

Career Vistas for Indian Medical Pharmacologists: A Comprehensive Review

Avinash Arivazhahan, Gerard Marshall Raj¹, Deepthi Shridhar Puttur², Sarjana Atal³, Manu Mathew George⁴, Laxminarayana Bairy⁵

Medical Affairs, Sanofi India Ltd., Chennai, Tamil Nadu, ¹Department of Pharmacology, All India Institute of Medical Sciences, Bibinagar, Hyderabad, India, ²Senior Lecturer, Faculty of Medicine, Nursing and Biosciences, Malaysian Allied Health Sciences Academy, Selangor, Malaysia, ³Medical Affairs, Sanofi India Ltd., Indore, ⁴Drug Safety Division, Novo Nordisk India Ltd., Bengaluru, India, ⁵Dean, Professor & Chairperson of Pharmacology, RAK College of Medical Sciences, Ras Al Khaimah, UAE

Abstract

Medical postgraduation in India is available across various disciplines, one among them being pharmacology. As with the other MD courses, MD Pharmacology is a 3-year-long course that involves strenuous theoretical, practical, and clinical training. However, the curriculum does not clearly enlighten MD residents on the career vistas available for them once they pass out. The awareness level of majority of MD pharmacology postgraduates or freshers on these career options is meagre due to lack of professional guidance or literature, and hence, majority of them tend to travel along the path that is most commonly traversed by their seniors and peers. This comprehensive review details a few of the different vistas that an MD pharmacologist can pursue, highlighting the scope, roles, responsibilities, and monetary compensation of each, in an honest attempt to educate and enlighten the MD pharmacology fraternity.

Keywords: Academician, clinical research, MD pharmacology, medical affairs, medical writing, pharmacologist, pharmacovigilance

INTRODUCTION

Many promising young pharmacologists do not possess a clear and lucid idea about their future career. Most of the medical doctors who choose MD pharmacology as their path of interest are in need of reliable career advice that can help them in understanding and visualizing the various opportunities available and the skills required for prospering in the said stream.^[1] In India, there is a need for medical pharmacologists in the academia, pharmaceutical industry, clinical research organizations (CROs), and in different roles as pharmacovigilance officers, as medical writers, among others. However, the MD pharmacology program of India is arguably not in perfect harmony with the demands of these job profiles.^[2,3] Currently, there exists a profound gap in the awareness level of MD residents and freshers regarding many of these job profiles, which makes this comprehensive review an essential read for budding and experienced medical pharmacologists alike.

ACADEMICS AND ACADEMIC RESEARCH IN MEDICAL TEACHING INSTITUTES

As majority of medical pharmacologists pursue their professional interest in academic teaching and research for

multiple reasons, this career vista is obviously the most commonly chosen one.

- **Scope:** The scope for a medical pharmacologist in academics is far-reaching. The demand for medical pharmacologists is increasing despite the drastic reduction in the number of faculty positions in teaching institutes by the erstwhile Medical Council of India/present National Medical Commission (NMC). This instance is chiefly because medical pharmacology is a pre-requisite subject in all allied disciplines such as dental, nursing, paramedical, physiotherapy, pharmacy, and veterinary sciences, in addition to the primary medical courses (MBBS and MD pharmacology)^[4]
- **Skillset required to be developed:** During the MD pharmacology program, postgraduates are broadly trained

Address for correspondence: Avinash Arivazhahan, Sanofi India Ltd., Raintree Place, McNichols Road, Chetpet, Chennai - 600 031, Tamil Nadu, India.
E-mail: dr.avinash.g3@gmail.com

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in four different domains: teaching, research, health care (patient-related), and administrative (corporate).^[5] The foremost objectives set by Indian universities are “to create good quality teachers and to orient the MD students towards research and development.”^[6,7] Apart from in-depth subject competency and knowledge of research methodology, it is essential to possess excellent presentation and teaching skills

