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Fall 2016

LLUSD Articulator - Volume 27, Number 2

Loma Linda University School of Dentistry

Rodrigo Vieceilli
Loma Linda University

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LLUSD **ARTICULATOR**

The melding of compassion and competence in dental education



LOMA LINDA
UNIVERSITY

School of Dentistry

**"I've lived on the
other side"**

**LLUSD's 60th
conferring of
degrees**

**Chen introduces
China to
Zirconia crowns**

**Mechano-
transduction of
OERR**





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MANY STRENGTHS. ONE MISSION.

LLUSD ARTICULATOR

The melding of competence and compassion
in dental education.

VOLUME 27, NUMBER II SUMMER/AUTUMN 2016

Articulator (formerly **Dentistry**) celebrates with alumni and friends the School of Dentistry's efforts to combine compassion and competence in the education of oral healthcare professionals. LLUSD alumni represent the strength of that amalgam. The journal is published twice each year by the Loma Linda University School of Dentistry Office of Marketing.

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LLUSD Mission

Loma Linda University School of Dentistry seeks to further the healing and teaching ministry of Jesus Christ by providing an environment wherein:

Students learn to provide high quality oral healthcare based on sound scientific principles

Patients receive competent care, which is preventive in purpose, comprehensive in scope, and provided with compassion and respect

Faculty, students, and staff value the patient relationship, respect diversity, and share responsibility by working together toward academic, professional, spiritual, and personal growth

Scholarly activity and research provide a foundation for evidence-based learning and enhance whole person care

The workplace environment attracts and retains a superior and diverse faculty and staff who motivate, educate, and serve

Our communities (local, global, and professional) benefit from our service, stewardship, and commitment to life-long learning.



Class of 2016 dental hygiene students are more than ready to graduate (see Commencement coverage pages 20-27).

Editor's note:

The recent past LLUSD *Articulator* contained for the first time a return-addressed, postage-paid envelope for the convenience of readers who might wish to use it to mail continuing education quizzes, enclose the nine-question survey regarding the alumni journal, provide personal information and stories for possible inclusion in the journal's "Where Are They Now" page, or even submit gifts to the School's Office of Philanthropy.

What use was made of the return-addressed, postage-paid envelope?

Eleven School of Dentistry alumni answered the nine-question, LLUSD *Articulator* survey—each of them using the return-addressed, postage-paid envelope. Despite the limited response, it was encouraging to receive such high marks from those who took the survey as well as a couple of very kind notes.

Nine *Articulator* recipients took the continuing education quiz and returned it to the School by various methods: one used the provided envelope, one sent it by FAX, and seven used their own envelope and stamp.

Two *Articulator* readers used the provided envelope to send a letter.

Doing the math reveals that 14 of our readers used one of the more than 8,000 envelopes that were printed and included in the journal. Fortunately, the School pays the postage only when an alumnus uses the envelope to communicate with their alma mater. 😊

The truth is, your Office of Alumni Affairs and the Office of Marketing (from which the *Articulator* is edited and published) would like to pay a lot more postage, because it would mean many more of you are communicating with your alma mater for any number of purposes: CE credits, self reporting for the *Articulator's* "Where Are They Now" page, and to transport checks to the Office of Philanthropy.

To see if the minimal use of the envelope is just a matter of getting used to the convenience, we will continue to include it for another issue or two to see if you begin to take advantage of it.

Meanwhile, on behalf of those listed on the *Articulator* masthead, I add that we want to hear from more of you during what we hope is for each reader a very meaningful new year.

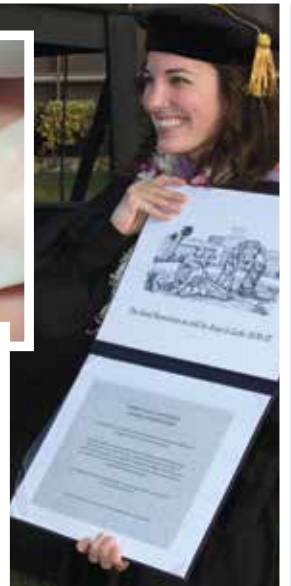
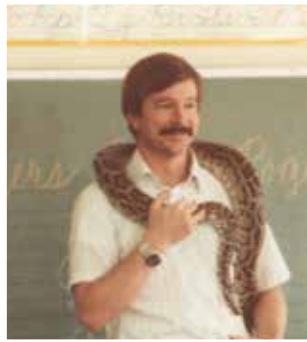
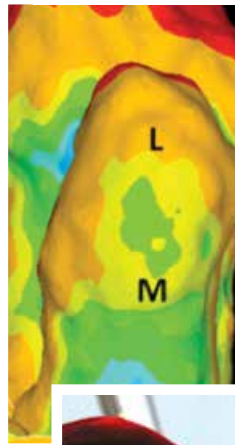
Appreciatively,

Doug Hackleman, MA
Editor

Cover: The Great Wall of China photo taken by Jung Wei Chen, DDS, MS, MS, PhD, program director, Advanced Specialty Education Program in Pediatric Dentistry

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DEAN'S MESSAGE

Emerging healthcare delivery models affect dentistry and dental education

Recently, Dr. Rob Handysides and I attended the annual Council of Deans Fall Meeting hosted by the American Dental Education Association. The meeting brings together dental school deans from around the country—we learn from each other and from invited speakers, we discuss current issues relevant to academic dentistry, and we find common ground for long-term advocacy in areas that affect our missions.

The meeting was well attended. This year, not surprisingly, the impact of the new Donald Trump administration on health care and the Affordable Care Act were key areas of focus. The conversations (and predictions) were plentiful and shaped by the assertions and predictions made by the president-elect during the recent presidential campaign. While there was diversity of thought on these topics, one area of general agreement among the Council of Deans is that reform—no matter the outcome of the election—will continue. The pace and the framework will evolve, and the process will be incremental over many years, even decades, but the pressing need to bring down costs means the future will look different.

While necessary, this evolution will continue to be difficult and painful. The continuing shift away from the exclusivity of the fee-for-service delivery model is a challenge for people in all facets of the nation's health care system, including those of us in academic dentistry.

Despite wariness about the specifics of this transition through the Affordable Care Act, and the coming changes in a Trump administration, in all of my conversations and observations during this meeting, it was clear that there is an inevitability about and commitment to ongoing health care reform. Across most dental schools, there appears to be a clear consensus to emphasize prevention and population health, and to find ways to integrate the social determinants of health, such as nutrition, education, and environmental health, into strategies for improving oral healthcare delivery.

As the sessions wound down, I was left with an overall impression similar to what I have concluded the past few years



Dr. Ronald Dailey

at this same meeting: healthcare and academic dentistry have moved into an era of significant change. It is both exciting and, for some, nerve-wracking. After listening to the current experiences as well as initiatives underway across the country at private practices and at other dental schools, I can say with confidence that Loma Linda is preparing effectively for our nation's oral health care transformation. In fact, Dr. Handysides is leading a taskforce specifically devoted to this priority. It is our intent to lead the way in some important areas.

This readiness to embrace change and shape the future is linked directly to your commitment and dedication to ensuring that Loma Linda University School of Dentistry is, and remains, excellent across all of our missions.

Thank you for everything you do in support of this unique and special School.

Best regards,

A handwritten signature in blue ink, appearing to read 'Ronald J. Dailey'.

Ronald J. Dailey, PhD
Dean, School of Dentistry

BY THE NUMBERS

*Profiling the DDS class of 2020***GPA (cumulative) 3.44**

Non-science average 3.61
Science average 3.34

DAT

Academic average 19.66
Total Science 19.48
Reading Comprehension 20.66

Applicants

Total applicants 1,709
SDA 185

Gender

Female 41
Male 59

Ethnicity

African American 4
Asian Pacific Islander 36
Caucasian 38
Hispanic 15
Mixed ethnicity 7

Average Age 24.7**More than half the class of 2020 matriculated from these eight schools:**

Southern Adventist University	14
La Sierra University	9
Andrews University	8
Pacific Union College	7
UC, Irvine	6
UC, Riverside	4
UC, San Diego	4
Walla Walla University	4

*LLUSD Dental Research**July 1, 2015–June 30, 2016***26 Projects with extramural funding**

12 Clinical
14 Animal/laboratory

\$114,618 Internal research support

24 graduate/resident thesis projects: \$41,542
3 faculty grants (1 FIT grant and 1 seed grant): \$67,756
Dental/dental hygiene student research program: \$5,320

\$2,587,423 Extramural research projects and funding

Total new research funding: \$2,442,789
Royalty income: \$144,634

Accreditation hurdle cleared

In the second week of January 2017, Dean Ronald Dailey, PhD; Robert Handysides, DDS, associate dean, Academic Affairs; and Paul Richardson, DDS, associate dean, Clinic Administration, met in Chicago with members of the Commission on Dental Accreditation (CODA) to review issues raised by the Commission-appointed peers site visit team in February 2016.

During the accreditation team's visit, all advanced education programs and dental hygiene programs were accredited without reporting requirements for seven years.

Because the accrediting team felt that the pre-doctoral program needed follow-up in three areas, it was accredited

with reporting requirements that provided the School until February 2018 to resolve perceived deficits.

After reviewing the written report and questioning the LLUSD administrators during the Chicago visit, the accreditation pre-doctoral review committee recommended to the Commission that the School of Dentistry's pre-doctoral program reporting requirements be lifted and the School's status changed to accredited without reporting requirements.

The next anticipated accreditation site visit for the School of Dentistry is 2023.

Communication surveys show evolving preferences

Communication Survey Comparative Analysis

At the dean's request, the School of Dentistry's Office of Marketing conducted brief communication surveys (one in 2013 and one in 2016) that queried LLUSD students, staff, and faculty about what kinds of official communication they wish to receive from within the organization—their preference of sources, of topics, and of media.

Question 1 – Please choose the category that best describes your role.

Overall response rates from all user groups dropped significantly. The time of year respondents were surveyed differed somewhat (late August, 2013 compared to mid-November, 2016) and, along with the academic schedule/upcoming 2016 holiday, may have contributed to the response drop.

Question 2 – Which of the LLUSD social media and news outlets do you currently use? (Select all that apply.)

While students were most constant from 2013 to 2016 in the social media and news outlets they preferred, all three surveyed user groups for the most part preferred to receive communication digitally—with digital signage and online news/LLUSD website residing in the top three choices for all three user groups surveyed.

Question 3 –

Due to a question change that was requested between surveys, Question 3 is the only one that can't be truly compared apples-to-apples. In 2013, respondents were asked how they would

prefer to receive future news. In 2016 they were asked to evaluate each modality's effectiveness and whether they felt it had changed or improved.

For the most part, responses across groups regarding communication effectiveness remained unchanged between the 2013 and 2016 surveys. The one category that received high marks for improvement was Brown Bag meetings with the dean.

The one category that received high marks for improvement was Brown Bag meetings with the dean.

Question 4 – Please rank the news topics in the following list in order of personal preference.

The news topic preferences differ greatly from 2013 to 2016 for each respondent

group. In 2016 each group stated that they would most prefer to hear news from their own departments. In second place for two of the three group (faculty and staff) preferences was news at an institutional level from LLUH.

Question 5 – What types of LLUSD stories would you like to see more of in the LLUSD Articulator, on the LLUSD website, and/or on LLUSD social media?

The type of information respondents would like to receive from the SD Office of Marketing has changed from 2013 to 2016. In 2013 most individuals wanted more announcement/information with student stories and faculty stories taking second and third preference positions. Based on the 2016 survey results, it appears that information pertaining to announcements and events is being sufficiently disseminated and digested. Across the board, respondents value student stories most.

The adjacent page table provides a detailed breakout of the responses from three categories of LLUSD respondents to the 2016 Communication Survey.

Communication Survey November 29, 2016

Question 1: Please describe the category that best describes your role.

Faculty	55	85
Staff	65	95
Student	80	127
Total 2016 Respondents:	200	Total 2013 Respondents: 307

Question 2: Which of the LLUSD social media and news outlets do you currently use? (Select all that apply)

	Faculty		Staff		Students		Overall Average
Digital Signage	35	1st place	29	3rd place	14	3rd place	78 3rd place
Facebook	21	5th place	18	4th place	57	1st place	96 2nd place
Online News/LLUSD Website	30	3rd place	39	1st place	35	2nd place	104 1st place
YouTube Channel	6		5		11	4th place	22
The <i>Articulator</i> —printed version	32	2nd place	16	5th place	7		55 5th place
The <i>Articulator</i> —online version	7		6		2		15
Word of Mouth—emailed newsletter	24	4th place	36	2nd place	10	5th place	70 4th place

Question 3: Please compare the following communication methods from how they were utilized in 2013 to present day.

(Majority response from each user group)	Faculty	Staff	Students	Overall Average
In person updates from my director/boss	Tie - improved & Unchanged - 32.65%	Unchanged - 34.55%	Unchanged - 29.79%	Unchanged - 32.45%
Regular updates from my chair	Tie - Improved & Unchanged - 33.33%	Unchanged - 42.50	Unchanged - 33.33%	Unchanged - 36.29%
Brown Bag meetings with the Dean	Improved - 34.69%	Improved - 47.62%	Unchanged - 43.75%	Improved - 34.15%
Emailed executive meeting minutes from the Office of the Dean	Improved - 41.51%	Unchanged - 41.67%	Unchanged - 45.95%	Improved - 34.92%
Faculty Advance Seminar	Unchanged - 34.62%	Unchanged - 37.50%	Unchanged - 48.39%	Unchanged - 39.25%
Faculty Council	Unchanged - 37.25%	Unchanged - 50%	Unchanged - 50%	Unchanged - 43.56%
Digital Signage	Unchanged - 30.61%	Slightly improved - 34.09%	Unchanged - 41.30%	Unchanged - 33.81%

Question 4: Please rank the news topics in the following list in order of personal preference.

(Majority response from each user group)	Faculty	Staff	Students	Overall Average
News from LLUH	2nd	2nd	5th	2nd
News from your department	1st	1st	1st	1st
LLUSD financial reports	4th	3rd	6th	3rd
Clinic Administration	6th	4th	4th	4th
Academic curriculum	5th	5th	2nd	5th
Clinical protocol	3rd	6th	3rd	6th
Advanced Education programs	Tied for 7th	7th	7th	7th
Faculty promotions	Tied for 7th	8th	8th	8th
Office of Admissions	9th	9th	9th	9th

Question 5: What types of LLUSD stories would you like to see more of in The *Articulator*, on the LLUSD website, and/or on LLUSD social media?

(Majority response from each user group)	Faculty	Staff	Students	Overall Average
Student stories	1st	1st	1st	1st
Faculty stories	2nd	2nd	2nd	2nd
Staff stories	3rd	3rd	4th	3rd
Alumni stories	4th	4th	3rd	4th
Research articles	5th	5th	5th	5th
Human interest stories	9th	6th	7th	6th
Administrative and academic updates	6th	7th	6th	7th
Service Learning trips/stories	7th	8th	9th	8th
Announcement/events	8th	9th	8th	9th
Dental industry news/alerts	10th	10th	10th	10th

DEVELOPMENT

Koppel Center benefactor entertains dean

The philanthropic inclination is part of the Koppel DNA.

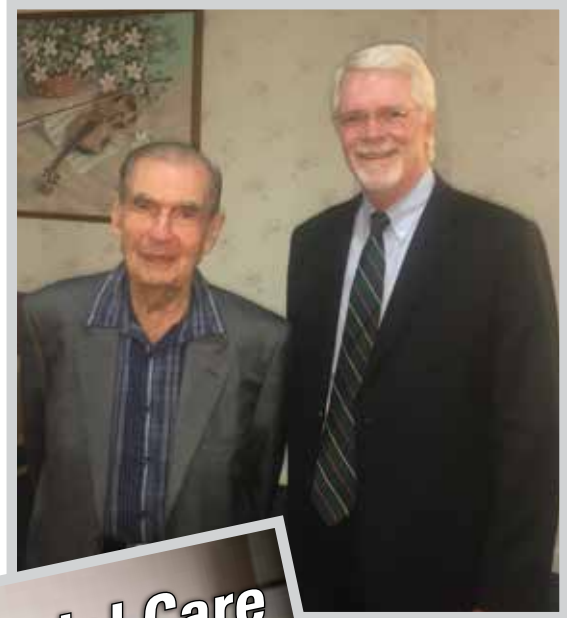
Retired in 1985 and now living in Asheville, North Carolina, 98-year-old Albert Koppel, DDS, received a courtesy visit on October 29, from Ronald Dailey, PhD, dean, LLU School of Dentistry, and Tim Sherwin, MS, senior development officer.

The visit was motivated by appreciation for the generosity that Dr. Koppel and his late wife, Betty Koppel, MD, have shown the School of Dentistry, particularly its special care dentistry program that bears their name. Dean Dailey presented Dr. Koppel with a 20-page photo book featuring the staff and care providers, the patients, the facilities, and the work of the Koppel Special Care Dentistry Center.

The one-off volume represents the grateful esteem in which Drs. Al and Betty Koppel are held by the students, faculty, and administration of LLUSD for their profound impact on the mission of the Koppel Special Care Dentistry Center.

