Dentists must be competent in the use of computer-based resources to support their profession. The Dental School has a long history of bringing new information technologies to bear on the preparation of dental students.

Since 2000, all predoctoral dental students have entered the curriculum with laptop computers and software that includes electronic access to a comprehensive set of course syllabi, more than 100 manuals, and all required and recommended textbooks (more than 90). This is via a laptop-contained application that offers a search engine, subject area collections and graphics, digital video and animations, and more. Faculty later incorporated an oral health problem-based module into a Professional Development/Dental Informatics course.

Freshman students receive instruction on various computer software tools and access to server-based resources such as file and video servers. Clinical problems or scenarios are assigned to small groups of students during their first three weeks of school. The groups research the problem, make a diagnosis and decide upon a method to treat or solve the problem. Students must substantiate all problems and solutions with evidence. Presentations must include a bibliography with references to computer-generated manuals and textbooks, current literature from online and other Internet resources. Each group selects one to two students to deliver a presentation bolstered by multimedia such as graphics, pictures, animation or video. Similar types of exercises are now incorporated over the four-year Dental School curriculum, with an emphasis on best evidence through a “critically appraised topics” program. These exercises are examples of the Dental School’s longstanding commitment to bringing new technologies into dental education.

More technologies

Recent technologies deployed in the dental curriculum include use of a new simulation lab for sophomore students, enabling them to have experiences in the lab that come closer to real patient care than ever before.

Other innovations include the use of a virtual microscope, integration of a clinic information system and computer-based patient record, and the introduction of CAD/CAM (computer-aided design/computer-aided manufacturing) technology for tooth restoration.

The clinic information system includes digital radiology with picture archiving and communication. More than 250 students and residents have used these systems at the point of care. All patient accounts — more than 150,000 — are now accessed through the clinic information system by students, staff and faculty. Radiographic images are accessed through the picture archiving system, which contains more than 200,000 dental images and 10,000 patient radiographic series.

Future directions include use of the clinic information and radiographic systems to support remote clinic operations, and a continuous monitoring of the profession to determine what new innovations need to be incorporated into the curriculum.

– Gary F. Guest, D.D.S., assistant dean, predoctoral clinics, Dental School, and Birgit Junfin Glass, D.D.S., M.S., professor and associate dean for academic affairs, Dental School