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# Training Needs Of International Medical Graduates Seeking Residency Training: Evaluation Of Medical Training In India And The United States

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## Abstract

International medical graduates (IMGs) continue to occupy a significant proportion of residency slots and medical manpower in the United States (U.S.). Cultural and educational adjustments engender tremendous pressures on IMGs and affect their ability to function as effective learners and physician providers. Communication and social skills, professionalism and addressing patient management and social issues are aspects of medical education most neglected in teaching curriculums in third world countries. Medical educators in the U.S. need to be aware of the scope and breadth of the training curriculum in the host country to be in a position to undertake remedial steps and enable IMGs to meet local expectations. Medical educators in other countries also need to be aware of their student's aspirations of medical training in the U.S., so that they can be better prepared to meet the challenges of functioning appropriately as residents and physicians in the U.S.

## INTRODUCTION

Every year, thousands of physicians with varying degrees of training flock to the shores of the "New World," seeking to practice medicine and to better their economic future. While the pathways of entry into graduate medical education and the process of advanced medical training have been formalized, the enormous task faced by a foreign physician in handling the economic, psychosocial and cultural pressures has rarely been described. In 1999, a majority of family practice programs had at least one international medical graduate (IMG), and they occupied 21.6% of the residency slots in 2001.<sup>1</sup> It has been estimated that IMGs will continue to form a significant proportion of the medical manpower in the United States (approximately 25 percent of the U.S. physician workforce),<sup>2,3</sup> and it is to everyone's advantage that this fact be recognized and steps taken to offset the impact of their transition.

Most IMGs seek some insight into what makes a resident trainee successful in the United States (U.S.). They need a road map that would assist them in navigating the intricacies of residency training, learning modalities and developing interpersonal relationships in a different culture, thereby easing the stress of this change. Currently, none exist.

The purpose of this paper is to analyze and compare

important aspects of medical education and training, both undergraduate and postgraduate in India, and the U.S. The secondary objective is to suggest some measures that IMGs may utilize to navigate residency, to gain the appropriate knowledge and skills enabling them to render excellent patient care. Medical education in most developing countries is patterned, as in India, after the British system a working knowledge of which will assist physician educators in the U.S. to cater to the educational needs of the IMGs.

## METHODS

The study was designed to compare two groups, one at the undergraduate level, and another at the postgraduate level from two sites, U.S. and India. The four aspects of this education/training are covered, ranging from prerequisites to graduation. A review of the literature was conducted using such search terms as "Foreign medical graduates," "International medical graduates" and "Medical training in India." All articles pertaining to medical training in India and highlighting the role of international medical graduates, were reviewed, and those that had a bearing on the points of discussion, were included. The narrative is also based on interviewing students and residents in the U.S. and India, as well as foreign medical graduates in training in the U.S. As both authors had acquired their graduate and post-graduate training in surgery in India, a considerable amount of the

narrative is also based on their personal knowledge.

## **RESULTS**

### **UNDERGRADUATE MEDICAL EDUCATION**

**Age Requirements.** The minimum age at which a student can apply to medical school in India is 17 years. In the American medical educational system, there is no minimum age. A striking feature is the restriction on maximum age at which a student can apply to medical school. Most of the states in India do not allow any student to apply to medical school after the age of 30. A 5-year allowance is made for applicants who served in the armed forces. In sharp contrast, the American system does not have an upper age limit for candidates seeking admission to a medical school.

**Educational Prerequisites.** In India, the minimum requirement for medical school entrance is 12 years of schooling. Currently, the majority of states have a schedule in place where a student, after completing the first 10 years of schooling, addresses the curriculum requirements for admission to a medical school in the last 2 years. A few states continue to follow a traditional schooling schedule where a student completes 11<sup>th</sup> grade, also called "Higher Secondary school course." After this, a student needs to complete one year in college before applying for the medical school entrance test.

In the United States, most medical schools require students to have graduated after completing 4 years of collegiate education. However, many medical schools will accept students without a college degree if they have fulfilled the pre-requisite courses (credit hours).

In India, the program of study for secondary school education (after year 6) for pre-medical school education includes Physics, Chemistry, Biology, English, and Mathematics, and is the focus of the last two years. There is no option for advanced placement in any subject. All pre-medical students take similar courses throughout the year.

