

Compiled by Linda Hodes Villamar
University of New Mexico School of Medicine
lhodesvillamar@salud.unm.edu
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**AAMC OSR REPS' Responses:
2007 survey on using multimedia technology to record lectures**

Medical College of Wisconsin – Tim Lefeber, Tlefeber@mcw.edu

We currently don't have videotaping, but all the lectures are put on MP3 files and all PowerPoint lecture slides are available for viewing online. Students seem to really like the service which is done through our student support services and our library. IPODs are even available in the library to check out to listen while going through lecture notes if you don't want to listen on a computer. I don't think this has had a significant impact on attendance so far, but we have no formal numbers/feedback to back it up.

Case Western Reserve SOM – Ravi Gupta, ravi.k.gupta@case.edu

We have just started a new curriculum that is in its second year. With its birth, the curriculum organizers decided to withhold its taping of the lectures in the attempt of increasing class attendance. Our class is a little upset that this function was removed, because we have all the technology for it available in our classrooms, but they are refusing to use it. I understand their point of view, but there are both negatives and positives to having it available to students.

Ohio State COM – Kyle Benner, kyle.benner@osumc.edu

We started a recording system at our school last year and the response has been extremely positive. Attendance hasn't diminished at all and the majority of students use the recordings in addition to going to lecture; they serve to enhance the material. Also, lecturers have the option to not have their presentations recorded.

Northeastern Ohio Universities COM (NEOUCOM) – Deeksha Bansal, dbansal@neoucom.edu

Our school obtained the capability to stream lectures last year and has been posting them online. Lack of attendance was one of the concerns of our faculty; however, streaming lectures has not made that much of a difference in the number of students who come to class. Videotaping is helpful for reviewing lectures and just watching the parts that were unclear. It's a great way to catch up on lectures too! I would highly recommend this to your school! If you have any more questions, please do not hesitate to contact me again. Hope this works out for your school!

University of Cincinnati – BJ Jonson, bjohns00@gmail.com

All of our lectures for every class are recorded in mp3 format, as well as recorded in PowerPoint where the audio is linked with slide timing. Only our Physical Diagnosis class is videotaped. Everyone pretty much likes this format because: 1) you can listen to lectures again if you want to 2) you can choose to skip the lecture if the lecturer is poor and you have a tendency to fall asleep in a dark lecture hall 3) you can pause the recording and work at your own pace 4) Or you can speed up the playback speed if the lecturer is a slow talker. It probably will affect some of class attendance because students know they can skip and not miss anything. The gunners will still be there, so you don't have to worry about them anyway, right? On the flip side, last year was the first year UC incorporated this and average scores on all tests (at least for my class) were higher than years previously. Board scores for the second years were also higher. However, whether this was due to higher admissions standards or online lectures is uncertain.

RFUMS Chicago Medical School – Steven Carr, Steven.Carr@students.rosalindfranklin.edu

We are currently researching and trying to implement a centralized system for this as well. I would recommend shooting an email to John Jackson at Univ. of Virginia about their system/survey project if you're interested. Also, a paper came out recently in Academic Medicine from the Univ. of Colorado on the topic: Educational Technology Infrastructure and Services in North American Medical Schools. Kamin, C., Souza, K.H., Heestand, D., Moses, A., and O'sullivan, P. Academic Medicine 81(7): 632 - 637, 2006, which is pretty interesting. Also look up a paper by Julie McGowan at Indiana Univ. if you get a chance, something like "Creating a virtual community..." or something to that effect.

University of Minnesota – Harmony Tyner, tyne0007@umn.edu

The University of Minnesota records the lectures in video format as well as audio; both are available to students shortly after the lectures are done. I think this greatly enhances the educational experience here; the lectures can be referenced and listened to over again. For those who are auditory learners, it provides a basis for challenging test questions and is a wonderful resource for studying for boards if there is a particularly hard topic that was discussed well in lecture. Here in Minnesota, inclement weather sometimes makes it dangerous for students to travel, although the same idea applies for students who are sick; if you can't make it to lecture for any reason, having lectures online are, again, a wonderful resource. That being said, it is true that some students do not come to class, many because they use the lectures online instead. But, as a regular class attendee, the classroom always has at least half of our class in it, usually more.