Born in 1919, Albert was a first-generation American raised on a farm near Trenton, New Jersey. A Shenandoah Valley Academy graduate, he attended Atlanta Southern Dental College, finishing 14th in a war-abbreviated, three-year, class of 86 students.

In late 1945 Dr. Koppel opened his office a block from the old General Conference of Seventh-day Adventist headquarters in northwest Washington, DC, where he and Betty would live and work for the next decade that included a two-year break for military service in Germany during the Korean Conflict (1951-1952).



*Dr. Albert Koppel
with Dean Ron Dailey
in October 2016*



Dr. Betty Koppel was a 1942 graduate of Loma Linda's College of Medical Evangelists. She took a residency in anesthesiology at Harvard Massachusetts General Hospital and provided anesthesia at Washington-area hospitals throughout her

medical career.

Al Koppel's dental patients were some of the first beneficiaries of dental anesthesia and conscious sedation (early 1960s) made possible by his anesthesiologist wife, Betty Koppel, who was skilled in the administration of intravenous medication for conscious sedation to his patients who were especially apprehensive or who had autism, cerebral palsy, or

other conditions that prevented them from remaining still for extended periods.

Beginning in 1976, LLUSD operated a “hospital dentistry department” housed within Loma Linda University Medical Center, where it provided dental treatment utilizing general anesthesia for patients whose conditions or disabilities made conventional dental treatment difficult. In 1988, Hospital Dentistry was closed and became the Surgery Center for Dentistry. Then in the year 2000, the Center moved to its current, first-floor location on the northeast corner of Prince Hall.

Seven years later (2007), out of appreciation for a very generous gift, LLUSD dedicated the facility as the Koppel Special Care Dentistry Center. Under the direction of the Department of Dental Anesthesiology, this Joint Commission-accredited and CMS-certified outpatient ambulatory surgery center manages a flow of nearly 5,000 patients each year. It makes possible

the LLUSD Advanced Specialty Education Program in Dental Anesthesiology from which, by December 31, 2016, there will be 120 graduates of the two-year Dental Anesthesiology program, and all future graduates will have transitioned to the three-year training program.

Al and Betty Koppel retired in 1985 to New Market, Virginia, after 40 years as a healthcare providing team. Dr. Betty Koppel died in 2013.

During his recent visit with Dean Dailey and Tim Sherwin, Dr. Koppel spoke fondly of training with Dr. Neils Jorgenson in 1959 and how “intravenous conscious sedation” changed his life and the entire profession of dentistry.

The Loma Linda University School of Dentistry Koppel Special Care Dentistry Center will benefit significantly into the future from the lifelong professional, ethical, and spiritual commitments of Albert and Betty Koppel.

Pictures from the Koppel Special Care Dentistry Center book



With the assistance of clinical staff, John Leyman, DDS, associate professor, Dental Anesthesiology (right) attends to a patient.



Drs. Al and Betty Koppel late in their professional life.



Maria Garcia, DMD, as a second-year resident, Advanced Specialty Education Program in Dental Anesthesiology, with a happy patient.



Neal Johnson, PhD, DDS'08, associate professor, Dental Anesthesiology, treats a young lady.

Alumni Appreciation visits

It wasn't only Al Koppel who received courtesy calls from Dean Dailey and Tim Sherwin this past year. Both men accumulated frequent flyer miles in large numbers to visit alumni and friends of the School around the country. A number of those with whom they met are pictured here.



Dean Dailey meets with Thor Bakland, DDS'62 in Walla Walla, Washington.



Dane Thomas, DDS'96, and his office staff in Asheville, North Carolina.



Dean Dailey visits Howard Kim, DDS'87, in his Kailua, Hawaii, office.



Tim Sherwin finds a serial contributor, Liana Wolfe, DDS'90, in Asheville, North Carolina.



Tim Sherwin and Dean Dailey relax with Cecil Riter, DDS'85, in Oahu, Hawaii.



L-R: Jeffrey Root, DDS'04, and practice partner John Krishinger, DDS'06, pose on Halloween in Brevard, North Carolina.

LLUSD alumni giving by class: an historical accounting

What does the tower of data on the right say about the LLU School of Dentistry and its alumni?

As demonstrated by the adjacent table, LLUSD alumni have an estimable record of supporting the school that trained them. Some of the remarkable numbers that stand out include the following:

- 11 classes have given over \$1 million.
- 1 class (1970) has contributed almost \$2 million.
- 2 classes have 100 percent contribution rates.
- 11 classes have a 90 percent participation rates.
- 16 classes have an 80 percent participation rate.
- 13 classes have a 70 percent participation rate.
- 67 percent of all LLUSD graduates have made gifts to their School, compared with roughly a 20 percent national average for alumni who contribute to their alma mater.

When comparing the participation of LLUSD classes in supporting their alma mater, it is important to keep in mind that the 1957 (and first) graduating class was comprised of just 42 graduates. By 1970 class size had grown to approximately 70, and in the following decade matriculation sometimes reached the low nineties before flirting with 100 in the new millennium. Additional consideration must be given to how long the classes have been out of school and the rate of inflation that makes more recent dollars less valuable. And so it is all the more remarkable that the class of 1983 is among the 11 LLUSD classes that have given over \$1 million to their alma mater.

The adjacent table indicates that the average contribution of nearly 7,000 LLUSD dentist graduates combined across the years through 2015 is about \$13,300.

In 2015, the average contributions to the School per class was \$17,500—an average that was wonderfully distorted by the \$562,816.70 that was contributed by the class of 1970.

Class	2015 Giving to LLUSD	Total Giving to LLUSD	Lifetime Participation
1957	\$2,060.00	\$477,477.66	100.00%
1958	\$6,425.00	\$353,138.29	83.33%
1959	\$1,600.00	\$389,021.33	95.83%
1960	\$2,240.00	\$734,446.16	95.45%
1961	\$3,560.00	\$1,040,696.65	90.74%
1962	\$2,765.00	\$1,021,731.68	86.89%
1963	\$7,579.63	\$1,039,720.40	96.49%
1964	\$7,850.00	\$480,891.72	91.38%
1965	\$3,300.00	\$413,621.57	90.20%
1966	\$23,180.00	\$798,636.21	97.96%
1967	\$7,590.00	\$916,165.21	96.88%
1968	\$10,080.00	\$1,064,824.55	100.00%
1969	\$955.00	\$1,269,404.11	92.50%
1970	\$562,816.70	\$1,932,056.79	82.67%
1971	\$8,045.71	\$1,122,061.02	86.59%
1972	\$11,552.03	\$727,576.91	76.19%
1973	\$8,795.00	\$1,271,475.78	80.90%
1974	\$15,626.05	\$1,152,018.85	84.95%
1975	\$25,117.00	\$1,677,006.54	84.08%
1976	\$13,023.00	\$602,385.52	73.27%
1977	\$6,660.00	\$447,294.17	79.21%
1978	\$15,455.00	\$862,168.04	76.19%
1979	\$11,020.00	\$279,199.95	53.13%
1980	\$11,325.00	\$580,997.16	78.45%
1981	\$7,000.00	\$915,631.98	71.65%
1982	\$3,910.00	\$366,566.47	71.30%
1983	\$9,460.00	\$1,101,462.42	84.43%
1984	\$14,104.68	\$426,346.15	81.37%
1985	\$17,990.00	\$641,401.35	62.96%
1986	\$8,690.00	\$676,208.62	85.71%
1987	\$16,051.00	\$376,051.03	73.60%
1988	\$21,340.00	\$463,799.49	80.00%
1989	\$18,395.00	\$370,515.27	85.15%
1990	\$31,319.90	\$535,050.03	89.01%
1991	\$24,040.00	\$477,340.70	93.64%
1992	\$15,953.34	\$303,882.64	94.17%
1993	\$16,559.86	\$312,721.56	92.45%
1994	\$17,557.44	\$297,166.20	89.11%
1995	\$8,290.00	\$345,907.17	85.98%
1996	\$14,610.00	\$156,771.01	81.90%
1997	\$3,770.00	\$381,038.08	79.25%
1998	\$28,060.00	\$186,658.34	76.36%
1999	\$13,420.00	\$124,035.00	67.96%
2000	\$9,370.00	\$108,662.31	73.85%
2001	\$16,588.00	\$172,778.73	66.93%
2002	\$18,150.00	\$185,544.31	79.53%
2003	\$11,219.00	\$180,101.07	56.82%
2004	\$6,618.88	\$134,062.51	56.72%
2005	\$8,080.00	\$75,420.60	55.46%
2006	\$19,110.00	\$114,610.03	47.45%
2007	\$4,766.00	\$41,628.47	30.22%
2008	\$8,130.00	\$53,710.32	76.69%
2009	\$7,951.09	\$79,399.26	50.98%
2010	\$7,730.10	\$63,075.56	54.36%
2011	\$6,670.11	\$44,761.94	35.10%
2012	\$8,300.00	\$43,361.85	24.54%
2013	\$5,890.00	\$13,894.53	14.38%
2014	\$6,750.00	\$9,490.00	10.59%
2015	\$1,440.00	\$10,870.03	6.40%
Total	\$1,032,522.82	\$24,850,004.83	67.70%

**If you are considering a gift to your alma mater,
please contact the LLUSD philanthropy team at**

(909) 558-4754,

email: sdgiving@llu.edu

or go to: tinyurl.com/jycabbj

ONE Homecoming

March 2 - 5, 2017

Proud to be honoring the
50th & 60th Anniversary
Classes of 1957 & 1967

Wednesday, March 1 – Friday, March 3, 2017

Registration – *West side of Centennial Complex*

Thursday - March 2, 2017

CE Courses – *Centennial Complex*

Kickoff Celebration & Concert – *Drayson Center*
5–9:00 p.m.

Friday – March 3, 2017

CE Courses – *Centennial Complex*

Campus Tours
1–4:30 p.m.

Saturday, March 4, 2017

Spiritual Activities – *Drayson Center*
9–11:45 a.m.

Haystack lunch – *Drayson Center*
12:15–1:30 p.m.

Saturday, March 4, 2017

Class Reunions – *Various locations*

*Class representatives will be coordinating reunions and
contacting class members

Sunday – March 5, 2017



Local Anesthesia – Drugs, Techniques & Complications

Stanley F. Malamed, DDS

Dentist Anesthesiologist
Emeritus Professor of Dentistry
Herman Ostrow School of Dentistry of USC
Los Angeles, CA



Restorative Materials Update 2017

Jeff J. Brucia, DDS

Assistant Professor
Dental Practice Arthur A. Dugoni
School of Dentistry
University of the Pacific
San Francisco, CA

2017 Continuing Dental Education

Hot Topics in Infection Control and the California Dental Practice Act

Date: Sunday, March 19, 2017 // Tuition: \$195 DDS// \$145 AUX

Nancy (Andrews) Dewhirst
RDH, BS
Anaheim, CA

Bette Robin DDS, JD
Tustin, CA

Conquer the Kids and Win the Family

Date: Sunday, March 26, 2017 // Tuition: \$195 DDS// \$145 AUX

Carla Cohn, DMD
Winnipeg, Manitoba, Canada

Clinical Applications of Contemporary Prosthodontic Treatment

Date: Sunday, April 2, 2017 // Tuition: \$215 DDS// \$165 AUX

Restorative Implant Complications

Carl F. Driscoll, DMD
University of Maryland, Baltimore

Evidence-based Differential Treatment Planning for the

Partially Edentulous Patient
Steven J. Sadowsky, DDS
University of the Pacific

Esthetic and Implant-related Reconstruction

Hans P. Weber, DMD
Tufts University School of Dental
Medicine

Managing the Edentulous Patient: Pros and Cons of New Technology

Mathew Kattadiyil, BDS, MDS,
MS
Loma Linda University School of
Dentistry

Integration of Esthetic Dentistry and Ceramic Science in Routine and Complex Prosthodontics

Kenneth A. Malament, DDS,
MScD, FACP
Tufts University School of Dental
Medicine

For more information or to register contact LLUSD Continuing
Education | 11245 Anderson Street, Suite 120 | Loma Linda, CA
92350 Ph: (909) 558-4685 | F: (909) 558-0835 | dentistry.llu.edu

WHERE ARE THEY NOW?

Brief updates on the noteworthy professional and personal activities of LLUSD alumni

Lincoln Edwards



Dr. Lincoln Edwards

Lincoln Edwards, PhD, DDS'09, a pharmacologist and dental surgeon, was elected, June 2016, president of the Seventh-day Adventist-owned Northern Caribbean University in Mandeville, Jamaica.

A native of Jamaica and graduate of the University of the West Indies and Loma Linda University, Dr. Edwards served as an assistant professor in the Schools of Medicine and Dentistry at Loma Linda University from 2005 to 2013 before his employment as associate professor in the Department of Diagnostic and Biomedical

Sciences at the University of Texas Health Sciences Center's School of Dentistry in Houston, where he was engaged in teaching, clinical practice, and research. He completed his postdoctoral training at Case Western Reserve University in Cleveland, Ohio.

Dr. Edwards is a noted researcher in the area of diabetes and hypertension and has obtained two grants from the National Institutes of Health in Jamaica. He currently serves on three American Dental Association test construction committees and is secretary of the American Dental Education Association section on oral diagnosis.

Dr. Edwards is married to Sandra Taylor; the couple has three children.

Daniel Harvey Lee



Dr. Harvey Lee

Daniel Harvey Lee, MPH, DDS'03, MBA, board certified Pediatric Dentist, is president and CEO of Smile Wide Corporation, which owns and operates 15 dental practices in Los Angeles, Orange County, and the Inland Empire.

After earning his DDS, Dr. Lee completed general practice and pediatric dental residency programs at St. Barnabas Hospital, Bronx, NY. While in private practice, he was appointed Pediatric Division Chief for Harlem Hospital, where he started a pediatric dental residency program.

Dr. Lee returned to California in 2008 and while working on an MBA degree at La Sierra University in 2013, he created a business proposal to market the invention he patented and trademark registered as TidyFloss, with a flosser so fine it slips easily under orthodontic braces without damaging the wires or brackets, yet so durable it is tough to shred.

Dr. Lee is part-time assistant professor of pediatric dentistry at Loma Linda University and currently serves as president of the Orange County Dental Society. He also serves on the board of directors for a non-profit organization, Healthy Smiles, for Kids in Garden Grove.

Dr. Lee and his wife, Michelle K. Lee, DDS'01, an endodontist, live in Irvine with their three boys: Maddox, Cameron, and Lucas.

Christina T. Do

Christina T. Do, DDS'04, is one of three practice partners at Smiles 4 OC in Costa Mesa, California.

Dr. Do is an experienced practitioner of and advocate for laser dentistry, and is an editor for the *Journal of Laser-Assisted Dentistry*.

Using a Waterlase procedure, Dr. Do laser-prepped an 8-year-old's lower molar cavity before a live audience on the CBS TV show, *The Doctors*, and filled it with a composite filling: <http://tinyurl.com/gouk3qw>

Dr. Do has been featured in the *CDA Newsletter* for her animated children's educational videos, "Tooth Tales," that feature Dr. Christina, the coolest dentist around, and her two newest patients—Freddy and Bobby. Two episodes—"Bobby's 1st Visit to the Dentist" and "Bobby Gets His 1st Laser Filling!"—are available, along with a 24-page "Tooth Tales" coloring book at: <http://TinyURL.com/haw3aon>

Since her days as a student dentist, Dr. Do has provided oral healthcare to the underserved on trips to Mexico, Peru, Bolivia, Guatemala, Honduras, Papua New Guinea, and Haiti.

Dr. Do was inducted in 2016 as a Fellow of the Academy of Dentistry International.



Dr. Christina Do

Jeffrey Steven Schroeder

Jeffrey Steven Schroeder, DDS'91, who retired three years ago from a very busy practice in West Richland, WA, has subsequently traveled the world with his wife, the former Sheila Yates.

Dr. Schroeder joined classmate Steven Chang, DDS'91, on several mission trips to the islands of Palau, Yap, Fiji, and Kwajalein. He has also worked at the Guam SDA Clinic, filling in for several months at a time.

In early 2015, Dr. Schroeder served as the ship's dentist on the *MS Amsterdam* for the Holland America Grand World Voyage four-month world cruise, learning to do dentistry in the swaying A-deck dental office close to the ship's water line. With daily office hours, his services were available for the dental needs of 1,200 passengers and 800 crew members.

Dr. Schroeder provides initial dental exams for the Columbia Basin College Dental Hygiene Program. He also volunteers at Grace Clinic for low-income/no-insurance patients.

After enjoying a Reformation Tour of Italy, Switzerland, Germany, and France, led by Dr. Gerard Damsteegt, Dr. Schroeder enrolled fall quarter of 2016 in a health leadership course at Weimar Institute.

"Retirement is really tough," Dr. Schroeder says with a grin.



Dr. Jeffrey Schroeder

TRANSITIONS

Wayne Tanaka retires

Wayne K. Tanaka, DDS, associate professor, Department of OMFS, concluded a 23-year teaching relationship with LLUSD on July 31, 2016. As a Diplomate, American Board of Oral and Maxillofacial Surgery, Dr. Tanaka was the School's predoctoral program director for Oral and Maxillofacial Surgery from 1998 to 2014.

