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Perspective

Funding opportunities for research in India

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ABSTRACT

While the overall scientific publications from the country has improved in quantity and quality over the last decade, publications from medical Institutions continues to be poor. Only a handful of colleges engage in and promote research. There is frustration regarding the lack of financial support for research. This article discusses the reasons for the lack of research in medical colleges, the sources for funding and provides inputs for improving the research climate in the medial education field.

Although much has been achieved by Indian science in the last two decades, this has been less than many of the other developing nations. A series of articles recently published in Nature highlights the highs and lows of the current status. A telling static is the number of full time researchers per 10,000 work force in which India (4) ranks below Kenya (6), Brazil (14) and China (18) and far behind the science leader USA (79).[1] It is clear that scientific research in India has not had a high status, and the consequent lack of social recognition for scientists and very little public appreciation for science has meant that the best of our youth are not attracted to careers in science. This has a cascading effect on the quality of the scientific endeavor. Governmental funding for science, in spite of the many promises, has stayed at a static 0.9% of GDP for over a decade.

The scenario for medical research is far worse. Only a handful of medical Institutions are engaged in research, and based on scientific output, only two (AIIMS, New Delhi and PGI MER, Chandigarh at 143 and 240 respectively) are in the list of top 500 Institutions in the rankings by SCIMAGO for the Asiatic region.[2,3] This is in spite of the fact that, unlike in science, medicine is a highly respected field and the best among the youth compete for medical admissions.

There are a number of reasons for the poor state of research in medical Institutions. First, is the nature of the training itself. The undergraduate training programs are highly didactic, adhering to a centrally monitored curriculum that has seen very little change and no innovation over the years. Since the majority of medical services are accessed through the private sector and these have progressively become specialist oriented, the aspiration of young medical graduates is to specialize and few opt for an academic career.

Second, is the lack of a research culture in medical colleges. The majority of undergraduate (UG) and post-graduate (PG) training is now in private colleges which make no investment in research. During the UG training students are not exposed to any research or provided any basic training in research methodology. During PG training there is a mandatory thesis, which is mostly a farce and justified by Medical Council of India (MCI) and National Board of Examinations which awards

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the DNB certificates, for 'providing grounding in research'. However, with no Institutional culture, it makes the young doctors shun rather than embrace research in their later careers.

A third and important factor is a huge absence of role models for young students. The MCI, in the name of promoting research, mandates 4 research publications for promotion from Assistant Professor to Associate Professor and 4 for promotion from Associate Professor to Professor.[4] Since, by this policy, everyone becomes a Professor within 8 years of getting a PG degree, there is little incentive for doing any research for the rest of a long career, which today can go up to 70 years. The job of the medical teacher fails to attract the brightest graduates. Medical teachers have to be in full time employment of the college as per the MCI rules. With poor renumeration, especially in the Government sector, it is a low career choice for most young doctors. Even in developed countries, full time teachers and researchers receive far lower remuneration as compared to their clinical counterparts. However, motivation comes from the status that goes with research and its role in career advancement in their system.

And finally, the lack of emphasis on basic sciences in the medical education eco-system, is a major impediment for generating a research culture. Conceived many decades ago, the role of the basic scientist in the pre- and para-clinical departments is tightly restricted by MCI. This is not the usual global norm and in countries with a robust medical research climate, medical schools are in University campuses with an active basic research scientific community. This generates a healthy collaboration with the busy clinicians, who themselves may not have the time to spare for little more than clinical research. The isolated stand alone medical college model that has been encouraged in the recent past, is not conducive for establishing a healthy research environment.

And of course, a common refrain is the lack of funding for research. This refrain is partly justified and partly stems from lack of information. Actually, in spite of overall low science budget, because of the low number of active researchers, funding per researcher (adjusted for purchasing power) in India is close to China and higher than Canada and UK.[1] Of course, fewer doctors access funding, but when they do, the quantum is almost at par with scientists anywhere. So, what needs to be addressed is why doctors do not access the available funds.

In this article I will discuss the various sources of funds in the light of their accessibility to medical professionals. There are both national and international agencies that provide funding support for research.

1. National sources

Within the country funding support is predominantly from the Government sector. There are ten Government departments/Ministries at the center that are involved in scientific research (Table 1) and six of these have programs for biological research. In addition, many of the States have Science and Technology Councils, which support research activity within the State.

Table 1 – Departments or Ministries of the Government of India that are allocated Research budgets.

Department of Atomic Energy
Defence Research & Development
Ministry of Earth Sciences
Ministry of New & Renewable Energy
Department of Science and Technology
Department of Scientific and Industrial Research
Department of Biotechnology
Department of Space
Department of Health Research
Department of Agricultural Research and Education

There are two major types of funding routes – program based and ad hoc. For program based funding, Departments through various consultative mechanisms develop specific programs based on the national needs and priorities. Applications are then solicited, and selection is based on the credentials of the applicant group to meet the objectives of the program. Ad hoc projects are more individual based and time bound and funded on the merits of the particular research question that is addressed.

1.1. *Department of Health Research*

This is the primary source of funding for biomedical science. The mandate of the Department, as the name suggests and as stated in their website, is focused primarily on research. However, this department has the lowest budget among the 10 science departments, and in the 2015–16 budget it was nearly 1/10th of that for Department of Atomic Energy. The limited budget is disbursed by administrative decisions taken by the Government, based on their perception of how to boost medical research. The only ad hoc funding for researchers is through the Indian Council of Medical Research, which comes directly under the Department of Health Research. The ICMR has major program based projects in all their thrust areas.[5] Their priorities are for the national health problems and they do not usually place public calls for proposals but identify the centers that can fulfill targets of their program. Ad hoc proposals, however, are accepted through out the year and are evaluated by expert panels, convened for each specialty area.

1.2. *Department of Science and Technology*

This is the apex science department of the Government and funds all the branches of science. It has over the last few years pro-actively worked to enhance science teaching at all levels and supports the up gradation of the standards of science through a large variety of programs. These include fellowships at all levels, infrastructure support and various schemes and awards to attract Indians working abroad. The Department a few years ago, introduced a special scheme which provides ad hoc research grants to women scientists who have had to move out of research careers for personal reasons, in order to facilitate their return to research.

The Science & Engineering Research Board (SERB), an autonomous Agency of the Department, give generous ad hoc funding. Biomedical projects would qualify under two of their

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