- Roles and responsibilities: With the implementation of competency-based medical education for undergraduate medical students, the onus lies on the faculty to hone their skills and rapidly adapt to the changing curriculum towards a more student-centric approach.^[8] Hence, one should be ready to incorporate innovative teaching–learning and assessment methods. Moreover, to be a good teacher, one needs to improve on pedagogical content knowledge – as the “knowledge of subject matter for teaching” is far different from the “knowledge of subject matter *per se*.”^[9] Further, medical pharmacologists are mainstream contributors in the conduct of research activities such as being part of the scientific/ethics review committees and running the clinical trial units. Apart from the aforementioned opportunities, they run the patient-related services such as the pharmacovigilance programs, therapeutic drug monitoring, and drug information services, among others
- Career path within the segment: The career path for academicians varies depending on whether the candidate moves to government or private setups. They may typically join as senior residents (interchangeably referred to as tutors, demonstrators, or registrars). After completion of 1 year of service, they are eligible for the next cadre of assistant professor (lecturer).^[10] Following this, they are eligible for the cadre of associate professor (reader) for which an experience of 4 years is necessary (overall, 5 years of post MD experience). Subsequently to move to the level of professor (or additional professor), a further experience of three years’ duration is required.^[10] In Institutes of National Importance (INIs), the eligibility criteria are slightly extended as follows: experience needed for the posts of assistant professor, associate professor, additional professor, and professor are 3, 6, 10, and 14 years, respectively.^[11] In addition to this experience, one has to also show progress in research, service delivery and patient care, and corporate activities along with requisite number (and type) of publications in the preceding cadre, which would be screened typically on an annual basis^[12]
- Average range of compensation: The monetary compensation provided in academia is highly heterogeneous and varies among institutions. As a senior resident (MD fresher), the average annual compensation ranges from INR 5 lakhs to 9 lakhs across most of the private teaching institutes in the country. In the government-run institutes, the pay is as per the University Grants Commission recommendations (7th Central Pay

Commission) plus other allowances as admissible, with a higher pay range in the INIs.^[13,14] Entry pay for an assistant professor may range from INR 7 to 12 lakhs annually, depending on the institute, with substantial hikes as one progresses up along the ladder. INIs also provide allowances for academics (INR 22,500 monthly) and learning resources (INR 1.5 lakhs yearly)

- Pros and cons: Pros and cons always tend to carry a subjective component. Academia-related jobs are time bound and office based, both of which are considered by many as the biggest advantages. Unlike a few of the other domains, compensations are fixed and experience based and may not grossly vary among individuals at the same level in the same setup. On the flip side, things are not too bright for an aspiring medical pharmacologist who wishes to join or continue teaching positions. The reason, as discussed earlier, is the cutdown in the number of faculty positions as per the norms laid by the NMC (applies more for private institutes). Further, owing to the mismatch between the number of MD freshers and the available vacancies, there is significant cutthroat competition (applicable at all cadres).^[11] Most often, it is felt that teaching jobs are monotonous despite the multidimensionality discussed earlier. Furthermore, promotions are vacancy based (and not based on performance or experience, as in a few of the other domains), which may result in holding back the faculty with adequate credentials in the lower ranks for longer periods of time
- Summary at a glance: Even though multiple outcries about the nonacademic and multidisciplinary roles, responsibilities, and opportunities for medical pharmacologists are quoted since the 1980s, medical pharmacologists for various reasons prefer academic-oriented teaching and research jobs over other options available in India.^[15-17]

MEDICAL AFFAIRS IN THE PHARMACEUTICAL INDUSTRY – FIELD BASED AND OFFICE BASED

While pursuing an academic career is arguably the most common vista for most, a very viable opportunity for MD pharmacologists lies in the pharmaceutical industry as a “pharmaceutical physician/medical affairs professional”, which can either be at the field level or at the head office. The entry-level position for a majority of MD freshers would be as a medical science liaison (MSL), also called regional medical advisor (RMA), both these terms falling under the umbrella term of “field-based medical (FBM) affairs professional.”^[18] As the term indicates, the job profile relates to spending a vast portion of the time in the field. The other profile related to the functioning of these medical affairs professionals at the head offices (office-based medical [OBM]), which may be the starting position in a few organizations, but is more often a lateral shift from the FBM ladder.

