



Imagine Our Future

A new Campaign for Clinics seeks long-overdue upgrades

BY STEVE STEINBERG DENTAL ALUMNI NEWS EDITOR

The new UW Health Sciences building now planned for our School and the five other Health Sciences schools (Medicine, Pharmacy, Nursing, Public Health, and Social Work) will be something to behold. The 110,000-square-foot facility will have modern, flexible spaces and technology to facilitate interdisciplinary learning and continuing education.

If the rest of the funding comes through this year, the new building could be completed as soon as 2022. But it will be primarily a classroom facility with only limited clinical capacity. That means that our School of Dentistry must still rely on our current 70-year-old clinical facility for the foreseeable future. And that's not an option unless major improvements are made.

"We do not need a new dental school," says Interim Dean Gary Chiodo, "but we need to seriously fix the one we have."

AGING CLINICAL SPACE

"The clinical space is not at all what we want it to be," he says. "Walking through the D-1 Simulation Clinic and our clinical spaces, you can see that the equipment is past its expiration date. It's worn out, old, uninviting."

He enumerates some of the issues: Torn dental chair upholstery makes proper cleaning a challenge. Cabinets are cracked and gouged. Sinks are scratched. There are privacy issues: Operatory partitions are only shoulder height, so students and patients must keep their voices way down.

"We need to replace all the chairs, cabinetry, and partitions in D-3 and D-4," Dean

Chiodo says. "Our patients understand that they are coming

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— INTERIM DEAN GARY CHIODO

Above: Kicking off the campaign on March 9 at Husky Stadium, Dean Chiodo said, "We can and we should be No. 1. We absolutely can do this."

“State-of-the-art technology must start in the Simulation Clinic and continue seamlessly into the patient clinics.” – DEAN CHIODO

to a dental school for their care; however, when they arrive, the appearance of our facility is not inviting. We need to make our environment as appealing as any other dental clinic.”

Our School’s technology must be upgraded as well, he says: “We need to add electric hand pieces, so students will be learning with both the electric and air turbine technology. State-of-the-art technology must start in the Simulation Clinic and continue seamlessly into the patient clinics. This includes CAD/CAM technology related to digital dentistry.” (See related story on Page 29.)

All of this renovation and technology comes at a cost, which has virtually no chance to be covered by the Legislature. Philanthropy must meet the need, which is why, on March 9, at a special event at Husky Stadium, our School officially launched its new Campaign for Clinics. The theme: Imagine Our Future.

With a crowd of alumni, faculty, and students on hand, Dean Chiodo showed slides depicting some of the disrepair in the School’s clinics to underscore the urgency of the campaign. However, he also emphasized that “it’s not just the physical infrastructure [that needs upgrading] – it’s also the information technology, the substructure. Our capital campaign is 100 percent devoted to fixing this.”

UW Provost Mark Richards, who followed Dean Chiodo to the podium, called our School “a fantastic program. It’s a crown jewel of the University of Washington.” Citing the UW’s growing focus on population health, which involves our School, he said, “We couldn’t be at a better time for the School of Dentistry to be poised for true greatness.”

He also praised Dean Chiodo’s leadership and added, “We’re absolutely certain that this wonderful future we imagine for the School of Dentistry will be realized with your help.”

UW President Ana Mari Cauce was unable to attend but sent a message which Dean Chiodo read to the crowd. It said in part: “The School of Dentistry is already a magnet for outstanding faculty, stellar staff and talented students. With this campaign,



Dozens of clinic chairs urgently need replacement, not only for patients but for providers as well.

together, we will ensure they have the tools and facilities to unleash their full potential and maximize their impact on the world.”

Washington State Dental Association President Chris Delecki also spoke, saying, “I understand how important it is for faculty and staff to be in one of the best facilities and best work environments.” Patients, too, deserve a better facility, he said, regardless of their income or insurance coverage.

“A focus on infrastructure will help us recruit and retain the best faculty and students,” added Dr. Mark Drangsholt, Chair of Oral Medicine and Chair of our Faculty Council.

MUCH IS AT STAKE

To be sure, the Campaign for Clinics is an ambitious proposition. But it would be unimaginable for our School to do nothing, Dean Chiodo says.

“Our standing in the United States and in the world is at stake,” he says. “No matter how good our curriculum and faculty may be, you cannot continue to maintain this standing if the equipment is dated, technology antiquated, or clinic uninviting. This is an issue that’s urgent to address.”

At the same time, Dean Chiodo hopes alumni and friends of our School will share his excitement at the prospect of taking the next step forward for our students and faculty. He en-

thus over the possibilities for the Simulation Clinic:

“You can actually put on haptic goggles, and the instructor can instruct all students at once, and you don’t even have to be in the room. That technology exists now. Short of that, there’s also technology that’s been out there for a while – a virtual patient and instruments. Students look through the goggles and pick up a virtual instrument and do a procedure on a virtual tooth, and the feel is exactly the same



The D-1 Simulation Clinic, the hub of our School’s pre-clinical instruction, could greatly benefit from digital technology upgrades.

