Research grants

Provide funding for research in areas such as **community health, preventive medicine, and internal medicine**, allowing specialists in these fields to engage in cutting-edge work. Supporting innovations in patient care and public health can add prestige to these specialties.

Establishing Research Supporting Environments and Clinical Training

It is important to ensure that PG trainees have access to research resources, such as journals, databases, and statistical software, and necessary funding. Define guideline for research infrastructure, integration with curriculum and recognition with the support of MOHFW, Department of Health Research and IIHMR. Develop research module and dedicated time/ credit within schedules for research activities without impacting clinical responsibilities. Link clinical rotations with current research findings to demonstrate the impact of research on patient care. Encourage participation in clinical trials and studies, allowing trainees to experience the practical applications of research with research credit/ certification.

Collaborations with academic and government bodies

Encourage collaboration between medical institutions, research centers, and government health bodies to promote research and policymaking in these specialties. This can highlight the importance of fields such as community medicine and preventive healthcare. Promoting translational research with practical application that can be directly translated into clinical practice, driving innovation in patient care. Industry partnerships with healthcare, medtech, pharmaceutical, and biotech industries to offer trainees insights into the translational aspect of research.

Strengthening PG medical education in India requires a strategic, high-impact roadmap focused on expanding access, improving quality, and aligning education with the healthcare needs of the country. Prioritising the equitable distribution of **PG seats across states**, addressing disparities, and enhancing training for **less popular specialties** is crucial. Pathways such as **DNB** must be elevated to offer more viable career opportunities alongside traditional programs. Key strategies such as **public-private partnerships, enhanced faculty development, financial incentives, and leveraging technology** will be central to ensuring a robust, well-distributed healthcare workforce. This future roadmap aims to create a dynamic, inclusive, and highly skilled medical workforce, positioning India to address both its national healthcare demands and emerging global challenges.

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Acknowledgements

We are grateful to the leadership and members of FICCI Health Services Committee for their constant guidance as well as for sharing their valuable insights and suggestions with us.

- Dr Harsh Mahajan, Chair, FICCI Health Services Committee and Founder & Chairman, Mahajan Imaging
- Dr Sanjeev Singh, Co-Chair, FICCI Health Services Committee; Medical Director, Amrita Institute-Faridabad and Chief Medical Superintendent, AIMSRC Kochi
- Dr Anupam Sibal, Co-Chair, FICCI Health Services Committee and Group Medical Director and Senior Pediatrician, Apollo Hospitals
- (Hony) Brig Dr Arvind Lal, Chair, FICCI Swasth Bharat Task Force; Executive Chairman, Dr Lal PathLabs and Managing Trustee, ALVL Foundation
- Dr Narottam Puri, Principal Advisor-QCI; Board Member & Former Chairman- NABH; Advisor- FICCI Health Services; Advisor- Medical Operations, Fortis Healthcare Ltd.
- Mr Gautam Khanna, Past Chair, FICCI Health Services Committee and CEO, P D Hinduja Hospital & MRC
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List of abbreviations

ABHIM	Ayushman Bharat Health Infrastructure Mission
AIIMS	All India Institute of Medical Sciences
CBME	Competency-Based Medical Education
CHC	Community Health Centre
CMNNDs	Communicable, Maternal, Neonatal, Nutritional Diseases
CSS	Centrally Sponsored Schemes
CTVS	Cardiothoracic and Vascular Surgery
DALY	Disability-adjusted life years
DNB	Diplomate of National Board (DNB)
DrNB	Doctorate of National Board
ENT	Ear Nose Throat
FNB	Fellowship of National Board
GAPIO	Global Association of Physicians of Indian Origin
GDP	Gross Domestic Product
HRH	Human Resources for Health
JCI	Joint Commission International
MBBS	Bachelor of Medicine, Bachelor of Surgery
MCh	Master of Chirurgical
MCI	Medical Council of India
MD	Doctor of Medicine
MoHFW	Ministry of Health and Family Welfare
MS	Master of Surgery
MVT	Medical Value Travel
NABH	National Accreditation Board for Hospitals & Healthcare Providers
NBEMS	National Board of Examinations in Medical Sciences
NCDs	Non-Communicable Diseases
NDHM	National Digital Health Mission
NEET PG	National Eligibility cum Entrance Test Postgraduate
NEET SS	National Eligibility cum Entrance Test - Super Speciality
NeXT	National Exit Test
NHA	National Health Authority
NMC	National Medical Commission
OOPE	Out of Pocket Expenditure
PGMEB	Postgraduate Medical Education Board
PGMER	Postgraduate Institute of Medical Education and Research
PHC	Public Health Centre
PMSSY	Pradhan Mantri Swasthya Suraksha Yojana
PPP	Public Private Partnership
QCI	Quality Council of India
SDH	Sub Divisional Hospital
SEAR	South East Asian Region
SET	Skills E-learning and Telemedicine
SRIHER	Simulation Centre and Sri Ramachandra Institute of Higher Education and Research
THE	Total Health Expenditure
UG	Undergraduate
UHC	Universal Health Coverage
UN	United Nations
UT	Union Territory
VR	Virtual Reality
WFME	World Federation for Medical Education
WHO	World Health Organization

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