- Scope: Most of the large-scale pharmaceutical organizations have dedicated OBM and FBM teams, more

so in the multinational organizations that handle products or services that involve dissemination of science at the very core of their functioning, as in the case of oncology, vaccines, diabetes, rare diseases, and so on.^[18] On the other hand, consumer health care (and other established fields) may not require a dedicated medical professional in the zonal regions for dissemination of science that is now age-old and hence may only have OBM teams. Opportunities are plenty for both profiles, with a wide choice of organizations and geographies to choose from. In addition, most pharmaceutical organizations also offer short-term internships (lasting from 1 to 3 months) for MD residents, which can give them a taste of how the function works

- Skillset required to be developed: The major function of an FBM professional is to develop and kindle scientific relationships with the key thought leaders (KTLs) or key opinion leaders (KOLs) in the designated geography. The OBM professionals will also have to interact with national and international KTLs/KOLs. This would naturally require excellent communication skills. Presentations are a routine component of this profile, and hence, improving presentation skills is essential to be successful. Technical and technological skills are desirable. In addition, knowledge of the therapeutic area and the products (with the affiliated organization and those of the competitors) is mandatory. As with most other job profiles, time management, prioritization, and proactiveness are desirable skills to possess.^[18] Since there is a significant chunk of marketing jargon and strategies involved (more so with the OBM roles), it may be desirable to also possess formal degree or training in marketing management or allied subjects
- Roles and responsibilities: The key role of medical affairs professionals is to function as the scientific face of the organization. While the roles and responsibilities are quite extensive, the main performance indicator of a successful FBM professional is in nurturing scientific relationships with KOLs/KTLs, as mentioned earlier. Dissemination of scientific information concerned with the therapy area or product-related information would happen in a seamless fashion via the FBM professional, either through 1:1 communications with experts or through scientific meets and conferences.^[19,20] OBM personnel will be chiefly involved in planning and implementing medical strategies across the lifecycle of the products, involving product launches, publications, reviewing promotional material, and planning clinical studies, among others.^[21] Furthermore, generation of validated and actionable insights from these KOLs is another important responsibility. Apart from these, they may also be expected to train the cross-functional (commercial, sales, marketing, etc.) teams on recent scientific evidence. Further, they are involved in medical writing, pharmacovigilance, and others.^[18] Medical affairs teams have multiple external stakeholders, including

KOLs, regulatory authorities, health-care organizations, medical associations, guideline bodies, and pharmacy managers.^[22]

- Career path within the segment: Once into the FBM system, the MSL/RMA can decide to continue progressing along the regional ladder as a senior MSL/RMA and further to managerial positions (managing the team of MSLs/RMAs). One may also have the option of moving to global FBM roles, managing multiple countries and teams.^[23] One can also tend to move laterally into an OBM role (as a medical advisor/senior medical advisor, and then progressing along the OBM career path to become the Head of Medical Affairs/Medical Director), in order to participate and contribute to key medical strategies in the organization. There are also multiple lateral exit options into medical information wing, clinical research division, pharmacovigilance, sales, or marketing, depending on the orientation of the person
- Average range of compensation: The compensation scales within the industry are spread widely, depending mainly on the performance exhibited.^[18] However, the entry level compensation for an MD fresher may range from INR 11 to 14 lakhs per year (which would be further split into a fixed component and a variable performance-based component), with annual hikes in monetary compensation usually ranging from 5% to 15% on an average. Perks and benefits increase as progression is made through the ranks
- Pros and cons: As a medical affairs professional, there is a great level of professional networking involved with the top clinicians of the country (and sometimes, globally). Furthermore, the role is quite dynamic in nature, and there are new challenges and opportunities that open up every day. A good work-life balance can be maintained if the work schedule is charted out in advance, despite the common myth that these professionals are generally overworked. There is a wide flexibility in choosing to advance the career along different domains of the pharmaceutical industry (medical affairs, pharmacovigilance, clinical research, sales, or marketing).^[18] However, these roles are typically restricted to major metropolitan cities, thus necessitating relocation if currently living outside these major cities or towns. Excessive traveling is involved in this role, both within the base city and outside. There is a typical perception that the FBM/OBM professional is nothing but “an elite medical representative,” which is triggered by the time spent waiting outside clinicians’ chambers, discussing on products, and so on. In addition, there is also growing competition from non-MD graduates, including but not limited to BDS/MDS, PhD, Pharm D, MBBS, and others^[18]
- Summary at a glance: Medical affairs in the pharmaceutical industry has excellent scope at present and also in the near future. Several organizations are realizing the importance of internal medical teams and are recruiting or expanding