A fourth-generation descendant of an immigrant plantation worker, Dr. Tanaka grew up in Hawaii, the product of an Episcopalian, all-boys middle and high school education that was followed by pursuit of a bachelor's degree in biology at the University of Hawaii, Honolulu, and a DDS at the University of Washington School of Dentistry, Seattle, in 1976.

Dr. Tanaka joined the United States Air Force in 1976 to take a general practice residency at the USAF Hospital at Davis-Monthan Air Force Base, Arizona, and then in 1983 completed the oral and maxillofacial surgery residency at Wilford Hall USAF Medical Center at Lackland Air Force Base, Texas, that led to his American Board of OMFS certification in 1985.

During his over twenty-one-year military career (1976-1997), Dr. Tanaka achieved the rank of colonel while serving in positions that reflected his increasing professional responsibilities: general dental officer; oral and maxillofacial surgeon; chief of oral and maxillofacial surgery (OMFS); command dental consultant in OMFS; and chair, departments of OMFS on military bases in the United States—Arizona, California, Nebraska, and New Mexico—and in Japan and Germany.

In March 1993, Dr. Tanaka joined the Department of Oral and Maxillofacial Surgery at Loma Linda University School of Dentistry as an assistant professor on a voluntary status. He served in this capacity until June 1995, when he was transferred to Offutt Air Force Base, Nebraska.

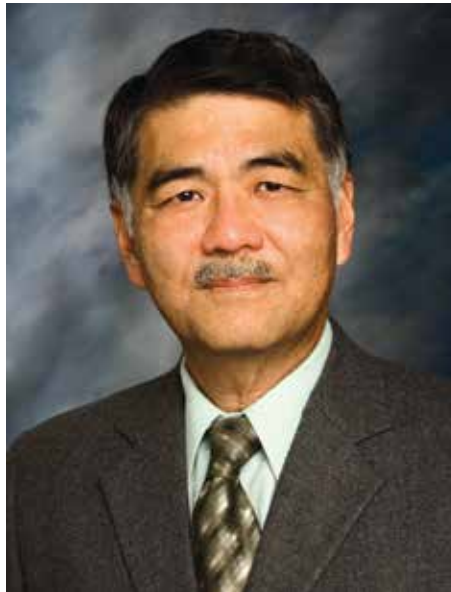
In December, 1997, he retired from the Air Force and returned to the School of Dentistry to teach full time as an associate professor in the Department of Oral and Maxillofacial Surgery. In 1998 he was appointed director of the OMFS predoctoral program, a position he held until 2014. Between 1998 and 2000, he also served as interim chair and interim residency director of the department.

Dr. Tanaka is most proud of initiating the School's pre-doctoral IV Sedation Honors Program that he established in 2002. Two or three students would negotiate a rigorous academic and clinical program to achieve competence in this advanced technique and also become more adept at interpreting medical history and managing medical emergencies. Eventually, the program achieved the status of a course (OMFS 817) for which the students received 1.5 units. Dr. Tanaka is especially grateful to the OMFS staff,

the Department of Dental Anesthesiology, and to Mike Boyko, DDS'75A, MPH, assistant professor, OMFS, and his former students—Holli Riter, DDS'98, associate professor, Division of General Dentistry, and Neal Johnson, DDS'08, PhD, associate professor, Dental Anesthesiology—for their help in making this program a success.

Like most faculty, he enjoyed the challenges and rewards of teaching students and residents. With students, he especially enjoyed seeing the "Aha!" moment when everything started to come together. He was always impressed by the preparation and thirst for knowledge of dental hygiene students who would be in his clinic for experience in local anesthesia. For residents, he enjoyed watching their growth not only in knowledge and skills but also organization and leadership.

Dr. Tanaka also expresses especially positive thoughts about the significant strength and cheer he found in his support



Dr. Wayne Tanaka



Dr. Tanaka and his daughter, Maile, enjoy the occasion.



Eventually, Dr. Tanaka had the opportunity to respond to his well-wishers.



Dr. Tanaka is surrounded by OMFS staff members (L-R): Edmundo Murillo, surgical assistant; Tammy Davis, surgical assistant; Lauri Harding, surgical assistant; Anna Koon, insurance specialist; Marcy Sanchez, assistant supervisor; Sobie Smallridge, supervisor; Marisela Cuevas, receptionist; Ellen Daniels, receptionist; and Elena Cenicerros, surgical assistant.

staff, especially their dedication to patient care and enthusiasm for continuing education. The latter included realistic emergency response training he provided. He also affirms his staff members for their acquisition of meaningful Oral Surgery Assistant certificates that are recognized by LLUSD as a status worthy of enhanced remuneration. And he speaks happily of the very warm, collegial relationship that developed between OMFS and Dental Anesthesiology over the years he was involved.

The LLU School of Dentistry awarded Dr. Tanaka its School Distinguished Service Award in 2013 for his contributions to the

dental profession and for his commitment to the education of its students.

As a board certified oral and maxillofacial surgeon, Dr. Tanaka has been an active staff member of three Inland Empire hospitals (Arrowhead Regional Medical Center, Loma Linda University Medical Center and Riverside County Regional Medical Center) where he treated patients with facial trauma, head and neck infections, and other pathological conditions.

Anupama Grandhi joins OMFS

Anupama Grandhi, DDS, joined the LLUSD faculty in May 2016 as assistant professor, Oral and Maxillofacial Surgery, and (School of Medicine) Pathology and Human Anatomy.

Dr. Grandhi earned a Bachelor of Dental Surgery degree in 2002 from Rajiv Gandhi University of Health Sciences in India and then her DDS from University of Southern California, Los Angeles, in 2006.

Upon graduation from dental school, she moved to Cleveland, Ohio, where she practiced privately as an associate dentist and managing clinic director until 2009. She then began a three-year residency program in oral pathology at the New York-Presbyterian/Queens Hospital, Flushing, NY—the first and longest running hospital-based oral and maxillofacial pathology program in the country.

Dr. Grandhi achieved diplomate status in 2012 from the American Board of Oral and Maxillofacial Pathology. She also was awarded a fellowship in the American Academy of Oral and Maxillofacial Pathology in the same year.

In 2012, she started both clinical oral pathology and surgical oral pathology services for Sanford Health where she practiced for four years at its Thief River Falls, Minnesota, and Fargo, North Dakota, locations.

Dr. Grandhi is married to Ravindhra Mamilla, MD, an OB/GYN physician with Kaiser Permanente Fontana Medical Center, and the mother of a two-and-a-half-year-old son, Ishaan.

Dr. Grandhi is relieved to be back in a warmer climate where she loves to travel, hike, and spend time with her family. She also likes to sketch and paint.



Dr. Anupama Grandhi

TRANSITIONS

Tord Lundgren returns

Tord Lundgren, DDS, PhD, was appointed chair, LLUSD Department of Periodontics, October 2016.

Having taught in LLUSD's Advanced Specialty Education Program in Periodontics from 1999 to 2006, Dr. Lundgren returned to the School in May 2015 as a professor in the Department of Periodontics, and five months later was assigned as the department's interim chair.

He earned his dental degree (DDS) from Umeå University, Sweden in 1975, and completed residency programs in periodontics at the University of Lund, Sweden, in 1982, and at Loma Linda University in 2001. His PhD degree in odontology was awarded by at the University of Malmö, Sweden in 2004.

Dr. Lundgren maintained a position as chairman and consultant periodontist at the Norrbotten County Dental Specialty Center in Sweden from 1982 to 1999, focusing on periodontics and dental implantology. Prior teaching experiences include appointments as program director for the graduate programs in periodontics at Loma Linda University, University of California, San Francisco, and the University of Florida.

Dr. Lundgren's most recent appointments were with the King Faisal Specialist Hospital & Research Center in Jeddah, Saudi Arabia, where he served as chairman, professor, and senior consultant at the Department of Dentistry and also as an adjunct professor at the University of Florida.

Dr. Lundgren is married and has four children—three live and work in Sweden and one is studying at La Sierra College. Dr. Lundgren's extraprofessional interests include family life, sports, music, and dogs.



Dr. Tord Lundgren

Zhe Zhong joins CDR faculty

Zhe Zhong, DDS, PhD, joined the LLUSD faculty July 3, 2016, as assistant professor at the School's Center for Dental Research.

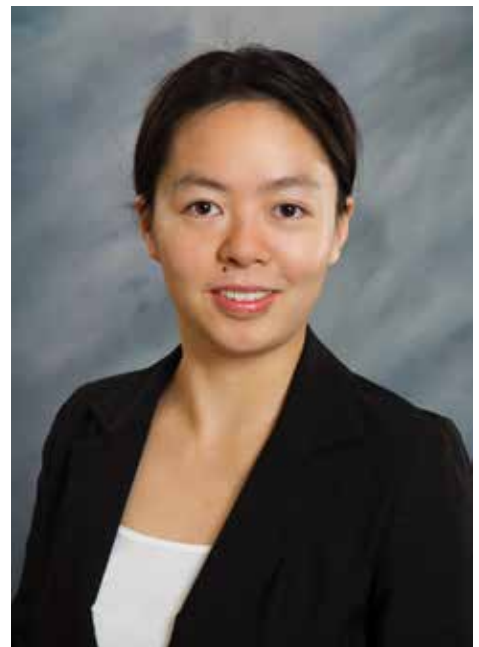
Dr. Zhong earned her DDS degree in 2005 from Capital Medical University in Beijing, China, and her PhD in 2010 from the Department of Orthodontics, School and Hospital of Stomatology, Peking University.

Dr. Zhong remained at Peking University as an instructor and orthodontic resident for one year before spending three years at the University of Southern California, first as a visiting scholar and then as a postdoctoral scholar-research associate at its Center for Craniofacial Molecular Biology.

Since 2014, Dr. Zhong has been a postdoctoral fellow at the LLU Center for Dental Research, where her investigative focus is on the function of craniofacial stem cells during homeostasis and tissue repair.

Dr. Zhong actively serves the scientific community as reviewer on peer-reviewed journals that include *Angle Orthodontists*, *Operative Dentistry*, and the *Journal of Esthetic and Restorative Dentistry*.

Dr. Zhong's husband, Hui Liu DDS'16 (IDP), MS, graduated with the School's Clinic Award. He practices now as an associate dentist with Western Dental. The couple's son Evan was born at Loma Linda University Children's Hospital in 2015.



Dr. Zhe Zhong

STUDENT LIFE

*“I have lived on the other side.”**by Caitlin Miller, class of 2019*

When dentists hear the word endocarditis, they have an automatic response: prophylactic antibiotics before dental treatment, 2g Amoxicillin or 500mg Clindamycin. This is because infective endocarditis (IE) is what I consider one of the few golden rule no-no's of dentistry.

IE is among the few diseases that dentists can transmit to patients. Fortunately, it is not easily acquired. There are only 34,000 annual IE related cases in the United States. So, it is safe to say that only a handful of people get endocarditis; and patients who are at risk for contracting IE have well-known predispositions: a congenital heart disease, an artificial heart valve, and/or a cardiac transplant prone to develop valvulopathy. IE candidates are most typically male and over the age of 50, since incidence rates indicate that about 50% of all cases of IE occur in patients over the age of 50 and that endocarditis is twice as common in men of any age.

So I ask at times—even now—what is the likelihood that someone like me, a healthy, 25-year-old female with no risk factors, would contract infective endocarditis? Very slim. And so it's not illogical that this continues to be the number one question people ask me: How did you get infective endocarditis?

The spring quarter of my first year of dental school was rough. I had just returned from a mission trip to Central America and was recovering from a traveler's bug—stomach pain, nausea, and fever. I changed housing, had midterms, and then finals. I was not recovering quite so quickly as I had

hoped, but rationalized that I had not taken the time to rest and recuperate—an intemperance most dental students can relate to. I pushed through the symptoms, fever being the sharpest, most relentless. The fever can best be described as the worst day of the flu. It would begin at random times and wipe me out for the next 12 to 24 hours. I know what most people think when I tell this part of the story: Why didn't you go to the doctor? I did. I got oral antibiotics halfway through the quarter and began to feel better, less symptomatic, with only sporadic fever and chills.

I returned to my hometown for summer break. The first weekend I was relaxing—no stress, lots of sleep—when again, fever and chills. I would like to affirm that moms always know when their children are sick, and my mom knew something wasn't right. We went to my primary care physician the following Monday. She stated plainly that my symptoms raised the possibility of conditions like HIV, autoimmune disease, meningitis, or sepsis. My physician ordered blood work and tests for infectious disease markers. The next day she called to say my labs showed gram-positive bacteria in my blood; this is an emergency condition, and only IV antibiotics could eradicate the bacteria.

My mother drove me to the hospital, where its ER team hooked me up to pumps and needles and took 12 vials of blood. They reran all of the tests, confirmed the bacteremia, and added a few more possible diseases to my differential diagnosis. They were keeping me, no negotiations. Because of my congenital heart defect, a tricuspid regurgitation, I

*Caitlin Miller*

was placed in the heart wing of the hospital. As the nurse hooked me up to my portable EKG monitor, she offhandedly remarked that I was the first patient under the age of 60 she had ever cared for.

Over the next few days, bits of information about my condition accumulated. Since my fever had subsided due to the initial IV antibiotic dose, the majority of my time in the hospital was spent waiting for test results and frequent needle pricks. I need to emphasize that someone would come by every few hours to take more blood and to poke me in different places all over my arms and hands. Toward the end of the week, more tests were able to isolate the specific species of bacteria: *Streptococcus Viridians*. The moment my doctor said the name, my dental training kicked in and my mind instantly answered my own questions. Strep Viridians is found in the mouth; but once in your bloodstream the bacterium live on the heart valves. The initial test for bacteria on my valves was negative. The doctors



Caitlin tethered to her PICC line (above) and wearing professional gear (below).



suggested sedation to put a tiny camera down my throat to better look at the valves, what is called a trans-esophageal ECHO. I was extremely emotional about being put under. I was weak, irritable, and constantly suppressing anxiety at the prospect of facing a life-altering infectious disease. I was terrified.

I woke up from the procedure with confirmation; bacteria had taken residence at one spot on my aortic valve. It had taken a week in the hospital to learn I had infective endocarditis. Treatment was four to six weeks of IV antibiotics. Through a permanent portal (four weeks), a PICC line was placed in my right arm leading to my heart. I was discharged the day summer quarter started for my second year of dental school and took a red eye flight back to California.

By now I was two days late to school, extremely fatigued, and waking up at 6:00 each morning to a new daily regimen—a two-hour, self-infusion of strong IV antibiotics, and all the while in one of the most demanding quarters of dental school, which made it particularly easy for me to be reminded of my condition. On a normal day, my body tired quickly. I had no gut flora, so keeping food down was precarious. And beside treatment symptoms, the PICC

line was at constant risk for infection or forceful ejection.

Infective Endocarditis was the hot topic of many lectures during my first, second-year quarter. Professors talked about the high-risk patients with IE just like other conditions indicative of high-risk: diabetes, stroke, liver failure, heart attack, etc. Instantly I felt detached and withdrawn from my classmates and my professors. To them it was information, but to me it was a reminder of the wound dressing that clenched my arm, of my week in the hospital, and of my concerns about how IE will affect my future.

Undeniably, my family, professors, classmates, and Loma Linda University have had my back through all of the adjustments and limitations that accompany my condition. But this entire scenario is extremely ironic, because this year, as a second year dental student, I participate in many self-teaching labs: students giving cleanings, injections, and x-rays on other students. Since the bacteria lives normally in the mouth, IE has a high likelihood of relapse when individuals are subject to invasive dental work—or anything that can cause gum irritation or bleeding. My infectious disease specialist has advised me against any activity that increases this risk—even the act of flossing. The School's administration and professors graciously understood that I cannot be practiced on by my peers. Some people—including my classmates—consider that more a blessing than a problem.

When I signed up to be a dentist, I didn't know that later on, by random, statistically improbable happenstance, I would contract the number one concern of dental practitioners. For the past two

months, I have lived on the other side; I was the patient with symptoms and fears and anxieties about my treatment. I think it is important for dentists, doctors, or any healthcare practitioner to be reminded of how the patient can feel—to be sensitive to the unconscious tendency to define patients merely by their condition or treatment plan, or to be aware that every time you name their diagnosis, it could

trigger a concealed, emotional response from the patient—a cascade of bad episode flashbacks connected to the condition.

On average it takes months to diagnosis infective endocarditis, because the main

symptoms, fever and chills, are common to a majority of illnesses. As a dental student, I think about that statistic a lot. When I am in class learning about diagnostic tests, I remember my week in the hospital. When I do patient screenings, I am attentive to checking even the slightest discrepancy. I understand the importance and comfort of discovering what is wrong and how to get back to what is (and feels) normal.

To this date, I don't know how I got infective endocarditis; but I got it, and I hope to be a better dentist because of it.

Caitlin Miller is now a second-year dental student at Loma Linda University. She currently serves as the LLUSD American Student Dental Association chapter's pre-dent chair. When not at school, she can't get enough of beach volleyball, salsa dancing, and wakeboarding. She enjoys active, creative outlets in the hopes that these things will distract her from the demands of dental school.

