

Medical Education

History of medicine in undergraduate medical curriculum in India

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ABSTRACT

History of medicine is rich with the achievements and successes of years of research and development. The Medical Council of India incorporated teaching 'History of Medicine' in the undergraduate medical curriculum in India nearly a decade ago. Despite being included in the medical curriculum by the Medical Council of India, it is not yet a part of the teaching curriculum in the top-ranking medical institutions. Teaching 'History of Medicine' to undergraduate medical students may be a good divergence from the fact-based teaching of undergraduate medical curriculum. It will also help students cherish medical achievements of the past and inculcate in them a sense of pride and belongingness to the medical fraternity.

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INTRODUCTION

Thomas Fuller, an English historian, said: '*History maketh a young man to be old, without either wrinkles or grey hairs; privileging him with the experience of age, without either the infirmities or inconveniences thereof.*'¹ Medicine, as we know today, evolved from the works of centuries of what we may call major and minor breakthroughs. Less than 200 years ago, patients were subjected to restrain and immense pain for even a minor surgical procedure until the anaesthetic property of ether was discovered and used by Crawford Long in 1842.² Edward Jenner's work on the development of smallpox vaccine,^{3,4} a disease that killed nearly 10% of the population at that time,⁵ is a monumental milestone in the evolution of medicine. Subsequently, smallpox was eradicated and now remains a part of textbooks only.⁶

History repeats itself, and we must make it our goal to learn from past experiences. Lessons from the past success and even past failures pave the way for future development. The examination of historical manuscripts with perspective of their context teaches how to assess evidence and interpret conflicting evidence.⁷ During the early 20th century, it was popularly publicised that cigarettes were good for health, and even physicians were using them. Cigarette brands were featured in popular medical journals and physicians endorsed them publicly. Brands were funding medical conventions and also funding research to substantiate their claims of the benefits of cigarette smoking.⁸ It was later that multiple clinical studies established

the direct and indirect relationship of tobacco smoking and cancer, and ended the corporate interference of tobacco marketing in the medical sphere.⁹

As noted by Cordell, 'History of Medicine' should be taught in medical colleges because, not only does it increase knowledge and curiosity, it also teaches students on how and what to investigate.¹⁰

James Lind, an English naval physician, was the first to establish that scurvy was cured by citrus fruits in a controlled trial among sick sailors, who recovered by taking citrus fruits and their juices. However, in the following years, he became convinced that citrus fruits offer no cure from scurvy.¹¹ This was because, instead of fresh juice, he was providing boiled syrup of orange to the sailors. Not knowing the chemical properties of the vitamin at that time, he himself dismissed the utility of citrus fruits in the treatment and prevention of scurvy!¹² This shows us that there is a great deal of learning from even errors of the past, which can only be acquired by medical undergraduates from the rich 'History of Medicine'.

The Medical Council of India (MCI), the apex regulatory body for medical education in India, incorporated teaching 'History of Medicine' in the undergraduate medical curriculum, i.e. the MBBS curriculum, nearly a decade ago.¹³ Chapter 1: Clause 2, under the heading of 'General consideration and teaching approach' of the MCI Regulations on Graduate Medical Education, subclause 19 states that: '*The students will be given an outline on "History of Medicine". This will be taught in an integrated manner by subject specialists and will be coordinated by the Medical Education Unit of the College.*'¹⁴

We focus on the importance of teaching 'History of Medicine' in the undergraduate medical curriculum (MBBS) and also examine the existing models which can be used to do so. Finally, we provide information on the existing scenario of teaching 'History of Medicine' to medical undergraduates in India.

WHY TEACH 'HISTORY OF MEDICINE'?

Amidst reports of professional burnout among medical students,¹⁵ and depression and stress among them,¹⁶ one could ask if introducing this additional topic is really the need of the hour.

The undergraduate medical curriculum today is flooded with subjects which serve scientific facts per se. Understanding the ordeals of the past, and the struggles attached to those facts is expected to inculcate a sense of pride and identity in the physicians of tomorrow,¹⁷ making the subject easier to comprehend and retain.

