

# The Overlecturing and Underteaching of Clinical Medicine

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**I**n ancient Greece, a group of traveling “wise men,” known as *sophists*, lectured on a large variety of subjects. Their presentations were spectacular and highly influential because they spoke beautifully.<sup>1</sup> Socrates, on the other hand, tried to develop the minds of young people by asking a series of carefully conceived questions; he taught his students to think.<sup>1</sup> Socrates considered the sophists to be poor teachers, and they believed that he was a dangerous eccentric. Socrates continued his efforts, which eventually led to his death. The debate continues. Which method of teaching is the best? This article, which is admittedly biased, addresses this serious question.

## THE PRINCIPAL GOAL OF AN INSTITUTE OF HIGHER LEARNING

Students go to an institution of higher learning expecting to be taught. If the students are fortunate, excellent true teachers will gradually shift the responsibility for learning back to them. Unfortunately, however, the brains of many students have already been programmed to act as sponges that hold on to information just long enough for the students to make an A on an examination.

The students may or may not realize that unless they use the material they memorized, a few months or years later they will remember very little about the subject and will no longer pass the same examination. Also, they may not know how to use the residue of information that they do remember in a thought process. So, whatever information they remember lies there—inert and helpless—waiting and hoping to be used before it vanishes. An excellent teaching institution stimulates the curiosity of students and leads them to ask themselves questions and to seek the answers themselves. The best medical schools and teaching hospitals teach their students how to think about medical problems, and the best students con-

tinue to do so after they leave the institution.

## THE PAST

The Carnegie Foundation asked Abraham Flexner to survey the performance of American and Canadian medical schools. He reported the results of his findings in 1910.<sup>2</sup> He concluded that the proprietary schools should either close their doors or become affiliated with universities. He believed that by doing the latter, the universities would use stricter requirements for the admission of students to medical schools and that the curriculum would be more carefully designed. He obviously hoped that teaching methods would improve too. He was distressed that the students were forced to listen to numerous lectures each day, but were not permitted to see patients. He also favored the addition of full-time faculty members who could spend more nonlecturing time with trainees. His plans were implemented and medical education was revolutionized.

## THE PRESENT

There has not been a second Flexner-type report on medical schools. However, there has been a recent survey of undergraduate education in American research universities. The Boyer report,

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also funded by the Carnegie Foundation, was published in 1998, after Boyer's death in 1995.<sup>3</sup> The members of the Boyer Commission came to the following conclusions regarding the teaching of undergraduates in American research universities:

Some of their instructors are likely to be badly trained or even untrained teaching assistants who are groping their way toward a teaching technique; some others may be tenured drones who deliver set lectures from yellowed notes, making no effort to engage the bored minds of the students in front of them.<sup>3</sup>

The Boyer report also relates the *results* of poor teaching in research universities:

Many students graduate having accumulated whatever number of courses is required, but still lacking a coherent body of knowledge or any inkling as to how one sort of information might relate to others. And all too often, they graduate without knowing how to think logically, write clearly, or speak coherently.<sup>3</sup>

Because most of the teachers in medical schools and teaching hospitals are the products of the undergraduate education offered by research universities, it is highly likely that their style of teaching will be similar to the experience they had as undergraduates, ie, unless they rebelled sufficiently along the way and developed an effective teaching style of their own. The leaders of educational institutions, such as medical schools and teaching hospitals, should determine if the educational goals discussed earlier in this section are being achieved by their students. Do their students learn how to learn during the time they are at the educational facility?

## TRUE TEACHING

Gilbert Highet's statements about teaching are like a breath of fresh air, although he wrote about it decades ago.<sup>1</sup> He wrote that teaching has 3 stages: "First, the teacher prepares the subject. Then he communicates it to his pupils, or those parts of it that he has selected. Then he makes sure they have learnt it."

Highet's observations are on target and eliminate the wandering lecturers: the modern sophists who

come, speak, and leave. The modern sophist has no idea whether he or she really communicates or whether the members of the audience "learnt it." In fact, guest sophists commonly arrive—sell their product—and leave without knowing what they have accomplished. What the lecturers do is not true teaching. They merely give the listener a polished source of information. True teaching is more than simply announcing information at lectures. Actually, even minilectures between 1 teacher and 1 student are often forgotten by the student. The goal of a true teacher is to stimulate students to think and talk rather than to listen to the teacher talk. The true teacher commonly works with a small group of students and guides them through the thinking-learning process, which includes the following steps:

- The acquisition of information from appropriate books, journal articles, the Internet, lectures, and true teachers.
- The conscious designation that the information is worth remembering.
- The decision to make an effort to link the information to something already stored in the brain and to use the information frequently. This action improves the student's memory.
- The rearrangement of the information into a new perception, concept, or idea. This is known as thinking.
- Repetition of the process listed above until the student is fluent in the subject being studied. This is known as learning, which is many steps beyond the acquisition of information.

