Attracting doctors to rural health services of India

The population of India is grossly underserved by healthcare professionals. This is compounded by their inequitable distribution—70% of MBBS doctors are from urban areas and concentrated in urban areas which are home to only 28% of our population.¹ With the spending on health being tripled in the 12th Five-Year Plan (2012–17), availability of funds to improve public health should not be a constraint.² Yet, we need to make fundamental and sustainable rather than incremental or one-off changes.³

We propose the simultaneous implementation of a two-pronged approach to address the shortage of doctors in rural areas: (i) making systemic changes in MBBS/postgraduate (PG) medical entrance examination; and (ii) making rural service an attractive job option. To start with, the allotment of PG seats must be decentralized at the college level. Fifty per cent of PG seats in a college should be reserved for students passing from the same college and selection for these candidates should be based on the aggregate of their MBBS marks in all 4½ years. Those who do not get a PG seat, or not one of their choice, in their college can appear for state/all-India PG examinations, immediately after the completion of 4½ years of MBBS (before internship). The rank obtained in this examination would be considered for PG admission over the next 4 years. That means these candidates would not be permitted to appear in PG entrance examinations for the next 4 years. The first of the 4 years will be internship; the next three years will be compulsory government service either as a 3-year PG course or as a medical officer. Union Public Service Commission examinations for the post of medical officer must be held more frequently than the present practice of once a year. Private practice may be allowed only after completing 3 years of government service.

Once the medical officers have been posted, the onus should be on the government to make rural health services an attractive option in terms of pay, infrastructure, availability of paramedical and support staff as well as career growth. The pay of medical officers should be at par with their counterparts pursuing a PG course. Preference may be given to them for PG seats. Without infrastructure and paramedical support, doctors in rural areas cannot do anything; it will lead to frustration, which is one of the major reasons for the failure of the earlier initiatives—all of which were doctor-centric. Rural/government service should be extended to other professions: the reason being support, doctors in rural areas cannot do anything; it will lead to frustration, which is one of the major reasons for the failure of the earlier initiatives—all of which were doctor-centric. Rural/government service should be extended to other professions: the reason being health status is determined by many non-health-related factors.

The above suggestions will help in the following ways: First, students will aim to excel during the MBBS examinations. Second, they will work during their internship and meet the intended purpose of training. Third, people will be discouraged, at least in the first 2 years of service, from studying for entrance examinations. Fourth, all MBBS students after internship will serve in the health system for 3 years and last, but not the least, it will also prevent brain drain. Although, these options look attractive, it will take a strong commitment on the part of the government as well as doctors to make this plan succeed.

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Hemant Deepak Shewade
Department of Community Medicine
Indira Gandhi Medical College and Research and Institute
Puducherry
hemantjipmer@gmail.com

Kathiresan Jeayashree
jshreek@gmail.com

Jaya Prasad Tripathy
Department of Community Medicine
School of Public Health
Post Graduate Institute of Medical Education and Research
Chandigarh
ijay.doc@gmail.com

Nucleic acid testing among blood donors

I read with interest a recent paper in the Journal on the results of individual donor nucleic acid testing (NAT) of transfused blood in a large blood bank in New Delhi.¹ The authors tested 18,254 consecutive blood donations for serological markers and nucleic acids of three blood-borne viruses (hepatitis B virus [HBV], hepatitis C virus [HCV] and human immunodeficiency virus [HIV]). Of these, 188 blood samples had detectable nucleic acid of one of the three viruses and 181 had serological markers (Table I). Seven specimens had one of the nucleic acids detected in the absence of serological markers. None of the specimens had a serological marker but no nucleic acid.

I have a few concerns regarding their data. First, the authors indicate that they could not do further confirmatory tests for any of the seven donors who had detectable viral nucleic acid but lacked serological markers, because of inadequate sample volume. This is intriguing since, for each of these donors, three pilot tubes with 5 ml blood each were collected; this should have provided sufficient specimen for retesting. Further, since the blood products from donors who tested positive on NAT were not used for transfusion, the authors should have had access to a blood bag (350 ml or 450 ml, depending on donor’s body weight) which could have been used to prepare plasma for further tests—at least serological tests and HBV DNA. Since the authors claim that all the blood units in their blood bank are used to prepare components, plasma had possibly already been prepared and frozen for at least some of the donated units by the time...
the NAT results came in; these frozen plasma units could have been retrieved and used for further tests.