Duke University SOM – Andrew Coleman, apc10@duke.edu & Loren Robinson, lkr2@duke.edu

It is undeniable that going to class has a number of benefits: ample opportunities to fraternize with new acquaintances; immediate feedback to questions; getting to know the professors you will likely see on the wards and perhaps work with during 3rd year; and keeping up with all of the lectures. In spite of all of these benefits, however, I have since the first block streamed exclusively, the mandatory lectures withstanding. There are downsides of course when you miss out on all of the benefits listed above, specifically not seeing the entire class everyday, having to use email to ask questions of the professors, not getting any "face time" with professors, and easily getting behind on days when you just don't have the motivation to stream or when there is a delay in posting the streamed lectures. Nonetheless, there are a number of pros to streaming that in my mind nearly counterbalance the cons, as well as one personal benefit that throws the balance easily in favor of streaming for me. **First**, there are some days when you are bombarded with lectures. Trust me, after five hours of medical school lectures, your mind will be numb. Streaming allows you to space out the lectures between bathroom breaks, television or coffee breaks, workouts, etc. Being able to pause a lecture also allows you to do some background research or find internet content which clarifies the topic you are studying, because although the professors generally do a great job reviewing material, they occasionally take knowledge for granted. **Second**, access to streamed lectures endows your proverbial classroom with boundless portability. You can access streamed lectures anywhere you are in the world as long as there is internet access, and in the absence of internet access if you download the lectures. Up to this point, the last few weeks of first year, a fair amount of my didactic medical school education has taken place near the slopes of Whistler Mountain in British Columbia, above the blackjack tables of a Las Vegas casino, below the synthetic crags of the neighborhood climbing gym, and outside of the bar scene at Georgetown, to name just a few. Just ask yourself, "Do I prefer learning in the amphitheatre, with its soft chairs and warm smells, or on a sunny beach on the coast of the Dominican Republic?" **Third**, streaming lectures allows you to multi-task. I take my computer with me during long drives and listen to streamed lectures and frequently watch downloaded lectures while on the treadmill or elliptical machines at the gym. You will undoubtedly find that, to a much greater extent than ever before, your time is limited to a degree that necessitates making choices between studying, playing, and taking care of yourself. In this instance streaming can allow you to simultaneously learn and fulfill your other needs. **Fourth**, time management, as alluded to above, is undoubtedly the name of the game in medical school, and streaming is indisputably more efficient, as you are able to watch a lectures at 1.5X normal speed, and even at 2X if the lecture isn't too dense. Take a 50-minute lecture, shrink it down to 25 minutes, and then multiply that by the 6 lectures you will have on a given day. You don't have to be a math whiz to figure out that that translates to 2.5-hours more of doing the stuff you enjoy. **Fifth**, you can learn on your own schedule. Is 9:10AM just too late for you to start lectures? Or are you the type who prefers lucubrating? If "Wherever, whenever" is your mantra/favorite Shakira song, streaming is for you. **Finally** and in my mind most importantly, if you are not an auditory learner then streaming may be a more effective way for you to learn. During live lectures the most dominant element of the didactic material is the lecturer's voice, and if your learning style doesn't key into that easily, you may attend a 50-minute lecture and discover at its conclusion that you remember nothing that was said. However, if you stream the lectures, you can, at your leisure, stop and start the lecture, take notes, ponder the material, do research on the internet, etc. I have found that this is nearly all I need to do to prepare effectively for the tests. To conclude, I recommend that you try both streaming and attending lectures during the first block. During this time the material will be more familiar to you, there will be much less of it compared to the Normal Body and Body & Disease Blocks, and honestly your test grades don't matter a bit, as long as you pass, and you will. So use the time to experiment in order to determine what is the best system for you. Best of luck!

Response from Loren Robinson: Here, all of our lectures are videostreamed on the Internet, and it works very well, especially since we combine the normal two years of basic sciences into a one year curriculum. I can send out a quick email to our current first years, but from my impression, at Duke things are working very well with the video streamed lectures. Some people still choose to go to class so that they can ask questions, and others

choose to (video)stream the classes. Generally, the professors make their PowerPoint presentations available a few days up to a day before the class and then people download the presentation and type notes as the lecturer is talking or type as they stream later on. The streaming video is made available to all students anywhere from 2 - 5 hours after class has ended. The only issues arise if there is a power outage or issue with the video stream, and in this case, the IT folks make the same lecture from the previous year available. In terms of performance, all students are still performing on par with other medical students around the country. Duke strongly supports students developing and using their own learning styles, and this is well accomplished by making the lectures optional, and having videostreaming available. In terms of my personal experience, our first year is divided into 3 blocks. For the first block, I was convinced that I needed to attend class to learn, but we moved so quickly through the material that I often ended up having to stream later on. By second block, I thought I would try a new strategy, so I hardly attended class. My grades stayed the same, or actually improved and I also joined a note-taking group. This group of about 15 people divided up the lectures and we each streamed 1-2 lectures per week and took notes/transcribed it, and then sent it out to the others in the group. This way, you're only streaming twice a week and you still have good notes on the lectures. To finish up the year, I decided to attend class again. 3rd block was pathology, micro, and pharm and I found that a combination of going to class and streaming worked best for me. In the end, again, it was about individual style, but I think it's very nice that Duke affords its students that option

Harvard Medical School – Lauren Gray Gilstrap, lauren_gilstrap@hms.harvard.edu

We tape our lectures here at HMS. It does cause a serious problem with attendance, especially as the semester wears on. However, it does not seem to cause a problem with performance. Everyone learns the material; it is just a little embarrassing when we have lectures and a tiny audience sometimes. However, we do have small group tutorials and labs which are not taped and for which attendance is required, so it all evens out in the long run.

