

EDITORIAL

Grooming Future Doctors With Research Based Medical Curriculum

Muhammad Irfanullah Siddiqui

Content of the medical curriculum is the hottest issue which is confronted by most of the educationist, both in developed and developing countries. Traditional medical curricula were designed in such a vogue that student should take benefit of the knowledge of the earlier physicians and then apply the same to treat his patient while stressing on memorization of the differential diagnosis, as suggested by the senior physician, based on their experience. This approach focused on training the future doctors to apply the already searched knowledge in the field without thinking critically about the other unknown factors influencing the outcome of the treatment and based on long didactic lectures. This system of training discouraged out of box thinking approach and physician were used to miss many factors directly or indirectly related to disease but not reported in the text. Research was considered as field reserved for post graduate students and most of the physicians did not know even the basics of research and with their busy clinical practice had no opportunity to train them-selves regarding the principles of research, to report the special problems of the patients, to identify new risk factors and to suggest their solutions. With the passage of time and advancement of technology, some of the physician started to apply scientific approach to solve the medical issues. However most of the physicians trained by the old stem of medical education were following memory based methodology of diagnosing and treating the disease. Though many of these physicians observed various factors in their clinical practice, which may be causative factors of disease and tried to report them to the relevant authorities, in order to design, control policy, to eliminate or minimize the factors responsible for morbidity and mortality but no ear was given to their effort as their results were not based on scientific study, by no fault of them. It was the system of training which had no systematic and scientific approach to record the disease related factors objectively. There were many intelligent physicians who wanted to analyze the risk factors but their work went unappreciated and unpublished because of lack of scientific approach. Many of work done had no proper study design to answer the relevant questions. Some work was lost because of inappropriate sampling

✉ **Professor Muhammad Irfanullah Siddiqui**

Department of Community Medicine and Pilgrim Services

Faculty of Medicine, Umm Al-Qura University

Al Abidia, Makkah Mukarramah

Post Box 7607.

Saudi Arabia

Received: November 15, 2013 Accepted: December 10, 2013

technique and some had inadequate sample size. Few studies did not control confounding factors, while some other had introduced bias in the study due to inadequate knowledge about the risk factors. All this resulted in loss of huge data which could have been used beneficially to solve the serious medical issues.

Considering the above mentioned deficiency in the medical curricula, it was suggested that medical students should right from the beginning be sensitized about the principles of research and trained in the field in order to empower them to manage and solve the issues of the community, by applying systematic and scientific approach. There is paradigm shift of physician role as simple health care provider to seven star doctors having trained as leader, manager, decision maker, health care provider, communicator, researcher and life-long learner. This required changes in curriculum which gradually shifted from traditional didactic lecture based technique to scenario based teaching, problem based learning, ethics in medicine, integrated curriculum, community oriented and community based teaching and evidence based medicine. Considering this need the developed countries have completely changed their curricula, bringing the research element as small research project even at primary level. The conduction of research in the early years of medical curriculum have immense benefits and have more far-reaching consequences than immediate outcome of paper presentation and publication. Having research papers and/or recommendation of the mentors, increases the chances of getting residency and thus contribute to sense of satisfaction, happiness and achievement to the student. It also adds to the prestige of medical school. The training in research develops and enhances student's ability to critically and objectively analyze the problems and help him in future decisions. Learning laboratory methods helps him in clinical decision making and judicious use of diagnostics, sample collection and outcome. Further a research experience in medical school helps those physicians who want to become researcher, in designing new research and equip them for identifying new risk factors and thus decreasing the morbidity and mortality. It's very unfortunate that in the developing countries like Pakistan and Brazil, most of the medical schools are still training their medical students using the traditional curricula which emphasize on memorizing the knowledge and discourage out of box thinking. Though the current curriculum, recommended by Pakistan Medical & Dental Council (PMDC) for MBBS students contains 25 marks for the research project and stressed on inclusion of research training as essential component of undergraduate

training for the production of seven star doctors but there are many constraints in implementing it. There was no time allocated for practical research in the field settings in the curriculum. Oliveira et al. 2011 conducted a study to find out the perceived reasons by the students for the lack of research in medical education and found lack of institutional motivation as the most important reason followed by defective infra-structure, lack of professor time to mentor under graduate students, non-availability of personals with appropriate skills and lack of student's interest. Lack of specific time allocation in the curriculum, lack of credits for the time and efforts involved in research, delayed or no permission from administration/ethical committee are some other factors which may act as barriers.

