Editorial

Role of Medical Colleges in Research in Rural Areas: Time for New Thinking

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India is rapidly opening new medical colleges. Prime minister Mr. Modi recently reiterated the vision of one medical college per district. India has 739 districts. Many cities have 3 to 5 medical colleges. So finally, India may end up with something like 800–900 medical colleges and about 160,000 medical seats if one assumes each college to have an average of 200 MBBS seats. Many of these colleges will be in rural India, which is good. The quality of health care delivery will improve if there is a medical college in a district.

Only some medical colleges do good quality research in India. In such good colleges, even clinical departments research the community with community medicine departments and the district health system. There are many reasons why medical colleges do not do much research. Some of the reasons are –

- No tradition and culture of research,
- No regulatory or management requirement for it,
- Not much funding for it,
- Clinical staff too busy in clinical workload and hence no time for research,
- No or poor quality statisticians
- Poor medical records departments,
- Poor quality laboratories are not fit for the research,
- No political or administrative priority or appreciation.
- Regulatory roadblocks such as the need for registration under Foreign Contribution

Regulation Act (FCRA) and permission for each foreign-funded project by Health Ministry Screening Committee (HSMC) both of which are not easy to get for it, 10 no-availability of government permission to use data from public hospitals, statutory registration data such as registration of births and death and public health programs.

Time is changing and with COVID pandemic, there is much interest and realization for the need for local epidemiological data, research, and analysis of the pandemic. There was excellent research by Indian Council of Medical Research (ICMR) and Bharat Biotech, Serum Institute, and Zydus Cadila, other companies that led to indigenous vaccine development. Using this pandemic as a catalyzing event, young medical college faculty members should start researching health in the community. First should be an analysis of the covid data from local hospitals and rural health centers regarding type of morbidity and mortality in covid and understanding the effects of long COVID. We have conducted a systematic review followed by very simple data from one district by telephonic survey in covid epidemic to find our secondary attack rate of covid. To our surprise, it was quite less in first wave at about 5-15%. This helped the government make policy for home isolation of cases. This reduced the burden on the hospitals.[1,2]

To encourage research, ICMR had a program to set up a research cell in each medical college. Such cells will help clinical and nonclinical departments to do research. The cell will have a statistician, data analysts and some support staff to help collect and analyze data. Our medical colleges have many data on the patients treated there that can be analyzed and published in papers. They can also do clinical research and drug trials if more support is available. High patient load in India, resident doctors and students are plus points for health research which as a nation we should leverage to become "Vishva Guru" in health sciences.

Medical college preclinical departments like physiology, biochemistry, pathology, pharmacology, etc., develop their research programs if funding is available, labs can be upgraded, and staff is willing to take responsibility. In the western world, medical colleges do a lot of research that governments and private philanthropists fund. There are examples of research on physiology that have won Noble

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prize in the western world. The Indian government has set up its research labs and organizations such as various institutes of ICMR and other government departments such as Council of Scientific and Industrial Research (CSIR), Defense Research and Development Organization (DRDO). Hence there is not much money from ICMR or other organizations for extra-mural funding to medical colleges or universities. Hence medical colleges are not able to get much research funding. Secondly, even prosperous states do not see health research as their priority and hence do not fund research. Industry funding of research in medical colleges is also limited except for drug trials. In western countries like the USA, much of the government research funding is diverted to universities and medical colleges as they do not have many government-run research institutes.

There is substantial scope for research in rural areas as very few studies focus on rural problems. Small research studies can be taken up by interns, residents and faculty of community medicine departments who work in rural areas. They can work with district health officers and rural government and private health systems to collect data on a topic and publish it. But this needs guidance, motivation, and willingness to do some systematic hard work. There is also much secondary data and field experience gained over the last 2 years during the covid pandemic. This also should be analyzed and published. It will provide more scientific information on the pandemic so that it can be prevented in future. Unless we publish the analyzed data the world cannot learn from it. Today's medicine is increasingly dependent on evidence-based therapies; research and evidence have become crucial. Good research can change policies and programs.

Here, I would like to give some examples of Indian Institute of Public Health Gandhinagar's simple research on heat-wave related mortality in Ahmedabad city. We documented the sharp rise in all-cause mortality in Ahmedabad in the 2010 heat wave using data from city's registrar of birth and death (RBD). It showed that during one week of 19–26th May 2010, the all-cause mortality rose from 100 per day to 300 per day. This was the week of heat wave without any other epidemic so we can attribute this rise in mortality to heat wave. This was the first time in south Asia that such high mortality was demonstrated by research during heat-wave.[3] Following this, we helped the municipal government (corporation) of Ahmedabad to develop Heat Action Plan (HAP) with help from NRDC USA and other partners. This plan was implemented in each year starting from 2013 onwards. The plan was based on learning from such efforts from USA and Europe with needed adaptation. This plan became a model heat action plan and was adopted by National Disaster Management Authority (NDMA). The plan details and challenges faced are described in a paper by Kim *et al*.[4] Following the implementation of this heat action plan for some years. We evaluated using data from IMD and city birth and death registration office again. This showed a substantial reduction in heat-wave related mortality in Ahmedabad city.[5] This demonstration of the plan's effectiveness was used as advocacy material for the national scale-up of the plan via NDMA. This shows how simple mortality data can be used for research, leading to local and national action. Such analysis and research can be done in each medical college in their city or rural area. Climate change is just starting; research on it at this stage can help reduce its impact in the future.

In conclusion, there is much scope and need for research in rural areas, which the medical colleges can and should take up. Besides providing new knowledge to society, research provides much more satisfaction to the researchers and recognition and professional prestige. The government and technical agencies always recognize faculty with good research track records like WHO, and other UN agencies like UNICEF and world Bank as experts. This can provide future career opportunities to young professionals. The research has multiple benefits to society, college, and individuals. Hence, all medical college faculty should try to do their best possible research contribution.

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