In the United States, the curriculum during the first twelve years is dependent on individual state requirements. A purpose of the first twelve years of school education is to prepare the students to take nationally standardized tests such as the American College Test (ACT) or Scholastic Aptitude Test (SAT). College admission committees evaluate prospective students using the scores obtained.

**Medical Entrance Test.** Currently most of the states in India

have an established system of pre-medical academic evaluation in the form of a written test, which extends over a period of 2-4 days depending on the state holding the test. The Premedical Test (PMT) is conducted only once a year in summer, after graduation examinations in schools/ colleges. This test is administered in all major cities, where medical schools are located and regional medical school authorities are responsible for conducting this test. The test is held at the same time and has the same content within a particular state. A few states call it Combined Premedical Test (CPMT).

The content and timing of the test is variable. Applicants are tested in their knowledge of physics, chemistry and biology, through multiple-choice questions. In most states, applications are accepted only from students, who are domiciled in that state. Evidence of a birth certificate that verifies their birth within the state is essential.

During the last two years of college education in the United States, the pre-medical student will take the Medical College Admission Test (MCAT). The MCAT consists of four sections- verbal reasoning, which tests the ability to read and interpret written information, physical sciences (physics and general chemistry), biological sciences (organic chemistry and biology) and writing sample (2 essays). The test is standardized and administered twice a year by the Association of American Medical Colleges (AAMC).

**Medical School Admission.** In India, the criteria for student selection are based on the PMT scores. The interview process in most instances is a formality. Factors such as excellence in sports, military and community service do, however, have an important influence on the selection process. Most of the states acknowledge sports and other non-academic achievements by awarding a predetermined score, while computing the final result of medical entrance test. Students receive an additional advantage if their parents served in the defense services.

Over half of the positions are reserved for students who belong to "underrepresented classes." In recent years, this "quota" has increased steadily up to 75% in certain states. This has generated a lot of criticism from students belonging to other segments of the society. The remaining positions are filled up by top ranking candidates qualifying purely on merit. All the PMT selected students must undergo a comprehensive physical examination with basic lab workup and chest x-ray to ensure physical fitness.

In the United States, applications are accepted from all over

the country. Preference is given to the candidates from the same state except in private medical schools. Medical school admission committees screen the applications, evaluate college transcripts and MCAT scores, and invite eligible candidates for interview. Performance of the candidate during the interview plays a major role.

Medical college admission committees take into consideration various factors such as extracurricular activities, community service, and volunteer work in hospitals. There is no direct constitutional requirement for an admission "quota" into a medical school for underprivileged or minority groups. In 2002-2003, only 11.6% were members of underrepresented minority groups.<sup>4</sup> Admission committees may choose to give preference to minorities to provide adequate representation. Legal challenges have been mounted to this preferential representation.<sup>5,6</sup> (Gratz v. Bollinger 2000, Grutter v. Bollinger 2001)

**Curriculum- India.** There are no significant differences in the medical education curriculum in the two countries. However, the emphasis placed on the various subjects differs. In India, the undergraduate medical education course extends for a period of four and a half years. It is divided into 3 phases (9 semesters, each lasting 6 months- 120 teaching days each semester, 8 hours each day).<sup>7</sup>

Phase-I(pre-clinical phase) lasting two semesters consists of pre-clinical subjects (Human Anatomy, Physiology including Bio-Physics, Biochemistry, and introduction to Community Medicine including Humanities). Besides 60 hours for introduction to Community Medicine including Humanities, the rest of the time is equally divided between Anatomy and Physiology plus Biochemistry (Physiology 2/3 and Biochemistry 1/3)