the same. Good compensation scales at the expense of high travel requirements and a busy lifestyle are the key highlights. With the COVID-19 pandemic, the workstream has shifted to a digital medium, which is possibly here to stay for a significant duration. Going forward, there may be a “phygital” (hybrid of physical + digital) working pattern, which has its own separate set of pros and cons.^[24]

MEDICAL WRITING IN THE PHARMACEUTICAL INDUSTRY AND OUTSOURCED AGENCIES

The field of medicine is constantly evolving with new knowledge and information by the way of ever-increasing number of research studies, growing clinical experiences, and new ideas or thoughts. These developments need to be channeled in an effective and systematic way to the target audiences: physicians, patients, and drug regulators. Medical writing is the science (and art) of communicating this accumulating information in the form of well-structured scientific documents to the various stakeholders involved.^[25]

- Scope: Medical writing broadly encompasses preparing documents required for research, development, regulatory medical writing and approval, publication writing, and preparing medical literature for educational and promotional use. The scope of medical writing spans from the most regulated, structure-driven common technical and research-oriented documents such as clinical study reports, clinical and non-clinical summaries, clinical study protocols, investigational brochures, or product labels to the relatively non-regulated, less-structured medical communication such as training and promotional materials, publications, and web content.^[25]
- Skillset required to be developed: Medical writers require knowledge of therapeutic areas, drug development process, medical pharmacology, drug safety, basics of statistics, and regulatory guidelines. They need to also have the ability to interpret and present complex clinical trial data, should have an understanding of ethical and legal issues, should be aware of literature search techniques, and should have a strong command over the English language. Various formal courses on medical writing are available from top universities and associations globally and in India.^[26]
- Roles and responsibilities: The roles and responsibilities of a medical writer include but are not limited to data analysis including data review, statistical analysis, literature analysis, content writing, providing interactive alternatives or templates, document editing, formatting and reviewing, and coordination with internal and external cross-functional teams.^[25,26]
- Career path within the segment: Medical writers eventually move upstream into management, taking care of teams of medical writers, and managing projects at local and global levels. This path can range from senior/lead medical writer to team manager to eventually moving to the higher directorial levels. Writers in

medical communications may also move into editorial roles at publishing organizations. Medical writers do have the option of turning into freelancers after gaining considerable experience or set up their own organization to provide these scientific services