Second, it is well known that a considerable proportion of healthy blood donors who test positive for antibodies to HCV (anti-HCV) or hepatitis B surface antigen (HBsAg) do not have ongoing viral replication and hence test negative for HCV RNA and HBV DNA, respectively. A similar finding occurs in a small proportion of healthy donors who test positive for antibodies to HIV (anti-HIV). Thus, in a previous multicentric study of NAT in the Indian population using the same assay as was used in the current study, 209 of 12 224 blood donors had one or more serological markers (HBsAg 137, anti-HCV 40, anti-HIV 32); however, of these, only 133 had viral nucleic acids (HBV DNA 106, HCV RNA 15, HIV RNA 13). It is thus unusual that, in the current study, all the specimens with positive serological tests tested positive for respective viral nucleic acids too. At the very least, this finding deserved a comment or explanation.

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Rakesh Aggarwal
Department of Gastroenterology
Sanjay Gandhi Postgraduate Institute of Medical Sciences
Lucknow
Uttar Pradesh

Authors’ reply

Our response to Dr Aggarwal’s questions is as follows:

1. The three pilot tubes with the samples were used in the following manner:
   a. The first for blood grouping and antibody screening;
   b. The second for ELISA; and
   c. The third for NAT.

2. Plasma from the third tube was used for initial NAT screening, repeat testing and discriminatory testing as per protocol.

3. The samples used for this study were from our routine blood donors and as per our protocol we discarded all the reactive bags after the initial reactive test. We are upgrading our infrastructure to store reactive plasma samples for further testing.

4. Confirmation of NAT yield samples can only be done by donor follow-up and seroconversion. Efforts were made to contact the seven NAT yield donors but some of them could not be contacted because of wrong contact numbers and others never came for follow-up tests.

With regard to the high seroreactive number in comparison to a previous multicentre study, our reply is as follows:

1. Various serology test kits are available commercially with different generation, sensitivity and specificity. The previous multicentre study was done using samples from eight different blood banks from different regions of India. Different blood banks use different generation serology kits with different levels of sensitivity and specificity. The seroreactive rate in different populations when tested with different kits would be different.

2. We did a repeat test on all the seroreactive specimens as a protocol for our blood screening programme. Chances of a false-positive serology test cannot be ruled out in the absence of a repeat serology test protocol.

3. Incidentally, in these samples we did not find any seropositive but NAT non-reactive specimen. However, subsequently, we did find such samples. We propose to publish those data in the future.

Kabita Chatterjee
Department of Transfusion Medicine
All India Institute of Medical Sciences
New Delhi

Active case detection of tuberculosis by paramedical students

The Revised National Tuberculosis Control Programme (RNTCP) in India places emphasis on public–private partnership for the provision of services for patients with tuberculosis (TB). In addition to the public sector, private resources are utilized for creating awareness, diagnosing and treating patients with TB. Through such efforts, the cure rate has improved to more than 85%. However, attainment of the minimum case detection rate of 70% has proved to be a hard task, affecting the efficacy of TB control efforts. The current global TB control policy emphasizes passive case-finding of patients who self-report to health centres. It is evident from studies that factors such as rural area, geographical access, lack of time, etc. affect the health-seeking behaviour of a patient. We did a study to assess the feasibility of an active case-finding strategy in a rural area by involving paramedical students of a private institution.

A group of 20 nursing students conducted a house-to-house survey and screening for TB in a village with a population of 1438. People above 15 years of age (69%) with cough for more than 2 weeks were motivated to attend the mobile clinic for evaluation by physicians. Among the 28 people (2.8%) who reported, those who were already on DOTs (directly observed therapy, short course; 3) and were known to have bronchial asthma (8) were excluded. Seventeen people (10 men and 7 women) were subjected to sputum examination (median age 45, range 27–70 years). Two sputum samples (spot and early morning) were collected from their houses by the students, transported and examined in the institution laboratory for the presence of Mycobacterium tuberculosis. One woman, 26 years of age, was sputum-positive and was referred to the primary health centre, as a new smear-positive case for treatment. The sputum-negative people were treated with amoxicillin and followed up during subsequent mobile clinics. The overall prevalence of TB cases in the surveyed population was 0.4%.