Phase-II.(para-clinical/clinical phase) lasts for 3 semesters. Both para-clinical and clinical subjects are taught concurrently. The para-clinical subjects include Pathology, Pharmacology, Microbiology, Forensic Medicine including Toxicology, and some Community Medicine. Approximately equal time is allotted to Pathology, Pharmacology, Microbiology and Forensic Medicine and Community Medicine combined (1/3 Forensic Medicine and 2/3 Community Medicine). Students are not permitted to take up Phase II training until they have passed all the Phase I (Pre-clinical) subjects. Students are permitted no more than four examination opportunities in the pre-clinical subjects and the transition should be completed within three

years from the date of enrollment.<sup>7</sup>

Phase-III. (clinical phase)The clinical subjects taught during Phase II and III are Medicine and its allied specialties, Surgery and its allied specialties, Obstetrics and Gynecology (OB/GYN) and Community Medicine. Besides the clinical assignments as previously mentioned, the rest of the teaching hours are divided for didactic lectures, demonstrations, seminars, and group discussions. In various subjects. Medicine and its allied specialties training include General Medicine, Pediatrics, Tuberculosis and Chest diseases, Skin and Sexually Transmitted diseases, Psychiatry, Radio-diagnosis and Infectious diseases. Training in surgical specialties involves General and Orthopedics Surgery including Physical therapy and Rehabilitation, Ophthalmology, Otorhinolaryngology, Anesthesiology, Dentistry and Radio-therapy. Obstetrics & Gynecology training also includes training in contraceptive methods. As many of these subjects are taught concurrently, students have the ability to co-relate the anatomy of the organ with its physiology, and the pathology with the clinical course of the illness and its treatment.<sup>7</sup>

Most anatomists, physiologists, pharmacologists, and other specialists involved in teaching medical students are physicians, who have completed additional training in their respective specialties. They are, thereby, able to emphasize the clinical application of the subject as they teach the specific content.

Students are not part of any physician's team during the various rotations. They attend outpatient clinics and hospital floors, where they see designated patients with various illnesses, which form the predominant source of their learning. Though the principles of diagnosis and management are learned, there is little practical experience in managing various disease states.

Students do not take in-house call, except in Obstetrics. Many recent advances in investigative techniques are still not freely available in some teaching hospitals and this leads to an over-emphasis on history taking and physical examination. Most exposure to in-hospital care starts during the internship year, which forms the last year of the undergraduate curriculum, and is conducted under the auspices of the medical school.

In addition to their yearly assessments (conducted by the university), they are also assessed regularly through case presentations, written tests and orals, administered during

their respective rotations. Interns rotate through Internal Medicine, General Surgery and their respective sub-specialties, OB/GYN, and Preventive Medicine, spending three months in each rotation. Very little attempt is made to train the students on addressing mental health issues and the social problems affecting the population at large.

Students do not expect to interact with or learn from physician extenders (nurses, lab technicians, physical/occupational therapists). Most physician extenders are poorly paid, have socially unequal relationships with physicians, and are not involved in the evaluation process of the students. There have, however, been recent attempts to integrate undergraduate medical education with patient care to minimize this drawback and to expose students to hospital practice.

**Curriculum – United States.** The undergraduate medical education program in the United States lasts 158 weeks, spread over 4 years; 38 weeks in the first year, 37 weeks in the second, 47 weeks in the third and 36 weeks in the fourth.<sup>4</sup> All pre-clinical and para-clinical subjects such as, Anatomy, Physiology, Biochemistry, Pharmacology, Microbiology, and Pathology are completed in two years. The last two years are devoted exclusively to clinical subjects.

Most clinical training takes place in the hospital with various specialties. The students work as part of the physician's team, learning the principles of patient care. They also have increased exposure to emergency management during mandatory night calls in their required clerkships. Instruction in mental health and social problems forms an important part of all primary care specialties.

Another training site is physician's office practices, where students are exposed to ambulatory medicine. Physician extenders form an important source of student education. Students interact easily with them and therefore, are able to profit from this association.

Medical students are offered "electives" in the fourth year of medical school, where they have the opportunity to acquire additional training in the medical specialties exciting their interest.

Students are required to take Steps 1 and 2 of the United States Medical Licensure Examination (USMLE) in addition to the assessments at the end of each rotation. There are also a variety of measures to evaluate their professional

behavior.<sup>4</sup> The attrition rate is less, compared to India. Most students (86.4%) complete the medical education program in 4 years or less.<sup>8</sup>

**Socio-cultural Differences.** Most patients seeking healthcare in teaching hospitals in India suffer from abject poverty, low literacy levels, low expectations of their physicians, and have little knowledge of their illness. Little effort is generally made to explore their social circumstances or their need for supportive care. Therefore, undergraduate medical education in India does not include instruction in doctor-patient communication skills and there is a low appreciation of the importance of its relationship to good patient care. This lack of instruction is a major drawback for physicians who leave India to pursue graduate medical education training in the United States.