- Average range of compensation: The typical monetary compensation to begin with is in the range of INR 9 lakhs to 13 lakhs annually. Yearly hikes may range from 8% to 13%, depending on target achievement and performance. Freelance medical writers tend to get compensated by the hour, and the magnitude depends on the professional expertise and experience
- Pros and cons: Medical writing is an ever-growing and challenging profession with an unlimited spectrum of options, good incentives, flexible working hours, and linear career growth.^[27] Most of the pharmaceutical companies or global sponsors have started outsourcing the writing of template-driven documents that involve minimal data analysis and interpretation, thus making India a key hub for these scientific services, offering plenty of scope for growth and development. The challenges include meeting stringent deadlines, dealing with client expectations, and long work hours. Currently, the medical writing industry in India faces some challenges, such as the lack of depth and breadth in domain expertise, inadequate technical writing skills, high attrition rates, and paucity of standardized training programs.^[25] Furthermore, there is intense competition from non-medical science graduates
- Summary at a glance: There is a growing need for medical writers in both the public and private sectors, although awareness levels are quite low among potential prospects.^[28] An apt medical writer can leverage his or her scientific expertise to advocate for the work that can benefit the society.

CLINICAL RESEARCH IN PHARMACEUTICAL INDUSTRY AND CLINICAL RESEARCH ORGANIZATIONS

Clinical trials demand a lot of complex activities ranging from designing a protocol to actual conduct of the trials, followed by submission to the regulatory bodies. The sponsor companies outsource them to CROs that are thoroughly skilled in handling these activities, which include planning, coordinating, conducting, and monitoring the various processes involved.^[29]

- Scope: Clinical research, by far, remains an ever-booming industry, growing at an astounding magnitude, thus allowing a wide scope for employment opportunities. MD pharmacology freshers are the ideal choice for employment in this industry as clinical investigators (CI) or principal investigators (PI) since the MD curriculum offers the educational and experiential training needed in the form of basic medical research. Since there are multiple stages involved in drug development, this function is not only related to the widely known “bioavailability/bioequivalence” studies but also in other

clinical phases of drug development. Furthermore, there is also a concomitant rise in the number of experts needed for these roles, given the rampant rise in the number of CROs being established^[30]

- Skillset required to be developed: Most CROs and pharmaceutical organizations prefer to hire medical doctors who have a modest background in clinical research. Apart from knowledge of subject matter, it is essential to know how to translate complex scientific concepts to laymen in simple and comprehensive terms. Communication skills are desirable, since there would be significant levels of interaction with internal teams, ethics committees, trial sponsors, and regulatory personnel, in addition to the trial subjects. Understanding of good clinical practice recommendations is required. Training in emergency medical care and patient care is also needed^[31]
- Roles and responsibilities: The CI or the PI of a CRO is required to supervise all studies conducted from end to end. One should work closely with the study teams and others responsible for the delivery of projects. One should also identify study-related issues at an early stage, so that they have minimal impact on study cost, timing, and quality. The responsibilities range from before the study (study design, protocol generation, preparation of documents, approval from ethics committees, etc.) during the study (supervision of the study, screening of subjects, responding to medical queries, managing adverse events, identifying protocol deviations, etc.) to after the study (documentation of proceedings, handling sponsor and regulatory visits, etc.).^[29,30] In pharmaceutical organizations, the roles are similar but the horizon is much wider since there are multiple phases of clinical trials and studies to be conducted. Here, there is a close collaboration with the internal medical affairs teams (both OBM and FBM teams)
- Career path within the segment: In CROs, the typical starting point is as a medical officer or a CI. They assist the PI in study conduction and monitoring. Once experience is gained, he/she would become the PI (which is sometimes the starting position in a few organizations). Along the ladder, one may take up managerial roles as head of clinical services (or similar). In pharmaceutical organizations, the entry-level position is usually as a clinical research associate, further progressing as clinical research lead, head of clinical services, medical director, etc. This depends on the medical structure of each organization. In many Indian organizations and a few MNCs, the clinical research division reports to the country medical director or business head. However, in several MNCs, the clinical research wing is a standalone department that reports directly to the global clinical research director^[32]
- Average Range of Compensation: Starting as a CI, the annual compensation ranges between INR 8 lakhs to 12 lakhs. Once promoted as a PI, the compensation increases roughly by 10%–15% per year. The annual hikes

following movement to further roles would be in the range of 8%–15%. The remuneration is similar when starting as a research associate in pharmaceutical organizations also

