Leading Opinion

Are Medical Lectures Harmful to the Process of Learning?

J. Willis Hurst, MD


Introduction
The answer to the question posed in the title of this essay deserves our attention because, for various reasons, the teaching time for teachers of medicine is now severely limited. This causes teaching institutions to offer an increasing number of lectures with the hope that they will fill in the void produced by the decline in true teaching. Accordingly, it is appropriate to wonder whether a plethora of lectures can actually replace the guiding hands of true teachers.

Modern Medical Lecturers Compared to Famous Orators of the Past
Many modern lecturers seem to believe that their orations are as effective as the oratory of the well-known speakers of the past. What modern medical lecturers do not realize is that most famous orators of the past were masters at seizing the emotions of the moment. Sir William Osler's charm was spell-binding. Legend holds that the members of an audience who listened to him could not escape his influence. It should be pointed out, however, that most of his medical teaching was done at the patient's bedside or in the pathology department -- not in a lecture hall. The orations that were recorded and handed down were rarely about the scientific details of medicine. Rather, his lectures usually dealt with the behavior of doctors in relation to their patients and to society; to teach medicine, he made ward rounds with a few house pupils. When Franklin Roosevelt gave his "Fear" speech, the whole nation crowded around the existing radios hoping to hear a positive approach to the solution of a prolonged economic depression. In other words, the people listening to every word he said were emotionally involved. So too were the British people who listened to Sir Winston Churchill's powerful speeches on England's role in World War II. They heard and remembered every word he said because the bombs were falling on London.

The average medical lecturer has none of the emotional leverage to apply to his or her nodding listeners that Osler, Roosevelt, and Churchill had. Accordingly, the busy, overwhelmed students and practitioners usually find it difficult to listen to every lecturer that addresses them. In fact, while most members of the audience want to learn medicine, the panoply of facts that are often delivered by the speaker are commonly more than the listener's brain can receive and store for future use. It is not the speaker's fault, nor is it the listener's fault. The brain was simply not designed for such a barrage of words, even if they are strung together by an expert.

Is Lecturing Teaching?
I have been invited often to "give a talk" or "give a lecture" at a medical school or a hospital. I usually respond that I would enjoy the visit very much and add, "I would rather teach on ward rounds or in a small conference than lecture if that can be arranged." This statement reflects my belief that lecturing, as commonly done, is not teaching. Rather, it is an easy method of dispensing information to a large group of people. This of course is important, but it does not
accomplish the 3 steps involved in the learning process. These steps are: remembering information; thinking, which is the rearrangement of information; and learning, which is the use of information in a thought process until the person is fluent. A true teacher works with individuals and assists them in their efforts to learn how to learn. Obviously, more often than not, a lecturer does little more than present step 1 -- the information step -- to the members of an audience. If that is all a trainee or practitioner is exposed to, his or her brain will swell with information that is never used in a personal thought process. So the information, which sounded so wonderful when it was heard, is gradually forgotten.

Some lecturers do not understand the limitation of the brain of a listener. Lecturers may show 60 complex slides during the 60 minutes they talk. Each slide may be filled with information, but it is moved rapidly to make room for the next slide so there is inadequate time for the members of the audience to read the small print, much less make a note about it. Most brains are not designed to register and store all of the information that is presented in such a manner. Some lecturers intersperse slides of mountains, flowers, or nudes, hoping to capture the attention of the audience. This act, of course, has the opposite effect in that it interferes with the train of thought needed for the listeners to follow the medical message the lecturer is trying to convey. This act marks the speaker as one who does not understand how the mind works.

The self-operated computer was designed to save the day. However, thus far, my own statistics indicate that at least half of the lectures are delayed 5-15 minutes while the speaker and several others fiddle with gadgets hoping to make them work. Accordingly, they lose the interest of the restless audience. Then, not only do some lecturers show too many slides, but they continue to use dark blue print on a black background, place too many lines on a slide, and fail to appreciate that the fancier and more expensive the slide, the less it teaches. Now we have modernized the detractors of the past.

Successful lecturers try to do 2 things: present concepts with interesting examples and metaphors rather than spewing out hundreds of facts, and reveal to the listeners their intense interest in the subject. If the lecturer does not seem to be excited by the subject, it is unlikely that members of the audience will be. On the other hand, when the lecture is given with the apparent enjoyment of the speaker, a few members of the audience might consider the possibility that the subject being discussed could be of some importance. A few in the audience might be encouraged to pursue the matter further after they part company with the lecturer.

True teaching does not take place unless there is a feedback system that permits the lecturer to determine whether the following has taken place: his or her message was received by the listener; the content of the message was used by the listener; and an acceptable degree of understanding of the subject was attained by the listener. In other words, the educational value of a lecture can only be judged by the actions of the listener after he or she leaves the lecture room.