East TN Quillen COM – OSRREP: Mandy Franklin, zmjf24@goldmail.etsu.edu

We have been working on the same thing. Our biggest problem is with the technology itself. The professors who do this have pretty much made podcasts on their own that is not exactly like the lecture. We already get written notes, so class attendance did not really change. The people who were going to come came before.

University of South Florida College of Medicine – Nadia Abrahamsen, nabraham@health.usf.edu

My school does video streaming for both 1st and 2nd year. From the students' perspective it is GREAT! We can watch the videos to speed, rewind, and watch them over and over. My group of friends and I would study during the day and watch the day's lectures at night. We found that we were much more productive and were better able to learn. From the admin side, they became a little bit concerned about "home schooling" but the performance of students seems to be just as good as before video streaming. We still have some mandatory classes where we have to sign in and get credit for being there. But all in all, from a student's perspective I would highly recommend that you encourage your administration to enter the world of video streaming. In fact, this year we got Ipod casting so you can watch it on your Ipod.

University of Wisconsin – Paul A. Bergl, bergl@wisc.edu

At the University of Wisconsin, we have lecture capture, a service that captures class presentations in either "live video" format or in the form of PowerPoint slides synched with the audio (depends on the type of lecture). As much as our teaching faculty wants to blame poor lecture attendance on lecture capture services, I would say that it actually has a somewhat minimal impact but provides a great service to students. Obviously, the pros include the ability to review lectures at a later date, to fast-forward through the unimportant parts of lecture to get at the meat of a presentation, to view lectures at the student's own convenience, and to skip class for independent studying while knowing you have a safety net if you need to review difficult concepts. The main con is that it might decrease class attendance. However, based on my experienced, we have a solid percentage (30-40%) who attend lecture religiously, another good chunk of students who attend class as much as they can and catch the rest on capture (10%), another solid percentage (maybe 10-25%) who don't attend class but watch lecture captures religiously, and another good portion of people who don't attend class and don't watch lectures online either (25-30%).

University of Kansas Medical School – Elise Schnose, eschnose@kumc.edu

We do not videotape our lectures, but each lecture is podcasted (a combination of video and auditory information) and posted to our online system that contains all other class information. This has not severely affected the number of students who attend lecture. It is even helpful to students who attend lecture when reviewing points that may not be clear.

Georgetown SOM – Allison Nicole Lundy, al348@georgetown.edu

My school doesn't videotape, but they do have audiotapes of each lecture available, as well as a note taking service that summarizes each lecture. I don't think it really impacted the attendance much; the people who learn best by going to lectures still went, but the people who like to study on their own just had another tool to use. The people who went to the lectures often would replay them close to the exam as a review as well, or to clarify points that they may have missed.

LSU HSC Shreveport – Martin Setliff, MSetl1@lsuhsc.edu

At LSUHSC-Shreveport, 1st and 2nd years have started audio recording the lectures and posting them online, but they do not video the lectures.

Northwestern University – Eugene Duke, e-duke@northwestern.edu

We don't have video taped lectures but we do have audio taped lectures plus all the power points from the lectures are also posted online. I'm willing to bet that this does decrease attendance significantly and that going to a videotape system, as you are suggesting, will also decrease attendance.

My estimate would be that our attendance for the majority of lectures was around 70-80% during first year and is around 65-70% this year. For certain lectures it can get as low as 50% attendance. So a general answer would be that your administration is correct in worrying about lower attendance in lecture. Performance is much more difficult to gauge since ideally, you would need two equivalent sets of students (one group who has the videotaped lectures and the other with only traditional lectures) and then you would have to compare how both groups do on a standardized test. I can tell you that Northwestern has done significantly better than the national average on USMLE step 1 for the last ten years with the most recent class average being 233 (still preliminary since not 100% of the scores have come back). So maybe if we didn't have the "audionotes" posted online and instead only traditional lectures, then the average would be higher or maybe it would be lower, difficult to say. In general, I think posting lectures online in audio format, video format, etc. is a huge plus for students. It allows us to learn whichever way we learn best instead of forcing us to accommodate to a learning style that isn't optimal. Our administration's view of online lectures is also positive. They believe that it promotes an adult learning style. In the end it's our responsibility to learn the material. How we learn it is up to us (at least to some degree).