*Strep Viridians is found
in the mouth; but once
in your bloodstream the
bacterium live on the
heart valves.*

COMMENCEMENT 2016

LLUSD'S 60th conferring of degrees

The School of Dentistry's May 29, 2016, graduation service represented a milestone—six decades and 6,927 oral healthcare degrees awarded along with 340 professional certificates.

Distinguished speaker for the School's 60th conferring of degrees was Dr. Carol Gomez Summerhays, 2016 president of the American Dental Association.

Dr. Summerhays was very serious about the "privileges—including autonomy and self governance"—that come with being a healthcare professional.

But, as president of the ADA, she enjoyed recalling a scene from the movie *Home Alone* in which the young protagonist

for an excellent education and the opportunity to be anything, to have a pathway to the American Dream and to be part of something extraordinary.

"Living a life that's extraordinary takes extra ordinary effort and optimism," Dr. Summerhays reminded her audience, along with "passion, persistence, courage, and commitment."

She closed her remarks to the class of 2016 with a phrase from the Roman poet Horace: "*Carpe diem*, seize the day; make your lives extraordinary."

Hayley Mohr, class president, dental hygiene class of 2016, addressed her peers: "We arrived strangers and departed 22 months later as lifetime friends."

Hayley was proud of her "class that created a new fund to



Dr. Summerhays owns the diplomas.

goes to the drugstore to purchase a new toothbrush and asks the pharmacist whether the toothbrush was ADA approved.

Recalling a visit as a teenager to her parents' origins in the Philippines, Dr. Summerhays said, "For the first time I truly understood the value of the opportunities I'd been given . . .



Hayley Mohr heads for the dais, speech in hand.

sponsor future dental hygiene students to travel on mission trips, because we believe finances should not limit the service opportunity."

She thanked the faculty that turned her class into "calculus crushing, perio-probing clinicians who became masters of the assisted fulcrum with flawless modified pengraph, not to mention the 100 percent Dental Hygiene National Board Examination pass rate of both AS and BS programs."

In closing, Hayley encouraged her classmates: "Let us never forget our roots as we branch out to serve the world. Let us never be afraid to trust an unknown future to a known God."

Graduating 2016 dentistry class president James Fedusenko cited Malcom Gladwell's *Outliers* in describing for his class how in the late nineteenth century all the residents of Roseto,



James Fedusenko speaks to the class of 2016.

a tiny Italian village, migrated to America and reestablished themselves as a community in rural Pennsylvania.

Despite “diets consisting primarily of unhealthy fats,” James explained, “the two towns only a few miles away had death rates three times that of the transplanted Rosetans.”

In the words of Gladwell, “The Rosetans had created a protective environment that insulated them from the pressures of the modern world.”

“Class of 2016,” James drew the parallel, “you have created a community . . . for the past four years in our tiny town in the hills of Loma Linda, just as the Rosettans did.

“May we all continue to create communities like Roseto as we continue our journey from here,” the class president concluded.

Faculty awards

Before the conferring of degrees, four faculty members were selected for special recognition. Robert Handysides, DDS’93, associate dean, Office of Academic Affairs, presented the Teacher of the Year Award to Dezireh Sevanesian, DDS, assistant professor, Dental Anesthesiology, with the following words:

*It is a distinct honor to have this opportunity to present **Dezireh Sevanesian** as the recipient of the 2016 TEACHER OF THE YEAR AWARD. The significance of this award comes in large measure from the extensive process by which she was chosen. This selection process involves all School of Dentistry students and faculty in the entire Prince Hall. All have participated in making this a most universal and fair process.*

Dezireh Sevanesian is a 2008 graduate from USC School of Dentistry. She continued her education—receiving a certificate in Dental Anesthesiology in 2010 from Loma Linda University School of Dentistry. She joined the faculty in that same



Dr. Dezireh Sevanesian is congratulated by Dean Dailey and Dr. Rob Handysides on her award.

department in June of 2012. She has become an invaluable asset to multiple programs within the school including the dental hygiene, predoctoral, and advanced education programs and is well respected by both colleagues and students.

It has been said, “The mediocre teacher tells, the good teacher explains, the superior teacher demonstrates, and the great teacher inspires.”

Let me share a few examples, and you can pick out why she has been selected:

Dr. Des is so awesome. She is extremely intelligent, but at the same time is able to relate to us students and present the information in an understanding manner. This was a challenging course, but I enjoyed it very much.

Another:

Absolutely loved Anesthesia! The instructor was amazing and I really learned a lot.

Best teacher ever. **THE BEST**, all caps, bolded, underlined. The way she presents the materials, her voice, her gestures, everything . . . it sticks right in my mind. Most wonderful and kind too!

To all of the educators here this afternoon, I would like to honor and thank you for inspiring and influencing us all. Great teachers are the soul of an enlightened society. We can all name a great teacher who changed our lives—a teacher who inspired us personally. Today, reading these comments, we clearly see why our recipient is deserving of the honor.

Dr. Dezireh has been teaching since 2012, which is a relatively short term in a teaching career. But based on what she has already accomplished, we predict a long and successful career devoted to the high calling of mentoring our future colleagues in both the art and the science of oral health.

It is now my honor to present Dr. Dezireh Sevanesian the 2016, School of Dentistry Teacher of the Year Award. Congratulations, Dezireh!

COMMENCEMENT 2016

Dean Ronald Dailey presented three LLUSD faculty members with awards for their distinguished contributions to the School of Dentistry. Their citations follow.

Joseph M. Caruso, DDS'73, MS'75, MPH, joined Loma Linda University School of Dentistry (LLUSD) in 1978 while concurrently serving part-time on the faculty of the University of



Dr. Joseph Caruso accepts congratulations from President Richard Hart and Dr. Yiming Li.

Southern California and maintaining a successful private practice in orthodontics. During his nearly four-decade career at this University, he has been active in teaching, research, and service.

Dr. Caruso's curiosity and innovative thinking began in his early childhood when, at age 7, he attempted to recharge batteries. As a graduate student, his research and invention efforts in his garage and kitchen resulted in his first patent, which significantly improved an orthodontic procedure. To date, Dr. Caruso holds eight U.S. patents.

In addition to his teaching and administrative responsibilities, Dr. Caruso has sustained his involvement in research—reviewing manuscripts for four scientific journals, lecturing worldwide at continuing education conferences, participating in more than 100 research projects, and publishing extensively in the field of orthodontics. He is visionary planner and dental researcher. Through his persistence, Loma Linda University School of Dentistry was the first dental school in the United States to have dental computed tomography (CT), NewTom.

The School of Dentistry recognizes the academic and research contributions made by Dr. Joseph M. Caruso during his thirty-eight years of dedicated service. In acknowledgment of the high regard in which he is held in this community of academic dentists and researchers, Dr. Caruso will receive the School's



Dr. Dan Tan is congratulated by President Richard Hart.

Distinguished Research Award at the Conferring of Degrees for the School of Dentistry.

Daniel E. Tan, DDS'75A, was recruited to the faculty of Loma Linda University School of Dentistry (LLUSD) as a part-time instructor shortly after graduation from dental school. Over the years, he has modeled excellence in teaching and clinical instruction and has been a wise voice on committees and advisory bodies. He enjoys positive interactions with his students and is noted for his careful critique of their clinical work and for his personal attention to those who seek his help.

As a teacher and a clinician, Dr. Tan has exerted a strong influence on developing the School's curriculum and shaping its clinical services. He has been an active voice on the curriculum committee for the issues and concerns of general dentistry in clinical education.

Dr. Tan has served as director of dental auxiliary utilization (1980-1987) and as director of operative dentistry in the Department of Restorative Dentistry (2007); and he has directed numerous restorative dentistry courses. As a University commencement marshal, he also participates in the conferring of degrees for the School of Dentistry.

Additionally, Dr. Tan has been actively involved in numerous professional organizations—including the Academy of Operative Dentistry, the American Academy of Dental Materials, and the National Association of Seventh-day Adventist Dentists.

Despite his extensive responsibilities, Dr. Tan has remained a committed Christian dentist who has balanced the interactions of family, church, department responsibilities, teaching, and private practice as he seeks to model the University's mission in his personal life.



President Richard Hart stands in support of Kris Wilkins.

In recognition of the high regard in which he is held in this community of academic dentists and practitioners, Dr. Daniel E. Tan will receive the School Distinguished Service Award at the Conferring of Degrees for the School of Dentistry.

*Following graduation from the dental hygiene program at Loma Linda University School of Dentistry, **Kristi J. Wilkins**, BS'80 (DH), MA, worked in several dental practices until 1995, when she was recruited by LLUSD to part-time faculty service. After joining the Department of Dental Hygiene on a full-time basis in 1996, she assumed a heavy teaching load that included assignments in the classroom, preclinical laboratories, and clinics. In addition to teaching and leadership responsibilities, she was also involved in several research projects that resulted in published abstracts and journal articles.*

In 2002, Ms. Wilkins was appointed chair of the Department of Dental Hygiene, the position she currently holds.

Throughout her tenure as an administrator, instructor, and colleague, Ms. Wilkins' work has extended beyond the boundaries of job description and expectations. Her devotion to her faculty, students, and the dental hygiene program has at all times been selfless and focused on the needs of people.

Because of her unwavering dedication and commitment to the programs of her alma mater for twenty-one years, and in recognition of her continued support and contributions, the School Distinguished Service Award will be presented to Ms. Kristi J. Wilkins at the Conferring of Degrees for the School of Dentistry.

With the faculty honors awarded, the diplomas were distributed to joyful 2016 School of Dentistry graduates. A pictorial sampling of their high moments follows.



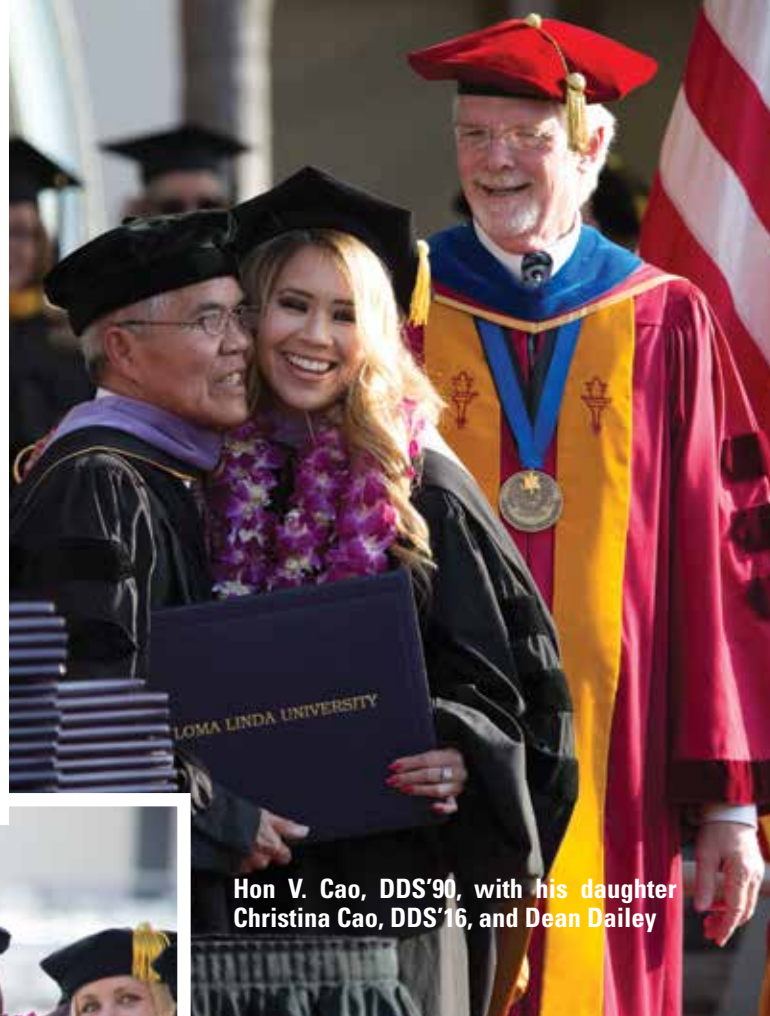
In the age of cell phones and texting, graduating doctor of dental surgery class of 2016 prepares to march.



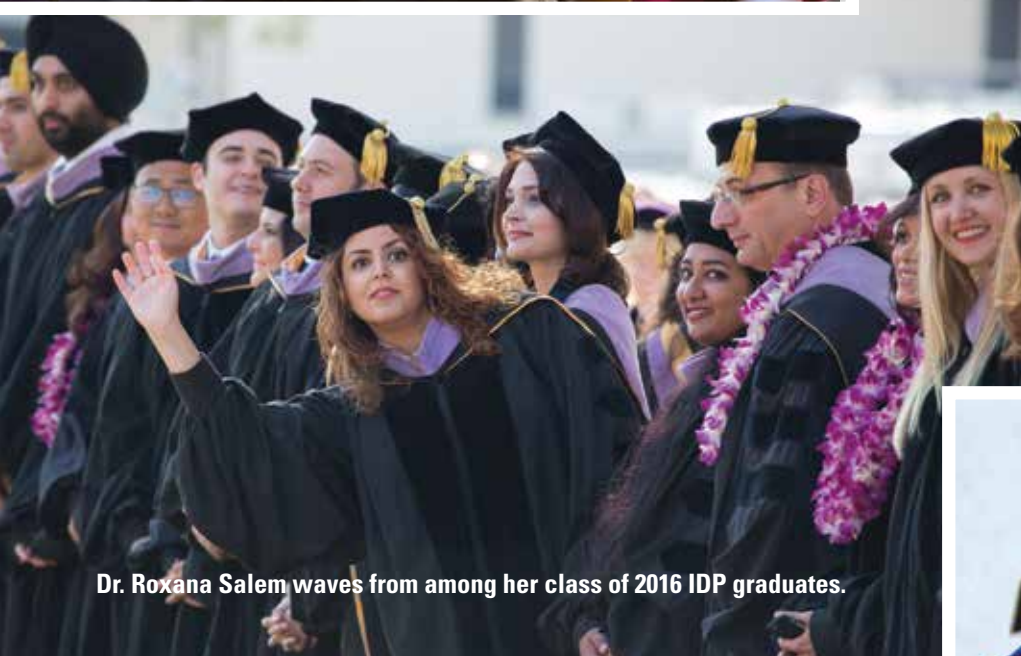
Marianne Demirdji, DDS'16, is prepped by Carole White, assistant to the dean.



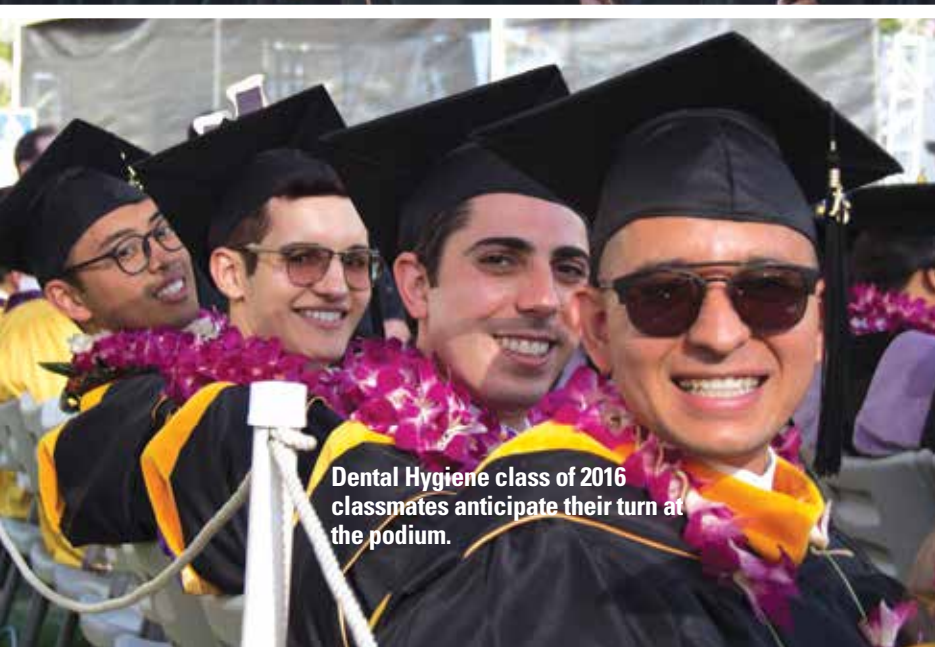
Graduating classmates Alvina Choi, DDS'16, Daniel Choi, DDS'16, with Dean Dailey



