FALL/WINTER 2019

# And That's How It Happened

Chaos and commitment. Grit, coincidence and luck. Few dental school experiences can compare with that of Anna Hampel's, professor emeritus.

University of Minnesota



## Dear Colleagues,

My best wishes to you all for the new year as we move into the next decade. It is a time for both reflection on our past and thinking ahead to what the next ten years will bring.

Our cover story is about a woman who influenced many of us. Dr. Anna Hampel's professional career was defined by what she gave back to the profession and the School of Dentistry. And this after an educational path that can only be described as challenging. It defined her grit and determination and even those who have known Dr. Hampel will learn things about her past we never knew. We have been most fortunate to have her as part of our faculty and serve as our teacher.

The interview with Dr. Don Nixdorf, director of the TMD, Orofacial Pain, and Dental Sleep Medicine Clinic covers a discipline and clinic that are very important to me. Forty years ago I had the opportunity to work with Drs. Jim Fricton, John Schulte and Eric Schiffman as a part of the effort that established the clinic. It was unique for its interprofessional character then and you will learn that it is even more so today, as varied disciplines provide integrated care for these patients with very complex problems. I think you will agree that Dr. Nixdorf is providing able leadership of this important clinic as we move into the future.

This past year we lost one of our former deans, Dr. Richard Oliver. He believed in me and hired me to a faculty position and I will never forget that. Dr. Oliver's leadership led to advances in the school's standing in periodontal research, biomaterials, geriatric dentistry, occlusion, and orofacial pain, among others. There is a review of his life on page 22.

You will also find throughout the magazine evidence of two of my most important goals as dean. The first is a renewal of our sense of community as alumni of the School of Dentistry. This was marked by our first Alumni Weekend this past September and some photographs from this initial event are provided. Please keep in mind this coming year's dates of September 11-12, 2020, and make every effort to attend.

The second goal was to plan and initiate a philanthropic campaign with input from our entire community. This campaign, part of *Driven: The University of Minnesota Campaign*, was kicked off this fall and is focused on student scholarship support, research, and our conversion to digital dentistry. A brief outline is provided on page 3 and *Driven*. markers identify related stories throughout the issue. I hope you will give much consideration to participating.

There are other stories of the accomplishments of our faculty: Dr. Stephen Shuman and his efforts in interdisciplinary care of seniors with dementia and his new GPS tracked denture, and Dr. Ernie Martin who has made a difference for many years in our Comprehensive Care Clinic. Our annual list of research publications by our faculty provides an important sense of the range and scope of our contributions to the knowledge base of our profession. I hope you will take the time to review the list and perhaps even read a paper or two.

I would be remiss if I did not thank Claudia Kanter for her many years of service. She will retire in January from her position as director of marketing and communications and this is her last issue as the editor of *Dentistry* magazine. Her tremendous talents and dedication will be missed by all.

Please enjoy this issue and my very best wishes to you all for the years ahead in the decade ahead!

Take care,

GARY C. ANDERSON, DDS, MS
Dean

Lang C. Onless

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PAINTING BY DAN WILSON



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PHOTO BY STEVE WOIT



The University's mission, carried out on multiple campuses and throughout the state, is threefold: research and discovery, teaching and learning, and outreach and public service.

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# **NewsBites**

## Making Dental Care Dementia-Friendly

An interprofessional team at the University of Minnesota has received a five-year, \$3.74 million grant from the U.S. Health Resources and Services Administration to improve the healthcare and health of Minnesota's older adults through education and community partnerships. Collaborators include the



Medical School, School of Dentistry, the Community University Health Care Center, the University of Minnesota Schools of Nursing, Public Health and Physical Therapy, the College of Pharmacy, and Fairview Health Services.

Led by the Medical School's Jim Pacala, MD, MS, the goal is to train health care providers and interprofessional learners, and to transform primary care sites to integrate the practice and training for age-friendly geriatrics care.

School of Dentistry Associate
Professor Stephen Shuman, DDS, MS,
heads up the dental school's part of the
project, which includes a Dementia
Friendly Dental Practices initiative.
"We need to get entire communities ready
for the dementia epidemic," Shuman says.
"This includes businesses, law enforcement, restaurants, local governments
and especially health professionals."

For dentistry, the need is to increase the capacity of community dental practices to care for the growing number of older adults living with dementia. The number of Minnesotans with a dementia diagnosis is expected to increase by 24 percent over the next five years, to an estimated 120,000 people, according to the Alzheimer's Association.

"The goal of the dementia-friendly dental practice is a smoother experience for the patient, caregivers, and dental providers," says Shuman. "The entire team needs to be involved, including front office staff, accounting, and the clinical care team. This includes recommended practices related to the physical environment, scheduling, communication, treatment planning, care delivery and more."

Shuman works with an interprofessional team of experts on dementia care. The group, which includes representatives from the Minnesota Dental Association, Minnesota Area Agencies on Aging (AAA), and dementia care consultants, will review existing curriculum from the AAA's ACT on Alzheimer's initiative and augment it with new materials tailored to dental practice. Training will first be piloted with a small number of Minnesota practices and then shared broadly to build the capacity of dental practices statewide to serve patients with dementia more effectively and confidently.

"Dental practices that build their capacity in this area will be more effective and productive," said Shuman. "The demographics are not going to change any time soon."

Minnesota's interprofessional dementiafriendly dental practice initiative is led by the University of Minnesota and the Metropolitan Area Agencies on aging, in collaboration with the Minnesota Dental Association. Its work is funded, in part, by the Delta Dental of Minnesota Foundation, the U.S. Health Resources and Services Administration, and the F.R. Bigelow Foundation.

Dr. Shuman directs the dental school's Oral Health for Older Adults Program and its affiliated Walker Methodist Dental Clinic in south Minneapolis, where School of Dentistry students gain concentrated experience with an aging population and observe dementia-friendly care.

## Quick Takes

## Driven.

The Campaign for the **School of Dentistry** 

November was the official launch of the School of Dentistry's fundraising campaign to raise \$31.5 million in support of student success in dentistry and the oral health of all Minnesotans.

Investments in the School of Dentistry will:

- Increase student support by providing scholarships that help make dental school more affordable and attract talented students from Minnesota and the Upper Midwest.
- · Drive research innovation by supporting our leading-edge scientific investigations in head and neck cancer, biomaterials and oral prosthetics, craniofacial skeletal disorders, orofacial pain and neurological defects, and the important work of reducing disparities in oral health care delivery.
- Ensure state-of-the-art dental education by making strategic improvements in our ability to teach and provide care using the most contemporary methods in digital dentistry. This will include imaging, impressions, dental restoration, and prosthetic construction through CAD/CAM and 3D printing.

Driven. The Campaign for the School of Dentistry. is part of the University-wide campaign to raise \$4 billion in support of students, outreach, faculty and research.

Every gift counts! Contact Emily Best (emilyj@ umn.edu) or go online to dentistry.umn.edu/ alumni-donors/driven to learn more.

### **Feasibility Study Committee Identified**

Dean Gary Anderson has appointed an advisory committee of seven members to determine the feasibility of a Moos Tower renovation and/or new building construction. The committee will meet from December 2019 to April 2020 and report on its findings.

### **National Conference Attendees** Visit the School of Dentistry

National drivers of the "business side" of dental education visited the School of Dentistry in October. The 83 guests representing 41 U.S. dental schools were in Minneapolis to attend a meeting of the American Dental Education Association's Section on Business, Financial and Clinic Administration. Attendees toured the dental school's biomaterials research labs and took-in a presentation of the mobile interpreter and translation technology being used in the patient clinics. Student volunteers led the tours and responded to questions.

## Launching Leaders

Twenty-four dental students from the Minnesota Chapter of the American Student Dental Association (ASDA) participated in ASDA's National Leadership Conference in Chicago, November 1-3, 2019. Sessions on leadership, technology, wellness, advocacy and career planning were followed by evening socializing and networking with students from around the country. #UMNProud



## **Digital Dentistry**

Driven.

A new cone beam CT scanner purchased this fall is equipping endodontics residents with experience on the latest limited field scan technology. Alumni of the endodontics residency program purchased the \$150,000 scanner for the program. "The difference in resolution and capability is immense between the five-year old scanner we had and this new one," said Dr. Scott



McClanahan, director of the Endodontics Residency Program. "We are grateful." #Driven

### **Prototype Moves into Clinical Trials**





Lost dentures. It's a huge problem for nursing home patients and their caregivers. Now, a \$900,000 grant from the National Institute of Dental and Craniofacial Research (NIH) will support a clinical trial to test a new sensor/ passive antenna system and detector that can be used to locate missing sets of dentures.

Passive antenna technology is currently placed in patches on ski clothing to help rescuers find patients buried in avalanches.

The grant to Aster Labs, a St. Paul aerospace company working in partnership with School of Dentistry faculty member Stephen Shuman, DDS, MS, includes funding for a clinical trial under Shuman's direction at the dental school's geriatric teaching clinic at Walker Methodist senior living community in Minneapolis.

Lost dentures result in expensive replacement costs, as well as difficulties in adapting to new dentures by nursing home residents with motor skill ailments and cognitive impairments.



PHOTO BY STEVE WOIT

BY DAVID O. BORN

ittle encouragement is needed to get dentists talking about their early experiences in dental school. For many who were the first of their family to enter the health professions, that first immersion was a culture shock. Others, long-accustomed to being at the top of their class, found themselves competing with ninety or so classmates who were also 'number one.' In the clinic, some felt like the proverbial deer in the headlights seeing their first patient up-close and personal.

But few dental school stories can compare with that of Dr. Anna Hampel's, professor emeritus. On the morning she was to begin clinical training in a new school, she was blown out of her bed by a bomb. Then, she made her way to the dental school only to discover it had been largely demolished. Her pursuit of a dental education in war-torn Europe and the challenges she faced both as an immigrant and as one of the first women on the University of Minnesota School of Dentistry faculty demanded a tough and resilient character. If you've heard her laugh or seen her smile, you'd never guess the journey she's taken.

### **Chaos and Commitment**

Born in 1922, Dr. Hampel's story begins in Yugoslavia, in a Europe still reeling from World War I. By 1939, the conflicts of the Second World War were percolating. "But in some ways, they didn't affect us yet," she recalls. She and her friends were young and had little interest in politics.

It was in 1941 that she and a female friend left Yugoslavia, traveling to the quiet, German town of Tübingen, with dreams of becoming dentists. Two years later, they were 'Candidates in Dental Medicine,' having completed their dentally-related coursework. As was the custom, they planned to relocate to complete their clinical and professional studies.

"I always liked to travel and learn about new places. Leipzig, a manufacturing and cultural center, had always seemed interesting to us. The University of



Anna Hampel

Leipzig's dental school used many of the same books we had already studied and the author of one of the important texts was on the faculty, so we decided to go there."

Hampel went ahead to locate an apartment, while her friend gathered their things in Tübingen. Having found lodging, Hampel settled in for the night, unaware that more than 400 British aircraft with over 1400 tons of explosives and fire bombs were headed for Leipzig. In the pre-dawn hours, she was blown from her bed by a bomb blast and her hotel was destroyed.

Sunlight across the city revealed the devastation. Over a thousand commercial buildings, nearly 500 factories, 50 some

schools, and nine churches were among the ruins. At the University of Leipzig, 58 of 92 departments had been hit and at least partially destroyed.