University of Florida COM – Dhipthi Devabose, dad58@cornell.edu & Sarah Smith-Vaniz, sarahsv@ufl.edu

I actually found an interesting study done at the U. Michigan dental school about this. Turns out that when students have audio only, video and audio, video w/ concurrent PowerPoint, they actually prefer audio only because of portability. I face the same problems with the administration but gained some support after I had the students in my class fill out surveys. We now digitally record audio and put them online. It requires student participation in terms of turning on the recorder and bringing it to the IT people to upload. The lectures are protected. Each student needs to put in their own ID to access the website. I've attached the study I found about this as well as my proposal. Please let me know if you have any questions. Schools like Stanford and Harvard already do this and Harvard actually pod casts their lectures. So we have some good predecessors here. Attendance did not go down. We made it clear that if fewer than 50% of the class showed up the lectures would not be uploaded at all so the class had an incentive to come. Lecturers were asked for permission and 99% of them had no problem whatsoever. It was only the one faculty member who had a problem with it originally who held out. Everyone else was glad to be recorded. It also helped tremendously when a lecturer speaks too fast or has a thick accent. Also students said that they were able to review things they didn't quite get through the recordings.

Reply from Sarah Smith-Vaniz: During my 1st and 2nd years, we were not allowed to video tape lectures.

However, in the last year this has changed. And more classes are available for students to review. The faculty was very resistant to this change; however mandatory attendance policies have helped to alleviate their fears about the affect on class attendance. Students really appreciate the ability to review lectures if they don't understand a concept. They can even speed them up and review at a faster pace if they want to.

Central Region OSR Chair - Marla Dewitt, dewitt.marla@gmail.com

We discussed this in depth at the OSR Central Region meeting in Omaha earlier this year and I can share with you some of the data we gathered there. Hope it's helpful to you & your school: The OSR reps from each school filled out a survey at the end of the meeting, here's what we got for results:

Out of the 21 central region schools present, 15 utilized some kind of lecture recording. Format varied greatly from just a PowerPoint with audio over it (often using a program called camtasia) to Mp3 recordings, podcasts

and streaming video. 8 of the 15 schools who use lecture recording said its effect on attendance was "none" or "not much."

University of Nevada SOM – Morgan Richards, moblisser@gmail.com

Our school has one class, Biochem in the first year, on pre-recorded DVDs that students are given the first day of class along with a syllabus/notes that outline the videos and important material. Class time for questions is still scheduled each week, but students are required to view the videos on their own. Many like the videos because you can watch confusing subject matter as much as you want, but others would rather have traditional class lectures along with the videos. In addition, several short videos for Anatomy lab are posted on the web each week to help illustrate the dissections and structures. These are not entirely comprehensive, but have shown to be excellent for lab prep and exam study.

Johns Hopkins SOM - Mark Bicket, mark.bicket@gmail.com

A similar question went out to the GSA listserve and many school administrators responded with their comments. I'm at Johns Hopkins and we do have a video tape service. We made a switch from a different system last year where lectures are recorded and posted online in real player formats to a system using the VBrick EtherneTV System. In both cases, the lectures are password protected and cannot be downloaded and saved or distributed. We also have lecture notes and PowerPoint slides or documents posted online as well on a file server (Blackboard). With the lectures, you can download a program to accelerate the lecture speed up to 2.5 times normal speed. This is helpful when reviewing lectures before exams and studying. Many students watch lectures more than once. Regarding class attendance, a few students don't come, but we have pretty good attendance in general, especially if the lecturer is dynamic and engaging. I would imagine criticisms of class attendance coming from people who either don't lecture well or can't imagine any other way of learning than how its always been done.

Concerns I have heard on the email circuit include patient privacy, redistribution of lectures through unauthorized means and class attendance. Most of the concerns can be taken care of with selection of a good distribution system, so making a good choice seems important.

University of Medicine and Dentistry of New Jersey - Marissa Miyasaki, marimiyaz@gmail.com

Our school does not videotape lectures but they do post audios of the lectures online. I do think that posting lectures online is valuable for some people. Everyone has a different style of learning. I think that people learn in different ways and there are some people that are very auditory learners and others are more 'book' learners. I think ideally I learn best from a combination of both books and lectures. I will acknowledge that a combination of both is ideal, but given the time constraints of school and the vast and overwhelming amount of information presented, I often found myself learning well through handouts and books. The drawback of learning through texts is you do not get as much interaction with faculty and peers that way. Hence I feel that small group sessions are valuable in any medical curriculum, to enable more interaction with faculty and peers.

Howard University College of Medicine - Chad J. Lennon, weirdkidusa@aim.com

We have started the video lecture process, which has not diminished the amount of people who attend lectures. Unfortunately, this year, the program was not reinstated. The students and some administrators and professors are very proud of the initiative. The issue that we face now is convincing other professors that they will not be put up in a public forum, such as YouTube, that is not known for educational use. Many professors are also concerned that the amount of students attending will start to drop, although that was proven false last year. It is a wonderful option to assist people through medical school, but it starts with the professors first.