Medicine is both a science and an art, which is perfected over time.¹⁸ 'History of Medicine' is also plagued with sordid tales of physicians who practised unorthodox, often barbaric, therapy. The violations of ethics by Nazi physicians, and their subsequent trials in the famous 'Nuremberg trials', laid the foundation stone

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of the Nuremberg code of ethics, which holds true for ethics in medical research till date.¹⁹ Exposing medical undergraduates to these instances can prevent such reprehensible acts from happening again. Thus, the study of 'History of Medicine' would help to reinforce humanitarian qualities among doctors.²⁰

The medical literature is a gold mine of overlooked discoveries and unexplained hypotheses. It has been established that Sushruta, considered the father of surgery in India, used extraocular cataract expulsion as early as 600 BCE.^{21,22} Over a period of time, this knowledge and skill was lost, and cataract became one of the leading causes of blindness worldwide until the method was discovered by a French surgeon Jacques Daviel 2000 years later in 1747.²³ Within the next two centuries, the medical fraternity has refined this procedure to such an extent that cataract surgery is one of the most commonly performed eye surgeries worldwide.²⁴

Medical discoveries are laced with instances which amuse and inspire at the same time. One such instance is the discovery of anaesthetic properties of ether in the middle of the 19th century. Crawford W. Long knew about the exhilarating properties of ether, which was used recreationally at that time, in '*ether frolics*'. He observed bruises on some of the participants, who had been unaware of pain. Long reported that he inhaled ether for its exhilarating properties on numerous occasions. Frequently, at some short time after the inhalation, he discovered bruises or painful spots on his body, of which he had no recollection of causing. This led him to use it as an anaesthetic in a tumour extraction. The patient, Mr James Venable, had no recollection of the surgery and had to be shown the extracted tumour to make him believe that the surgery had indeed been done. Long's observant nature combined with his willingness to end the misery of pain during surgical procedures was the first step in anaesthesia, which is now a core medical specialty.² Such instances inspire medical undergraduates to broaden their perspective and deal with problems with simple and innovative solutions.

With the advent of modern medical equipment, imaging and diagnostic modalities, patient-physician contact is declining leading to de-personalization of the patient-physician relationship. A sense of history and tradition may help students acquire qualities essential to being a good doctor, including, in Sir William Osler's words, 'that which alone can give permanence to powers—the *Grace of Humility*'.²⁵

EVOLUTION OF TEACHING 'HISTORY OF MEDICINE'

Sir William Osler, also known as the Father of Modern Medicine, advocated the teaching of 'History of Medicine'.²⁵ He established the History of Medicine Society at the Royal Society of Medicine, London in 1912. He proposed the utilization of lectures as well as a Historical Club which sat once a month and systematically discussed the contributions of great epochs in medicine. He also integrated ward teachings with 'History of Medicine', such as asking students 'who was Graves?' when a patient of goitre was being discussed.²⁶

The teaching of 'History of Medicine' in Russia has been integrated into the medical curriculum since the 18th century and has been continuing as a tradition.²⁷ The current model is to teach it in two subdivisions: General History of Medicine which is dealt by a separate department of History of Medicine, and special history which is incorporated into various subjects. Similarly, in Germany, teaching of medical history is compulsory and is integrated with teaching medical ethics.²⁸

Howell, a Professor of Internal Medicine at the University of Michigan, runs an elective course in 'History of Medicine' which enrolls six students per month.²⁹ This course revolves around student participation. The goal of this course is to ignite curiosity among students by a 'hands-on' experience, such as visiting the library to read historical manuscripts. Students are also taught not to blindly gulp facts; instead critically appraise them. When confronted with an interesting manuscript, they should not only assimilate the findings but also consider who wrote it, when and why?

Other models of teaching 'History of Medicine' are somewhat similar and mainly revolve around teaching it as either lectures or seminars, with emphasis on major historical figures and milestones, and eventual evaluation of the students' knowledge at the end of the term. One such example is the 'History of Medicine' seminar as a part of 'Patient, physician, and society' course in the University Feinberg School of Medicine, Chicago. Students meet in the library for 2 hours a week for 5 weeks and are encouraged to study the historical manuscripts and rare books available there. Students are free to choose the topic of their choice and are encouraged to lay emphasis on the structure and organisation of the book.³⁰

A somewhat similar practice is followed at the University of Alabama, Birmingham, where teaching medical history is integrated with the subject. Students of 1st year taking anatomy are required to visit the Reynolds Historical Library and read the manuscript of *De humani corporis fabrica*, a book on human anatomy by Andreas Vesalius published in 1543. Vesalius is considered as the father of modern anatomy whose understanding of human anatomy by dissecting human cadavers was remarkable.³¹ Students are then required to submit an essay on their experience. The success of this exercise can be assessed by the following remark of an undergraduate medical student presented in the paper by Casey and Flannery: '*These works not only represent the past contributions of physicians to their practice, but they represent the endless possibilities for my classmates and myself.*'³²

WHEN SHOULD 'HISTORY OF MEDICINE' BE TAUGHT?