Despite city-wide chaos, Hampel crisscrossed bombedout streets to reach the

(miraculously intact) railway terminal to meet her friend. Because of damage to the railway itself, her friend had to walk "quite a distance, carrying our luggage from Tübingen. Tucked safely away in a suitcase were some things from home." To her delight, she found a jar of quince jelly. "It was my favorite, and my mother made it so beautifully. It meant so much to me."

By the time the two finally made their way to the University and saw the damage to the dental school, "We didn't know what to do," says Hampel. "We waited around the city, but soon

realized the dental school would not re-open. It was not going to happen."

With no Plan B, they decided to return home to Yugoslavia. As for the conflicts around them this time, she said, "We were very concerned, but we still didn't feel that it was dangerous. When you are young, you don't realize these things."

### **Grit, Coincidence and Luck**

They never made it back to Yugoslavia. "We decided to get off the train in Vienna," says Hampel, "and went to explore the dental school there. Not only could they visit, they were informed, but they could register that day. "We have to take over for the German schools," the lady behind the desk told them.

"So, we registered and finished our clinical studies in Vienna. It was a good program because it was integrated with medicine and more advanced than we would have had in Germany. We were lucky, and it was very interesting to us."

Hampel remembers with a sad smile her class of seven students who had wandered into Vienna. "We didn't know it vet, but we had lost our citizenship. Ethnic and religious conflicts were rampant, our families had been taken away to what were essentially refugee camps, and our homes had been destroyed." Yugoslavia had been pulled into the Soviet Federation and the two women had no papers allowing them to return, "...and nothing to return to anyway," Dr. Hampel explains softly. To make matters worse, the dental school at Tübingen was closed, their German dental training was now discredited, and they couldn't acquire their final dental credentials.

In 1946, Hampel found a job as a dental assistant at the American Air Base in Tulln, about an hour away by train from Vienna where she was living. One dentist, whom she remembers as a very fast clinician, was from California. The other was William B. Nienaber ('46) from Minnesota. "He was much slower, but more precise," she adds with a smile.

Realizing she possessed skills and knowledge well-beyond those of a dental assistant, Nienaber offered to supervise so she could begin treating the many civilians in the area who needed care. One of the patients she saw was a young mechanical engineer who worked on the air base. Hearing him complain of a toothache, his American boss told him to "go see that little Hungarian dentist." His toothache was easily treated, but, "he kept coming back with all sorts of little aches and pains. Most of them, I don't think were so serious," she laughs. "Erwin Hampel just wanted to be my boyfriend."

### When One Door Closes...

Despite her training, and still lacking official credentials, Hampel made her way back into war-torn Germany in search of a school where she could officially graduate. At the University of Heidelberg, she was told she could take her exams, but only after six months observing in the clinic. Having started her studies in €



1941, she finally received her dental degree in 1947, and spent another year completing her thesis.

Finally credentialed, she filled-in for an injured dentist in a nearby town and treated patients in his practice for a year. "Then I decided it was time to return to Vienna to see if I still had a boyfriend," she said. To her delight, he was waiting for her, wanted to get married, and was anxious to go to the United States. "I, too, had always wanted to go to the U.S. where I had an uncle...living in the Chicago area, working in refrigeration, as I remember. I thought they might help us come to the U.S., but his wife discouraged me from coming, telling me how hard, how difficult it was to live here." Erwin told her, "...that letter you just throw it away and we go anyway. And so, we did."

Along the way there were delays, immigration papers switched with a Polish worker employed by Erwin Hampel, destination changes, and no small amount of good luck. Erwin's 'papers' took them to Minnesota.

"When we got here at last, I called my dentist friend in San Francisco and the one from Minneapolis. The California dentist wondered why I had gone to Minnesota. 'It's so cold there,' he said. The one in Minneapolis said, 'Finally, you're here,' as though he knew all along I would be coming."

### Minnesota Home

After 16 years of training and with her degree from the University of Heidelberg, Hampel finally found her home in the Twin Cities. "I went to the dental school to see Dean William Crawford, to ask about working as a dentist in Minnesota. He gave me a long spiel and said 'The law

"We didn't know it yet, but we had lost our citizenship. Ethnic and religious conflicts were rampant, our families had been taken away...and our homes had been destroyed."

— ANNA HAMPEL

is that you need between two and four years to become licensed in Minnesota'. So, I still had to study two more years," she laughs.

Now 97-years old, Dr. Hampel looks back and recalls, "The exams were not so bad. The English? You know so much of dentistry was based on Latin, so that wasn't a problem, and I've always been interested in languages. Chemistry, I had to study that quite a bit."

She remembers all too well when she began as a student and met Professor A.B. Hall. "Right away A.B. wanted me to be his assistant, to work in his lab. He knew I had worked as a dental technician in Germany and as a dentist in Vienna. I had more experience than the other students and he didn't scare me like he did most people."

"He was barking loud all the time, but he would fight for students in meetings. Nobody ever talks about that. He was a handful, for sure. He could be strict and he came across as a disciplinarian. He was tough, but I was mature enough to know you can learn from anyone if you just see people from the other side." A.B. Hall's other side? "I saw him every day. I saw him going into his lectures and he was just as nervous as anyone else. And, he cared a lot about people." Students and most of the faculty, "didn't see that side of him. They just remember him as tough."

### **Contributions**

After graduating in 1956, she began teaching part-time in endodontics, and then full-time in operative dentistry. Over the years, she taught oral anatomy, first aid, dental materials, oral diagnosis, and treatment planning. Her students included those in the dental assisting program (which was terminated in 1982), dental hygiene, and, of course, dentistry. She was appointed assistant professor in 1959,



associate professor in 1964, and full professor in 1967. She retired in 1992 with the status of professor emeritus.

A particularly significant contribution to the School of Dentistry came after Dean Erwin Schaffer appointed her as director of the Comprehensive Oral Health Care Program in 1966. The program only ran from 1967-1969, but Hampel identified and addressed many clinical issues, and set the stage for future dental care at the school. She worked on problems involving insufficient patients in some clinical areas, inefficient processing of patients through admissions, confusion over how emergency patients were to be cared for, and ineffective coordination of patient admissions with subsequent diagnosis and treatment planning. In the years following Dr. Hampel's leadership, a 'comprehensive care' emphasis in clinical programming went through two additional iterations and is fundamental to clinical instruction and service to this day.

Dr. Hampel also fostered and headed the International Dental School Exchange Program at the dental school, bringing former head of dental hygiene Kathleen Newell and other faculty members into the program as well. Long an advocate for women in dentistry, she encouraged many younger women, from both high school and the undergraduate programs, to enter the profession. A member of the leading

dental professional associations, she also is a Fellow of the Academy of General Dentistry and of the International College of Dentists. She was a charter member and, in 1989, the president of the American Academy of Operative Dentistry. In 1985, she was named the dental school's *Century Club Professor of* 

"When we got here at last,
I called my dentist friend...
The California dentist wondered
why I had gone to Minnesota.
'It's so cold there,' he said.
The one in Minneapolis said,
'Finally, you're here.'"

— ANNA HAMPEL

*the Year* in recognition of her contributions in service, teaching and research.

As Dr. Anna Hampel reflects on the many people who helped her start and continue her long career in dentistry, one person who served as a mentor and with whom she felt a particularly close friendship was James Jensen, then head of endodontics. Jensen was "an amazing man, an absolute marvel. You know, I tried taking notes in his lectures, but

he talked so fast. And, he always told lots of jokes. I think everyone who knew him remembers his sense of humor."

Erwin Schaffer was another stand-out. "He did so much for dentistry in Minnesota. He was so astute regarding political matters. He knew how to present issues and win support. As a result, he was especially effective when it came to raising public and legislative awareness of dentistry. He also did more than anyone, I think, to engage the practice community with the school."

She recalls one day Jensen asked her what she was going to do after she graduated. "What do you mean?" she asked. "Well," he said, "are you going to practice over a drug store? That's what everybody does who goes into practice." Jensen told her he thought she should join the faculty and remain at the school.

She casts her eyes down, staring at her hands as she remembers those early days with A.B. Hall, James Jensen and Erwin Schaffer. "And, that's how it happened," she says. And again after a long pause, adds quietly, "that's how it happened."

A moment later, her impish smile returns and she comments on that long road from Yugoslavia at the start of World War II, its twists and turns, "What else can I say? It took a long time, but I've made some wonderful friends along the way." •

## The Curious Case of the Restless Sleeper with TMD and Painful Knees

Last year, more than 2,000 new patients turned to the School of Dentistry's TMD, Orofacial Pain, and Dental Sleep Medicine Clinic for answers to undiagnosed conditions and relief from life altering pain.

In 1980, the School of Dentistry established a first-of-its-kind clinic to diagnose and treat orofacial pain within a comprehensive, interdisciplinary patient care setting. In 2020, the clinic celebrates its 40th year.

Dentistry magazine talked about the TMD, Orofacial Pain and Dental Sleep Medicine Clinic with Don Nixdorf, DDS, MS, director of the dental school's Division of TMD and Orofacial Pain. There was one obvious question to ask:

## Dentistry Magazine: The clinic has been around for 40 years. What do we know now about orofacial pain that we didn't know then?

**Don Nixdorf:** Historically, dentistry associated the symptom of pain with an infection or a mechanical issue. We now recognize that the pain experience is modulated by a number of biological mechanisms and psychosocial factors.

So, for example, we know that the pain experience, especially when chronic, involves changes of the sensory system and that these changes can heighten the patient's ability to sense pain even in the absence of injury, disease or other changes in the tissues. We understand that the modulated pain involves multiple pathways, some that enhance and some that diminish the experience of pain. There also is an awareness of the potential for interactions between the immune system, as well as the microbiome, and the nervous system to produce pain.

What about the psychosocial variables? Psychological states—things like expectations and past experiences, emotions, fatigue, fear, etc.—affect how people experience pain. So much so that we



"Paroxysmal Hemicrania–OUCH!"

Paintings by Dan Wilson www.danwilsonartist.com

now know pain to be a personal, private experience that is unique to each individual. That insight alone redefines treatment and influences outcomes because chronic pain can lead to maladaptive behaviors that perpetuate the pain. There also is a well-founded understanding that sleep disorders and pain are strongly associated.

## Since you brought up sleep, tell me about the title of this interview. What do sleep, TMD and painful knees have in common?

The title gets to the heart of two important things to know about pain diagnosis and treatment. First is that dysfunctional pain can be accompanied by co-existing factors, including mood disorders (depression and anxiety), chronic pain, and disordered sleep. Second is that diagnosis and treatment of chronic pain is a multi-disciplinary endeavor because it can be a symptom of a disease or a disorder unto itself. In this case, the complaint of painful jaws and knees is an important clue.

**How so?** Pain in multiple locations suggests dysfunction of the sensory system and/or an underlying systemic disease, such as psoriatic arthritis, which can affect joints throughout the entire body. Disordered sleep and ongoing painful inflammation results in nervous system changes and hypersensitivity. Because we find that patients with serious facial pain have multiple overlapping pain disorders, we work with a wide range of professionals. For example, psoriatic arthritis is best treated by a rheumatologist.