The success of any national health programme depends on the inculcation of appropriate knowledge and role-modelling of students of medical and paramedical institutions during the training period. With the establishment of many private paramedical (nursing) colleges,
students can be involved in creating awareness on TB in the community, and trained to collect sputum from suspects with TB during their home-based care programme. In fact, nurses are key healthcare providers who make services more accessible to vulnerable and poor people, particularly in the rural community. They offer valuable resources for coping with TB.  

Under public–private partnerships, students from private institutions can be involved in providing TB services for patients, which may yield high rates of treatment success and case detection. For this public–private mix, no special facilities are needed. However, the feasibility of this strategy may need to be tested in different sociocultural settings.

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D. Thirunauakarsu
S. Srikanth
Department of Community Medicine
Sri Venkateshwaraa Medical College
Hospital and Research Centre
Ariyur, Puducherry

A.gomathi@yahooc.in

Choice of specialization among Indian medical students

The article, ‘Future specialization interests among medical students in southern India’ is indeed timely and addresses the long-existing void on factors influencing the choice of specialization of an Indian medical student. While there remains scope for debate on whether India needs more general practitioners or specialty doctors, this study has shown that students vote for further specialization. It prompts us to think how the service of these specialists can be effectively utilized to improve primary healthcare in India. The potential approaches may include wider recognition of family medicine as a specialty in India and also designating specific course content to make other clinical specialties more inclusive of and responsive to the needs of the primary care system.

The authors have discussed many factors influencing the choice of specialization, but we could not help wondering whether income could have been one of the decisive factors in determining the choice of specialization.

One of the major outcomes of this study is that in general, the
majority of students have not indicated pre- and paraclinical subjects as their first or second choices for specialization. This is a potentially worrying trend as it might ultimately create a shortage of effective resource persons in these important subjects. It is possible that the course contents, their clinical relevance and current teaching methodologies of these subjects lead to disinterest among the students. If so, an urgent revision of the same may hopefully change the current scenario. Efforts may be made to encourage interdisciplinary teaching—learning with ‘horizontal and vertical integration’ of the basic sciences and the clinical disciplines as envisaged in the Vision 2015 document of the Medical Council of India. Emphasis on interdisciplinary training might also help to motivate more students in becoming physician—scientists, whose shortage is a recognized global problem.

Lastly, we were wondering if there were any major differences in career choices among students of different semesters. The data if available might add to the understanding of the time-trends in evolution of the choice of the students, and reflect the changes in perspective with years spent in medical school.

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Subhankar Chatterjee
chatterjeeaspiresubhankar.92@gmail.com
Undergraduate student
R.G. Kar Medical College
Tamoghna Biswas
Medical College
Kolkata
West Bengal

Authors’ reply

Our response to the above comments is as follows.

1. Deficiencies of specialists such as ophthalmologists and psychiatrists in India are common knowledge, as well as evident in the Medical Council of India document. We agree that to a large extent the specialist output does depend on the number of seats available. However, when a large number of specialists train in the private sector (157 of 300 medical colleges are private) where fees play a major role, the student’s choice does matter. Students are unlikely to invest a large sum of money pursuing a subject that is not of their interest. Also, if a student does not get admission to an MD or MS seat, he/she has the option of taking a diploma in the subject of his/her choice. Many would prefer to do a diploma in orthopaedics or paediatrics rather than take up anatomy or psychiatry.

2. Many students will indeed end up working in hospitals, as almost all want to do postgraduation. As Dr Singh himself points out, even if the students do not get specialties of their choice such as surgery, they would end up taking anatomy or biochemistry, which obviously means that they would not be working at a primary care level but in some colleges or laboratories in or outside the hospital. Even after diploma, one cannot expect to find them working at the primary healthcare level. The evidence of this is the number of primary health centres as on date that are running without medical officers.

3. We acknowledge that our sample consisted of students from all year batches, and choice of specialty is bound to change as students get exposed to different subjects. Just because the choices change over the years and the students may not get their choice of specialty does not make the students’ preference of specialty totally redundant. It would be better to accept that students are not interested in certain subjects for various reasons and work towards making those subjects more attractive instead of totally ignoring their preference as being inconsequential.