Most important, the true teacher knows his or her students and is able to identify their strengths and weaknesses. The true teacher recognizes what a student knows and spends little time discussing that area of knowledge. The true teacher also recognizes what the student does not know, but should know, and discusses the deficiency until the student understands. The actions and words of the true teacher indicate that he or she cares about the thinking skills of the students as well

as their futures, and the students know it. Lecturers who appear and disappear cannot achieve this relationship with students; therefore, they, along with their messages, are quickly forgotten.

## LECTURES

A bad experience with lectures was described by Hamilton Holt, who was president of Rollins College in Florida in 1931. According to William H. Honan,<sup>4</sup> Holt shocked his associates when he said that he learned "virtually nothing" at Yale or Columbia because the lectures were examples of probably the worst scheme ever devised for imparting knowledge. Holt belittled the usual lecture by stating that it was "that mysterious process by means of which the contents of the professor's notebooks are transferred by means of the fountain pen to the pages of the students notebooks without passing through the minds of either."<sup>4</sup>

From my vantage point as a committed teacher of medical students, house officers, and practicing physicians, it is clear that the sophists of ancient Greece have returned in increasing numbers. They come and they go, but their influence is virtually nil. Their lectures may actually be harmful to some students who wish to learn clinical medicine, because the students may be left with the notion that listening to lectures must be the best way to learn. Here is what commonly happens. The members of the audience arrive at the lecture hall, but have no questions that they hope the wise lecturer will answer. The listener's attention fades in and out as the polished talker discusses in great detail the nuances of his or her favorite subject. Modern slides are shown after 2 or 3 persons assist in making the computer work. The slides are beautiful, showing excellent artwork with a large amount of detail. The slide is moved along quickly because as many as 50 slides must be shown. These distractions stimulate the creation of the following formula: "The teaching value of a slide is inversely proportional to its cost." Such complex slides are visible testimony that the lecturers do not realize that effective speakers

show few details, but talk about concepts. The excellent lecturers, whose numbers are few, discuss subjects that are, for the most part, familiar to the members of the audience. They commonly talk about things that the members of the audience actually do. Their language is understood by the listeners. They simply push the envelope a little farther. They do not merely restate what can be found in standard textbooks: they synthesize and summarize information that can be found in numerous journals and remote sources, as well as from their own body of work, which often is not available to every member of the audience. Even so, it is the persona of the lecturer that forces people to listen. Successful lecturers convey to the members of the audience their love and enthusiasm for the subject, as well as their desire to make their message clear. The successful lecturer's aim is to stimulate the listeners to look further into the matter and, when possible, to convince them that they must use the information that has been dispensed.

I have always been impressed by Rhodes scholars and wondered about the type of pedagogy that was used by Oxford teachers to accomplish their goal. Willie Morris,<sup>5</sup> a superb author, pointed out that the teachers at Oxford believed that good lecturers are rare. He wrote:

There was, of course, no compulsion to attend lectures, many of which were as exciting as television weather surveys; indeed, according to one of her many biographers, Christopher Hobhouse, Oxford has looked with some disdain upon lectures as somewhat obsolete since the invention of the printing press in the mid-fifteenth century.

Although Sir William Osler was a great lecturer, he rarely lectured about clinical problems.<sup>6</sup> His famous lectures dealt with the humanitarian aspects of practicing medicine and the behavior of doctors. He championed the bedside teaching of clinical medicine. He, more than anyone else, believed that teaching medicine was done best by observing carefully and thinking about patients with medical problems. However, he wrote his house officers a letter from Freiburg, Ger-

many, in which he revealed his excitement about an excellent lecture given by a Dr Baumler.

The subject was diseases of the oesophagus, and spontaneous rupture, perforation, and haemorrhage were discussed in a most exhaustive manner. Afterward, in his private room, Dr Baumler raised the question of the value of such teaching to the medical student and suggested that the same might be got in a shorter time from books. Possibly; and, though I am strongly opposed to our present system of over-lecturing, I could not but feel that the men who had listened and taken notes had got their information in a much more interesting and instructive manner than if they had read the subjects in any text-book.<sup>6</sup>

So, even Osler admitted that there was such a thing as a good lecture. I agree, but also as I stated earlier, good lecturers are rare. I have determined that about 1 out of 25 lectures can be classified as good. Accordingly, one must conclude that most lectures are a waste of time, because lecturers often give the listener no more information than is found in a single book or journal. There are those who believe that the lecturers who do only that will gradually vanish. Such lecturers were perhaps necessary as a source of information many years ago, when books and journals were scarce and the Internet had not been invented. Today, as the educational responsibility is passed from the teacher to medical students and house officers, the true role of the teacher is to determine whether the information is used by them in a thought process or in the direct care of patients.