Tell us more about your patients. Often, our patients have been in pain for months or years. Some might be suicidal...and we're rarely the first provider they've seen. For pain in the face, it is not uncommon for patients to have consulted a primary care physician, ENT specialist, and their dentist. Most patients have pursued reasonable but unsuccessful discipline-based treatments with other providers. Our patients have dealt with ongoing pain, delays in appropriate treatment, medical complications, depression, anxiety and isolation.

Why isolation? Facial pain limits what people can do together and how they understand each other. We talk and take communication cues from facial expressions, feed ourselves and socialize over food, and we are intimate with our faces. But for some patients with chronic facial pain, a touch of the cheek can be torture. Chewing food can be a trigger for their pain. Many



Don Nixdorf

patients report fear that their pain might manifest at an inappropriate moment and result in embarrassment. So they avoid meals with friends and limit their social and professional life. Fatigue, associated with the chronic pain itself, as well as the medications used as treatment, makes routine activities difficult and is yet another reason to limit social interactions.

What conditions do you treat? We treat patients with chronic orofacial pain, which is pain in and around the face, mouth and jaws that has lasted more than three months. That includes patients with musculoskeletal pains associated with the muscles of mastication, temporomandibular joints, and supporting structures.

We also treat neuropathic pain, the result of infection or injury, or dysfunction of the central nervous system, such as multiple sclerosis. Trigeminal neuralgia (TN) is one neuropathic pain disorder we see. Patients with TN will often turn first to their

dentists, who have become adept at identifying the condition and refer patients to our clinic. We treat patients with neurovascular disorders, better known as headaches—such as tension-type, migraine, cluster, medication overuse, etc. We also are involved in managing patients with sleep disordered breathing problems—like obstructive sleep apnea—and movement disorders such as oromandibular dystonia.

What are the greatest challenges? There's a need for greater awareness of orofacial pain disorders so that patients who have chronic pain are recognized earlier and referred for appropriate care. Too often, patients receive ineffective treatment or the "I don't know" diagnosis. At our clinic, we are diagnosticians first and that's the greatest challenge. It's our job to figure out what's going on and provide assurance, when we can...that it's not cancer or that we've seen this before or that we can provide G

answers and help with the next steps. We triage, treat, refer, and/or collaborate with other providers to reduce pain, improve function, and prompt independence in patients with chronic orofacial pain and related symptoms.

### How do you differentiate between disease and dysfunction?

When it comes to pain as a symptom of disease, we are talking most often about inflammation. But when pain is the result of dysfunction of the sensory system, there are no objective measures by which to diagnose. Absent objective measures, we rely on self-reported symptoms and these are affected by the patient's mood, personality, and ability to communicate. In that way, we're like psychiatry and psychology.

What are your goals for that first appointment? To establish a relationship of trust, truly understand the patient's chief complaint, discuss expectations, and complete a thorough evaluation. Information is the key to deciphering complexity and the 'gold' is in the history taking. We pay close attention to what's said and not said, to how people perceive and report pain, and to findings of previously consulted care providers. We ask questions three and four different ways because patients might not think, at first, to mention something they do not associate with their primary complaint.

What does that involve? An extensive history of the pain complaint(s), which includes pain characteristics; an in-depth understanding of familial, social, and psychological histories; and the patient's medical and surgical histories. We follow this with an examination—touch, pressure, pin prick, perception, muscle movement, palpation sensitivity, symmetry, etc. If the report is of jaw pain and their chief complaint is replicated when we palpate the muscles, we know *that* muscle reproduces the patient's pain. If there is percussion sensitivity in a tooth...then we might think of periapical inflammation, but also referred pain from the masticatory muscles. We also use quite a lot of diagnostic imaging, mainly to rule out known causes of pain. It's like putting together the pieces of a puzzle.

**Then what happens?** If it's determined that the pain is a symptom of inflammation from a disease process and I don't see dysfunction, I'll refer the patient to the most appropriate provider. For sinusitis, I'll talk to our ENT colleagues. If it's tooth-related, we can refer to a general dentist or specialist.

If we see dysfunction then the approach is to understand the major contributing factors involved. Using an analogy...contributing factors are like gasoline for a fire. So, first, we stop fueling the fire. Once the contributing factors are identified and addressed, sometimes the dysfunction resolves but almost always is greatly improved. This is when targeted treatments to modulate the dysfunctional nerves are used, if they haven't already.

**Is it true you once diagnosed a condition by looking at a painting?** No (laughing). But seeing the painting was an 'aha' moment. An artist patient suffered for years from TN pain, which patients describe as stabbing or electric. But his painting depicted pressure-related pain, which was a visual confirmation that he suffered from a second condition, paroxysmal hemicrania.

**Is orofacial pain associated with aging?** Some disorders are and some are not. We all know that things sag when we age. In some patients with TN, it's believed that a blood vessel in the brain sags and damages the insulating membrane of the nerve, resulting in pain. If the history and physical examination points to TN and you're wondering if there's a blood vessel pressing, a brain MRI can confirm the diagnosis. We're fortunate to have some of the world's best imagers here at the University. If confirmed, neurosurgery to change that physical relationship between the blood vessel(s) and nerve(s) is a treatment option.

Do sleep patterns also change with age? Yes. We spend less time in deep sleep during each sleep cycle, resulting in a reduction in sleep quality and a feeling of being 'less restored' following the same number of sleep hours. There also is an important relationship between stress, sleep deprivation, mood disorders, sleep and pain. In fact, you can induce pain sensitivity after just two days of missing out on deep sleep. Orofacial pain dentists are uniquely positioned to deal with sleep disorders. Sleep is a big part of our practice.

I'm assuming not every condition can be resolved. True. We often talk about 'managing' chronic pain, much as we manage chronic diseases like heart disease, diabetes and cancer. Patients live with limitations of these disorders...medication use, dietary restrictions, etc., and they learn coping strategies to live the best they can. Our goal is to control the disorder so well that we minimize symptoms, maximize function, and promote independence.

**So, what do dentists need to know?** First, our profession can make a huge impact in managing patient suffering by improving our ability to recognize and refer patients with orofacial pain. Second, patients with chronic pain are likely to have more than one pain diagnosis and we need to diagnose all involved and understand how they interact with each other if we're to determine the best course of action. And third, some patient treatment needs require multidisciplinary care.

What do you see happening in the way of pain research? Things like the development of diagnostic biomarkers and identification of risk factors are the first things that come to mind. The School of Dentistry conducts pain research in these areas.

What's the focus? We have programs in basic neuroscience and clinical research, as well as a developing translational research program. For example, Dr. Don Simone investigates the neural encoding of pain to learn about the underlying mechanisms that cause hyperalgesia, as well as the pharmacological modulation of pain...including the use of cannabinoids...and sensory testing for early detection of neuropathy. Dr. David Bereiter investigates the central nervous system and the mechanisms of craniofacial pain, the role of stress in enhancing the pain response—with particular emphasis on ocular pain and pain referred to the temporomandibular joint—and the role of sex hormones and psychophysical stress on craniofacial pain. Dr. Julie Olson investigates the role of microglia—the CNS resident immune cells—during the immune response to neuropathic pain and inflammation.

On the clinical side, Dr. Eric Schiffman has developed and is refining validated diagnostic criteria for TMD, conducting clinical trials to improve the care of patients with TMD, and studying the relationships related to treatment prognosis. I am involved in observational research to study pain-related outcomes of root canal treatment, with the goal of understanding both the risk factors for developing severe post-operative pain as well as long-term outcomes (e.g. why pain persists, how it affects the patient's chronic pain experience, etc.)

Finally, Dr. Estephan Moana-Filho conducts translational research that uses sensory testing and cutting-edge, multimodal MRI to investigate how the brain modulates pain perception for patients with chronic TMD pain.

### What do you see on the horizon?

We will see more team-based patient care so that all relevant aspects of the patient are being addressed. As we learn more about the underlying mechanisms involved in chronic pain and how they interrelate, patient management will become, of necessity, even more interdisciplinary. This will require greater functionality from health informatics to facilitate better access to shared health records and communication between providers.

We'll see the insurance industry assert more influence over what providers and services are covered, which in turn, demands provider/clinic-specific outcomes data about the quality of care, patient satisfaction, and cost as justification for coverage. And we will have new treatment options based on the availability of new biodevices and pharmachological agents, and new insights into behavior approaches.

These advances will occur because of a better mechanistic understanding of the patient's biology and psychology, so future treatments will be more tailored to the individual patient and their comorbid conditions. During the first 40 years, we witnessed dramatic changes to patient care that have made significant improvements in their well being. The next 40 promise to be more exciting as science advances and we incorporate this knowledge and tailor care. •



## An Interprofessional Approach is Key to Diagnosis and Treatment of Chronic Orofacial Pain

Tamara Doege felt hope slipping away after three years of debilitating facial pain. The pain had become acute following brain surgeries to address a malformation.

But after the surgeries, the once active and outgoing mother of three spent weeks in the hospital enduring follow-up procedures and later at home missing precious family functions and much of her youngest child's high school years.

"I spent months in bed, just trying not to cry or move, because that triggered more pain, more vomiting," she said. "The pain was constant and unbearable. I could not keep food down, for months, and my illness was wearing on others."

In a dark moment, she told her husband she wanted to end her life. "I just could not see a way out," she said.

It was then that she and her husband made another trip to the Twin Cities, where Doege's neurosurgeon, Dr. Andy Grande, introduced them to Don Nixdorf, DDS, MS, orofacial pain specialist at the University of Minnesota School of Dentistry's TMD, Orofacial Pain, and Dental Sleep Medicine Clinic. Her complex facial pain symptoms were found to comprise four different diagnoses: chronic migraines, trigeminal neuralgia, TMD, and painful neuropathy. "Working as a team, we agreed on a multi-disciplinary treatment plan that included infusions of dihydroergotamine, injections of botulinum toxin (Botox), and lifestyle modifications," says Nixdorf.

"The relief was immediate and profound," said Doege. "And part of the relief I felt was due to Dr. Nixdorf's commitment to finding solutions. He believed I did not need to live like that. His determination and coaching gave me hope."

Since starting her new treatment plan, Doege says she has been relatively pain free and has gradually returned to her life and to work.

"I have had to reinvent myself in some ways," she said. "Dr. Nixdorf checks in with me periodically. I feel like his concern for my wellbeing expands well beyond our quarterly appointments. He calls me to share new developments in treating conditions like mine. Dr. Nixdorf gave me my life back."

Nixdorf says Doege's story is not as unique as one might think.

"All too often we find that patients with serious facial pain have multiple overlapping pain disorders," he said. "This means that no one approach is sufficient to manage the pain and no one care provider is able to adequately provide such care, thus necessitating an interprofessional approach." •









Driven.

### **Research Publications**



**David Bereiter** 

We recognize our colleagues for their contributions to the body of knowledge that forms the foundation for our profession.

The faculty, staff, students and research fellows of the School of Dentistry published 81 articles in scientific and professional journals between June 2018 and May 2019. These articles report on investigations—in areas of basic, clinical, and social and

behavioral sciences, and public health—by collaborating authors from all departments within the dental school and a variety of academic and scientific institutions. This breadth of scholarship is a testament to the vitality of the School of Dentistry's research programs and the extensive collaborations occurring within the school and with scientists around the world.

The publication list is organized by department and division. The publications, co-authored by collaborators in several divisions, are acknowledged in each participating division.