4. As regards the validity of our interpretations, we would like to submit that the objective of our study was not to give reasons for the number of specialists available in various disciplines but to study the students’ preferences of specialty, the factors that influence these choices and what ramifications it may have in the future. One of the consequences to be expected is that lack of interest in some specialties may influence the number of such specialists in the future. In that respect, the study has made relevant interpretations according to its objective and scope. Our study has not suggested that this is the only reason why there is a discrepancy in the number of specialists available in India.

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S.H. Subba
sonuhsubba@yahoo.com
V.S. Bino
M.S. Kotian
N. Joseph
A.B. Mahamood
N. Dixit
A. George
P. Kumar
S. Acharya
P. Reddy

Department of Community Medicine and Family Medicine
All India Institute of Medical Sciences
Bhubaneswar
Odisha

Migration of medical graduates

The Union Health Minister had announced in April 2012 that from 2012 onwards, any doctor going to the USA for higher medical studies would have to sign a bond promising to return to India after completing the study period. The National Commission for Human Resources for Health Bill (Clause 59 No. LIX), presented in the Rajya Sabha in the winter session of 2011, makes it mandatory for any medical graduate pursuing higher education abroad to serve in India for at least 3 years. These developments indicate that the government is keen to retain medical professionals in the country.

Nearly 35 000 MBBS students graduate every year, but there are currently only 22 575 postgraduate (PG) medical seats available in all disciplines. Thus, if all medical graduates wish to pursue postgraduation, there is a shortage of over 12 000 seats. In addition, less than 50% of the seats available are open to general candidates due to various reservations. The high capitation fee charged for PG seats by several private colleges makes the pursuit of PG education...
impossible for most students. Under such circumstances, many students are inclined to migrate to other countries for further training. Some other factors favouring migration are the ‘pull factors’, such as the better quality of life, advanced medical technology, recognition and social benefits in developed countries, and the ‘push factors’, such as low wages, unstable working environments and weak public health systems in developing countries.3–5

Equally important is the fact that there is hardly any framework or infrastructure in India to make the return of these specialized physicians fruitful. It is doubtful that skilled physicians forced to return to India after completing their education abroad will rush to rural and underserved areas, where doctors are really needed. Then there is the even larger question regarding the legality/ recognition of PG medical degrees obtained abroad. Under these circumstances, it remains doubtful whether laws such as those being proposed by the government would be able to pull any talent back to the country. It is not entirely out of place to expect those who have benefited from highly subsidized medical education in state-run medical schools to serve the community. The imposition of such a requirement on those who have paid out-of-pocket and graduated from private medical schools is harder to explain. Moreover, the wisdom of imposing such a stricture only on doctors, and none of the other skilled professionals whom India currently needs, is debatable.

It can be argued that a systemic change can occur only if all the entities involved, i.e. the government, physicians and educational institutions, work together towards effective and sustainable reform of the healthcare system. Financial incentives alone might pay dividends in the short term, but will not suffice to retain a committed workforce in the underserved areas for long.6 While it might appear punitive to put embargoes on the pursuit of higher education abroad by medical graduates, it is a winning proposition to encourage their return by arranging for collaborations between them and the universities at which they trained, in their home country.7 There has been a sudden boom in interest in global health and epidemiology in many medical centres in the West. By collaborating with the health systems in the developing world, these universities abroad could gain from the experience they acquire in areas of interest to scholars of global health. Foreign universities can send their students to teaching sites in the developing world that offer community-based global health programmes and return the favour by providing resources, such as the services of academic researchers, subspecialists, opportunities for professional development and advanced medical equipment, to these institutions. If, however, physicians choose not to return to their home country, the option of a reasonable ‘buy-out’ plan might be a better idea than a heavy fine or bond.

Although caste-based reservations are frowned upon by communities which do not benefit from them, it has been found that the beneficiaries of such reservations are more likely than others to stay in the country. This is probably due to their social situation or the continued benefit they derive from reservation in PG training or employment.8

The changes proposed in this article may actually help reduce the migration of health professionals and even attract them back. The recent turnaround in China indicates that there is light at the end of the tunnel.9 Not only are Chinese scholars returning to the country, but even foreign scholars are making a beeline for it. India’s medical and social problems can be tackled effectively only if policy-makers and politicians join hands to create an environment that is conducive to the unrestricted development of science and medicine.

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Akshay Sharma
Department of Pediatrics
University of Kentucky
USA
mail@akshaysharma.in

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—Editor