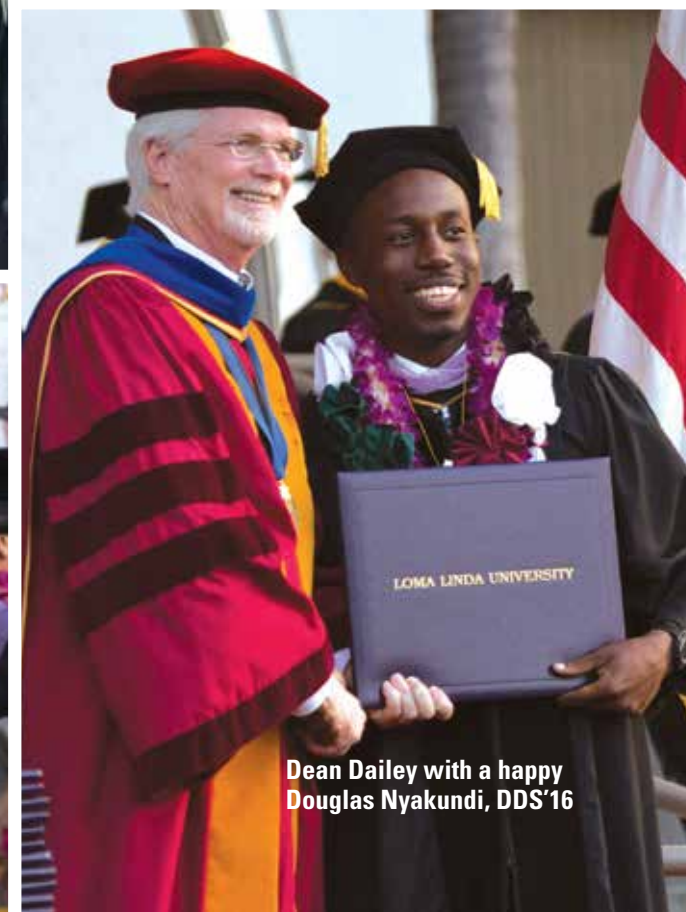
Hon V. Cao, DDS'90, with his daughter Christina Cao, DDS'16, and Dean Dailey



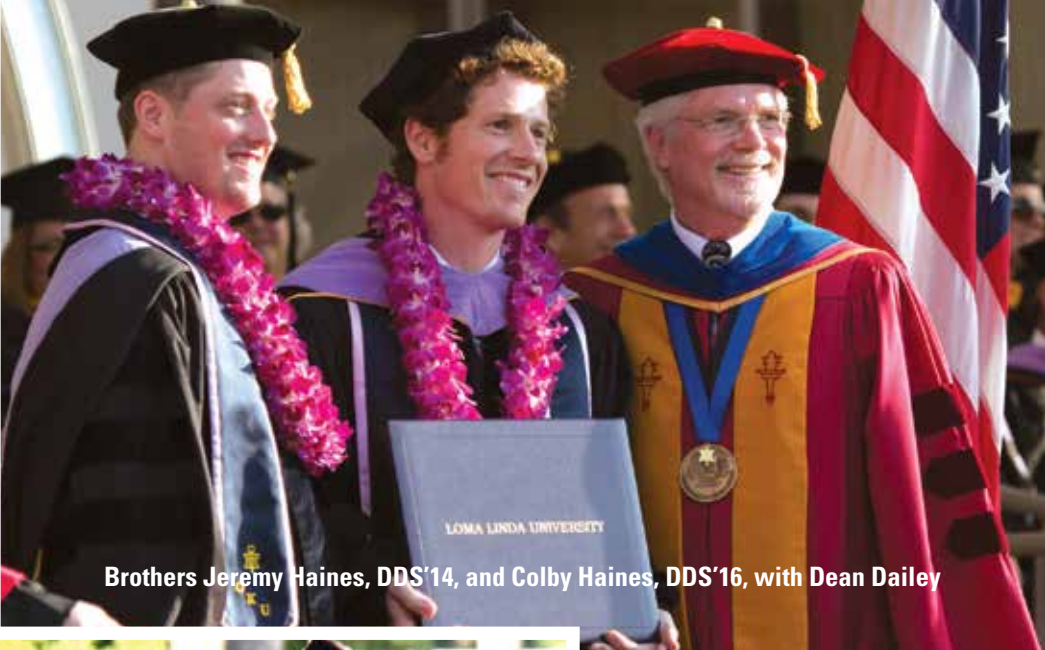
Dr. Roxana Salem waves from among her class of 2016 IDP graduates.



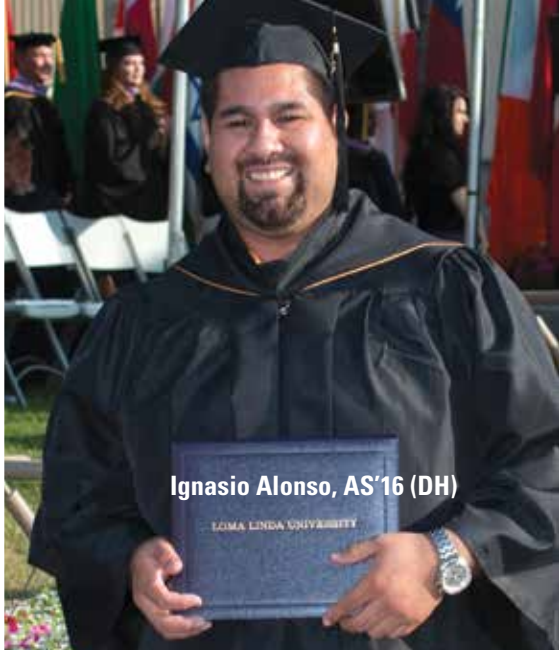
Dental Hygiene class of 2016 classmates anticipate their turn at the podium.



Dean Dailey with a happy Douglas Nyakundi, DDS'16



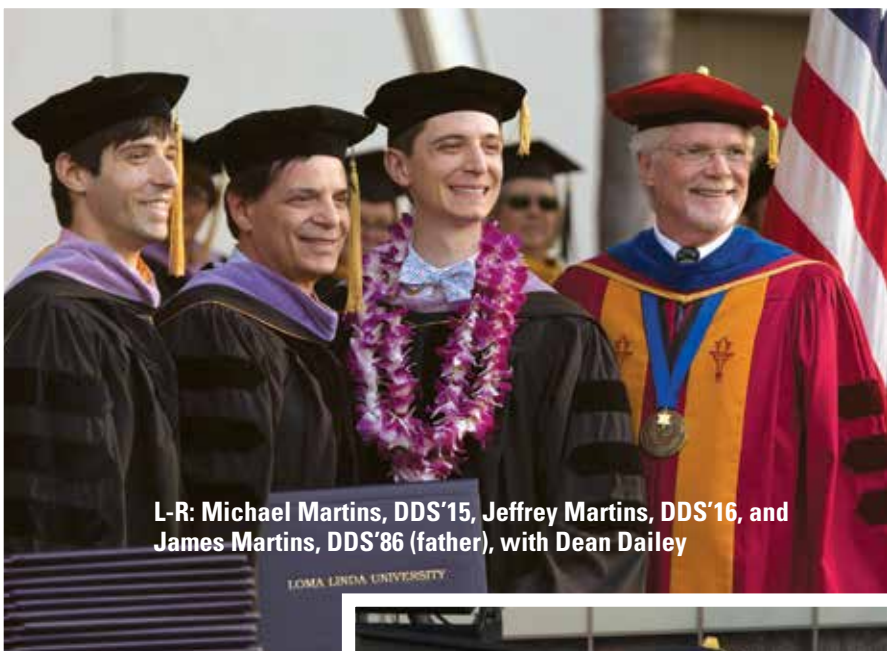
Brothers Jeremy Haines, DDS'14, and Colby Haines, DDS'16, with Dean Dailey



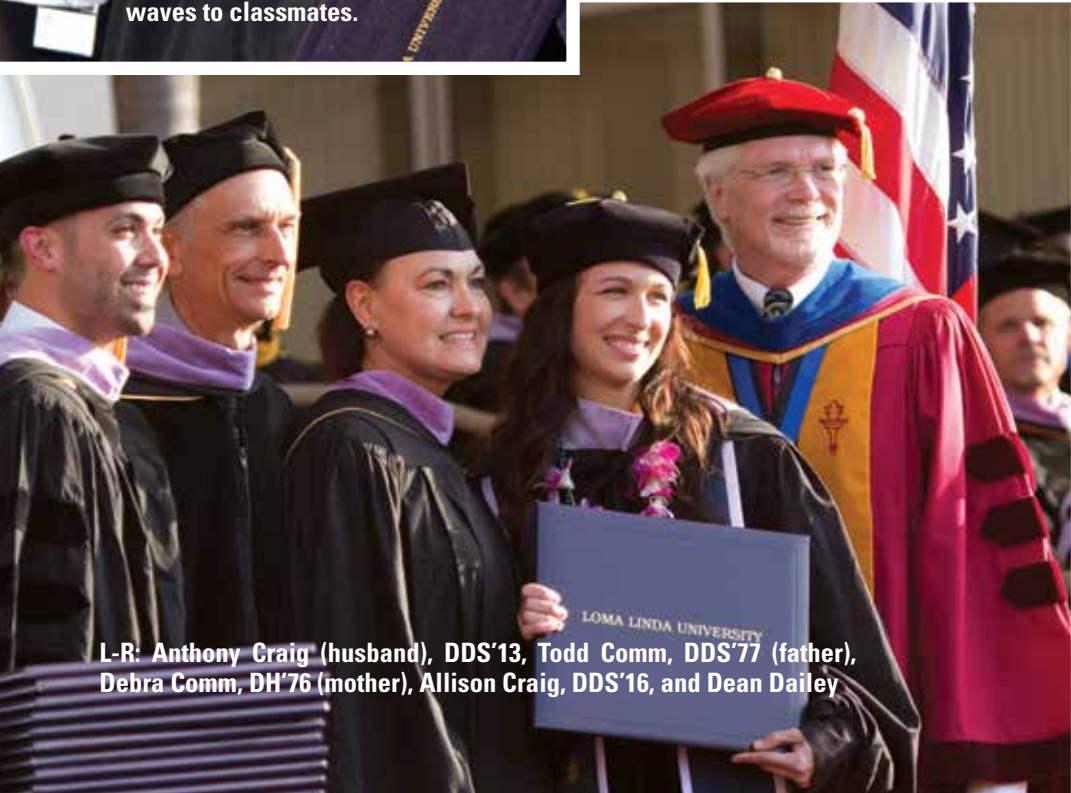
Ignasio Alonso, AS'16 (DH)



Marleigh Schwarz, DH'16 (BS)
waves to classmates.



L-R: Michael Martins, DDS'15, Jeffrey Martins, DDS'16, and
James Martins, DDS'86 (father), with Dean Dailey



L-R: Anthony Craig (husband), DDS'13, Todd Comm, DDS'77 (father),
Debra Comm, DH'76 (mother), Allison Craig, DDS'16, and Dean Dailey



Kathleen Libby, DDS'16,
displays her diploma.



*Captain
Michael Cervantes
DDS'16
Army*

*Lieutenant
Andrew Correces
DDS'16
Navy*

*Captain
Brett Jessen
DDS'16
Air Force*

*Captain
Min Jo
DDS'16
Army*

*Captain
James Lee
DDS'16
Army*

*Captain
Thomas Montgomery
DDS'16
Air Force*



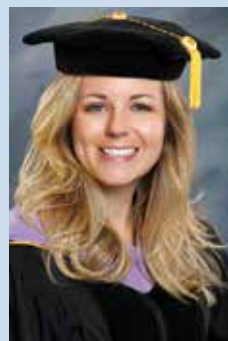
*Captain
Eugene Oriola
DDS'16
Air Force*



*Lieutenant
Nicholas Oster
DDS'16
Navy*



*Captain
Carlos Poni
DDS'16
Army*



*Captain
Samantha Slikkers
DDS'16
Air Force*



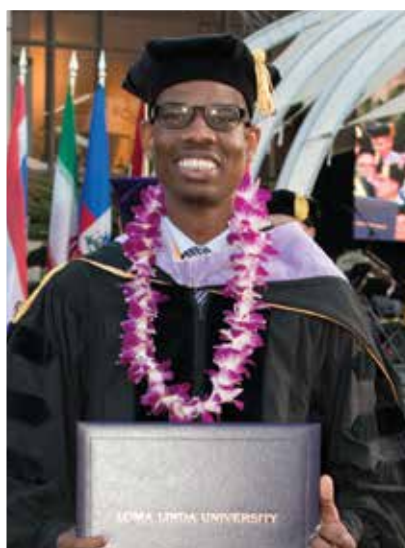
*Lieutenant
Sterling Thompson
DDS'16
Navy*

Eleven graduating dental students participated in the Sunday morning, May 29, 2016, Commissioning Ceremony at the Randall Visitor Center conducted by Brigadier General (retired) Michael Walter, MD. In addition, commencement speaker, Carol

Gomez Summerhays, DDS, current president of the American Dental Association and retired US Navy Dental Corps lieutenant, made a few remarks at the commissioning ceremony.



Dr. Mathew Kattadiyil celebrates with **Jefferson Clark, DDS'13**, his certificate and MS degree in prosthodontics.



Jeffrey Pascal, DDS'16, exults in his accomplishment.



Dr. Erik Sahl celebrates with **Mona Monzavi Rahimi, DDS**, her certificate and MS degree in periodontics.

Dental hygiene students pinned

Tirty-nine graduating dental hygiene students from the BS and AS programs, 29 and 10 respectively, participated in the School of Dentistry's annual dental hygiene pinning ceremony. Pictured below, the class of 2016 dental hygiene students anticipate their pinning in front of the Loma Linda Campus Hill SDA Church.



Dental hygiene student awards—2016

American Association of Public Health Dentistry
Jasmin Ayala, BS'16

Bates Award
Britney Pos, AS'16

**California Dental Hygienists' Association
Outstanding Leadership Award**
Sandra Olague, BS'16

Clinician's Award
Sarah Jones, AS'16

Colgate STAR Award
Earvin Torno, BS'16

Dean's Award
Hayley Mohr, BS'16

Klooster Humanitarian Award
Sean Shams, BS'16

Middleton Award
Janay Castillo, BS'16, Seung (James) Song, AS'16

Mitchell Award
Hayley Mohr, BS'16, Britney Pos, AS'16

Service Learning Award
Jessica Keife, BS'16, Emily Sarli, BS'16

Sigma Phi Alpha Award
Caitlin Hanson-Herininirina, BS'16, Jessica Keife, BS'16, Hayley Mohr, BS'16, Britney Pos, AS'16

Student of the Year Award
Hannah Martin, BS'16

Tri-County Dental Hygienist's Society Award
Sarah Jones, AS'16

Western Society of Periodontology Award
Karina Jordan, AS'16

STUDENT AWARDS

Student Achievement Awards 2016

During the School's annual awards ceremony at the Damazo Amphitheater in the Jetton Pavilion of Loma Linda University's Centennial Complex, May 27, 2016, 71 different awards were presented or recognized as having been received elsewhere. The awards and their recipients are listed below alphabetically.

Academy of Dentistry International Student Servant Leadership Award

Robert Perry, DDS'16

Academy of General Dentistry Award

Allison Craig, DDS'16

Academy of Operative Dentistry Award

Alexander Reimann, DDS'16

Academy of Osseointegration Implant Dentistry Outstanding Dental Student

Andrew Correcas, DDS'16

Alpha Omega Certificate of Academic Achievement

Brandon Soelberg, DDS'16

Alumni Association Award

David Bowen, DDS'16

American Academy of Implant Dentistry

Omran Bishbish, DDS'16 (IDP)

American Academy of Oral and Maxillofacial Pathology Award

Brandon Soelberg, DDS'16

American Academy of Oral and Maxillofacial Radiology Award

Brett Jessen, DDS'16

American Academy of Oral Medicine Award

Theresa Baldwin, DDS'16

American Academy of Orofacial Pain Award

Allison Craig, DDS'16

American Academy of Pediatric Dentistry

Preston Stewart, DDS'16

American Academy of Periodontology

Alexander Reimann, DDS'16

American Association of Endodontists

Daniel Choi, DDS'16

American Association of Oral and Maxillofacial Surgeons Award

Brandon Soelberg, DDS'16

American Association of Oral Biologists (DDS'16)

Daniel Choi, Alvina Chow, Ga Yeun Lee

American Association of Orthodontists Award

Thanh Nguyen, DDS'16

American College of Dentists, Southern California Section

Theresa Baldwin, DDS'16

American College of Prosthodontists Award

John Buie, DDS'16

American Dental Association Foundation Scholarship

Minna Chun, DDS'18, Kathleen Aguilar, DDS'18

American Dental Association Foundation

E. Bud Tarrson Award

Robert Perry, DDS'16

Thomas J. Zwemer Award

Robert Perry, DDS'16

American Dental Society of Anesthesiology Horace Wells Award

James Fedusenko, DDS'16

American Student Dental Association

James Fedusenko, DDS'16

Boyko Award for Christ-like Service

John Buie, DDS'16

California Dental Association Senior Award

Marianne Demirdji, DDS'16

CDA Student Research Awards – DDS'17

2nd Place: Stephen Barrington

3rd Place: Charlie Kim

Honorable Mention: Mason Segura

Clinic Awards –

DDS'16

Minyoung Cho, Michael Cooley, Kari Mann,

Gregory McEwen, Alexander Reimann,

Natalie Sayegh, Preston Stewart, Maria Wright

DDS'16 (IDP)

Hui Liu, Hengameh Safarcherati

Delta Dental Student Leadership Award

John Buie, DDS'16

Fixed Prosthodontics Award

Minyoung Cho, DDS'16

ICOI/Dentsply Pre-doctoral Student Achievement Award

Michael Cooley, DDS'16

International College of Dentists Award

James Fedusenko, DDS'16

IDP Fixed Prosthodontics Award

Hengameh Safarcherati, DDS'16 (IDP)

