

## The REAL Curriculum

REAL stands for Relevant Experiential Active Learning. Key features of our [award-winning](#) curriculum are:

- A small-group learning environment where students share responsibility for learning;
- Time for self-directed inquiry, integration of concepts, and reflection about learning;
- A commitment to creating a culture of inquiry and scholarship;
- Cornerstone experiences (ACEs) that integrate multiple content areas in intense, powerful learning scenarios within the school and the community;
- Development of clinical skills in an environment similar to a small-group practice.

The program will accomplish its goals through academic work in four themes and two threads, which are woven throughout the four years of the program. The program includes a variety of educational formats to deliver the curricula, including problem-based learning sessions (PBL), team-based learning (TBL), independent study, seminars, experiential learning opportunities, traditional lectures, virtual reality clinical simulation, laboratories, standardized patient experiences, and patient-based comprehensive care. An important goal of the curriculum is to help students become better prepared in independent learning, critical thinking skills, and the use of evidence. The curriculum is a program of study that includes traditional and newly organized integrated educational modules.

## Highlights of our Curriculum

The REAL curriculum is centered on four key themes:

- Health and Well-Being

This theme contains all curricula -- both didactic and clinical -- that apply to health and the normal structure and functioning of the body and of the oral complex. The traditional content areas of physiology, biochemistry, anatomy, histology, among other dental science classes, are integrated through cases to form a better bridge between the basic sciences and the clinical sciences.

- Disease Processes

The Disease Processes theme includes content related to general and oral diseases. These topics are often melded with healthy structure and function content to provide students with a global perspective of the implications of disease on usual functioning.

- Restoration of Health

This theme contains content related to therapies necessary for treatment of medical disease and dental disease. A focus on restoring oral health is accomplished through virtual reality clinical skills training, training on models and progression to comprehensive dental care in conjunction with didactic knowledge.

- Maintenance of Health

The Maintenance of Health theme focuses on curriculum which explores strategies for preserving health through general and oral health therapies, patient education, disease risk assessment, and disease prevention. This theme provides viewpoint from which students can develop life-long care plans for their patients.

In addition, the curriculum has two key professional threads woven throughout learning experiences across all four years:

- Inquiry

This thread that runs throughout the four-year program supports student growth in skills in clinical decision making. Students develop an understanding of what scientific evidence is, how to make clinical decisions, and to value scientific discovery in all aspects of dentistry.

- Leadership

This thread contains curriculum for the development of students as ethical, sensitive, caring practitioners who are stewards of oral health of the individual patient, the community, and society. An important focus in Leadership curriculum is content that helps students advance in their role as a professional. It also supports the integration of all students into the practice management curriculum centered within their clinical preceptor groups.

## **Classroom**

### *Simulator-facilitated learning for each first-year and second-year student*

Our simulation labs are among the most advanced in the world. We use two complementary systems to create the ultimate learning-by-doing experience.

First-year dental students use our state-of-the-art computer-assisted DentSim laboratory to become familiar with the tools of the profession through exercises removing "decay" from simulated teeth. The DentSim unit displays standard patterns and--using a multimedia guide--helps each student perfect his/her technique. A student can then repeat the exercise if he/she makes a mistake until perfectly matching the standard.

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Second-year students each work with a KaVo unit to develop their manual skills for restorations, fillings, composites, and crowns and bridges. Each KaVo unit simulates a patient in a dental chair and has both air-powered and electrical-powered tools available.

Available to all students 24-hours-a-day, both simulator labs have made our students' transition to the clinics much smoother. Our investment in high-tech dental education helps to get you into the clinic more quickly and to be better prepared and more confident when you greet your first patient.

#### *Improving the classroom experience*

At the end of each semester, students complete course evaluations to give feedback to the course directors and the Committee on Dental Education (whose membership includes two students). The Associate Dean for Education runs focus groups with students at the end of each academic year to elicit student feedback, and the Dean meets monthly with class representatives to identify issues that need to be addressed. Finally, fourth-year students complete an exit survey prior to graduation whose feedback is considered by the Committee on Dental Education.

## **Clinic**

#### *Bridge to Independence*

Third- and fourth-year students are assigned their own chair and workspace in a practice group with six to eight other students, much like a small group practice. Each group has a faculty preceptor who helps each student as a mentor or a senior partner to develop treatment plans for each patient and oversee the quality of work performed. The preceptors cooperate with full-time faculty members to assess each student's technical and professional skills.