There is also a serious dearth of support facilities (home health, physical and occupational therapy) in many parts of India. Physical and occupational therapy is largely hospital-based. Emphasis on patient education is largely ignored, in part due to the low literacy level of the patients.

Risks, benefits, and options of procedures are not routinely discussed in detail. Women tend to choose to be examined by female physicians and vice versa. It is very unusual for a woman to consent to a male student performing a pelvic examination. Hence, training in women's health issues is often inadequate for males.

Few, if any, students and residents are married, and do not experience the same kinds of pressures as their American counterparts. Most marriages are still arranged, and dating is still not widely prevalent.

A higher proportion of medical students and residents in the United States get engaged or even marry young and start families (personal communication). This is thought to be a stabilizing influence and does not adversely affect scholastic performance. Men who were married when they entered medical school were less likely to drop out or fail. Female residents were found to experience positive feelings of emotional security and intimacy.<sup>9</sup> Marriage seems to have the greatest positive impact for students between the ages of 30 and 40, enhancing graduate academic performance.<sup>10</sup>

This early and close interaction between the sexes exposes students and residents to feminine needs and empowers women, who are by and large treated as equals. Additionally, medical students in the U.S. receive extensive instruction in

physician-patient interaction skills and a wide range of psychosocial issues.

Financial Burden and Resources. In India, the annual fee for medical education in state and central government supported medical schools varies from \$100 to \$150 and the annual living expenses for students average \$500 to \$750. It is estimated that state or central government spends around \$10,000 per student for completing medical graduation. Even though these expenditures appear to be substantially less than in the United States, they are considerable when considering physician salaries. The median monthly salary for professionals comprising the middle class ranges from \$300-600.<sup>11</sup>

Students are either supported by their parents or through state-sponsored scholarships. Most live at home during their training, though others do live in accommodations provided in the medical school campus, which are either free or highly subsidized. Most students do not incur any debt of magnitude during medical education. With very rare exceptions, most medical students have never been employed.

Most students in the United States incur hefty annual fees averaging \$31,000 for private medical schools and \$13,000 for public medical schools. Out of state students are charged an average of \$28,000 for public medical schools.<sup>12</sup> Most of the students live away from their parents, thereby incurring additional living expenses that can average from \$8,000 to \$12,000 annually.

Many students receive scholarship support from medical school or university sources. However, most students take out loans to meet educational and living expenses, often ending up at the end of their graduate medical training with significant debts, averaging from \$90,000 to \$100,000.<sup>13</sup> The average total educational debt for 2002 medical school graduates was \$103,855.<sup>4</sup> In some cases, the spouse of a married student may offset some of the burden incurred during the study years through his/her job.

In India, a medical school graduate is granted a degree and a license to practice after completing four and a half years of training, success in the university examinations and one year of internship. A new medical graduate can practice medicine as a general practitioner, a popular term for a primary care physician. If a medical graduate chooses to pursue further medical education and training in any of the specialties,

he/she must take a post-graduate training entrance examination.

In the United States, a new medical graduate is required to enter a residency-training program and complete at least one year, and then, must pass USMLE Step 3 before he/she becomes eligible for a medical license to practice medicine. At this point he/she is still not board eligible or board certified, a necessity for successfully negotiating a job. Most graduates proceed to complete a residency program either in primary care or other specialties.

## **GRADUATE MEDICAL EDUCATION**

In India, all medical graduates intending to undergo post-graduate training in medical specialties are required to take a standardized, computerized written test. Test scores constitute the chief criteria for selection into residency programs. This process is comparable to the national electronic residency-matching program in the United States. Though an interview is conducted, it is mostly a formality. There is no option for selecting a candidate outside this system. In many states, as mentioned earlier, significant “quotas” exist for candidates representing segments of society labeled “backward classes.”