Sincerely,

David A. Bereiter, PhD

Interim Associate Dean for Research

## DEPARTMENT OF DIAGNOSTIC AND BIOLOGICAL SCIENCES

### **Division of Basic Sciences**

Afiuni-Zadeh S, Boylan KL, Jagtap PD, Griffin TJ, **Rudney JD**, Peterson ML, Skubitz AP. 2018. Evaluating the potential of residual Pap test fluid as a resource for the metaproteomic analysis of the cervical-vaginal microbiome. Scientific reports. 8(1). https://doi.org/10.1038/s41598-018-29092-4

Argyris P, Slama ZM, **Ross KF**, Khammanivong A, **Herzberg MC**. 2018. Calprotectin and the Initiation and Progression of Head and Neck Cancer. Journal of dental research. 97(6):674-682 https://doi.org/10.1177/0022034518756330\

Bereiter DA, Thompson R, Rahman MM. 2019. Sex differences in estradiol secretion by trigeminal brainstem neurons. Frontiers in Integrative Neuroscience. 13. https://doi.org/10.3389/ fnint.2019.00003

Bereiter DA, Rahman MM, Thompson R, Stephenson P, Saito H. 2018. Trpv1 and trpm8 channels and nocifensive behavior in a rat model for dry eye. Investigative Ophthalmology and Visual Science. 59(8):3739-3746. https://doi.org/10.1167/jovs.18-24304

Cataldo G, Lunzer MM, Olson J, Akgun E, Belcher JD, Vercellotti GM, Portoghese PS, **Simone DA**. 2018. Bivalent ligand MCC22 potently attenuates nociception in a murine model of sickle cell disease. Pain. 159(7):1382-1391. https://doi.org/10.1097/j.pain.0000000000001225

Eichorst JP, Chen Y, Mueller J, Mansky LM. 2018. Distinct pathway of human T-cell leukemia virus type 1 Gag punctum biogenesis provides new insights into enveloped virus assembly. mBio. 9(5). https://doi.org/10.1128/mBio.00758-18.

Giannobile WV, Dawes C, Feine J, Herzberg MC, Smith AJ. 2019. The Journal of Dental Research: A Century of Shaping the Dental, Oral, and Craniofacial Sciences. Journal of dental research. 98(1):5-6. https://doi.org/10.1177/0022034518817720

Gorr SU, Flory CM, Schumacher RJ. 2019. In vivo activity and low toxicity of the second-generation antimicrobial peptide DGL13K. PloS one. 14(5). https://doi.org/10.1371/journal.pone.0216669

Hall JW, **Lima B**, Herbomel GG, Tata G, McDonald LA, Shyne MT, Lee JK, Kreth J, **Ross KF**, Veglia G, **Herzberg MC**. 2019. An intramembrane sensory circuit monitors sortase A-mediated processing of streptococcal adhesins. Science signaling. 12(580).

Jagtap PD, Viken KJ, Johnson JE, McGowan T, Pendleton KM, Griffin TJ, Hunter RC, **Rudney JD**, Bhargava M. 2018. BAL fluid metaproteome in acute respiratory failure. American journal of respiratory cell and molecular biology. 59(5):648-652. https://doi.org/10.1165/rcmb.2018-0068le

Kaliappan S, Simone DA, Banik RK. 2018. Nonlinear Inverted-U Shaped Relationship Between Aging and Epidermal Innervation in the Rat Plantar Hind Paw: A Laser Scanning Confocal Microscopy Study. Journal of Pain. 19(9):1015-1023. https://doi.org/10.1016/j.jpain.2018.04.002 Khasabova I, Khasabov S, Olson J, Uhelski ML, Kim AH, Albino-Ramírez AM, Wagner CL, Seybold VS, Simone DA. 2019. Pioglitazone, a PPAR agonist, reduces cisplatin-evoked neuropathic pain by protecting against oxidative stress. Pain. 160(3):688-701. https://doi.org/10.1097/j. pain.0000000000001448

Khasabova I, Uhelski M, Khasabov S, Gupta K, Seybold VS, Simone DA. 2019. Sensitization of nociceptors by prostaglandin E2-glycerol contributes to hyperalgesia in mice with sickle cell disease. Blood. 133(18):1989-1998. https://doi.org/10.1182/blood-2018-11-884346

Lipshetz B, Khasabov S, Truong H, Netoff TI, Simone DA, Giesler GJ. 2018. Responses of thalamic neurons to itch-and pain-producing stimuli in rats. Journal of neurophysiology. 120(3):1119-1134. https://doi.org/10.1152/jn.00264.2018

Maldonado JO, Mansky LM. 2018. The HIV-1 reverse transcriptase A62V mutation influences replication fidelity and viral fitness in the context of multi-drug-resistant mutations. Viruses. 10(7). https://doi.org/10.3390/v10070376

Martin JL, Mendonca L, Marusinec R, Zuczek J, Angert I, Blower RJ, Mueller J, Perill JR, **Zhang W**, **Mansky LM**. 2018. Critical role of the human T-Cell leukemia virus type 1 capsid N-Terminal domain for gag-gag interactions and virus particle assembly. Journal of virology. 92(14). https://doi.org/10.1128/JVI.00333-18

Tafoya S, Liu S, Castillo JP, Atz R, Morais MC, **Grimes SN**, **Jardine PJ**, Bustamante C. 2018. Molecular switch-like regulation enables global subunit coordination in a viral ring ATPase. Proceedings of the National Academy of Sciences of the United States of America. 115(31):7961-7966. https://doi.org/10.1073/pnas.1802736115

## Division of Oral Medicine and Diagnosis

Demirturk Kocasarac H, Geha H, Gaalaas LR, Nixdorf DR. 2018. MRI for Dental Applications. Dental clinics of North America. 62(3):467-480. https://doi.org/10.1016/j.cden.2018.03.006

Inscoe CR, Platin E, Mauriello SM, Broome A, Mol A, Gaalaas LR, Regan Anderson MW, Puett C, Lu J, Zhou O. 2018. Characterization and preliminary imaging evaluation of a clinical prototype stationary intraoral tomosynthesis system. Medical Physics. 45(11):5172-5185. https://doi.org/10.1002/mp.13214

John MT. 2018. Health Outcomes Reported by Dental Patients. Journal of Evidence-Based Dental Practice. 18(4):332-335. https://doi.org/10.1016/j. jebdp.2018.09.001

Kaimal S, Ahmad M, Kang W, Nixdorf DR, Schiffman EL. 2018. Diagnostic accuracy of panoramic radiography and mri for detecting signs of tmj degenerative joint disease. General dentistry. 66(4):34-40.

Mittal H, John MT, Sekuli S, Theis-Mahon N, Rener-Sitar K. 2019. Patient-Reported Outcome Measures for Adult Dental Patients: A Systematic Review. Journal of Evidence-Based Dental Practice. 19(1):53-70. https://doi.org/10.1016/j.jebdp.2018.10.005

Oghli I, List T, John MT, Häggman-Henrikson B, Larsson P. 2019. Prevalence and normative values for jaw functional limitations in the general population in Sweden. Oral Diseases. 25(2):580-587. https://doi.org/10.1111/odi.13004

Reissmann DR, Wolfart S, **John MT**, Marré B, Walter M, Kern M, Kohal R, Nothdurft F, Stark H, Schierz O, Wöstmann B, Hannak W, Mundt T, Pospiech P, Boldt J, Edelhoff D, Busche E, Jahn F, Luthardt RG, Hartmann S, Heydecke G. 2019. Impact of shortened dental arch on oral healthrelated quality of life over a period of 10 years — A randomized controlled trial. Journal of Dentistry. 80:55-62. https://doi.org/10.1016/j. jdent.2018.10.006

Reissmann DR, John MT, Enstad CJ, Lenton PA, Sierwald I. 2019. Measuring patients' orofacial appearance: Validity and reliability of the Englishlanguage Orofacial Esthetic Scale. Journal of the American Dental Association. 150(4):278-286. https://doi.org/10.1016/j.adaj.2018.11.024

Self KD, John MT, Prodduturu S, Kohli N, Naik A, Flynn PM. 2018. Influence of socioecomomic and oral health status on acceptability of dental therapists' oral health care. Journal of health care for the poor and underserved. 29(3):1135-1152. https://doi.org/10.1353/hpu.2018.0084

Servais JA, Gaalaas LR, Lunos SA, Beiraghi S, Larson BE, Leon-Salazar V. 2018. Alternative cone-beam computed tomography method for the analysis of bone density around impacted maxillary canines. American Journal of Orthodontics and Dentofacial Orthopedics. 154(3):442-449. https://doi.org/10.1016/j.ajodo.2018.01.008

Simancas-Pallares M, John MT, Prodduturu S, Rush WA, Enstad CJ, Lenton P. 2018. Development, validity and reliability of the Orofacial Esthetic Scale — Spanish version. Journal of Prosthodontic Research. 62(4):456-461. https://doi.org/10.1016/j.jpor.2018.05.003

### Division of Oral and Maxillofacial Pathology

Argyris P, Malz C, Taleb R, **Koutlas IG**. 2018. Benign and malignant odontogenic neoplasms of the jaws show a concordant nondiscriminatory p63/p40 positive immunophenotype. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. 126(6):506-512. https://doi.org/10.1016/j. oooo.2018.08.018

Argyris PP, Slama ZM, Nelson AC, **Koutlas IG**. 2019. Solitary oral epidermolytic acanthoma: Case report of a rarely diagnosed entity. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. https://doi.org/10.1016/j.0000.2019.03.016

Argyris PP, Ho D, Nelson AC, **Koutlas IG**. 2019. Pale (Clear) Cell Acanthoma of the Palate. Head and Neck Pathology. https://doi.org/10.1007/s12105-019-01050-0

Koutlas IG, Dolan MM, Lingen MW, Argyris PP. 2019. Plasmacytoid cells in salivary pleomorphic adenoma: an alternative interpretation of their immunohistochemical characteristics highlights function and capability for epithelial–mesenchymal transition. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. https://doi.org/10.1016/j.oooo.2019.01.081

Tasca AW, Astleford K, Blixt NC, Jensen ED, Gopalakrishnan R, Mansky K. 2018. SMAD1/5 signaling in osteoclasts regulates bone formation via coupling factors. PloS one. 13(9). https://doi.org/10.1371/journal.pone.0203404

### **Division of TMD and Orofacial Pain**

Demirturk Kocasarac H, Geha H, Gaalaas LR, Nixdorf DR. 2018. MRI for Dental Applications. Dental clinics of North America. 62(3):467-480. https://doi.org/10.1016/j.cden.2018.03.006

Devine M, Hirani M, Durham J, **Nixdorf DR**, Renton T. 2018. Identifying criteria for diagnosis of post-traumatic pain and altered sensation of the maxillary and mandibular branches of the trigeminal nerve: a systematic review. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. 125(6):526-540. https://doi.org/10.1016/j. oooo.2017.12.020

Durham J, Stone SJ, Robinson LJ, Ohrbach R, Nixdorf DR. 2019. Development and preliminary evaluation of a new screening instrument for atypical odontalgia and persistent dentoalveolar pain disorder. International Endodontic Journal. 52(3):279-287. https://doi.org/10.1111/iej.13017

Failla MD, Moana-Filho EJ, Essick GK, Baranek GT, Rogers BP, Cascio CJ. 2018. Initially intact neural responses to pain in autism are diminished during sustained pain. Autism. 22(6):669-683. https://doi.org/10.1177/1362361317696043

Hryvenko I, Cervantes-Chavarría AR, Law AS, Nixdorf DR. 2018. Hemicrania continua: Case series presenting in an orofacial pain clinic. Cephalalgia. 38(13):1950-1959.