- Pros and cons: Working in the clinical research domain helps in obtaining a broad exposure to a variety of clinical studies, drugs, sponsors, and regulators. Furthermore, overseeing the conduct of the trials and also ensuring the safety of trial subjects is deemed to be fulfilling. On the other end, this position does come with time constraints for projects, meaning that there is a considerable amount of mental and physical stress involved. At times, even after dedicating enormous levels of time and efforts, regulatory approval may be denied, which can be disappointing. Again, there is stiff competition from candidates of other streams of medicine and science^[29,32]
- Summary at a glance: India being a hub for conducting clinical studies, there has been a flourish of CROs in the recent past, enabling more and more opportunities. This profile is seen to have a research-oriented inclination, thus making one's contribution towards drug development significant.

PHARMACOVIGILANCE

Pharmacovigilance activities chiefly include reporting of adverse events and other drug-related problems to the regulatory authorities. This process involves reporting of individual case safety reports (ICSR), aggregate reports, signal detection, and analysis and risk management plans.^[33] MD pharmacologists as pharmacovigilance physicians/drug safety physicians play a crucial role in these activities.

- Scope: A pharmacovigilance physician is involved in medical review of adverse event reports from various sources (spontaneous or study reports, literature, other sources). One ensures appropriate coding of adverse events, provides seriousness, expectedness and causality assessment, and provides inputs to aggregate reports, signal detection and management activities, risk management plans, and others.^[33] With increased scrutiny of pharmaceutical products and stringent regulatory guidelines, the importance of pharmacovigilance is expanding and is an exciting field to work in
- Skillset required to be developed: Apart from the basic requirements of strong subject knowledge, technical skills, and good command over the English language, it is also desirable to have a reasonable understanding of regulatory guidelines – national and global. Awareness and ease of use of Medical Dictionary for Regulatory Activities is required. This job profile also involves the use of various pharmacovigilance database tools, knowledge of which may provide an edge to succeed^[34]
- Roles and responsibilities: As mentioned earlier, the major role of the pharmacovigilance physician is to review the adverse event reports medically, prepare safety reports, prepare and review the risk management plan, and participate in the signal management process^[33,34]

- Career path within the segment: MD pharmacologists may join in any of the major domains such as ICSR review, aggregate reporting and signal detection, and grow within the hierarchy or gain experience in different domains through lateral movement.^[35] It is always beneficial to have experience in varied domains for accelerated vertical growth in career
- Average compensation: Initial annual compensation can vary between INR 8 and 12 lakhs. Yearly salary revisions of 5%–12% may be expected, depending on individual performance rating
- Pros and cons: As a pharmacovigilance physician, there is a good work–life balance that can be maintained, as the option of working from home is available in several organizations. Furthermore, working hours are quite flexible. The monetary compensation is also competitive and attractive. On the other hand, career growth may not be as fast-paced as in a few of the other domains explained earlier in this review. Work is highly time bound, which may at times be stressful and may necessitate extended working hours
- Summary at a glance: Pharmacovigilance will continue to play a vital part in drug development and during the life cycle of any product. In addition to drug pharmacovigilance, vaccine pharmacovigilance and materiovigilance are gaining importance and bringing up fresh opportunities. On the whole, pharmacovigilance is an exciting field for MD pharmacologists, providing opportunities to apply their clinical skills, ultimately contributing to patient safety.