While perusing various models of teaching 'History of Medicine', a question which often arises is when should it be ideally introduced in the undergraduate medical curriculum. A study done by Schulz *et al.* showed that teaching 'History of Medicine' continuously, spread over the entire period of training, starting from the first semester itself had a better outcome in terms of ease in teaching and understanding (teach ability) and better scores in assessment (test ability).³³ The MCI also recommends that the entire educational process in undergraduate medical curriculum be put in a historical background, and presented to the students. It states that the 'History of Medicine' should form a part of this process. Budding physicians should be sensitized to the evolution of medical knowledge both in India and across the globe.¹⁴

CURRENT STATUS OF TEACHING 'HISTORY OF MEDICINE' IN INDIA

The National Institute Ranking Framework (NIRF), approved by the Ministry of Human Resource Development of the Government of India, released the 2018 rankings of top medical institutions of the country.³⁴ A detailed review of the website of these institutions and/or the websites of the parent universities of these institutions was undertaken (Table I) to assess the

current state of teaching 'History of Medicine' in the MBBS curriculum. The website of the institutions and parent universities were searched for the availability of a detailed MBBS curriculum online. If available, the curriculum was

searched for the inclusion of 'History of Medicine'. Other documents such as examination syllabus and the teaching schedule were also searched to understand the placement and integration of this topic within the curriculum.

TABLE I. 'History of medicine' in undergraduate medical curriculum in top 25 medical institutions in India

Rank as per NIRF	Name of institution	Offering undergraduate medical education (MBBS)	MBBS curriculum available online	'History of Medicine' included in online MBBS curriculum	Remarks
1	All India Institute of Medical Sciences, New Delhi ³⁵	Yes	Yes	No	–
2	Post Graduate Institute of Medical Education and Research, Chandigarh	No	Not applicable	Not applicable	Does not offer MBBS course
3	Christian Medical College, Vellore ³⁶	Yes	No	No†	No detailed curriculum available online. 'History of Medicine' not mentioned in foundation course
4	Kasturba Medical College, Manipal ⁴⁶	Yes	No	Not available	No detailed curriculum available online. Website states theory classes conducted as per MCI guidelines
5	King George's Medical University, Lucknow ⁵⁷	Yes	Yes	Yes	'History of Medicine' offered as optional module in first semester
6	Jawaharlal Institute of Post Graduate Medical Education and Research, Puducherry ⁵⁶	Yes	Yes	Yes	Part of 15 days foundation course
7	Banaras Hindu University, Varanasi ⁴⁷	Yes	No	No	–
8	Institute of Liver and Biliary Sciences, New Delhi	No	Not applicable	Not applicable	Does not offer MBBS course
9	Aligarh Muslim University, Aligarh ³⁷	Yes	Yes	No	–
10	Sri Ramachandra Medical College and Research Institute, Chennai ^{48,49}	Yes	No	No	–
11	Jamia Hamdard, New Delhi ^{38,39}	Yes	No	No†	–
12	M.S. Ramaiah Medical Institute, Bengaluru ⁴⁰	Yes	Yes*	No	–
13	Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi ⁴¹	Yes	Yes	No	–
14	Dayanand Medical College, Ludhiana ⁴²	Yes	Yes*	No	Curriculum on university website does not include 'History of Medicine' nor any lectures designated for it ⁴³
15	University College of Medical Sciences, New Delhi ^{50,51}	Yes	No	No	–
16	Kasturba Medical College, Mangalore ⁴⁶	Yes	No	No	Website states curriculum as per MCI guidelines
17	Panjab University, Chandigarh ⁵⁸	Yes	Yes	Yes (integrated)	Teaching of 'History of Medicine' a component of Surgery and Microbiology syllabus only
18	Dr D.Y. Patil Vidyapeeth, Pune ⁵⁹	Yes	Yes	Yes	'History of Medicine' taught in 4th semester in General Medicine
19	Siksha 'O' Anusandhan, Bhubaneswar ^{44,45}	Yes	No	No†	–
20	Kalinga Institute of Industrial Technology, Bhubaneswar ⁵²	Yes	No	No	–
21	PSG Institute of Medical Sciences and Research, Coimbatore ⁶⁰	Yes	Yes*	Yes	'History of Medicine' mentioned in detailed syllabus uploaded on the website of Dr MGR Medical University
22	SRM Institute of Science and Technology, Chennai ⁶¹	Yes	Yes	Yes	–
23	Mahatma Gandhi Medical College and Research Institute, Puducherry ⁵³	Yes	No	No	–
24	Annamalai University, Annamalainagar ⁵⁴	Yes	No	No	–
25	Jawaharlal Nehru Medical College, Belgaum ⁵⁵	Yes	No	No	–