Kaimal S, Ahmad M, Kang W, Nixdorf DR, Schiffman EL. 2018. Diagnostic accuracy of panoramic radiography and mri for detecting signs of tmj degenerative joint disease. General dentistry. 66(4):34-40.

Moana Filho EJ, Herrero Babiloni A. 2019. Endogenous pain modulation in chronic temporomandibular disorders: Derivation of pain modulation profiles and assessment of its relationship with clinical characteristics. Journal of Oral Rehabilitation. 46(3):219-232. https://doi.org/10.1111/joor.12745://doi.org/10.1177/0333102418764895

Moana-Filho EJ, Herrero Babiloni A, Theis-mahon NR. 2018. Endogenous pain modulation in chronic orofacial pain: a systematic review and meta-analysis. Pain. 159(8):1441-1455. https://doi.org/10.1097/j.pain.0000000000001263

Sharma S, Breckons M, Brönnimann Lambelet B, Chung JW, List T, Lobbezoo F, **Nixdorf DR**, Oyarzo JF, Peck C, Tsukiyama Y, Ohrbach R. 2019. Challenges in the clinical implementation of a biopsychosocial model for assessment and management of orofacial pain. Journal of Oral Rehabilitation. https://doi.org/10.1111/joor.12871

## DEPARTMENT OF PRIMARY DENTAL CARE

### **Division of Comprehensive Care**

Mills E. An OSCE Assessment Model for National Licensure: Getting Dentistry in the US Up to Speed with the Rest of Healthcare. Journal of the American College of Dentists, Winter 2018, Volume 85, Number 1, 40-46.

### **Division of Dental Hygiene**

Ephrem H, Self KD, Blue CM. 2018. Introducing and evaluating intraprofessional team-based care delivery in a dental school clinic: A pilot study. Journal of dental education. 82(9):980-988. https://doi.org/10.21815/JDE.018.093

Mailoa J, Arnett M, Chan HL, Georhe FM, Kaigler D, Wang HL. The association between buccal mucosa thickness and peri-implant bone loss and attachment loss: a cross-sectional study. Implant Dent 2018 Oct;27(5):575-581.

Quick K, **Blue CM**. 2019. Using Situated Learning Theory to Build an Interactive Learning Environment to Foster Dental Students' Professionalism: An Ignite Project. Journal of dental education. 83(3):334-341. https://doi.org/10.21815/ JDE.019.030

Sager JJ, **Blue CM**. 2019. Reflective learning outcomes of community-based experiences: A qualitative study. Journal of dental education. 83(5):530-535. https://doi.org/10.21815/JDE.019.061

Self KD, John MT, Prodduturu S, Kohli N, Naik A, Flynn PM. 2018. Influence of socioecomomic and oral health status on acceptability of dental therapists' oral health care. Journal of health care for the poor and underserved. 29(3):1135-1152. https://doi.org/10.1353/hpu.2018.0084

Stull, C. L., & Lunos, S. (2019). Knowledge, Attitudes and Practices Regarding Human Papilloma Virus Communication and Vaccine Advocacy Among Minnesota Dentists and Dental Hygienists. The Journal of Dental Hygiene (Vol. 33).

### **Division of Dental Public Health**

Quick K, Blue CM. 2019. Using Situated Learning Theory to Build an Interactive Learning Environment to Foster Dental Students' Professionalism: An Ignite Project. Journal of dental education. 83(3):334-341. https://doi. org/10.21815/JDE.019.030

Quick K, Overman PR, Sposetti VJ. 2018. Identifying needs to ensure a humanistic academic dental environment: A multi-site survey of dental students' perspectives. Journal of dental education. 82(11):1162-1170. https://doi.org/10.21815/ JDE.018.120

### **Division of Dental Therapy**

Ephrem H, **Self KD**, Blue CM. 2018. Introducing and evaluating intraprofessional team-based care delivery in a dental school clinic: A pilot study. Journal of dental education. 82(9):980-988. https://doi.org/10.21815/JDE.018.093

Self KD, John MT, Prodduturu S, Kohli N, Naik A, Flynn PM. 2018. Influence of socioecomomic and oral health status on acceptability of dental therapists' oral health care. Journal of health care for the poor and underserved. 29(3):1135-1152. https://doi.org/10.1353/hpu.2018.0084

## DEPARTMENT OF DEVELOPMENTAL AND SURGICAL SCIENCES

### Division of Oral and Maxillofacial Surgery

Argyris P, Malz C, **Taleb R**, Koutlas IG. 2018. Benign and malignant odontogenic neoplasms of the jaws show a concordant nondiscriminatory p63/p40 positive immunophenotype. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. 126(6):506-512. https://doi.org/10.1016/j. oooo.2018.08.018

Perkins D, Stiharu TI, Swift JQ, Dao TV, Mainville GN. 2018. Intraosseous Schwannoma of the Jaws: An Updated Review of the Literature and Report of 2 New Cases Affecting the Mandible. Journal of Oral and Maxillofacial Surgery. 76(6):1226-1247. https://doi.org/10.1016/j.joms.2017.12.017

Tompach PC, Wagner CL, Sunstrum AB, Nadeau RA, Tu HK. 2019. Investigation of an Opioid Prescribing Protocol After Third Molar Extraction Procedures. Journal of Oral and Maxillofacial Surgery. 77(4):705-714. https://doi.org/10.1016/j.joms.2018.12.007

**Uppgaard RM.** 2018. Addressing Gender Discrimination in Oral and Maxillofacial Surgery via the Social Norms Approach. Journal of Oral and Maxillofacial Surgery. 76(8):1604-1605. https://doi.org/10.1016/j.joms.2018.03.036

### **Division of Orthodontics**

Atresh A, Cevidanes LHS, Yatabe M, Muniz L, Nguyen T, **Larson BE**, Manton DJ, Schneider PM. 2018. Three-dimensional treatment outcomes in Class II patients with different vertical facial patterns treated with the Herbst appliance. American Journal of Orthodontics and Dentofacial Orthopedics. 154(2):238-248.e1. https://doi.org/10.1016/j.ajodo.2017.11.037

Eichorst JP, Chen Y, Mueller J, Mansky LM. 2018. Distinct pathway of human T-cell leukemia virus type 1 Gag punctum biogenesis provides new insights into enveloped virus assembly. mBio. 9(5). https://doi.org/10.1128/mBio.00758-18

Faulkner B, Astleford K, Mansky K. 2019. Regulation of osteoclast differentiation and skeletal maintenance by histone deacetylases. Molecules. 24(7). https://doi.org/10.3390/molecules24071355

Gruenheid T, Larson BE. 2018. Comparative assessment of bonding time and 1-year bracket survival using flash-free and conventional adhesives for orthodontic bracket bonding: A split-mouth randomized controlled clinical trial. American Journal of Orthodontics and Dentofacial Orthopedics. 154(5):621-628. https://doi.org/10.1016/j.ajodo.2018.05.012

Gruenheid T, Larson BE. 2019. A comparative assessment of bracket survival and adhesive removal time using flash-free or conventional adhesive for orthodontic bracket bonding: A split-mouth randomized controlled clinical trial. Angle Orthodontist. 89(2):299-305. https://doi.org/10.2319/030918-195.1

Servais JA, Gaalaas LR, Lunos SA, Beiraghi S, Larson BE, Leon-Salazar V. 2018. Alternative cone-beam computed tomography method for the analysis of bone density around impacted maxillary canines. American Journal of Orthodontics and Dentofacial Orthopedics. 154(3):442-449. https://doi.org/10.1016/j.ajodo.2018.01.008

**Tasca AW**, Astleford K, Blixt NC, Jensen ED, Gopalakrishnan R, **Mansky K**. 2018. SMAD1/5 signaling in osteoclasts regulates bone formation via coupling factors. PloS one. 13(9). https://doi.org/10.1371/journal.pone.0203404

### **Division of Pediatric Dentistry**

Chi DL, Rosenfeld M, Mancl L, Chung WO, Presland RB, Sarvas E, Rothen M, Alkhateeb A, McNamara S, Genatossio A, Virella-Lowell I, Milla C, Scott JA. 2018. Age-related heterogeneity in dental caries and associated risk factors in individuals with cystic fibrosis ages 6–20 years: A pilot study. Journal of Cystic Fibrosis. 17(6):747–759. https://doi.org/10.1016/j.jcf.2018.06.009

Olacke B, Nelson T, **Sarvas E**, Scott JM. 2018. A retrospective study of dosing weight and outcomes for one pediatric dental sedation regimen. Pediatric Dentistry. 40(5):346-351.

Servais JA, Gaalaas LR, Lunos SA, **Beiraghi S**, Larson BE, Leon-Salazar V. 2018. Alternative conebeam computed tomography method for the analysis of bone density around impacted maxillary canines. American Journal of Orthodontics and Dentofacial Orthopedics. 154(3):442-449. https://doi.org/10.1016/j.ajodo.2018.01.008

### **Division of Periodontology**

Chatzopoulos G, Doufexi A, Wolff L, Kouvatsi A. 2018. Interleukin-6 and interleukin-10 gene polymorphisms and the risk of further periodontal disease progression. Brazilian Oral Research. 32(0). https://doi.org/10.1590/1807-3107bor-2018. vol32.0011

Chatzopoulos G, Cisneros A, Sanchez M, Wolff LF. 2018. Systemic medical conditions and periodontal status in older individuals. Special Care in Dentistry. 38(6):373-381. https://doi.org/10.1111/scd.12319

Chatzopoulos G, Sanchez M, Cisneros A, Wolff LF. 2019. Prevalence of temporomandibular symptoms and parafunctional habits in a university dental clinic and association with gender, age, and missing teeth. Cranio - Journal of Craniomandibular Practice. 37(3):159-167. https://doi.org/10.1080/088 69634.2017.1399649

Chatzopoulos GS, Wolff LF. 2018. Symptoms of temporomandibular disorder, self-reported bruxism, and the risk of implant failure: A retrospective analysis. Cranio - Journal of Craniomandibular Practice. 1-8. https://doi.org/10.1080/08869634.2018.1491097

Chatzopoulos G, Wolff LF. 2018. Utjecaj socijalnoekonomskog statusa, pušenja i zdravstvenog statusa pacijenata na neuspjeh implantološke terapije. Acta Stomatologica Croatica. 52(3):175-183. https://doi. org/10.15644/asc52

Fischer LA, Demerath EW, Bittner-Eddy P, Costalonga M. 2019. Placental colonization with periodontal pathogens: the potential missing link. American journal of obstetrics and gynecology. https://doi.org/10.1016/j.ajog.2019.04.029

Koidou V, Argyris P, Skoe EP, Mota Siqueira J, Chen X, Zhang L, **Hinrichs JE**, **Costalonga M**, Aparicio C. 2018. Peptide coatings enhance keratinocyte attachment towards improving the peri-implant mucosal seal. Biomaterials Science. 6(7):1936-1945. https://doi.org/10.1039/c8bm00300a

**Skaar DD**, Park T, Swiontkowski MF, Kuntz KM. 2019. Is Antibiotic Prophylaxis Cost-effective for Dental Patients Following Total Knee Arthroplasty? JDR Clinical and Translational Research. 4(1):9-18. https://doi.org/10.1177/2380084418808724

## DEPARTMENT OF RESTORATIVE SCIENCES

#### **Division of Biomaterials**

Divine, K. A.; McClanahan, S. B.; **Fok**, **A.**, Anatomic Analysis of Palatal Roots of Maxillary Molars Using Micro-computed Tomography. Journal of Endodontics 2019, 45 (6), 724-728. DOI: 10.1016/j.joen.2019.03.007.