MISCELLANEOUS CAREER PATHS AT A QUICK GLANCE

- Clinical pharmacologist in hospital setups: MD pharmacologists are now being employed across several hospitals in the country as clinical pharmacologists, who play a key role in medication management, medication safety (pharmacovigilance), and clinical research. Although this domain is in the early phases currently in India, this is an avenue to look forward to in the near future. Audit of prescriptions is the most important function of a clinical pharmacologists, and this requires in-depth knowledge of drugs in general and their pharmacokinetics, in addition to common drug–drug and drug–food interactions. There are two methodologies followed in hospitals – preventive consultations (where the clinical pharmacologist is consulted by treating physicians before prescribing drugs for their patients) and reactive consultations (where the clinical pharmacologist proactively audits various prescriptions after they are given to the patients).^[36] Possessing a DM in clinical pharmacology may be an added advantage. Initial remuneration may vary from 9 to 15 lakhs per year depending on the hospital
- Medical data reviewer in CROs/pharmaceutical organizations: Medical data reviewers are commonly employed across CROs and pharmaceutical organizations that conduct clinical trials and studies. They are typically

attached to the clinical research wing of the organization. The main responsibility is to ensure completeness and consistency of the study or trial-related data from a medical perspective. These responsibilities encompass various stages of trials or studies, from the initial setup phase, data collection, to data analysis stages. These reviewers are also involved in *post hoc* analyses of completed studies and trials, wherein they are expected to work in liaison with the medical affairs/medical writing professionals. There is stiff competition from MBBS, BDS, MDS professionals, in addition to nonmedical professionals. Starting annual compensations ranges from 8 to 10 lakhs^[37]

- Other career paths that are arguably less rewarding include medical transcription services and medical coding services.

DRAWING POINTS OF INTERSECTION AND DISSECTION AMONG THE VISTAS: A BIRD'S EYE VIEW

- Taking cues from the various career vistas mentioned in this review, it is quite clear that an MD Pharmacologist has plenty of scope to flourish and thrive irrespective of the path chosen
- Comparing and contrasting each of the career options discussed in this review, we may draw a few conclusions, as in Table 1.

CONCLUSION

For MD pharmacologists in India, there are numerous opportunities, in addition to the conventional choice of being an academican. They have the option to join the pharmaceutical industry as medical advisors, medical writers, pharmacovigilance officers, CIs, and so on. It is essential to analyze all these varied vistas and choose the most appropriate one, based on one's interests and skills. A few common traits or skills across the various profiles listed in this review are good knowledge of the subject and excellent soft skills. It is ideal for aspiring pharmacologists to focus on improving their soft skills in addition to gaining in-depth knowledge of basic and clinical pharmacology. Teaching faculty in various medical colleges may play a significant role in educating their residents (and undergraduates/interns) on these various career paths available in order to help them in honing their skills and pursuing the vista of their choice and liking.

To conclude, each of these domains holds potential to a highly fruitful career. Ultimately, being sincere and carrying out honest and passionate work is an incentive in itself, which will result in ultimate success and satisfaction.

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Table 1: Original: Similarities and differences among the various career vistas available for medicine pharmacologists

Parameter	Academics	Medical affairs	Medical writing	Clinical research	Pharmacovigilance
Scope for freshers	Low to moderate	High	Moderate to high	Moderate to high	Moderate to high
Entry-level monetary compensation (annual in INR)	5-12 lakhs (depends on institute)	11-14 lakhs	9-13 lakhs	8-12 lakhs	8-12 lakhs
Growth opportunities	Sub-optimal (subject to vacancies and saturation level)	Adequate	Adequate	Adequate	Adequate
Work-life balance	High	Moderate	Moderate to high	Moderate	Moderate to high
Additional considerations	Differences in the roles and responsibilities between private and Government institutes, recent MCI/NMC's recommendations to cut down the number of teaching positions to be considered	Ability to travel, interaction skills, working under pressure to be considered	Desk job nature, technical comfort, writing skills, working under pressure, competition from non-MD candidates to be considered	Need for clinical acumen, competition from non-MD candidates to be considered	Desk job nature, technical skills, working under pressure to be considered

MD=Medicine, INR=Indian rupee, MCI=Medical Council of India, NMC's=National medical commissions

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Conflicts of interest

The views expressed in this review are purely on the basis of the authors' individual merits and capabilities, and do not represent the organizations or institutions that they are or were affiliated to.

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