Most residency training occurs in hospital “units”, consisting of a group of faculty physicians of varying seniorities and a group of residents at various levels of training. Work hours of residents are limited to 12 continuous hours on any occasion, subject to the exigencies of work.

(<http://www.medicalmantra.com/article35.html>) In practice, however, most residents end up averaging 10-12 hours a day, 6 days a week (except Sundays). Residents training in most state run hospitals also find the opportunity to work in other community- run hospitals or function as generalists (“moonlighting”), thereby supplementing their income. In federally run hospitals, resident remuneration is higher (varies from rupees 9000-10,500/ month- \$180-200/ month), but moonlighting is disallowed.

(<http://www.indiaeducation.info/medicalhub/topten.htm>). Residents are also entitled to 4-5 weeks of vacation for each completed year of residency.

Medical school graduates in the United States are required to pass USMLE steps I and II, to be eligible to apply to various residency programs. The selection process is embedded in a nationalized electronic residency-matching process (NRMP). The programs have the liberty to select candidates before the match and withdraw any number of positions from the

NRMP. Similarly, programs have also the option of filling the spots left vacant after the match (termed the “scramble”). The interview process plays a vital role in either route. During the interview, some attempt is made to gauge the attitude and communication skills of the applicant.

The first year of residency in any specialty (internship year) consists of rotations in other specialties that complement residency training. Training in subsequent years varies with the length of training (usually 2-4 years) and the focus of training.

Residents are trained in ambulatory medicine in outpatient (continuity) clinics, one of the strengths of primary care specialties (Internal Medicine, Family Practice, Pediatrics). In continuity clinics, resident physicians acquire a patient panel (pediatric, young adult, geriatric and or obstetric), whose progress they follow throughout the years of their training, ensuring continuity of care.

Most specialties also run in-hospital services consists of faculty members, working with a group of residents at various levels of training, ensuring care of hospitalized patients. Residents are trained in emergency care, helping to attend to the medical needs of hospitalized patients and emergency admissions, surgeries, assisting with deliveries and attending resuscitation “codes.” In family practice, residents also take turns in being responsible for back-up calls, in their senior years. Their responsibilities include telephone triage of patient calls and assisting in-hospital residents with hospital work, if needed.

Accurate maintenance of patient medical records and documentation is essential as these are legal documents. Most patient interactions are dictated and transcribed.

Since physicians need to interact significantly with other providers to maximize patient care, it is important that residents possess excellent communication skills. Providers are also dependent on physician extenders (other health professionals such as nurses, social workers, laboratory and x-ray technicians, medical records personnel, receptionists) for speedy, maximal and optimal delivery of patient care. Hence it is important that physician extenders be respected and their services valued.

Residents are entitled to 3 weeks of vacation in each year of residency. They are also entitled to 5 days of continuing medical education (CME) every year, which can be used to attend meetings and family medicine board revision courses.

The “Patient and Physician Safety and Protection Act (PPSPA) of 2001 established specific limits on work hours for resident physicians, and allows residents to file anonymous complaints regarding violations, imposing financial penalties for noncompliance. Under the “common duty hour standards”, implemented by the Accreditation Committee for Graduate Medical Education in July 2003, resident work hours have been limited to 80 hours per week, no more than 24 hours at one stretch, with at least a 10 hour break between shifts and limitation of on-call responsibilities to every third night. Residents are off work at least one out of every seven days, and for at least one full weekend per month.<sup>14,15</sup>

Residency training has a vast scope and involves ongoing acquisition of knowledge and skills. Evaluation is continuous and is conducted during rotations by faculty based on the knowledge, presentation and interaction skills, in the ambulatory care settings by the teaching faculty, and by their performance in presentations in upper level conferences and annual in-training examinations (patterned after the respective Board Examinations).

Completion of training makes the resident eligible to take specialty board exams. Success in the examination conducted by the respective American Board makes the resident Board Certified, and this may need to be updated periodically by passing a recertification exam.

**Socioeconomic Factors.** The financial burden on residents during their residency is tremendous, especially if they have already acquired debts during medical school training, and they have a family to care for. They are paid a regular salary increasing incrementally over the 3 years of their training (~\$36,500-\$39,500). In many states, options do exist to enter into contractual obligations during residency training with state-sponsored bodies, whose primary task is to ensure adequate physician manpower, especially in designated physician shortage areas in the state. Incentives are provided during residency training in the form of monthly allowances, and in many instances the community employing the resident after graduation also repays part of his debt. The resident is obliged to work in the community for up to 3 years after graduation.