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– DR. MARK DRANGSHOLT, CHAIR OF ORAL MEDICINE AND CHAIR OF THE FACULTY COUNCIL

as the real thing. And when you finish the procedure, you get a readout of the parameters of what you did.

“So the expectation is that if you’re going to do a crown preparation with a 5- to 7-degree axial taper and a millimeter and a half of occlusal reduction, you finish it virtually and the readout shows you exactly how close you got to those parameters. Plus, the instructor can set parameters so it’s color-coded in terms of what’s enamel, dentin, and cementum, but you can also color-code for caries. So you can see how well the student did on caries removal without getting a pulp exposure and still designing the preparation appropriately. It’s amazing!

“Those are the kinds of things we need to think about long-term. If we’re successful in this campaign with getting the funding we need for critical improvements, that will bring us to current standards and we will maintain our national and global rankings, and deservedly so. However, I want to plan for the future and establish a funding resource so that we may stay in front of developing technology and never again be in a position of needing to replace, remediate, and improve so much so fast.”

SHOPPING SMARTLY

The Dean has already begun talking with suppliers about operatory improvements and will shop for good deals not only on those but on the other equipment as well.

“We’re looking at the dental supply companies providing

this equipment to the School at the academic rate,” he says. “They want their instruments and equipment in the hands of students so that’s what they’re used to, and when they graduate, that’s what they’ll buy. Another benefit is that they build their equipment to stand up to students. Students are not easy on equipment!”

He sees yet another benefit to equipment upgrades: a standardized appearance throughout our clinics that could help faculty as well as students.

“As the UW Dentistry faculty practice grows in D-4, if there’s a need for more operatory space and students aren’t using all the operatories in D-3, we can let faculty use that space as it’s available,” he says. “Our operatory space is adequate. It’s a good footprint, and we can work with it. Our brand as ‘UW Dentistry’ has cachet and we have the opportunity to realize the maximum benefit of that brand.”

“The UW has long had a reputation of training some of the finest dentists in the nation,” said third-year student Gavin McNelis, president of our Student Council, at the kickoff event, “and we need to stay on that path.” He also quipped, “If it’s within your means, consider throwing some Dawgs a bone.”

Dean Chiodo closed the kickoff event by reiterating our School’s steady march upward in national and world dental school rankings. He concluded: “We can and we should be No. 1. We absolutely can do this.” ■

Digital Dentistry Initiative:

What our future looks like

Interim Dean Gary Chiodo says he frequently hears this question from our alumni and other WSDA member dentists: “What are you doing to teach digital dentistry?”

Not as much as our School could be doing, he believes – but that’s going to change, and soon. A new initiative, spearheaded by Drs. Daniel Chan and John Sorensen of Restorative Dentistry, seeks to augment our digital equipment



Dr. Daniel Chan



Dr. John Sorensen

and beef up that portion of the curriculum. The Digital Dentistry Initiative is a major part of our new Campaign for Clinics.

Digital dentistry is already familiar terrain to today’s practicing dentists. Computers and other digital technology have reached into almost every corner of the profession, starting with computer-aided design/computer-aided manufacturing (CAD/CAM), which has profoundly affected restorative

“The Digital Dentistry Initiative is one of the most exciting things I’ve seen since I’ve been here.”

— DR. DANIEL CHAN, CHAIR OF RESTORATIVE DENTISTRY

procedures, patient satisfaction, and quality. Patients now can get a permanent crown fabricated and placed in just one appointment when the dentist uses an intraoral scanner to send 3-D images to a CAD/CAM milling machine.

Digital technology is also employed in caries diagnosis, implant dentistry, and occlusion and TMJ analysis and diagnosis, among other aspects of practice. All of this makes it more important than ever that our students have a solid grounding in this field before they graduate. Dean Chiodo has repeatedly stated that our graduates will be asked about this service on the first day that they enter practice.

FOCUS ON PRE-CLINIC

“This is all about modernizing our pre-clinical instruction, which is the foundation for clinical practice,” says Dr. Sorensen, who is director of the B4T laboratory and Research Director for our Graduate Prosthodontics program. There, he’s seen how interest in digital dentistry has burgeoned in recent years, with four out of five graduate resident theses in the past two years related to digital technology and the dental materials used for CAD/CAM.

“Maybe 40 percent of our pre-docs are exposed to digital dentistry now,” he says. He’d like to see the instruction start as early as pre-dental courses.