Gil J, Rupérez E, Velasco E, **Aparicio** C, Manero JM. 2018. Mechanism of fracture of NiTi superelastic endodontic rotary instruments. Journal of Materials Science: Materials in Medicine. 29(8). https://doi.org/10.1007/s10856-018-6140-7

Habib M, Lee KM, Liew YM, Zakian C, Ung NM, Chew HP. 2018. Assessing surface characteristics of eroded dentine with optical coherence tomography: A preliminary in vitro validation study. Applied Optics. 57(29):8673-8679. https://doi.org/10.1364/AO.57.008673

He X, Shi L, Li H, Tan J, Zhang B, **Fok** A, Wu X, Sun L. 2018. Experimental study to estimate the surface wear of nuclear graphite in HTR-PM. Annals of Nuclear Energy. 116:296-302. https://doi.org/10.1016/j.anucene.2018.02.046

He Y, **Fok A**, **Aparicio C**, Teng W. 2019. Contact analysis of gap formation at dental implant-abutment interface under oblique loading: A numerical-experimental study. Clinical Implant Dentistry and Related Research. 21(4):741-752. https://doi.org/10.1111/cid.12792

He Y, Chen YC, Teng W, Fok A, Chew HP. 2019. Prosthetic Correction of Proclined Maxillary Incisors: A Biomechanical Analysis. Computational and mathematical methods in medicine. 2019. https://doi.org/10.1155/2019/7416076

Koidou V, Argyris P, Skoe EP, Mota Siqueira J, Chen X, Zhang L, Hinrichs JE, Costalonga M, **Aparicio C**. 2018. Peptide coatings enhance keratinocyte attachment towards improving the peri-implant mucosal seal. Biomaterials Science. 6(7):1936-1945. https://doi.org/10.1039/c8bm00300a

Larrucea C, Aparicio C, Olivares D, Padilla C, Barrera A, Lobos O. 2018. Bacterial microleakage at the abutment-implant interface, in vitro study. Clinical Implant Dentistry and Related Research. 20(3):360-367. https://doi.org/10.1111/cid.12589

Moris ICM, Chen Y-C, Faria ACL, Ribeiro RF, Fok A, Rodrigues RCS. 2018. Fracture loads and failure modes of customized and non-customized zirconia abutments. Dental Materials. 34(8):e197-e204. https://doi.org/10.1016/j.dental.2018.04.005

Moussa DG, Aparicio C. 2019. Present and future of tissue engineering scaffolds for dentin-pulp complex regeneration. Journal of Tissue Engineering and Regenerative Medicine. 13(1):58-75. https://doi.org/10.1002/term.2769

Moussa DG, Fok A, Aparicio C. 2019. Hydrophobic and antimicrobial dentin: A peptide-based 2-tier protective system for dental resin composite restorations. Acta Biomaterialia. 88:251-265. https://doi.org/10.1016/j.actbio.2019.02.007

Munari LS, Bowles WR, Fok A. 2019. Relationship between Canal Enlargement and Fracture Load of Root Dentin Sections. Dental Materials. 35(5):818-824. https://doi.org/10.1016/j.dental.2019.02.015D

Qi Y, Ye Z, Fok A, Holmes BN, Espanol M, Ginebra MP, Aparicio C. 2018. Effects of Molecular Weight and Concentration of Poly(Acrylic Acid) on Biomimetic Mineralization of Collagen. ACS Biomaterials Science and Engineering. 4(8):2755-2766. https://doi.org/10.1021/ acsbiomaterials.8b00512

Sevilla P, Cirera A, Dotor J, Gil FJ, Galindo-Moreno P, Aparicio C. 2018. In vitro cell response on CP-Ti surfaces functionalized with TGF- 1 inhibitory peptides. Journal of Materials Science: Materials in Medicine. 29(6). https://doi.org/10.1007/s10856-

Tatullo M, Spagnuolo G, Codispoti B, Zamparini F, Zhang A, Esposti MD, Aparicio C, Rengo C Nuzzolese M, Manzoli L, Fava F, Prati C, Fabbri P, Gandolfi MG. 2019. PLA-based mineral-doped scaffolds seeded with human periapical cyst-derived MSCs: A promising tool for regenerative healing in dentistry. Materials. 12(4). https://doi.org/10.3390/ ma12040597

Ye Z, Zhu X, Acosta S, Kumar D, Sang T, Aparicio C. 2019. Self-assembly dynamics and antimicrobial activity of all l- and d-amino acid enantiomers of a designer peptide. Nanoscale. 11(1):266-275. https:// doi.org/10.1039/c8nr07334a

Zhu L, Li Y, Chen Y-C, Carrera CA, Wu C, Fok A. 2018. Comparison between two post-dentin bond strength measurement methods. Scientific reports. 8(1). https://doi.org/10.1038/s41598-018-20891-3

### **Division of Endodontics**

Divine, K. A., McClanahan, S. B., Fok, A., Anatomic Analysis of Palatal Roots of Maxillary Molars Using Micro-computed Tomography. Journal of Endodontics 2019, 45 (6), 724-728. DOI: 10.1016/j.joen.2019.03.007.

Munari LS, Bowles WR, Fok A. 2019. Relationship between Canal Enlargement and Fracture Load of Root Dentin Sections. Dental Materials. 35(5):818-824. https://doi.org/10.1016/j.dental.2019.02.015D

Ordinola-Zapata, R., Martins, J. N. R., Versiani, M. A., Bramante, C. M., Micro-CT analysis of danger zone thickness in the mesiobuccal roots of maxillary first molars. International Endodontic Journal 2019, 52 (4), 524-529. DOI: 10.1111/

### **Division of Operative Dentistry**

Arpa C, Ceballos L, Fuentes MV, Perdigao J. 2019. Repair bond strength and nanoleakage of artificially aged CAD-CAM composite resin. Journal of Prosthetic Dentistry. 121(3):523-530. https://doi. org/10.1016/j.prosdent.2018.05.013

de Souza LC, Rodrigues NS, Cunha DA, Feitosa VP, Santiago SL, Reis A, Loguercio AD, Matos TDP, Saboia VDPA, Perdigao J. 2019. Two-year clinical evaluation of proanthocyanidins added to a twostep etch-and-rinse adhesive. Journal of Dentistry. 81:7-16. https://doi.org/10.1016/j.jdent.2018.12.012

Hildebrandt GH, Belmont MA. 2018. Self-paced versus instructor-paced preclinical training in operative dentistry: A case study. Journal of Dental Education. 82(11):1178-1184. https://doi. org/10.21815/JDE.018.122

Hildebrandt G, Larson TD. An Approach to Managing Aggressive Dental Caries. Northwest Dentistry, Nov.-Dec. 2018.

Lopes GC, Perdigao J, Baptista D, Ballarin A. 2019. Does a self-etching ceramic primer improve bonding to lithium disilicate ceramics? Bond strengths and FeSEM analyses. Operative dentistry. 44(2):210-218. https://doi.org/10.2341/17-355-L

Perdigao J, Ceballos L, Giráldez I, Baracco B, Fuentes MV. 2019. Effect of a hydrophobic bonding resin on the 36-month performance of a universal adhesive—a randomized clinical trial. Clinical oral investigations. https://doi.org/10.1007/s00784-019-02940-xb 2019. What is authorship?. Journal of Adhesive Dentistry. 21(2):103-104. https://doi. org/10.3290/j.jad.a42364

### **Division of Prosthodontics**

Bishal A, Wee AG, Barao VAR, Yuan JC, Landers R, Sukotjo C: Color stability of maxillofacial prosthetics silicone functionalized with oxide nano coating. J Prosthetic Dent 2019; 121:538-43. PMID: 30503151

Ito M, Tanimoto Y, Wee AG, Miyamoto T, Iijima M, Kawai Y: Surface evaluation of the combination of a nylon and traditional partial removable dental prosthesis: 3.5 year follow up clinical report. Int J Oral-Med Sci 2018: 17(3): 133-136

Johnson SN, Mays KA. 2019. A Retrospective Analysis of a Cross-Year Peer Tutoring Program for Oral Health Students. Journal of dental education. 83(2):137-143. https://doi.org/10.21815/ JDE.019.016

Khan SM, Baccaglini L, Inagaki AA, Reinhardt JW, Turner SP, Wee AG, Qualifications and characteristics North American dental deans seek in department chairpersons. J Dental Education 2019;83(5):560-6. PMID: 30804168

Papazoglou E, Wee A, Carr AB, Urban I, Margaritis V. 2019. Accuracy of complete-arch implant impression made with occlusal registration material. Journal of Prosthetic Dentistry. https://doi.org/10.1016/j.prosdent.2018.12.011

Seong W-J, Lee J, Delima LF, Prasad HS, Conrad HJ, Tarnow D. 2018. Postmortem evaluation of mandibular implant-supported fixed complete denture after 30 years of service. Journal of Prosthetic Dentistry. 120(4):489-494. https://doi.org/10.1016/j.prosdent.2018.01.007

Sheets JL, Pinkston DJ, Yuan JC, Sukotjo C, Wee AG: U.S. maxillofaical prosthetics programs: Fellows' and directors' perspectives. J Dental Education, December 2018; 82: 1335-1342. PMID: 30504472

Sukotjo C, Khan A, Yuan JC, Afshari FS, Weatherspoon D, Wee AG: Research productivity of directors of U.S. advanced education in prosthodontics program. J Dental Education December 2018; 82:1320-1326. PMID: 30504470

Yuan JC, Barao VA, Wee AG, Alafro MF, Afshari FS, Sukotjo C: Effect of brushing and thermocycling on shade and surface roughnes of CAD-CAM ceramic restorations. J Prosthetic Dent, June 2018; 119: 1000-1006. PMID: 28965682

Zurek A, Alfaro Coto, Wee AG, Yuan JC, Barao VA, Mathew M, Sukotjo C: Wear characteristics and volume loss of CAD/CAM ceramic materials. J Prosthodontics. 2019; 28:e510-e518. PMID: 29508487

## NIDCR Director Keynote Speaker at Oral Biology Symposium

Martha J. Somerman, DDS, PhD, director of the National Institute of Dental and Craniofacial Research (NIH), was the keynote presenter in September at the Charles Schachtele Symposium in Oral Biology, presented in celebration of the 50th anniversary of the Graduate Program in Oral Biology.

Her message: Let's be bolder, with our focus on 2030. We want dental and craniofacial health to be understood in the context of the whole body.

The day also featured presentations on current research by School of Dentistry scientists, alumni and students on topics as diverse as human retrovirus capsid formation, periodontal tissue homeostasis, reducing bone cancer pain without tolerance or sedation, Glia activation/neuroinflammation during TMJ hyperalgesia, diagnostic/prognostic test for periodontitis and peri-implantitis, and a biomaterials coating for Class V restorations.