Collar in 2012 described a "John A Burns School of medicine" (JABSOM) model for the involvement of students in research and stressed the need of allocation of dedicated block of curriculum time for a research rotation¹.

Another model was adapted by Baqai Medical University, Hamdard Medical & Dental College, and Karachi Medical & Dental College etc and was followed by Bahria University Medical & Dental College (BUMDC) with innovation. This is a method of training students so as to become future research oriented seven stars doctors. The training of students started right from first year of MBBS at BUMDC with sensitization about the basic concepts of research methods, epidemiology and biostatistics followed by brain storming sessions to identify the research problems in the country and community context. Each group has 5-6 students being supervised by one mentor from Department of Community Medicine. Students are facilitated in understanding methods of good literature search and development of research protocol, Performa and questionnaire as well as learning laboratory techniques, depending upon the type of study planned. Students collect data, enter and analyze it under guidance of mentor, write report and submit to the department, which has specific marks in their final examination. The projects are presented in front of a panel of educationist and editors of journals. The students are rewarded with prizes and certificates for good scientific presentation. Students are further encouraged to write papers and get them published. There is progressive improvement in quality of research conducted by students and supervised by mentors. Some of these student's researches published in the reputed journals indexed by National Library of Medicine.

It is high time that teaching research methodology along with epidemiology and biostatistics should be included in the MBBS curriculum as a separate subject with allocation of specific hours, and under the supervision of Department of Community Medicine in collaboration

with basic and clinical health sciences. It should be made obligatory for all students to conduct a supervised research in order to qualify for the MBBS degree. There should be a dedicated block of curriculum time for research rotation in various department jointly supervised by Department of Community Medicine and the concerned department of basic and clinical sciences. Courses offered should have credit hours that must appear on student's script. The students work should be presented in seminars organized for the same purpose and selected research, in the form of paper or poster presentation should be rewarded by giving certificates and awards. Renewal of Medical license should also be conditioned with at least one research paper in three years of practice. This will help in developing research culture in the country. It has been observed that in those medical institutions where training about research methods are essential components of teaching and conducting research is a requirement, the students take a lot of interest in field projects. This could be beneficial for lifting up the standards of community in future.

REFERENCES:

1. Collar AC. Importance of research in medical education. *Hawai Journal of Medicine & Public Health* 2012;71(2):53-6
2. Iliyas M, Khan IA, Malik GQ, Siddiqui MI, Hansotia MF, Thaver IH, et al. *Public Health and Community Medicine*. 8th ed. Time publisher Karachi. 2013:16
3. Colliver JA. Effectiveness of problem-based learning curriculum: Research and theory. *Acad Med* 2000;75:154-64
4. Dehaven M, Gimple NE, Dallo FJ, Billmeier TM. Reaching the underserved through community based participatory research and service learning description and evaluation of a unique medical students training program. *Journal of Public Health Management and Practice* 2011;17:363-8
5. EDITORIAL. Evidence based medicine: what it is and what it isn't. *BMJ*. 1996; 312:71
6. Rios E, Simpson MC. Jr. Curriculum Enhancement in medical education: teaching cultural competence and women's health for a changing society. *Journal of the American Medical Women's Association* 1998;53:114-20
7. Editorial. Integrated Curriculum. *J Pak Med Assoc*. 2001;51:59-60
8. http://www.ehow.com/facts_7502293_primary-research-project.html [Accessed November 5, 2013]
9. Oliveira NA, Luz MR, Saraiva RM, Alves LA. Students view of research training programmes in medical schools. *Medical Education* 2011;45:748-55

10. <http://www.pmdc.org.pk/LinkClick.aspx?fileticket=EKfBIOSDTkE%3d&tabid=292&mid=849>[Accessed November 5, 2013]

11. Fisher WR. Medical student's research: a programme of self education. *J Med Educ.* 1981;56(11):904-8