*Available on university website, not the website of institution, †Documents on the website indicate 'History of Medicine' not being taught

Twenty-three institutes in the top 25 medical institutes ranked by the NIRF provide undergraduate medical education (Table I). Of these, a detailed website search revealed that 'History of Medicine' is not a part of undergraduate medical curriculum in eight of these institutions bearing NIRF rankings 1, 3, 9, 11–14 and 19.^{35–45} These eight include the top ranking medical institute of the country, namely the All India Institute of Medical Sciences (AIIMS), New Delhi.³⁵ Anecdotal evidence however suggests that 'History of Medicine' was taught in the 1st year of MBBS at the AIIMS till about 40 years ago. A detailed medical curriculum could not be found in another nine of these institutions; hence, it is unclear whether 'History of Medicine' is a part of their undergraduate medical curriculum or not.^{46–55}

'History of Medicine' is taught as a part of a 15-day foundation course in Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India,⁵⁶ while it is a part of an optional module in King George's Medical University, Lucknow, Uttar Pradesh, India.⁵⁷ 'History of Medicine' is integrated with teaching subjects such as Microbiology and Surgery in Panjab University⁵⁸ and with General Medicine at Dr D.Y. Patil Vidyapeeth, Pune.⁵⁹ The remaining two institutions i.e. PSG Institute of Medical Sciences and Research, Coimbatore and SRM Institute of Science and Technology, Chennai, Tamil Nadu, India have mentioned teaching 'History of Medicine' in the syllabus, but the placement and integration of the teaching module are not clear.^{60,61} Thus, it could be conclusively found that 'History of Medicine' is a part of undergraduate teaching in only six of the top 25 medical institutions in India.

Hence, based on the website search of the top 23 premier undergraduate medical institutions in the country, a quarter of them have a dedicated programme for teaching 'History of Medicine'. This is just a glimpse into the real picture of teaching 'History of Medicine' in India, as there are nearly 500 medical colleges recognized by the MCI, with a net annual intake of nearly 60 000 students in the undergraduate medical programme (MBBS).⁶²

THE WAY FORWARD

The methodology of training and evaluation on 'History of Medicine' in the undergraduate medical curriculum would require a wider consultation among experts in undergraduate medical education. However, the following measures are suggested:

- The inclusion of about 4 hours of lectures on 'History of Medicine' in the first six 6 months of joining the MBBS course;
- Requesting faculty of all disciplines to provide a historical perspective in lectures, where possible, for about 10% of the time;
- The libraries of medical colleges to keep books on 'History of Medicine';
- Where feasible, the corridors to the dissection hall, laboratories and seminar rooms of various departments to have posters, pictures, sketches and information related to 'History of Medicine' displayed on the wall.

CONCLUSION

Medical knowledge should not be restricted to mere facts and figures. Introducing subjects such as 'History of Medicine' can make the curriculum more enjoyable and interesting. Although the MCI has mandated the teaching of 'History of Medicine' as

a part of the undergraduate medical curriculum, this subject has taken a back seat in the priority of many medical institutions. Medical universities and institutions should proactively introduce this subject to undergraduate medical students. The course structure should ignite curiosity and sense of appreciation in the minds of students so that they can enjoy their rich heritage. Introduction of teaching 'History of Medicine' should be early and should continue with each subject specialty in an integrated manner, so that it does not become boring and overload the students. In addition, integrating it with each subject would provide context to the topic and make it appealing to the students.

Conflicts of interest. None declared

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