#### *Practice Management Experience*

Each preceptor group also has a patient care coordinator (PCC), who acts as an office manager in a typical private practice. The PCC helps each student to make appointments with patients, control recalls, manage insurance forms, and enter treatment plans so that he/she can attend to the care of each assigned patient. In this way, students develop an appreciation for the collegial, managerial and entrepreneurial aspects of dentistry. In fact, every fourth-year student is expected to develop a business plan for a hypothetical practice that will be critiqued and perfected under the guidance of accountants and other practicing dentists.

## **Research**

#### *Culture of Inquiry and Professionalism*

Our students begin to think like health care professionals through our small-group problem-based discussion sessions, which serve to complement didactic lectures. Guided by facilitators, these

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sessions are similar to discussions that can occur during rounds or laboratory meetings. Each student begins to learn about the resources dentists and health care professionals use to better serve each patient in making differential diagnoses and developing treatment plans. By integrating the knowledge of the biochemistry, physiology, pharmacology, psychology, technology, and sociology behind each hypothetical patient, students learn how to think, interact, communicate, and pursue knowledge as leaders in health care delivery.

#### *Research Reveals the Future of Dentistry and Preventive Care*

Many students directly participate in projects conducted by our world-class faculty at the School of Dental Medicine and present their findings at the annual Professionals Day each spring. Often they are rewarded with authorships and invited presentations at international meetings along with their faculty mentors.

Our students have assisted in the discovery of antibiotics that are naturally produced in the mouth that could combat HIV replication, signal progression of cancer, or predict difficulties in cardiovascular disease or pre-term birth. Students also assist with faculty projects that focus on preventing childhood cavities (caries) in under-served, high-risk populations and establish research networks among dental practices to more rapidly evaluate and communicate evidence-based findings in routine patient care. Finally, our research collaborations with the University's other schools further push the edge of innovation to develop better materials for dentistry or to better address factors that affect disparities in health care quality.

The School of Dental Medicine also offers students the option to pursue a [Master's Degree in Clinical Research Training](#) with the School of Medicine that allows students to focus their talents to conduct clinical and translational research on oral health problems and disparities. Usually students participate in this master's year between their traditional second and third years of dental education in order to complete a thesis and present their work in a national conference.

## **Community**

#### *Healthy Smiles Sealant Program*

As the first Cornerstone Experience in our curriculum, Healthy Smiles is a win-win situation. Kids at risk for a lifetime of tooth problems get a good start on better dental health, and students get a head start on professional training.

First-year students participate in our award-winning Healthy Smiles Sealant Program by introducing them to second-, third-, and sixth-grade students attending Cleveland-area schools to perform dental exams and place sealants on their teeth. Students are prepared through the Outreach Preventative Dentistry course, developed specifically for the sealant program. It's an intense overview of beginning dentistry that lasts until Thanksgiving break and includes everything the students need to know to participate in the sealant program, such as taking a patient's health history, assembling portable dental chairs, and using all the tools in the accompanying kits.

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### *The Family First Program*

Thanks to a grant from the National Institutes of Health awarded to Dr. Sena Narendran, second-year students also have a Cornerstone Experience.

Family First focuses on assessing the risk for dental diseases from a whole-family and multi-generational perspective and integrates family medicine, nutrition, and dental care. So far, 18 Cleveland-area families representing between three and five generations are enrolled, and students are evaluating 72 family members to evaluate eating habits and general health problems in each family.

The grant also allows the School of Dental Medicine and the School of Medicine's Department of Epidemiology and Biostatistics to complete development of a five-year [DMD/Masters of Public Health](#) curriculum.

### *Cleveland Free Clinic*

Located in close proximity to the CWRU campus, the Free Medical Clinic of Greater Cleveland is a non-profit community service organization that offers medical, dental, podiatric, legal, and counseling services for adults and children. Dental students participate alongside medical, nursing, and social work students in any of the Free Clinic's programs or in the student-run clinic on their own time.

### *International and Interprofessional Learning and Collaboration*

The School of Dental Medicine also participates in giving critical oral health services to a few thousand residents living in Lamay, Peru, a poor rural village in the Sacred Valley. [This medical mission](#) is co-organized with the CWRU School of Medicine, and is an additional elective opportunity for our students to understand the difficulties and challenges of global health care delivery.