The Graduate Program in Oral Biology offers basic science research training to students seeking academic or research-focused careers. Martha J. Somerman, DDS, PhD (center, in blue) is seen here with students pursuing a DDS/PhD dual-degree (L to R): Kristina Astleford, Parandis Kazemi, Nicholas Fischer, Nora Willkomm.

## SchoolNews

## This Is US: Short stories about people we know.



**Dr. Ernest Martin III** ('72) has worked as a part-time faculty member for the School of Dentistry for more than 30 years while maintaining his own private practice.

"I always look forward to my time in clinic each week," said Martin, who works with students in the dental clinic. "When I was working full time, it was a refreshing way to break up the week. The students are smart, receptive, engaging and fun. And they have certainly made me a better dentist."

When he retired from private practice recently, Martin not only kept his adjunct teaching role, but expanded his commitment from one day to three full days each week.

"When I first started, I was close to the same age as the students, and that made teaching very enjoyable," he said. "Now I believe I help them considerably with patient management and dealing with people. It's almost impossible to teach that in a classroom. But in the clinic, I can model it. And I can share approaches to unique problems for which there may not be a single textbook answer."

Martin returned to the school to teach just three years after he graduated from dental school at the University of Minnesota and following his service in the U.S. Air Force. Every Tuesday and Thursday he would leave his downtown Minneapolis practice mid-day and take the bus to the University of Minnesota Dental Clinic on the East Bank of campus, where he would mentor students in the clinic through the afternoon.

While School of Dentistry adjunct faculty are paid a modest amount, Martin says few dentists will teach part time for the money. "The rewards are camaraderie with other adjunct faculty, being with young people and the opportunity to give back to the profession," he said.

Martin says he always has his eye out for students who may enjoy teaching later in their careers. "Being an adjunct faculty is a great way to try out teaching to see if it is a good fit," he said. "There are some who are natural mentors, and when I see them, I suggest they come back and teach because it's rewarding and because they are going to be good at it."

For more information about part-time teaching opportunities at the School of Dentistry, contact Elizabeth Marsh, (612) 625-8903 or mars0562@umn.edu. •



**Generosity abounds!** Second-year dental students took it upon themselves to make 100 cozy and colorful blankets to donate to Children's Minnesota. This student effort was inspired by second-year dental students Malory Owens and Liz Nicholson.



**Everaid Fokim** 

An artist at heart, **Everaid Fokim** was drawn to dentistry in 11th grade, after taking a course in dental occupations at North High School in St. Paul, Minn. He later enrolled in classes at a nearby community college to complete a dental assisting program.

While attending community college, he set his sights on dental school and

began taking general education credits when he learned about the University of Minnesota's dental therapy program at a college fair.

Today, Fokim is one of six students in the University of Minnesota School of Dentistry's dual degree dental hygiene/dental therapy program. He says it was the ideal choice and that his love of visual art aligns with the skills

he is learning in his third year of the program. "When I am doing restorative dentistry, it's like art to me. You get to recreate something. It really is a combination of art and science."

Fokim will graduate in May 2020 with the dual degree and is encouraged by the growth in the dental therapy profession. He is interested in serving

underserved communities in the Twin Cities after graduation. "I am eager to work with people who are less able to help themselves," he said.

"A few years ago, when I Googled dental therapists, every other type of therapist would come up," said Fokim. "Now, there are a lot of job opportunities for dental therapists. I am super grateful to the foundation for helping to make it possible for my classmates and me to enter this new profession."

In 2019, Fokim received a generous scholarship from the Delta Dental of Minnesota Foundation. "The scholarship will significantly reduce my debt at graduation," said Fokim. "The financial piece was always the biggest deterrent for me. This relieves a lot of stress and enables me to focus on school rather than how to pay for school." •

Since its inception 10 years ago, @DeltaDentalMN has supported the University of Minnesota School of Dentistry's mission to prepare oral health professionals and serve the community with \$7 million in gifts for scholarships, new clinics, clinic support and more.

## **Expanding Horizons**



While we braced for the next snowstorm in Minneapolis, 15 fourth-year students were in Guatemala treating young patients and gaining new perspectives. The school offers this experience to dental hygiene and dental students four times each year, working in partnership with the educational non-profit, Common Hope, and led by our own Dr. Stephen Humbert!



International practice and leadership: Second-year orthodontic residents spent a week in Valencia, Spain, shadowing their peers in clinic and attending lectures at the University of Valencia.



## **AlumniNews**





### A Letter from the President

Dear alumni and friends of the School of Dentistry,

I am excited to update my last message to you with a report of Alumni Weekend 2019. The weekend was held September 13-14, 2019 at the School of Dentistry and other locations on campus.

The School of Dentistry Alumni Association welcomed class reunions back to campus. The class of 1969 celebrated its 50-year class reunion, with almost 50 members of the class attending. The classes of 1989 and 1999 also celebrated a reunion that weekend.

Blending the new with the experienced, on Friday afternoon members of the class of 1969 had lunch with the dean and were invited to attend the White Coat Ceremony welcoming the incoming dental, dental therapy and dental hygiene students into the dental profession. Friday evening, an All-Class School of Dentistry Reception was held at the Campus Club atop Coffman Memorial Union. It was a spirited evening, with food, drink, and many U of M touches, including an appearance by Dr. Goldie Gopher.

Friday also featured the Oral Biology Program's 50th anniversary with Dr. Martha Somerman, DDS, PhD, in attendance to lead the Charles F. Schachtele Memorial Symposium.

Saturday was a day for reminiscing, as current students led alumni, friends and family through tours of the dental school. It was a fun way to see what's been happening around Moos Tower. So many stories about pre-clinic and clinic were shared, it looked like some of the tours might never end! The afternoon ended with a warm and sunny day at TCF Bank Stadium with dental school alumni enjoying a Gopher football win.

Many thanks go to Erin Elliott, our alumni director, and her team for making this first Annual Alumni Weekend a big success. More than 575 alumni, faculty, students, and friends took part in the activities! The School of Dentistry alumni board is already deep into planning the 2020 weekend.

Save the dates for Friday, September 11 and Saturday, September 12, 2020. I look forward to seeing you all!

ANGIE HILO, DDS, '02

President, School of Dentistry Alumni Society

www.dentistry.umn.edu/alumni





### **New Traditions and Celebrations**

Two special events held this year brought School of Dentistry graduates home to campus. The school's first Alumni Weekend was held in September and the Program in Dental Hygiene celebrated its 100th anniversary in October. The two events drew alumni from around the world and across the years. Next year's Alumni Weekend: September 11-12, 2020. Mark the date. Graduates of all programs are invited. If you graduated in a year that ends in a 5 or 0, this will be your reunion year. Contact the School of Dentistry Alumni Office (estrong@umn.edu) to start planning now. •

PHOTOS BY JAYME HALBRITTER



















### **Class Notes**

### 1953

Dean-Emeritus **Richard Oliver** (D.D.S.), Rio Verde, Arizona, died on September 23, 2019. He was 89 years old.

Dr. Richard Oliver was the School of Dentistry's eighth permanent dean and the fifth University of Minnesota graduate to hold the position.

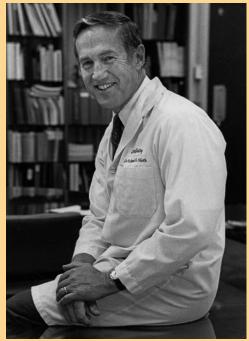
His tenure as dean was marked by visionary leadership, dynamic professional participation, a strong emphasis on the student experience, astute financial management, and a robust expansion of the dental school's program offerings that positioned the school to better meet the new and emerging needs of the profession.

During his tenure, the school launched or expanded programs in occlusion and craniofacial pain, biomaterials, clinical research, geriatric dentistry, advanced general dentistry and more. We held our first alumni-students day to help students bridge the transition from dental school to dental practice, and began to monitor dental practice trends.

It also was during Dr. Oliver's tenure that University of Minnesota dental students were first seated officially as delegates in the Minnesota Dental Association House of Delegates.

Nationally, Dr. Oliver chaired the American Dental Association's Special Committee on the Future of Dentistry from 1981-83. He was a consultant to the Commission on Dental Accreditation, a member of the ADA's Council on Dental Research and its Special Delegation to China, and chair of the American Academy of Periodontology's Long-Range Planning Committee.

He also chaired several committees of the American Association of Dental Schools, including its Council of Deans and Executive Committee, and served as AADS president in 1981-1982. His research interests were in investigations related to periodontology, including lysozyme levels in periodontal disease, wound healing and inflammation, and on curricular designs and innovations. He was a generous contributor to the literature and served on the editorial board of five national dental journals, including more than 10 years as editor of Periodontal Abstracts.



Richard Oliver

Dr. Oliver's love for the University of Minnesota School of Dentistry and his pride in being a part of both its history and future continued well beyond his time as dean. He was a regular attendee at annual alumni events held each summer in Arizona, and he returned often to greet old friends and new, always with a warm smile on his face, his hand extended in greeting, and the name of even his most casual acquaintances on the tip of his tongue.

Dr. Oliver received his doctor of dental surgery degree from the University of Minnesota in 1953. The Minnesota native then earned a master of science degree in periodontology from Loma Linda, where he later served as professor of periodontics and director for post-graduate periodontics until 1975.

He was a Fulbright Research Professor at the Royal Dental College in Arhus, Denmark (1967-68), and was appointed dean of the University of Southern California School of Dentistry in 1975. Dr. Oliver spoke often of how his experience in Arhus shaped his belief in the importance of science to the dental profession.

He returned to the University of Minnesota as dean from 1977-1986. In 2012, Dr. Richard C. Oliver was awarded the University of Minnesota's prestigious *Outstanding Achievement Award*.

### 1958

David J. Gorde (D.D.S.), St. Paul, Minn., died May 16, 2019 at age 89. He practiced dentistry in St. Paul for 35 years, providing free dental care to the underserved and volunteering at various charities and parishes throughout his life. An avid traveler, he enjoyed family trips and trips to Vegas with friends. He enjoyed researching family genealogy, was a huge sports fan (especially of the Vikings and Twins) and continued to bike and play tennis well into his 80s. His later years were engaged in spiritual practice. He enjoyed a good laugh and appreciated jokes. When asked what he was most proud of he would say his family.

**Donald Popovich** (D.D.S.), died January 12, 2019. He practiced dentistry for 38 years in Minneapolis and Bloomington, yet remained a proud Iron Ranger his whole life. He enjoyed life, loved to laugh, was kind and generous, and treasured time spent with his family and friends.

### 1960

**David E. Crandall** (D.D.S.), Stillwater, Minn., died on September 23, 2019, at age 85. His family remembers him as a fantastic father, friend, brother, uncle, husband and community member.

John David McGill (D.D.S.), Wayzata, Minn., died September 17, 2019. A second generation dentist, Dr. McGill began his career as a dentist in the U.S. Air Force. He then practiced dentistry for 39 years in Wayzata, where he was a proud and enthusiastic lifetime resident and a volunteer in numerous community and civic roles.

### 1969



Class of 1969 at Alumni Weekend, October 2019.