Work began about a year ago on the initiative itself, although “we’ve actually been working on the IT end of this

Tools of the digital dental trade (from top): An intraoral scanner and monitor, a four-axis wet milling machine, lithium disilicate blocks for crown fabrication, and a 3-D printer.



for several years,” says Dr. Chan, our Chair of Restorative Dentistry. Second-year students have already been practicing with an intraoral scanner in Dr. Yen-Wei Chen’s pre-clinical course for the last few years, but it’s time for the next big step.

Dr. Chan and Dr. Sorensen have mapped out three major phases of implementation. The first would be to acquire the necessary E4D Technologies hardware and Compare® software. Students using it would scan their tooth preparation, after which the software evaluates their work. The self-analysis software provides a color-coded 3-D analysis of preparation wall taper, over- or under-preparation, and quality of margin preparation.

“To prepare our students for practice after dental school, our goal is to have students be exceptional at self-assessment, since the single most important skill is self-evaluation,” Dr. Sorensen says. “The objective evaluation system takes pressure off of the faculty by making the grading system independent and unbiased.”

The second phase would entail CAD/CAM training in chairside milled restorations, including crowns, veneers, and onlays. The technology can help students improve their esthetic analysis and smile design skills, and that’s just for starters.

“For digital implant prosthodontics, implant software can go through the entire process from A to Z, starting with site assessment and treatment planning,” Dr. Sorensen

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says. “The user can perform a virtual surgery and create a surgical guide for the real thing. Users can pre-design and mill temporary and permanent restorations. With our faculty and students working together, we will have almost complete in-house control.”

The third phase comprises hiring a specialized digital dental technician who will work with and teach the students in creating in-house CAD/CAM lab work for their patients.

Students will witness firsthand the design and milling as well as shading, staining, and glazing. The digital technician will monitor and maintain scanners. A separate IT support position would also be required, especially given how rapidly the technology is advancing.

The shopping list also includes E4D software for single-crown design and restoration, another milling machine, and two more intraoral scanners. “Ideally, we’d have a scanner for every hexagon in the Simulation Clinic,” Dr. Sorensen says. In the D-2 and D-3 pre-doctoral clinics, students could do a crown prep in a morning appointment, then work with the lab technician on fabrication, then place the crown in the afternoon.

Another important tool is the 3-D printer, which can fabricate surgical guides that make procedures reproducible and reliable. Also, the 3-D printers and milling machines can design and fabricate abutments for crowns, Dr. Sorensen adds.

“We can use E4D software for Fixed Prosthodontics and Operative Dentistry courses – things like a two-surface composite prep,” he says. “It’s also applicable for Removable Prosthodontics. Instead of having the lab send us a wax-up of a metal frame for dentures, it sends us three or four screen captures for approval.”

NOT JUST FOR RESTORATIVE

Dr. Chan also says digital dentistry would be taught not only inside but outside his own department. “It would also be used by Orthodontics, Periodontics, and Oral and Maxillofacial Surgery,” he says. It’s especially well-suited to Orthodontics because of its superior minor tooth movement and retainer production capabilities, he notes.

Digital dentistry proponents say the other advantages speak for themselves. “It lets us work in 3-D and gives us more control in



The oral scanner maps the oral cavity in precise three-dimensional detail more accurately than old-fashioned impressions.

all aspects of prosthodontic and implant dentistry,” Dr. Sorensen says. “In a clinical study here at the UW with Drs. Chen and [Alireza] Sadr, we found that nearly 80 percent of posterior digital ceramic restorations needed no occlusal or proximal adjustment. It’s a big improvement over the old way. And when you design in advance, you can cut the chair time in half – and

patients love it.”

The time savings are also huge for design and fabrication of full arch implant-supported provisional prostheses, he says. The Graduate Prosthodontics residents and Periodontics residents have collaborated in digital planning, surgical guides, and fabrication of immediate full arch provisional prostheses for more than five years.

Faculty practice will benefit too. “We also have big plans to bring these digital technologies to the UW Dentistry clinic,” Dr. Sorensen says.

Dr. Chan also sees a significant environmental benefit, given that students often need to take two or three impressions to get a good cast. “Using the old-fashioned plaster casts, every year we have to dump tons of plaster,” he says. The intraoral scanner eliminates that problem.

“The Digital Dentistry Initiative is one of the most exciting things I’ve seen since I’ve been here,” he says. ■

Want to know more?

For more details about the Digital Dentistry Initiative, contact Dr. Chan at dcnchan@uw.edu or Dr. Sorensen at jsoren@uw.edu.

To support the Campaign for Clinics, please contact one of these members of our Advancement Office team: Randy Newquist at randyn@uw.edu, Doug Day at daydoug@uw.edu, or Greg Croak at gcroak@uw.edu.