Despite a few exceptions, lecturing, as it is usually done, cannot be referred to as true teaching. The act of lecturing is usually the simple announcement of so-called facts, rather than true teaching.
Additional Errors Made by Lecturers
Many lecturers say little more than can be found in textbooks or journals. Should that occur, some trainees may pay someone to tape-record the lectures and transcribe the material to typewritten pages, rather than attend the lectures themselves. They memorize the material they have purchased the night before the exam and score very well when they take it the next day. The problem is, a month later they remember very little. This decline in memory occurs because they did not use the memorized facts in a thought process. Accordingly, the short memory is happy to release unused information so the brain can register, save, or reject any new abstract information that it later encounters. This of course does not make us any smarter and probably delays the development of a little wisdom.

Should an individual seek to store information in the long memory, he or she must decide whether the abstract signal is worth remembering, then use it frequently or link it to a stored memory that is used frequently.

Unfortunately, some lecturers do not understand the information-memory-thinking-learning process and believe they are teaching when they speak. Should they believe they are teaching, I suggest they ask members of the audience some questions about the lecture that prompted the standing ovation. The questions should be asked 2 weeks after the lecture. I have done that following my own lectures and, hearing the verdict, was forced to take my wounded ego home and cry.

Solving Other Problems
One of the most serious problems plaguing many lecturers is a lack of familiarity with the varied backgrounds of the members of the audience. This is especially true for out-of-town lecturers.

The dialect of specialized modern medical language has become so bewildering to those who are unfamiliar with it that a 1-hour lecture may end with an expert in a field having communicated nothing to listeners from other fields. A perceptive lecturer always arrives 10-15 minutes before the scheduled hour. The lecturer familiarizes him/herself with the lectern and makes sure his or her slides are in place. In addition, the lecturer may talk with some of the early arrivers and determine their interests and estimate their knowledge base of the subject to be discussed.

Lecturers must keep in mind that audience members may be able to remember no more than 5 points from a 1-hour lecture. The points must be made at least 2 times during the lecture and at the end of the oration. The lecturers should use different language for each time the 5 points are recited. Poor lecturers rarely do this.

But Are Medical Lectures Harmful?
The answer is yes and no, depending on the ability of the lecturer and the emotional mind-set of the audience members.

At times, excellent lecturers may stimulate some of the members of the audience to look further into the subject they have discussed. Should that occur, the listener might fix the newly heard material in their long memory, where it may be called into consciousness at a later time to be used as part of a thinking process. Still, the price of time that one pays may be enormous because
a 1-hour lecture may contain no more information than can be gleaned from well-focused reading for 10 minutes. In such a case, the lecture was not harmful but it cost too much of one's time to gain useful information.

There is such a thing as lecture addiction. For years, junior and senior medical students have expressed relief when they reflect on their experience in the first 2 years of medical school. They often say they are sick and tired of lectures. I always point out that teaching basic science is difficult when the students are not planning to be basic scientists. Add to that the fact that basic sciences are changing so rapidly that the information retained by a senior student is already out of date when compared to the information thrown at the freshman student.

Even though the students admit that after their examinations were over they forgot most of the content of the lectures in basic science, they will often ask for a lecture on a clinical problem. This highlights a serious problem. Such a reaction indicates that the only way they know how to solve problems is to listen to a lecture on the subject. When this happens, I usually point out to the nascent clinical trainees that a lecture is not the best way to search for and find answers, because once they leave the educational institution, they won't be able to find someone to lecture to them about every medical problem they encounter. They must become proficient in asking themselves the right questions about any of the unsolved problems they place on the Problem Lists of their patients. They must develop the habit of carefully focused reading in a textbook, journal, or on the Internet in their effort to solve the many problems they encounter. If lectures are offered as a substitute for pursuing the answers to carefully thought out questions about a patient, they may indeed be harmful. This is true because an active, questioning mind always wins over a passive, inactive mind that merely sops up information without organizing it.

Final Comment
The purpose of an educational institution is to lead the trainees, who initially believe the educational institution is there to educate them, to the realization that they must educate themselves. Therefore, they must learn how to learn before leaving the institution so they can solve, as far as possible, the problems they discover in their patients without attending lectures. Lectures can be harmful if they lead students to believe that listening to lectures is the best and only way to learn.

Suggested Reading

Acknowledgements
The ideas expressed in this essay came from many people during my lifetime of teaching medicine. Chief among them is Eugene Stead, MD, who has been my academic mentor and profoundly influenced my views on this subject.

J. Willis Hurst, MD
Consultant of the Division of Cardiology
Emory University School of Medicine;
Former Professor and Chairman
Department of Medicine, 1957-1986