IDP Removable Prosthodontics Award

Mustafa Adami, DDS'16 (IDP)

LLU Center for Dental Research Basic Science Award

Jamie Kim, DDS'18

National Association of Seventh-day Adventist Dentists

Martina Howe, DDS'16

Oesterling-Wical Removable Prosthodontics Award

Maria Wright, DDS'16

Omicron Kappa Upsilon (OKU) Awards – DDS'16

Theresa Baldwin, Andrew Correces, Allison Craig,
Marianne Demirdji, Colby Haines, Brett Jessen, Gregory
McEwen, Thanhdung Nguyen, Robert Saunders,
Brandon Soelberg

Omicron Kappa Upsilon (OKU) Awards – DDS'16 (IDP)

Omran Bishbish, Hengameh Safarcherati

Omicron Kappa Upsilon, William S. Kramer Award for Excellence

Meryl Liu, DDS'17

Oral and Facial Surgeons of California Award

Urie Lee, DDS'16

Pierre Fauchard Academy Award

Gregory McEwen, DDS'16

Pierre Fauchard Academy Scholarship

Timothy Prewitt, DDS'17

President's Award

Michael Cooley, DDS'16

Prince Award

James Fedusenko, DDS'16

Service Learning Awards (DDS'16)

Michael Cervantes, Eugene Oriola, Linda Sah,
Maria Wright

Southern California Academy of Oral Pathology Award

Colby Haines, DDS'16

Southern California Society of Dentistry for Children

Linda Sah, DDS'16

Terry Tanaka Student Humanitarian Award

Robert Perry, DDS'16

Western Society of Periodontology Award

Brandon Soelberg, DDS'16

Wil Alexander Whole Person Care Award

Michael Cooley, DDS'16

Wilfred A. Nation Award

Martina Howe, DDS'16

Honors Program Recognition

Graduates recognized for Elective Program completion

Theresa Baldwin, DDS'16

Orthodontics and Dentofacial Orthopedics

Omran Bishbish, DDS'16

Implant Dentistry

Daniel Choi, DDS'16

Endodontics

Michael Cooley, DDS'16

Implant Dentistry

Andrew Correces, DDS'16

Implant Dentistry

Marianne Demirdji, DDS'16

Orthodontics & Dentofacial Orthopedics

James Fedusenko, DDS'16

Dental Anesthesiology

Mainer Flores, DDS'16

Orthodontics & Dentofacial Orthopedics

Min Jo, DDS'16

Maasai Dental Clinic Clerkship

Urie Lee, DDS'16

Oral Maxillofacial Surgery

Kari Mann, DDS'17

Dental Anesthesiology

Thanhdung Nguyen, DDS'16

Orthopedics & Dentofacial Orthopedics

Alexander Reimann, DDS'16

Dental Anesthesiology

Linda Sah, DDS'16

Orthodontics & Dentofacial Orthopedics

Brandon Soelberg, DDS'16

Oral Maxillofacial Surgery

Preston Stewart, DDS'16

Pediatric Dentistry

Nataliya Vorobets, DDS'16 (IDP)

Oral Maxillofacial Surgery

Mechanotransduction of Orthodontic External Root Resorption (OERR)

Rodrigo F. Viecilli, DDS, PhD

The objective of this article is to clarify the current scientific outlook of orthodontic external root resorption (OERR). Although it is known that hormonal and traumatic factors can influence root resorption independently of orthodontic treatment, the focus here is on the role of mechanical factors and consequent inflammation, and how the latter varies with individual genetic background.

Hence, this discussion pertains to the following clinical scenario: an orthodontic patient exhibits exaggerated root resorption on the teeth being moved. What is the scientific rationale necessary to understand this phenomenon? Is it an idiopathic finding? Could anything related to current treatment be a contributing cause? Is it simply a genetic predisposition?

Moderate root length loss due to OERR (>3mm) occurs in more than 25 percent of orthodontic patients.¹ It can result in compromised prosthetic support, mobility, a reduced tooth lifespan, low tolerance of mechanical trauma, and even tooth loss.²⁻⁵ Approximately 5 percent of orthodontic patients undergo severe OERR of over 5mm during treatment.^{6,7} Histology shows that periodontal ligament (PDL) necrosis occurs near areas of high damage.^{8,9} Most of these studies underestimate OERR due to 2D radiographic limitations.¹⁰ Therefore, the problem is likely more severe than reported. OERR is the most important iatrogenic and legal concern in orthodontic treatment.^{6,7,11-15} This is evidenced by both scientific literature and online legal service solicitations directed at orthodontic patients. According to a recent survey, OERR produces 6 percent of dental malpractice claims. Seventy percent of these claims are directed at general dentists, and thirty percent target orthodontists.¹¹ Although dentists and orthodontists have argued that scientific evidence to support OERR prevention is lacking,¹⁶ this has not prevented dentists (or their malpractice insurance) from paying up to \$1,000,000 in damages.¹⁷ Although it is generally accepted that "high forces" should be avoided when moving teeth, there is no

scientific evidence defining what load is considered "high," in part because the biomechanical environment that leads to OERR is unclear.¹⁸⁻²⁰ Unfortunately, there is no established protocol to prevent severe OERR in susceptible or non-susceptible patients other than taking periodic radiographs and stopping treatment at the first signs of occurrence or susceptibility.^{3,21} It is mathematically impossible to properly quantify OERR without 3D data.^{22,23} This scenario is now aggravated because of constant concern about "excessive" radiation related to dental

treatments, recently increased because of a possible link between dental radiographs and brain tumors.^{24,25}

Obviously, the production of high quality science on OERR biomechanics is necessary not only to preserve dental health, but also to minimize X-radiation concerns. Moreover, scientific evidence should help to

protect dentists and orthodontists from potentially unfair legal consequences that could result in the prohibitive cost of obtaining malpractice insurance and possible abandonment of clinical practice. Although the focus here is OERR, clarifying the mechanisms of stress-mediated tissue damage impacts other dental problems such as tooth trauma and related external root resorption. Furthermore, its impact extends beyond dentistry. Decubitus ulcers (pressure ulcers, bed sores) are a common medical susceptibility that begins with aseptic necrosis near bony prominences, because of prolonged stresses in soft tissue. The histological description of the pathogenesis of decubitus is similar to the environment of OERR: cellular extravasation from blood vessels, decrease or loss of fibrous striations, hyalinization of fibers, neutrophil infiltration, and phagocytosis by neutrophils and macrophages.²⁶ In the United States, its incidence reaches 28 percent in nursing homes and hospitals. Approximately \$11 billion per year are spent on its treatment in the US.²⁷⁻³⁰ Complications lead to at least 10,000 deaths each year. Treatment of decubitus ulcers with inflammatory mediators is viable but has been attempted with mixed success.³¹⁻⁴⁰

Around 5 percent of orthodontic patients undergo severe OERR of over 5mm during treatment. OERR produces 6 percent of dental malpractice claims.

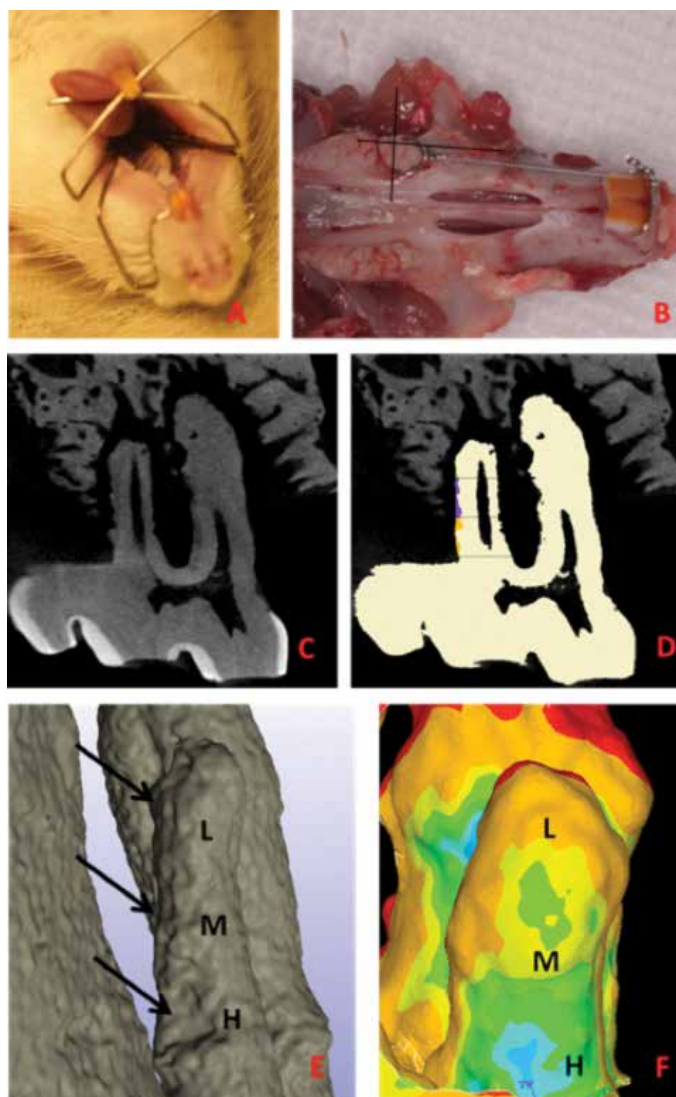


Fig. 1 - Example method from load application to FE results and OERR (from our F344 rat preliminary model). A, The mouth prop keeps a clear field for spring insertion. B, Spring in place demonstrating shear and compression/tension section orientations. C, μ CT reconstructed section of a rat molar after load application, illustrating the OERR cavities. D, Example of segmentation of OERR cavities in one section (only compression cavities are painted). Each root would have segmented sections covering 100 μ m root thickness in each orientation. E, 3D rendering of the root of interest, showing OERR in regions of High (H), Medium (M) and Low (L) compressive stress. F, Maximum compression stress fields on the PDL around the same molar root. The root of interest is the smallest and smoothest, and the OERR results correspond to the 3D rendering in E (arrows). All principal stresses labeled from blue (high) to orange (low) occur in the radial direction, which is also used to orient the modified coordinate system and the section plane for stress tensor analysis (maximum components of normal and shear stresses). The same OERR quantification method would be used for areas of predominant tension (opposite side of the PDL) and predominant shear (perpendicular section).

However, an incomplete understanding of the process has impeded innovative alternatives. Treatments or measures that biomechanically prevent the establishment of this condition (or that accelerate its healing) could promote patient survival and

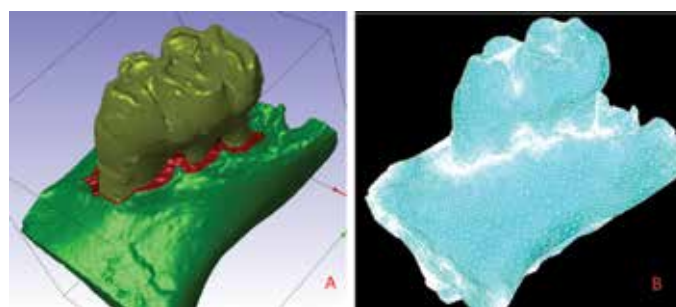


Fig. 2 - A, Highly organic volume model of the rat molar of the F344 strain rendered from the μ CT scan. Bone is green, PDL is red and tooth is yellow. B, Finite element model of the rat molar of the same inbred strain. The high density PDL mesh, unparalleled in the literature, can be appreciated, yielding approaching 2 million elements.

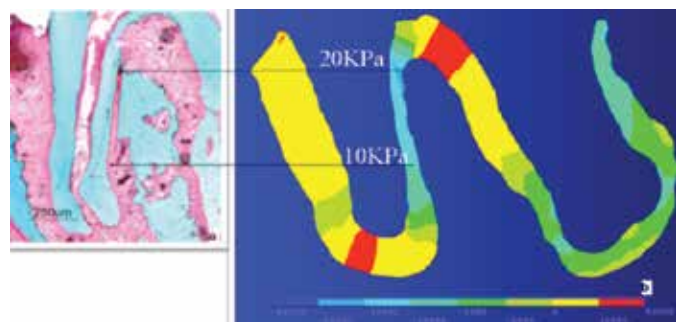


Fig. 3 - A, PMMA ground histological section stained by the Masson Trichrome method, optimized for teeth by the PI, oriented with the ExaKt system along the 3rd principal stress (in this case, compressive) direction in the P2X7R KO mouse. B, PDL and its stresses coordinated to the histological section. The approximate threshold for compressive necrosis of the PDL, seen on A, after 10 days was 10KPa. OERR occurred in both high tension and compression areas, but more so in compression.

reduce medical expenses. Although root resorption occurs in the dental environment, the mechanism of necrotic tissue formation and response near mineralized tissue is most likely ubiquitous and pertinent to both.

For instance, our group developed biomechanical animal models of OERR (Fig.1-3) that resulted in similar stress thresholds for PDL necrosis (~8-10KPa) when compared to old and recent decubitus ulcer mechanical models (9-13 KPa for muscle necrosis),^{26,28,41-47} and basic scientific studies of soft tissue cell resistance to mechanical stress (almost instantaneous cell burst over 20KPa).⁴⁸ Our model of mechanically induced necrosis uses a tissue with slightly higher modulus range (PDL) compared to muscle or skin, but it has the advantage of allowing for longer loading times (days). Pressure ulcer models typically identify only initial stages of apoptosis/necrosis (hours). Moreover, the longer loading period made possible by our model, makes possible the recognition of more tissue destruction activity and related activity markers that is not practical with current

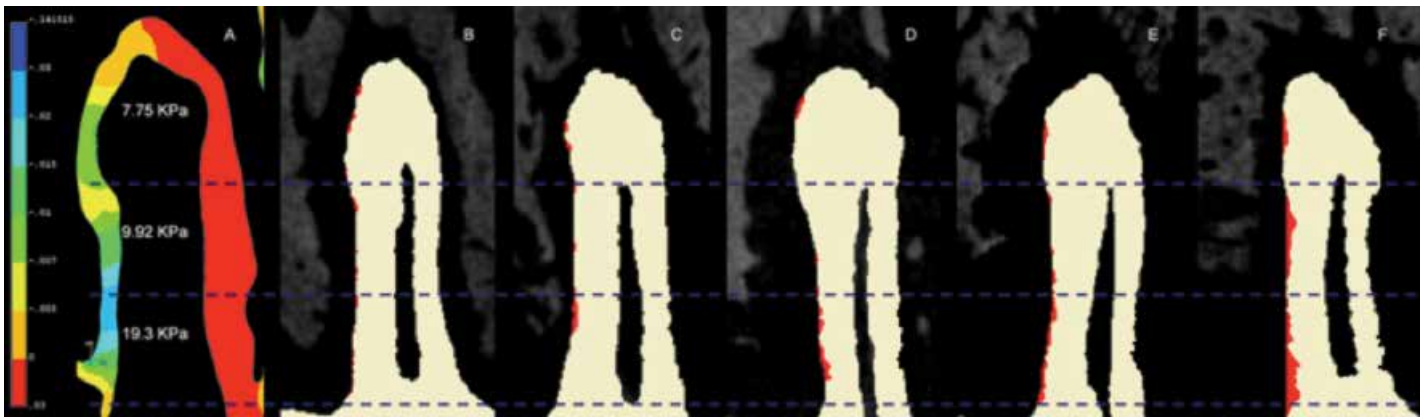


Fig. 4 - Coordination of FEA (compression scale) and OERR results with μ CT sections. Intra-strain anatomical variability causes a small stress variation of $\sim 5\%$. The tooth is represented in white, and the red areas are resorption cavities. Resorption was measured in 3 compressive stress zones over time, but it can also be observed (unpainted) on the opposite (tension) side. (A) PDL stress regions. (B) Control. (C) 3 days. (D) 15 days. (E) 21 days. (F) 30 days. At 15 days, effects of the initial mechanical environment are seen: alveolar wall is completing catabolic modeling, and resorption occurs around the bone spicule adjacent to necrotic zone environment. It is an optimum time point for analysis.

decubitus ulcer animal models. Hence, our comprehensive study on gene expression can serve as reference data to scientists working on this important medical condition.

Until recently, there were major impediments to the proper assessment of OERR variables. These were mainly related to unknown mechanisms (root damage vs. inflammation), 2D methodology of analysis, large individual variation in experimental models, choice of standard histological section orientation, and the inability to assess mechanical stresses that are the actual factors affecting the cells (not force applied to the tooth). Before our previous studies,⁴⁹⁻⁵¹ there was no rigorous mechanical evidence about which entity was responsible—PDL, bone, or root. These missing clues resulted in a disappointing scientific environment that was unable reliably to determine causes of OERR. For every variable credited as responsible, there was often a contradicting study. The critical hurdle was the lack of controlled data determining the roles of individual biomechanical variables, such as PDL stresses and biological mediators, to OERR quantified by 3D-based methods. This is now possible by combining μ CT, finite element analysis, and molecular tools such as the ones we will describe here. The group at LLU is pioneering the unique combination of these tools to unravel the mechanism of OERR. With this approach, OERR research can be conducted at the micromechanical and molecular level.