While requirements vary among the states, residents (IMGs not on J-1 visas and LCME accredited medical school) may be eligible to obtain a full license from their state's Licensing Board after two years of training and satisfactory passage of

Step #3 of the USMLE. They can then take on sessions in emergency rooms or other acute care situations, away from their residency to supplement their salary. Many residents find this quite remunerative, as they do not have many call commitments during the third year in some residency programs.

**Future Employment.** Physicians still have a great potential to obtain remunerative positions as community physicians or as teaching physicians in a university department. Foreign medical graduates, who are U.S. citizens or permanent residents, should also be able to find rewarding positions with ease. The situation is a little different for IMGs on a J-1 visa. Most employers are not in a position to help with J-1 waivers or sponsor physicians for permanent residency, if they are on a J-1 visa. Also, many residency programs still do not offer H-1B visas to residents. Most U.S. cities and towns have basic amenities, which is conducive to living an active social life.

## **COMMENT**

New medical graduates from India need adequate preparation to enter residency training in the United States because of multiple factors. Our impression forged by our personal experiences as well as interviewing IMGs and watching their progress is that they lack the same degree of in-hospital training, interpersonal skills, and the knowledge to examine and treat women in intimate settings that American medical students are exposed to. Medical school training also does not prepare Indian physicians to function effectively in a different culture, and in a different country.

Most Indian graduates are younger than their American counterparts, have not held a job, and have not interacted socially with all segments of society. They are less likely to consider patients as equals, and have not been trained to talk patients through an examination, or explain illness, medical procedures or prognosis to patients, and are not as knowledgeable of the psychosocial aspects of illnesses as American students. There is also little self-directed learning. Their grasp of English, which is not a means of communication with patients in India, may be sub-optimal and often spoken with an accent, which may be incomprehensible to patients in the United States. Additionally, English may also be spoken as Queen's English, which is also difficult to comprehend for many American patients. Self-effacement and modesty are considered signs of good upbringing in India and so is demonstrated "respect" to one's teachers. Foreign medical

graduates are expected to assert themselves well, seek knowledge actively and "know what they want," well before they enter residency as is the case with their American counterparts.

One senses that those physicians from India who have completed graduate residency training in internal medicine, pediatrics, or OB/GYN, where they have ample exposure to hospital medicine and opportunity to manage patients independently, would tend to perform extremely well in United States residencies, as compared to new medical school graduates. It may be to the benefit of IMGs to train a few extra months to build on their interpersonal skills in the office and hospital settings. It may also be worthwhile for them to incorporate a short program of speech therapy to reduce their accent and improve their communication skills with their patients. Training in communication competencies during medical school has been found to improve student's skills in regard to key patient care competencies- building patient relationship, organization and time management, patient assessment, negotiation and shared decision making- all of which result in positive patient outcomes.<sup>16</sup>

This is not an indictment of the system of medical education in India or any developing country. We believe the shortcomings mentioned are but a reflection of the fact that medical education in most third world countries occur in a different cultural setting, where there may not be much intermingling of the sexes in intimate settings, physician extenders may not be considered social equals and a paternalistic attitude towards patients and patient care may be necessitated by existing poverty and illiteracy.

Controllable life-style issues seem to have become a determining factor in student choice of residency in the United States. Traditional motivators such as prestige or remuneration have been found to exert less influence in choice of specialty by U.S. graduates than work hours or more time to pursue recreational activities.<sup>17</sup> In contrast, opportunity and the need to sustain their life in the U.S. continue to govern the residency choices and site of training of IMGs.

The biggest advantage with physicians from India (as well as most IMGs in the author's experience) is that they tend to respect authority and take orders well. They have few options other than to succeed as their economic and professional well-being depends on it. It is, therefore, imperative that these strengths be taken advantage of and

that IMGs be given the additional training that they need during their residency, (language and communication skills, examination of females, professionalism) so that they can join the physician work force in the United States providing the high standard of care that is expected of their station.

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