Editorial

Need for research oriented medical education in India

There has been a phenomenal rise in the total R&D expenditure in India since independence from about Rs.20 cores in 1958-1959, it went up 400 fold (Rs.8500 cores) in 2004. The number of S&T institutions has also increased tremendously. However, the publication record has been rather disappointing. The number of scientific papers from India included in the Science Citation Index actually fell from 14,983 in 1980 to 12,127 in 2000. Medical research is in a worse shape. Although considered as an important integral part of medical education research gets the lowest priority in the national agenda. According to an ICMR survey of scientific papers published during 1990-1994, almost 20 per cent of the colleges had not published a single paper during this period. The situation has not improved since then. In fact, it has worsened and the number of medical colleges producing not even a single paper has gone up due to mushrooming of new colleges, most of which are often ill equipped.

A number of reasons can be cited for the poor state of medical research in India. At the time of independence (1947) India had just 20 medical colleges admitting about 1200 students. Sixty years later the number of colleges has increased 13 folds and the seats to 30,000. Although, numerically the nation has done well, the quality has seriously suffered. There is gross shortage of resources, both money and trained manpower. Consequently, even the minimum supportive laboratory infrastructure is not available in a large majority of medical colleges. Staff and therefore students are hardly exposed to the expanding frontiers of medicine and biomedicine and have little or no understanding of modern technologies for research. In this atmosphere most teachers lack confidence in writing research project/s. While all funding agencies have major programmes for medical sciences, there are very few takers. Starting from the Bhore committee (1943), several committees have been appointed to look into health manpower development with emphasis only on the service sector. Hardly any attention has been paid to medical research. No committee/commission has addressed the critical issue of integrating advances in medicine and biomedicine into medical education and research to make the students globally competitive.

But there are several indicators to show that future is bright. Medicine continues to attract the best brains. A fair number of students (roughly 5%) are also interested in research as is evident from: (i) Progressively increasing popularity of the ICMR Short Training Studentship (STS) programme. In the four-year period 2005-2008 the number of STS recipients has increased from 496 to 809, an increase of 163 per cent. (ii) Continued interest of students in highly successful National Medical Students’ Research Conferences, which were focused on undergraduates. The first two Conferences were held under the banner of the Moving Academy of Medicine and Biomedicine in Pune in October 2006 and in February 2008. Students’ presentations at the conferences were of fairly good quality. The third conference, which is entirely managed by students, was held in Kasturba Medical College, Mangalore, in June 2009, and (iii) Students’ feedback at the second conference at which they passed a resolution to form an all India body, the Indian Forum for Medical Student Research (INFORMER).

This is perhaps the most opportune time to develop and strengthen the concept of “Research oriented medical education”. A beginning could be made through the following programmes.

1. Special programmes for the STS winners
   a. Unfortunately, of the 613 STS awardees of ICMR of 2007 only 190 (30%) could participate in the second medical students’
conference. Every STS scholar should get an opportunity to present his/her work, which is, in fact, a part of research training. This would be best achieved by conducting a number (say 6 to 8) of zonal/regional Medical Students’ Research conferences. From each of the Regional Conference 10-15 best papers could be selected for presentation at the National Conference.

b. To improve the performance of the STS awardees it is necessary to conduct short duration (3-4 days) regional training workshops on research methodology including biostatistics, laboratory medicine, clinical research and medical ethics before they start their STS projects.

c. Further, depending on the nature of the project, the recipient should be provided laboratory facilities to conduct his/her project. Majority of our colleges do not have even the minimum research infrastructure. To facilitate laboratory oriented research it would be desirable to create moderately equipped regional “Laboratory Research Incubators” which would offer laboratory facilities for the STS students. The incubators could also be used by postgraduates in the region for the MD/MS theses work.

2. It is time that we think of “Research training” as an integral part of the MBBS curricula by introducing a short duration (one week) research-training programme as a regular part of MBBS syllabus. It should be conducted at the beginning of the Internship so that students do not face additional examination burden. This will ensure that those interested in research are benefited.

3. In several quarters, there are discussions that India should also adopt the MD/PhD (MBBS-PhD in India) programme, which is offered today by more than 100 medical schools in USA. Some 600 (4%) MD enrollees opt for MD-PhD programme and this number has remained more or less steady for the last 20 years. Although it is showing some promising results, it still has a long way to go. MD/PhD course is about two to three years longer than the MD course. This would have some serious implications to India, where recruitment, as the rule, is at the lowest level of the ladder and promotion is largely by seniority. Lateral entries, if any, are exceptions. If the course were to be implemented in India, students opting for the combined MBBS-PhD degree will always remain junior to their classmates taking only the MBBS. The second problem is that majority of medical colleges do not have resources to conduct such highly research oriented course in India. In spite of these limitations there is a need to conduct MBBS-PhD programme in well-equipped medical institutes (such as AIIMS, New Delhi and CMC, Vellore) to provide opportunity to highly motivated research oriented students. In major cities like Bangalore local medical colleges could join hands with leading biomedical and life science institutes such as the Indian Institute of Science and National Centre for Biological Sciences to jointly conduct the course. However, considering the ground realities, ‘in-study’ research training programmes that will run concurrently with medical studies will have larger appeal and should be promoted on a priority basis in India.

4. One such programme is “Kishore Vaigyanik Protsahan Yojana (KVPY)”. The programme runs concurrently with undergraduate medical studies and therefore unlike the MD (MBBS)-PhD programme will not increase the duration of the studies of the recipients. KVPY, which is still not attracting the expected number of young medics, needs wider publicity.

5. Special efforts should be made to strengthen research training at the postgraduate level. MD/MS, the two postgraduate degrees awarded in India, are equivalent to ‘Residency’, which is a totally hospital service oriented programme of the American Board system. On the other hand, MD/MS programme is unique, as it combines service and research. Students not only have to go through rigors of clinical training but also have to write a small dissertation/thesis as an essential component of the course. Unfortunately, majority of MD/MS theses are of poor quality mostly for want of proper investigative facilities and lack of training in research. To improve quality, two pronged action is required i.e., introduce 6 to 8 wk compulsory research training courses as a part of MD/MS syllabus, and establish regional ‘Laboratory Research Incubators’ with free access to the postgraduates in the region.

It may take several years to establish research oriented educational programmes both at the undergraduate and postgraduate levels in our medical colleges. In the meantime a beginning could be made through ‘out-reach’ programmes such as ‘Mobile workshops’, a highly successful concept developed by
the Academy in the last few years\textsuperscript{10}. The concept has now been extended to research training including hands-on training in lab medicine for which even the necessary laboratory equipment is transported to the host institute from the Academy’s training center in Pune. It is hoped that this approach will be adopted nationally, with the help of leading medical institutes of the country. Help could also be sought of biomedical and life science research institutes as well as specialty organizations such as Tata Memorial Center, Mumbai.

Even six decades after independence, medical research, which is the mother of new knowledge, has remained a non-issue. If India were to emerge as a global leader, the emphasis must shift from ‘importing’ knowledge to indigenous generation of new knowledge. This cannot be done without developing research oriented educational programmes both at the undergraduate and postgraduate level. A major challenge for the newly formed Department of Health Research, Ministry of Health and Family Welfare, is to catalyze such programmes. The time to act is now.

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