### CLINICAL TEACHINGS

Highet,<sup>1</sup> the master teacher of teachers pointed out that there were 3 types of teaching: the lecture method, in which the teacher talks to the student; the Socratic method, in which the teacher asks the student carefully thought out questions and the student talks; and the third method, in which the teacher gives the student a designated task, and the student reports back to the teacher. The teacher then decides if the student understands what he or she has read, seen, or heard.

A true teacher recognizes that all individuals do not learn equally well by reading. Accordingly, the true teacher should engage poor readers in a give-and-take interplay to help them fill in the blank spots. The true teacher also tries to teach students not only how to read but also how to understand what they read. This process usually requires teaching them not to turn the page of a book or journal until they fully understand what is written on the page. Furthermore, students should be encouraged to recast the words into their own language. If they cannot do that, they have a serious reading problem.

Highet<sup>1</sup> pointed out that good teachers often use all 3 methods of teaching. The best teachers, he believed, could analyze the students' learning problems and determine which method of teaching was needed to solve them.

### COMMENTS ABOUT TEACHING HOSPITALS

All hospitals should be teaching hospitals. Some of them will be associated with medical schools and offer teaching programs for students and house officers and senior staff members. The majority of hospitals in the United States have no students or house officers, but they, too, should offer teaching programs for the practicing physicians who are on the staff. The teaching-learning concepts expressed earlier in this article apply to the teaching programs that are offered by both types of hospitals. Obviously, the teaching programs in the hospitals in which the members of the medical staff are responsible for teaching medical students and house officers will be different from those in the hospitals in which there are no medical students or house officers.

The teaching sessions for medical students and house officers should include encouragement in self-teaching; morning reports; teaching ward rounds; teaching conferences that teach either problem solving or clinical skills; medical grand rounds during which patients are discussed; and lectures.<sup>7</sup> Of these, self-teaching and teaching ward rounds are the most valu-

able. Teaching conferences that teach either problem solving or clinical skills and medical grand rounds, during which a patient's problems are discussed, are next in importance. Lectures are occasionally useful, but they are poor substitutes for any of the other teaching sessions. (For more details regarding the implementation of these teaching sessions, see references 7 and 8.)

The teaching program for practicing physicians in hospitals in which there are no students or house officers usually consists of lectures. The physicians must prove that they have attended a specified number of lectures each year in order to renew their license to practice. Some hospitals also offer teaching sessions that are designed to improve physicians' skills in performing various parts of the examination. Innovative directors of medical education, recognizing that lectures are of limited value, try to create programs that require the actual use of physicians' brains, rather than stuffing them with material that will soon be forgotten.

The continuing education of practicing physicians is an exciting challenge. Continuing education courses and lectures given at national meetings are rich sources of information. The information gleaned from such sources will be most useful for the physicians who actually learned how to learn during medical school and house staff training, because they will use the information in a thought process and will realize that they must use the information in their daily work when they return home or it will be forgotten. Many creative directors of medical education are undoubtedly trying to develop conferences that teach rather than limit the pedagogy to lectures. They may orga-

nize problem-solving conferences that are excellent substitutes for lectures.

## SUMMARY

Generally speaking, there are 3 methods of teaching clinical medicine: lecturing, Socratic-like questioning, and assigning patients to students so that the students' work and understanding can be checked by a true teacher. Lecturing, though sometimes valuable, is not the best way to teach clinical medicine. Those responsible for the teaching of clinical medicine must not, as Osler pointed out, overlecture.<sup>6</sup> Also, we clinical teachers must remember that we have a definite advantage over the teachers of basic sciences. We can link our teaching to the patient in front of us. We can check the skills of the house officers and medical students. We can teach them to ask themselves questions about the patients assigned to them and urge them to pursue the answers.

A true teacher must teach trainees how to continue their medical education after they leave the institution. This process is carried out through teaching methods other than lecturing. The approach of the teaching-attending on ward rounds is perhaps the most effective method of teaching clinical medicine, ie, if he or she knows what to do and is a true teacher. Teaching sessions during which a patient's problems are discussed by 1 or 2 experts are also important teaching techniques. These sessions have replaced grand rounds in many institutions.

Practicing physicians are exposed to a plethora of new information during postgraduate courses and at national meetings. They, too, should be skilled at using the information in a thought process and must, when appropriate, use that in-

formation in their day-to-day work with patients.

When lectures dominate the pedagogy of an educational institution, then the "teachers" there are probably overlecturing and under-teaching.

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*My views regarding teaching medicine were tempered by several great teachers of medicine. I have been especially influenced by the wisdom of Dr Eugene Stead, who was the first full-time professor and chairman of the Department of Medicine at Emory University, Atlanta, Ga. Of course, neither Dr Stead nor others are responsible for the statements I have made herein; I alone am responsible for them.*

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