Studies in our lab were the first to demonstrate that the influence of genetics on OERR can be independent of mechanical and anatomical factors, and that areas of predominantly compressive stresses have a direct effect on necrosis and OERR that can be more profound due to genetic predisposition. Beyond orthodontics, this OERR etiology model has the potential to study in vivo the magnitude of compression, tension, and shear at which cells lose their integrity, necrose, and suffer tissue damage. There is lack of quantitative evidence, other than our

previous studies on compression,⁴⁹⁻⁵¹ on how the individual stress tensor components affect OERR. This information is essential, because tooth movement results in a mixed stress environment. For instance, clinically, extrusive tooth movement along its axis causes maximum stresses presenting as tension (at apex) and shear (remaining PDL). Despite the absence of PDL compression, OERR still occurs, sometimes aggressively.⁵²

Popular theories proposing ideal orthodontic force that theoretically should minimize OERR, based solely on "root surface area and capillary blood pressure," are problematic from mechanical and biological standpoints.^{19,20} These theories from the beginning of the 20th century utilize pressure as a measure of mechanical stimulus that applies only to gases and liquids, and have been shown inadequate to explain PDL necrosis.²⁰ The same theories suggest reduction of blood flow as the cause of necrosis, and fail to consider direct cellular damage and the molecular mechanisms that orchestrate inflammatory and necrotic tissue metabolism, and how orthodontic loads affect them.⁵³ There are attempts to estimate ideal forces in animal experiments, but little or nothing is mentioned about movements or stresses, or how different types of tooth movement can affect them. Moreover, in many studies, stress is improperly quantified using pressure simplifications. This disconnected and tradition-based approach puts basic orthodontic biomechanics in a stalemate that must be replaced with an up-to-date biomechanical methodology. Characterization of susceptibility to OERR^{51,54,55} and identification of biomarkers^{56,57} have occurred because of the efforts of a few dedicated scientists.^{56,57} However, without a comprehensive biomechanical model, progress lags. There is overwhelming evidence that the speed of tooth movement is almost unaffected by load magnitude and is mostly dependent on individual differences.^{19,58-65}

This means that OERR is the main parameter of interest to determine optimal load dosage forces for orthodontic treatment

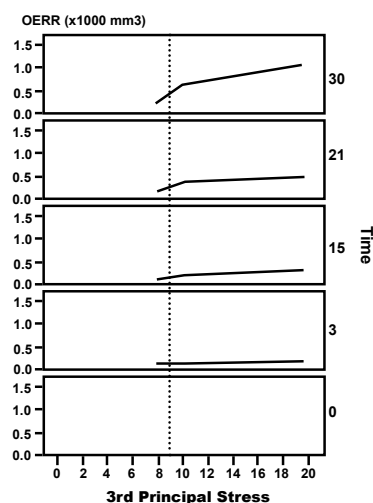


Fig. 5 - Time, stress and interaction were significant to increase OERR in areas of medium and high stress ($p < 0.01$) starting at 15 days. In the area of 8KPa, there were no differences. This value translated to 30cN of human canine tipping force.

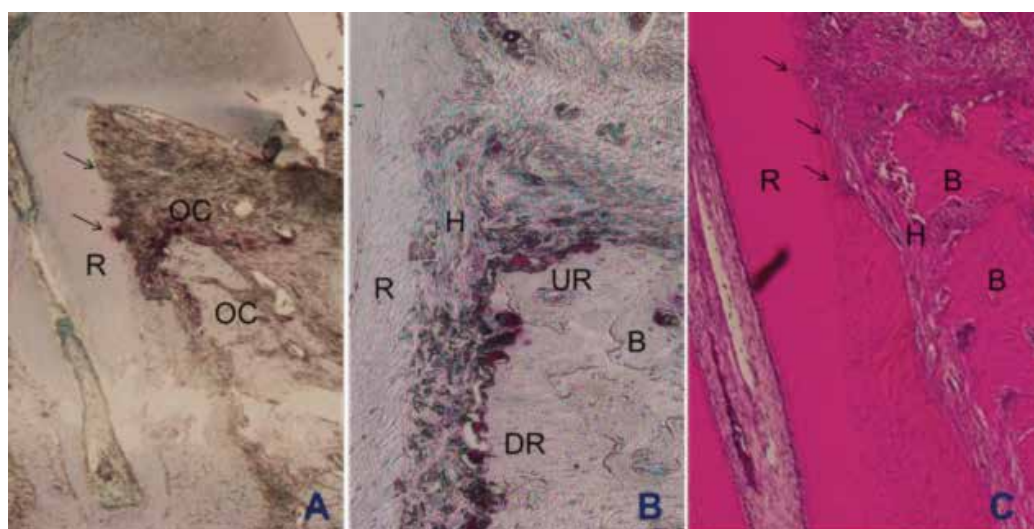


Fig. 6 - MB root PDL sections with compression near the apex and high compression near the alveolar crest. R= Root, B= Bone, H= Hyalinization, UR= undermining resorption, DR= direct resorption. (A) TRAP IHC revealed OERR mostly in the high stress zone. The alveolar crest was resorbed by 30%. (B) and (C) Consecutive sections of a 15-day specimen showing active resorption of mineralized and necrotic tissue (H). Osteoclasts (OC) perform direct resorption at the low stress zone with no root resorption. Necrosis is present in the high stress zone at 3 days, but at 15 days its resorption is close to completion. There is presence of chronic inflammatory infiltrate and active root resorption.

of an individual. The lack of evidence for optimal orthodontic load magnitudes for treatment was documented by a systematic review. It concluded that there was no scientific evidence to support a recommendation for orthodontic load magnitude, because of extreme variation in experimental conditions, little quantification/characterization of individual variability, and no translation to clinical values.¹⁹ Our biomechanical model, developed over the last eight years, has addressed most criticisms incorporated in this systematic review, as well as deficiencies in previous OERR studies.^{44,47,66,67} With the exception of one of our previous studies on compressive stress, no animal experiments exist that use proper engineering methodology to quantitatively translate stress-OERR relationships to human values. Following contemporary translational research guidelines, biology and mechanics are combined in a single experimental scheme with translation from the clinic to basic science and vice-versa. In this paradigm, a shift is made from the old "optimum force-blood pressure" theory to a contemporary scientific stress-based model based on individual genomic, transcriptomic or proteomic profiles. Some unique findings that will help to illuminate OERR are listed below.

The periodontal ligament mediates mechanotransduction for tooth movement and OERR

Until recently, there was no mechanical evidence on whether bone, tooth, or PDL was responsible for OERR. For instance, recently, theories of OERR involving tooth root stresses and fatigue were used to explain the reason why reduced IL-1 β leads to susceptibility, which even generated a funded R01

grant.^{55,68-70} The PI conducted a meticulous, 3D numerical study to describe the mechanical environment of the tooth, bone, and PDL in a human tooth model, and compared it to expected biological reactions reported in the literature. Results showed that the principal stress patterns in the bone and tooth root were inconsistent with areas of bone resorption and root resorption, or bone formation during translation and tipping of teeth.²⁰ Meanwhile, we found that the area of the tooth root under the highest stresses is close to the center of the root (because of bending), which is not the area where severe OERR typically occurs.

A similar contradiction was found in bone. The PDL was the only tissue where the highest stresses were perfectly related to bone and root resorption. With animal experiments, it was later demonstrated with certainty that OERR mechanotransduction starts in the PDL.

PDL necrosis and OERR are related to each other and the PDL compressive stress magnitudes

An animal model was used to validate our numerical findings, and that enabled the pursuit of causes for individual differences. The method coordinated histology, μ CT, and FEA, which permitted a coupling of the mechanical environment directly to the biological response. Histology at this time was required to confirm data because of a limited resolution of the μ CT. With the newer generation of μ CTs, this is no longer an issue. It was determined that aggressive OERR occurs near highly compressive zones. There were strong ($p < 0.001$) significant differences, up to four-fold, in the incidence of OERR

in the higher compressive PDL stress regions compared to low stress regions. Interestingly, OERR was not different from baseline in areas of low stress, independently of mouse genetic background. Using histology, the stress threshold for necrosis was approximated at ~10KPa. These values are within three kPa of the medical literature relating stress to necrosis in decubitus ulcer models, and to cell viability in vitro studies.^{26,41,44,46-48,71} Using our human FE model, we determined that PDL stresses <10KPa are produced by <40cN of MD tipping or <120cN MD translation. Innovatively, these data provided quantitative and translatable evidence on how “high” PDL stresses and force must be to cause substantial OERR.

Impairment of the ATP-P2X7-II-1 β Pathway conditionally increases OERR according to compressive stress

Clinical studies have demonstrated that a polymorphism in the II-1 β gene that leads to its reduced gene expression increases OERR.⁵⁵ This result was confirmed with an II1- β knockout mouse.⁶⁸ We were able to test the mechanism by reducing II-1 β activation (NALP3 inflammasome pathway) inactivating the P2X7R gene (P2X7R KO mouse). The P2X7R is a calcium channel ATP (DAMP) receptor that promotes a pathway for II1- β activation, and is important for apoptotic/necrotic tissue resorption. An inefficient acute response to eliminate dying cells early can lead to massive macrophage infiltration and generalized tissue damage.^{53,66,67,72,73} The KO had a much slower rate of hyalinized tissue resorption and increased OERR. OERR was increased by at least ~20 percent, measured by 3D μ CT. With histology and section orientations coordinated with our FE model, we determined that there was a significant difference only in the region of the highest PDL stress, with 27 percent more ($P < 0.02$) root resorption craters in the KO mice.⁵¹ Ten days after the force was applied, the KO mice had about 8 times more ($p < 0.001$) necrotic PDL than did the WT mice. For the WT force group, ERR was 1.8 times higher ($P < 0.002$) and 3.7 times higher ($p < 0.001$) in the area of high stress compared with medium and low stress, respectively. A similar pattern was noted for the KO force group: respective scores were 4.7 times ($P < 0.001$) and 3.5 times ($p < 0.002$) higher. Histopathological analysis of the trichrome stained specimens revealed strong chronic inflammatory cell accumulation near severe OERR zones, especially in the P2X7R KO.

Stress and time effects on bone and OERR in the rat model

A preliminary study on 42 rats was conducted to determine the best time point to perform our experiments. We used the F344 as a “reference” strain for this purpose (Fig. 4-6), applying a 10cN load from 3 to 30 days to study changes in bone and root resorption with μ CT and TRAP immunohistochemistry. At 15 days, the resorption of the initial necrotic tissue was nearing

completion, as evidenced by bone spiculae near the alveolar crest and the presence of active OERR. After 21 days, a new hyalinization zone formed near the middle portion of the root because of a change in the mechanical environment caused by a change in alveolar height.

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CONCLUSIONS

Current science suggests that when encountering a patient with isolated root resorption during orthodontic treatment, possible mechanical causes of overloading should be investigated and minimized. When these are not substantiated, the dentist should inform the patient of possible susceptibility and provide the choice to continue treatment under careful minimization of loads and periodic radiographic monitoring. It is already possible to test patients for susceptibility before treatment is started, but so far only a few genes have been determined to be significant; and testing negative does not imply that patients are not susceptible to OERR.

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Sterilization Assurance Service

Customer ID# (for current customers) _____

Sterilizer Type/Model/Serial #: _____

(Supplies for each sterilizer must be kept separate for identification purposes.)

☐ Steam _____ ☐ Chemical Vapor _____ ☐ Dry Heat _____

Basic (1) One test strip and one control strip per test (2) Return envelopes
(3) Monthly report (4) Failure notification via phone

Price	Quantity	Amount
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\$119/24 tests	_____	\$ _____
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Basic Plus (1) One test strip and one control strip per test (2) Return envelopes
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\$380/20 tests	\$ _____
Optional: Certificate \$12/each	\$ _____

- A foam box, ice packs, sample vials, and instructions included.
- Use APHA Standard Methods 9215 to test DUWL samples.
- Full dilutions provide accurate Heterotrophic bacteria counts.

Shipping & handling starting at \$15.00 per box

Check Enclosed \$ _____ (made payable to SAS-LLU)

Charge: Total \$ _____ ☐  ☐ 

Card Number _____

Exp. Date ____/____/____ CCV# _____ Invoice# _____

Sterilization Assurance Service
Chan Shun Pavilion, Suite A-1005
11175 Campus Street, Loma Linda, CA 92350

Tel: (909) 558-8176

Fax: (909) 558-0307

E-mail: sas@llu.edu

Web: dentistry.llu.edu/sas

Anna Chen introduces China to pediatric Zirconia crowns

Jung-Wei “Anna” Chen DDS, MS, MS, PhD, program director, Advanced Specialty Education Program in Pediatric Dentistry, and acting chair, Department of Pediatric Dentistry, was invited by Larry Wu, DDS, director, and Andy Shen, DDS, associate director, of Sir Run-Run Shaw Hospital (SRRSH) at Zhe-Chiang University, in Hang-Zho, China, to present a series of lectures and clinical demonstrations in early July 2016 to dentists from three area hospitals.

Dr. Chen’s presentations ranged from dental practice management to the treatment of pediatric cancer patients to demonstrations in the use of nitrous oxide with children.

But of most interest to her audiences of dentists from three area hospitals were her demonstrations of the preparation and seating of Zirconia crowns in pediatric restorations.

Dr. Chen’s Zirconia crown series began with a review seminar on the esthetic restoration of pediatric anterior teeth that included stainless steel crowns, Strip crowns, PreVeneer crowns, and Zirconia crowns. On July 8 Dr. Chen demonstrated for approximately 50 dentists the clinical step-by-step procedures for preparing

and seating EZ Pedo crowns on two patients in the SRRSH dental clinic.

One demonstration involved two crowns for anterior central incisors (#E & #F). The second patient required the restoration of primary molars. That same afternoon, Dr. Chen gave a step-by-step lecture on how to prepare and apply NuSmile Zirconia crowns.

Dr. Chen brought supplies with her from Loma Linda University: typodont teeth, typodont burs, biocem, and a full set of Zirconia crowns provided by the manufacturers, EZ Pedo and NuSmile, along with small starter kits.

Amidst her tightly scheduled whirlwind of lectures and demonstrations, Dr. Chen made time to see the sights with her husband and their two youngsters both in mainland China and in Taiwan, where she provided a concluding didactic on Zirconia crowns and esthetic crown restorations for primary teeth to residents from three Taiwan healthcare centers—Taipei Medical University, Shunghe Hospital, and Wan Fang Hospital.

A sampling of photos from the professional aspect of Dr. Chen’s trip to China follows.



Above: Main entrance to the Sir Run Run Shaw Dental Clinic

Below left: Sir Run Run Shaw Hospital Dental Clinic

Below right: SRRS residents follow Dr. Chen’s lecture on Zirconia crowns.





Dr. Chen observes as one of the hands-on attendees preps a typodont tooth.



One of the hands-on attendees preps a typodont tooth.



Pre-operative primary central incisors



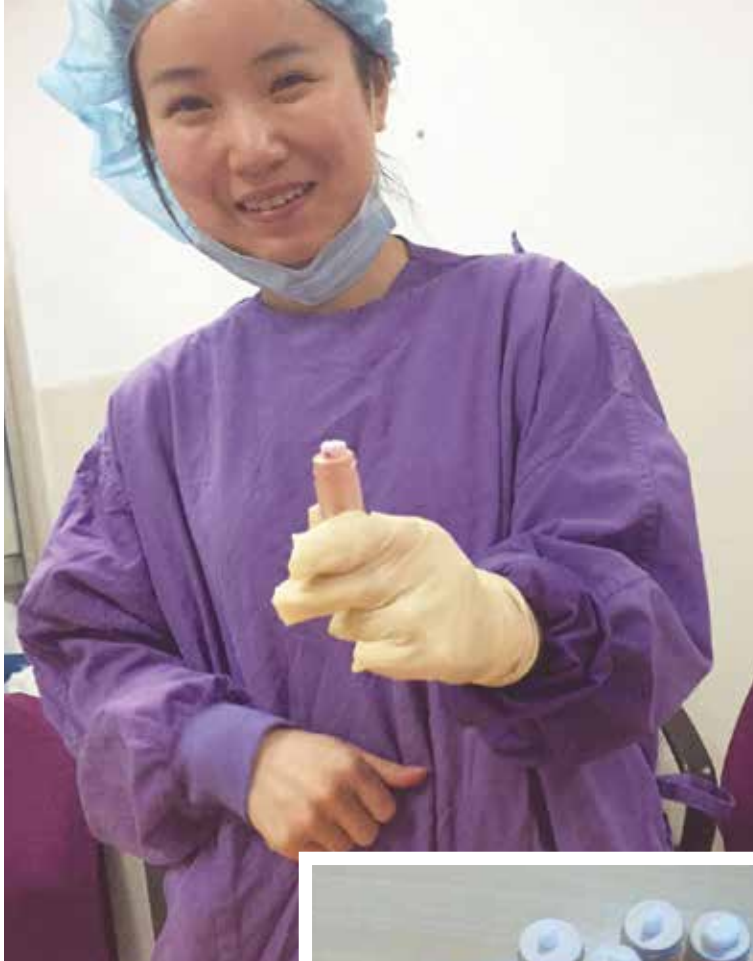
#E is completed and #F is prepped.



