COMMENTARY

Medical education at national S&T institutes

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Indian higher education is undergoing a reform. The Indian Institute of Science (IISc), Indian Institutes of Technology (IITs) and some Central Universities (CUs) have excelled in higher education and research in the country. The Government of India (GOI) has started six National/Indian Institutes of Science Education and Research, 9 IITs and 19 CUs in the last few years.

In the post-independence era, the growth in medical education in India has been negligible compared to S&T education. India has not established any medical institutes in the past few decades, as it has in the field of S&T.

In medical education, the focus has been on producing more doctors to cater to healthcare services rather than tapping the potential of medical research. Medical research is predominantly neglected in majority of the medical colleges in India, or is undertaken at only a few institutes such as AIIMS, PGIMER, Chandigarh and NIMHANS, Bangalore. Though a handful of medical institutes in our country are 'referral centres', in reality they are loaded with clinical services.

The medical faculty at medical institutes are performing three roles – of clinicians, academicians and researchers, with focus of activity in the order of clinical services, academics and research. Medical graduate education has a lengthy curriculum, which is neither completely clinical in nature nor research-oriented, but is only theoretical[1–4].

The generation of new knowledge through relevant health research is paramount to improve the health of the Indian population. Dandona *et al.*[5] reported that the output of health research from India does not correspond with the disease profile and burden. The quality of research in academic medicine and medical faculties is affecting healthcare delivery in India[6,7]. Research experience in medical colleges has been shown to be related to success in academics[8]. Sadly, the medical faculty are not confident to carry out research, as they have not been exposed to research activities during their training. This is reflected in the quality of thesis by their students and their publications. Medical students should therefore be encouraged in the early stages of their careers to carry out research[9].

There are recent trends in which medical institutes (like AIIMS) and non-medical institutes (like Manipal University) offer medical courses with various specializations in science degrees (B Sc and M Sc). The Medical Council of India has also allowed the recruitment of faculty with a Ph D in pre- and para-clinical subjects. Many medical institutes (AIIMS/PGIMER/JIPMER/NIMHANS) are successfully granting Ph D degrees in all medical subjects. There is a new development of emerging cross-interdisciplinary courses. SCTIMST, Thiruvananthapuram and CMC, Vellore have started M Tech and Ph D in biomedical engineering for engineering graduates. IIT-Madras has started M Tech and Ph D in clinical engineering for engineering graduates. IIT-Kharagpur has started the School of Medical Science and Technology and is offering interdisciplinary three-year Masters' programme in medical science and technology for MBBS students and four-semester M Tech programme in medical imaging and image analysis for B Tech/B E candidates.

A serious attempt is being made to attract medical students to basic research with the proposed M D/Ph D dual programme in India[10]. This programme is not likely to attract medical students for two reasons. One reason is the highly variable duration of Ph D ranging from 3 to 8 years[11], and the other is the negligible amount of scholarships available.

Studies show that prolonged delays in training medical students to carry out research in dual M D/Ph D programmes are associated with poor subsequent clinical knowledge[12]. The policy should therefore be to develop research-oriented medical courses. Traditional technical institutes like IITs and the newly established CUs (in Karnataka, Odisha and Gujarat) are keen to establish medical colleges. The already existing CUs like Banaras Hindu University, Aligarh Muslim University and University of Delhi are already running medical colleges. The trend of these cross-interdisciplinary developments related to medicine should be used for a better development of medical research.

The following changes may be considered for a rapid growth of medical education and research in the country.

1. IISc/NISER/IISERs/IITs/new CUs shall be allowed to start medical colleges (faculty of medical sciences).

2. A division of medical education into clinical and research, with each department conducting dual academic programmes (clinical and research medical programmes) recruiting dual faculty (clinical and research).

3. A research division of medical education that shall have Bachelor's/Master's/doctoral medical research programmes. This way, the proposed M D(MBBS)/Ph D dual degree can be promoted. Time-bound Ph Ds (say, for 3 years) in medical subjects shall be promoted.

4. Revamping of clinical division of medical education in the existing medical courses as 'clinical medical programmes'.

5. Reducing the minimum experience for entry-level recruitment of faculty. The minimum requirement of three years of senior resident or postdoctoral experience after the qualifying degree (MD/MS/Ph Ds) for recruitment of assistant professor shall be reduced to a minimum of one year to attract young talent. However, research-oriented clinical faculty may be allowed in the research division.

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