### 1972

**Peter W. Kuipers** (D.D.S., Ph.D.), Minneapolis, Minn., died January 24, 2019 at age 76. A native of Mitchell, S.D., he attended the University of South Dakota, graduated from dental school and earned an M.S. in orthodontics and a Ph.D. in anatomy. He practiced orthodontics in the metro Minneapolis area, as well as Red Wing, Minn.

### 1974

Ronald M. Peterson (D.D.S.), Detroit Lakes, Minn., died September 15, 2019. He was 69 years old. Drafted into the U.S. Airforce in 1974, he was stationed in Honolulu, HI for three years, then returned to Fargo where he established Peterson Dental Office in 1978. He retired in 2012 and moved to his dream home in Detroit Lakes.

### 1981

Ken McDougall (D.D.S.), Jamestown, N.D., is the 10th District Trustee of the American Dental Association (ADA) and a candidate for the position of ADA president-elect.



Ken McDougall

The election will be held during the 2020 ADA House of Delegates Meeting in Orlando, Fla. If elected, Dr. McDougall will be the ADA president-elect in 2020-21 and will serve as ADA president in 2021-22.

Dr. McDougall has practiced general dentistry in Jamestown for 38 years and has held several district and state dental association positions. He also has served as a member and chair of both the Council on ADA Sessions and as a member of the national ADPAC Committee. He is currently in his fourth year as 10th District ADA trustee, representing North Dakota, South Dakota, Minnesota, Iowa and Nebraska.



Douglas Williams

1983 **Douglas Williams** (D.D.S.), Bemidji, Minn., was elected to a second term as treasurer of the Minnesota Dental Association for the 2019-20 term.



Kevin Dens

1985 Kevin Dens (D.D.S.), Baxter, Minn., was elected Speaker of the House for the Minnesota Dental Association in 2017 and continues in this role for the 2019-20 term.

Stephen McDonnell (D.D.S.), Inver Grove Heights, was installed as president of the Minnesota Dental Association (MDA) for the 2019-20 term.

McDonnell has served as a past-president and past-trustee of the Saint Paul District Dental Society (SPDDS) and as a member



Stephen McDonnell

of the MDA Dental Education and Membership Committees. He also served on the American Dental Association (ADA) Council on Dental Education and Licensure and as a delegate to the ADA. He currently serves

on the MDA's Board of Dentistry Task Force and its Scientific Session Committee.

In 2009 and 2012, Dr. McDonnell received outstanding service awards from the MDA and the SPDDS.



Paul Krebsbach

1987 **Paul Krebsbach** (D.D.S.), Los Angeles, Calif., was the commencement speaker for the University of Minnesota School of Dentistry 2019 Commencement Ceremony.

Dr. Krebsbach is

dean of the UCLA School of Dentistry and a leading researcher in tissue engineering and stem cell biology.

### 1989



Class of 1989 at Alumni Weekend, October 2019.

### 1992

Tim Holland (D.D.S.), Bemidji, Minn., was elected second vice-president of the Minnesota Dental Association for the



Tim Holland

2019-20. Dr. Holland completed a residency program at the Minneapolis VA Hospital. He is the past president of the Southeastern District Dental Society, a member of the Minnesota Academy of

Comprehensive Dentistry, an Academy of General Dentistry (AGD) fellow, and a committee member for the Minnesota AGD Apex Mastertrack program.

### 1997

James Nickman (D.D.S., M.S.), St. Paul, Minn., was elected president-elect of the Minnesota Dental Association (MDA) for



James Nickman

the 2019-20 term. Dr. Nickman is an associate clinical professor at the U-M School of Dentistry. He chairs the MDA Political Action Committee and is a member of the association's Barriers to Care and Legislative Affairs

committees. He is president of the American Academy of Pediatric Dentistry, active in a number of other professional associations, and is a volunteer for the Minnesota Mission of Mercy and Healthy Smiles Healthy Children Foundation Dental Home Day.

### 1999



Class of 1999 at Alumni Weekend, October 2019.

### 2006

Amber Cziok (D.D.S.), Litchfield, Minn., was elected first vice-president of the Minnesota Dental Association (MDA) for the 2019-20



Amber Cziok

term. Dr. Cziok is a board member of the Minnesota Dental Foundation, a past member of the MDA New Dentist Membership Committee, past trustee of the West Central District Dental Society, and has served as a 10th District Delegate

to the ADA House of Delegates. She is the recipient of the 2019 MDA President's Award and the 2014 MDA New Dentist Award.

Please submit brief notices about milestone events and activities to: U of M School of Dentistry, Alumni Relations (attn: Erin Strong Elliott), 515 Delaware St. S.E., 15-136 Moos Tower, Minneapolis, MN 55455 or estrong@umn.edu.

Dentistry is published two times a year. Deadlines for submission are: Spring issue: January 1; Fall issue: July 1. Please note: Dentistry cannot publish birth and marriage announcements.

## **EventsCalendar**

### FEBRUARY 2020

### February 8 Give Kids a Smile

University of Minnesota School of Dentistry Minneapolis, Minn.

### MARCH 2020

### March 6 16th Annual Dental Research Updates from the U of M

8:00 a.m. to 3:00 p.m. Great Hall Coffman Memorial Union Minneapolis, Minn.

For information: smile.umn.edu

### March 6-8 Alumni & Donor Events

Scottsdale and Sun City, Ariz.

### APRIL 2020

### April 1-4 American Association of Endodontists Annual Meeting

Nashville, Tenn.

Alumni Reception: To be announced

For information: Jane Schwensohn Schwe008@umn.edu (612) 624-9900

### April 16-17 Montana Dental Association Annual Meeting

Big Sky Resort Big Sky, Mont.

*Alumni Reception:* To be announced

### April 23-25 Star of the North Meeting

Saint Paul RiverCentre Saint Paul, Minn.

For information: (612) 767-8400 (800) 950-3368

### April 24 Minnesota Dentistry Reception

5:30 p.m. to 7:30 p.m. St. Paul Hotel St. Paul, Minn.

For information and to RSVP: Ranee Flory (612) 625-7676 Chan572@umn.edu

### **MAY 2020**

### May 5 School of Dentistry Alumni Board Meeting

# May 2-4 American Association of Orthodontists Annual Meeting Atlanta, Georgia

Alumni Reception: May 2 5:30 p.m. to 7:30 p.m. Atlanta Marriott Marquis Atlanta, Georgia

For information: Jodi Kelly Roon3005@umn.edu (612) 626-4166

### May 14-16 South Dakota Dental Association Annual Session Sioux Falls, S.D.

Alumni Reception:
To be announced

### AUGUST 2020

August 12-13 New Student Orientation

### SEPTEMBER 2020

### September 11 White Coat Ceremony

2:00 p.m. Northrop Memorial Auditorium University of Minnesota Minneapolis Campus

For information: (612) 625-0927

### September 11-12 Alumni Weekend

### OCTOBER 2020

### October 15-18 ADA FDC Annual Meeting

Orange County Convention Center Orlando, FL

*Alumni Reception:* To be announced



## For more information

Except where noted, you can obtain further information on the events listed and/or request disability accommodations by contacting:

### **Erin Strong Elliott**

Alumni Relations (612) 626-6884 estrong@umn.edu

To stay informed about events at the University of Minnesota, see the Twin Cities Campus Event Calendar at www.events.tc.umn.edu

## CDE Courses

### Discount Available

School of Dentistry Alumni Society members are eligible for discounted continuing education. Members may receive a 10 percent discount for "lecture only" courses offered through the University of Minnesota School of Dentistry. (This discount applies to School of Dentistry Alumni Society members only and not their employees.)

\*See smile.umn.edu for updates.

### JANUARY 2020

**Advanced Composite Restorations:** A Hands-on Program January 10-12, 2020

**Dental Implants: From Site Preparation to Complications** January 23-25, 2020

**Pediatric Caries Prevention** and Management for the Dental Team: A Hands-on Workshop January 24, 2020

Nitrous Oxide-based **Sedation Training: Pediatric** & Adult Patients with **Special Health Care Needs** January 25, 2020

### FEBRUARY 2020

**Implant Supported Prosthesis** Utilizing the All-on-4™ Treatment Concept: A Hands-on Program February 1-2, 2020

25th Annual Ski & Learn: Park City, Utah-Your 5-day Ski Getaway February 5-9, 2020

**Removal of Bond Material** with Rotary Instrumentation: A Hands-on Program February 6, 2020

Miniresidency in **Pediatric Dentistry** February 7, 2020 to February 9, 2020

Your Healthier Mind, Body & Spirit: A Day for **Dental Hygienists and Dental Therapists** February 21, 2020

**ZOOM Webinar:** Your Healthier Mind, Body & Spirit—A Day for **Dental Hygienists and Dental Therapists** February 21, 2020

**Gingival Displacement** & Soft Tissue Management: A Training Program February 22, 2020

Miniresidency in **Cone Beam CT Imaging** February 28-29, 2020

### MARCH 2020

Office Oral Surgery: A Guided Experience for the General Dentist March 2-3, 2020

**16th Annual Dental Research** Updates from the U of M March 6, 2020

Two-day Dental MBA: **Essentials for Your Business** and Financial Wellbeing March 6-7, 2020

**ZOOM Webinar: Two-day Dental MBA—Essentials** for Your Business and Financial Wellbeing March 6-7, 2020

**Essential Endodontics** for the General Dentist: A Workshop March 7, 2020

Nitrous Oxide/Oxygen Inhalation Sedation: A Training Program

March 13, 2020

**Dental Equipment** Maintenance, Repair & Safety: A Hands-on Workshop for the Dental Team March 14, 2020

**Restorative Expanded** Functions: An 80-hour **Training Program** March 20-May 17, 2020

### APRIL 2020

**Orthodontic Procedures** Certificate for the **Dental Hygienist** April 3-4, 2020

**Botox and Dermal Fillers: Live-patient Training** April 4-5, 2020

Local Anesthesia: A Hands-On Training Program April 27-29, 2020

### **MAY 2020**

Spring Mandatory & Core Training for the **Entire Dental Team** May 8, 2020

**ZOOM Webinar Mandatory** & Core Training for the **Entire Dental Team** May 8, 2020

**Atraumatic Extraction** and Bone Grafting: A Hands-on Workshop May 8-9, 2020

**Three-appointment Dentures:** A Hands-on Workshop May 15-16, 2020

### **JULY 2020**

**Advanced Periodontal** Instrumentation: A Hands-on Review July 11, 2020

**Duluth Weekend 2020: Every Dental Pro's Guide** to Oral Cancer

July 25-26, 2020

### AUGUST 2020

Miniresidency in Prosthodontics: Advances and Innovations in Restorative and **Implant Dentistry** August 6-9, 2020

**Classifying Periodontal** and Peri-implant Diseases and Conditions: A Hands-on Program August 7, 2020

Office Oral Surgery: A Guided Experience for the General Dentist August 10, 2020 to August 11, 2020

**Local Anesthesia Refresher:** A Hands-on Review August 13, 2020

### For more information

For more information, to register for classes and/or to request disability accommodations, contact:

### **Continuing Dental** Education

6-406 Moos HS Tower 515 Delaware Street SE University of Minnesota Minneapolis, MN 55455

#### Phone:

(612) 625-1418 or (800) 685-1418

### Fax:

(612) 624-8159

### Website:

smile.umn.edu

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