Another view of completed #E and prepped #F



Patient sports two new anterior EZ Pedo Zirconia crowns.



Dr. Li displays a try-in Zirconia crown like those clustered in the photo at right.



Dr. Liu, DDS, PhD, and Dr. Jun He, DDS, from SRRS Hospital Dental Clinic appreciate a donation of EZ Pedo Zirconia crowns from Dr. Chen.



A relatively happy patient with new Zirconia crown molar restorations with his providers.



Beijing Smile Angel Children's Hospital



Beijing Smile Angel Children's Hospital is dedicated to the treatment of cleft lip and cleft palate patients. Established in 2012, in an exclusive area of Beijing, Smile Angel is China's first not-for-profit, charity hospital for children. The 400-bed hospital does not accept payment from patients, many of which come for treatment from rural areas. Pictured above from left are Smile Angel Children's Hospital's marketing director, Dr. Bao-Xuang; Dr. Chen's son, Jason Su; her daughter, Julianna Su; Dr. Chen, and her husband, Jui-Min Su, DDS, MS, assistant professor, Advanced Specialty Education Program in Prosthodontics.

After Dr. Chen's lecture on the Management of Pediatric Patients that included a hands-on presentation on the use of nitrous oxide, she posed with some of her audience.

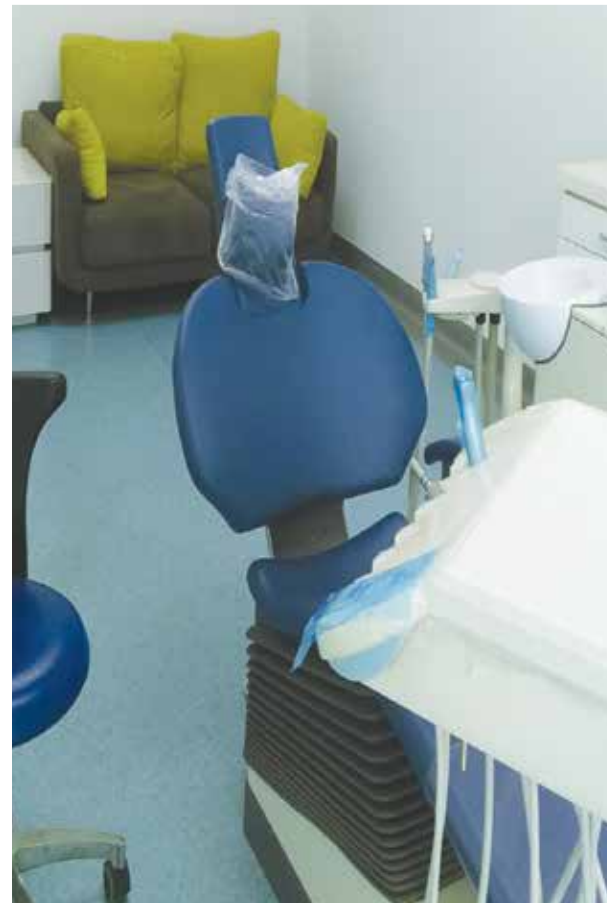


At Beijing Smile Angel Children's Hospital, Dr. Chen donated dental supplies to Smile Angel Hospital, CEO and Dr. Bao-xuang (second from left).





At Harry Clinic, a new facility of Zhe-Chiang University that combines modern dental treatment with traditional Chinese medicine, Dr. Chen gave a lecture on dental clinic management. Above, Dr. Chen stands with clinic CEO, Mr. Mao (left), and Xi Shen, DDS, the clinic's director (and Loma Linda visiting scholar), who gave Dr. Chen a tour of this collaboration between a private entity and a state hospital, where she observed a combination of holistic and traditional dental treatment of patients.



Harry Clinic lobby



L-R: Dr. Xi Shen, Jun He, DDS; Dr. Chen; and former Loma Linda University endodontics visiting scholar Dr. Andy Shen, associate director of Sir Run Run Shaw Hospital.

At Zhe-Chiang University Children's Hospital (newly opened in 2015), Dr. Chen lectured on the dental management of pediatric cancer patients. At right, Dr. Chen attends to an oncology patient.



At SRRS Hospital, Dr. Chen gave a lecture on the management of pediatric patients, which included a hands-on demonstration in the use of nitrous oxide.



Pictured with Dr. Chen are residents from three Taiwan healthcare centers—Taipei Medical University, Shunghe Hospital, and Wan Fang—to whom she lectured on Zirconia crowns and Esthetic Crown Restorations for Primary Teeth.

Tom Rogers: Surfer, humanitarian, lifelong learner

The LLUH Board of Trustees honored Tom Rogers, DDS'83, MPH'96, MA, professor and director, Faculty and Leadership Development, on May 24, 2016, with special recognition for his 18-year endeavor to educate LLUSD dental students on best practices for providing oral health care safely and compassionately to dental patients with HIV-AIDS. His efforts include 14 years directing the \$300,000 annual Health Resources and Services Administration (HRSA) grant in support of teaching future providers how to best serve this at-risk population.

LLUSD is one of 12 American dental schools trusted with this HRSA appropriation. More than 1,600 of the School's dental students and about 600 dental hygiene students have received this training that includes didactic presentations, interviewing patients, reviewing standard patient cases, making presentations to faculty, and providing direct clinical care of HIV-positive patients. LLUSD has made this training a requirement for graduation since the inception of the program.

Dr. Rogers graduated in 1971 from University of California, Berkeley, with a BS in conservation biology. After graduation, he took a job as a marine biologist with a civil engineering firm (1971-1975), followed by a position as the environmental review officer of San Bernardino County (1975-1978), and then served as senior scientist and office manager with an environmental engineering firm (1978-1979). While working these positions, Dr. Rogers completed a master's degree in marine biology at California State University—Long Beach in 1977.

Wanting a career with a focus on helping people, Dr. Rogers entered LLU's School of Dentistry in 1980, but continued to work part time as an environmental consultant through the first two years of his dental education.

When Dr. Rogers graduated in 1983, Will Nation, DDS'76, encouraged him to remain in the Loma Linda area and establish a private practice. He remodeled a house in Redlands on Brookside Avenue to house what became a thriving dental practice.

Concurrently, Dr. Rogers began teaching at his alma mater in 1984 as a volunteer instructor in the School of Dentistry's Department of Oral Surgery. He transitioned to a part-time

position with the Department of Restorative Dentistry in 1992 and was appointed assistant professor in the Department of Dental Educational Services in 1994.

On a continuous learning track, in 1994 Dr. Rogers entered the LLU School of Public Health MPH program. At that time he decided to relinquish his private practice in 1995 because of a genetic blood clotting condition. He received an MPH degree in 1997 and became an alumnus that same year of the AADS Summer Program Career Development for Faculty Leaders—an immersion workshop for junior faculty members.

Also in 1996, Dr. Rogers assisted in a collaborative effort between the School of Dentistry and the School of Public Health to organize a dental clinic at the SAC Health System/Norton Clinic in San Bernardino. He created a proposal for grant funding and developed a fee

schedule for the clinic's services.

In 1997, Dr. Rogers and Mike Fitzpatrick, DDS'87, professor, International Dentist Program (IDP), initiated a pilot-mentoring program in the School of Dentistry's predoctoral clinic with the support of Steven Morrow, DDS'60, MS'87, associate dean, Advanced Education. This program evolved into the School's group practice model in 2001.



Dr. Tom Rogers



Dr. Rogers stands with Dean Ronald Dailey, PhD, President Richard Hart, MD, DrPH, and Rodney Turner, DDS'84, at his special recognition by the LLUH Board of Trustees.



Dr. Rogers always enjoys teaching students of any age.

In 1998, Dr. Rogers became interested in the challenges that HIV disease presents to dental professionals. In 2002, he applied for and was awarded a Community-based Dental Partnership Program grant funded under the Ryan White CARE Act by the federal Health Resources and Services Agency. This program has significantly enhanced the education of senior dental, IDP, and dental hygiene students.

Dr. Rogers' service to the School, his profession, and humanity is further distinguished by his proactive mission orientation that began 19 years ago with a trip to Ecuador. "That first trip to Ecuador was a wakeup call," Rogers said. "It was a life-changing experience." He had acquired an international outlook through his Rotary Club involvement, "but it was different when I went there."

Since 2003, Dr. Rogers has organized annual service learning trips to Nicaragua for dental and dental hygiene students during summer break that are supervised by LLUSD faculty and alumni. His groups set up clinics at a number of locations throughout Nicaragua that include Managua, San Marcos, and Boaco.

"You just don't see these types of conditions here in America," Dr. Rogers says. "Everyone works so hard at these



In 2013, Dr. Rogers and Michelle Molina, president of Nicaragua's UNICA University cut a ribbon at the opening of a new clinic that was funded by a Rotary Club International grant.

service learning clinics," Dr. Rogers emphasizes. "There are no slackers. We are very tired at the end of each day. But it's a drop in the bucket," he adds. "We could be down there full time, 52 weeks a year and seven days a week and still couldn't meet the need."

Several years ago, Dr. Rogers obtained a Rotary Foundation grant to construct a clinic at a coffee cooperative and helped broker an agreement with a Nicaraguan dental school to provide ongoing oral healthcare services to the cooperative's approximately 5,000 workers and their families.

In 2005, Dr. Rogers was elevated to associate professor in the Department of Restorative Dentistry, and then in 2009 was appointed director of Faculty and Leadership Development, a role in which he assists faculty in documenting clinical, scholarly, and service activities that apply toward professional promotions. In 2015 he was appointed as a School of Dentistry representative to the Loma Linda University Institute of Health Policy and Leadership.

Dr. Rogers' has rendered important service to the School by his effective coordination of two accreditation site visits (2002 and 2009), and his significant role in the 2016 site visit that resulted in excellent outcomes for the School.

Dr. Rogers was recognized for his contributions to Loma Linda University and to the wider world community at the 2014 Conferring of Degrees with the School Distinguished Service Award. He was recommended for promotion to professor in 2016.

For 46 years Dr. Rogers has been married to Jan, his favorite nurse. The couple has three adult children. A lifelong lover of the ocean and surfing, he caught his last wave in 2010.

LLUSD NEWS

LLUSD alum Clelan Ehrler assumes CDA presidency

Loma Linda University School of Dentistry alumnus Clelan “Butch” Ehrler, DDS’68, MS’71 (orthodontics), became California Dental Association president beginning January 1, 2017.

Dr. Ehrler succeeds immediate past CDA president, Ken Wallis, DDS’86.

Dr. Ehrler has held numerous CDA leadership positions that include CDA board of trustees executive committee, the TDIC Board of Directors, and various committees that include peer review, California Dental Political Action Committee (CalDPAC), finance, and steering.

Beyond the degrees he earned at LLUSD, Dr. Ehrler is also a teaching alumnus of the School, where he served as assistant professor in the Department of Orthodontics and Dentofacial Orthopedics between 1973 and 1995.

During his November speech to the CDA House of Delegates, Dr. Ehrler emphasized the importance of “our local component dental societies, CDA and ADA” and how they “depend upon . . . our volunteers, our members, in order to have a voice in dentistry . . . supporting the profession and charting its course for the future.”

Dr. Ehrler is a past president of the Tri-County Dental Society.

Dr. Ehrler has two sons — Todd Ehrler, DDS, MS, an orthodontist in Redlands, and Brent Ehrler, a professional bass fisherman who lives in Newport Beach.



Dr. Clelan “Butch” Ehrler

The California Dental Association (CDA) is a community of dentists committed to enhancing the professional lives of its members—26,000 of the best and brightest dentistry has to offer. Together, they champion better oral health care for all Californians.

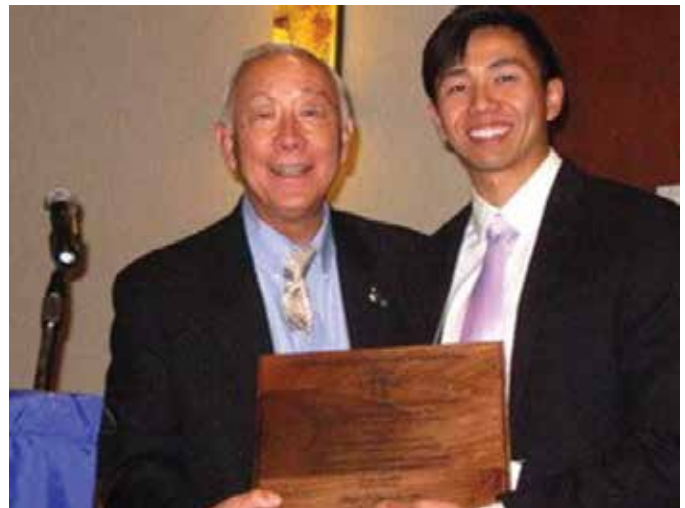
Michael Siy continues the string of wins

Michael Siy, D4, was honored with the Terry Tanaka Award on October 19, 2016, during the Academy of Dentistry International annual convocation and awards banquet in Denver, Colorado. Terry Tanaka, DDS, presented Michael with the award.

The Terry Tanaka Award recognizes a senior dental student who best exemplifies volunteer services during the prior three years in dental school.

According to the ADI website, “Michael was the overwhelming winner over a list of candidates who had achieved much through their efforts in local and political committees and positions with student organizations. However, the scope of Michael’s achievements was over five times greater than the second place candidate. ‘WOW.’”

Michael is the fifth consecutive LLUSD student to win the Terry Tanaka Award and the seventh from the School to win the award in the fourteen years of its existence.



Dr. Terry Tanaka congratulates Michael Siy, D4.

LLUSD NEWS

Mathew Kattadiyil inducted as ACD Fellow

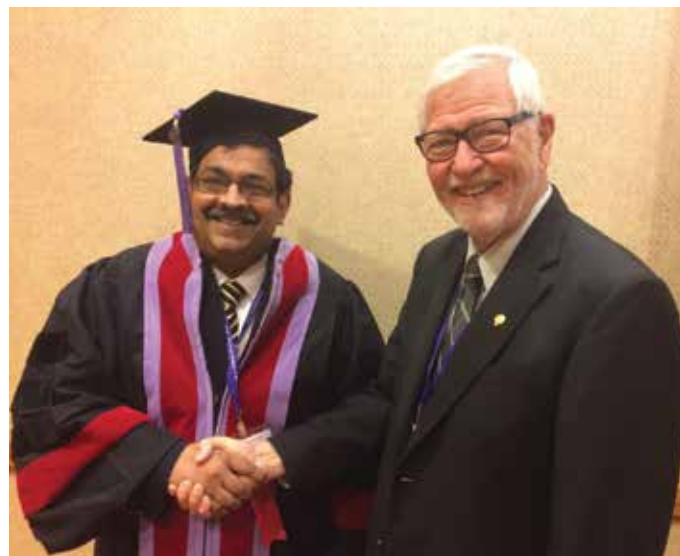
Mathew Kattadiyil, BDS, MDS, MS'99, professor and program director, Advanced Specialty Education Program in Prosthodontics, was inducted into the American College of Dentists (ACD) during the annual meeting of the ACD in Denver, Colorado, October 20, 2016.

Fellowship in the ACD is by invitation and is based on demonstrated leadership and achievements in the dental profession.

The American College of Dentists (ACD) is the oldest major honorary organization for dentists. Its members have exemplified excellence through outstanding leadership and exceptional contributions to dentistry and society.

In 2013, Dr. Kattadiyil was selected by the American College of Prosthodontists to receive the Educator of the Year award.

Dr. Kattadiyil is a diplomate of the American Board of Prosthodontics and is a fellow of the American College of Prosthodontists.



Dr. Kattadiyil is congratulated by Leif Bakland, DDS, professor emeritus, Department of Endodontics.

Pediatric Dentistry residents maintain perfect record

Pediatric residents from the LLUSD class of 2015—Drs. Ava Chung, Adi Genish, Pooyan Nasibi, and Minh-Ky Young—all passed their oral clinical board examination in September 2016 and became diplomates of the American Board of Pediatric Dentistry.

The class of 2015 continues the 100 percent pass rate that began in 2011, on clinical board exams for the American Board of Pediatric Dentistry by LLUSD residents from the Advanced Specialty Education Program in Pediatric Dentistry.

Jung Wei Chen, DDS, MS, PhD, MS, the program's director, says "The 2015 residents all texted me to thank us for the great education they received from LLU."

Not to be exceeded, LLUSD's class of 2016 pediatric residents—Drs. Ryan Baker, Luz Adriana Cuellar, Xuan Lam, and Amanda Zenthoefer—passed their written exam in June, keeping intact the program's record of 100 percent passes for the written board exam.



Pediatric resident dentists from the classes of 2015 and 2016 pose with their program director. Back row (L-R): Drs. Pooyan Nasibi, Ryan Baker, Amanda Zenthoefer, and Minh-Ky Young. Front row (L-R): Drs. Luz Adriana Cuellar, Ava Chung, Xuan Lam, and Adi Genish bracket Dr. Jung Wei Chen (center).

LLUSD NEWS

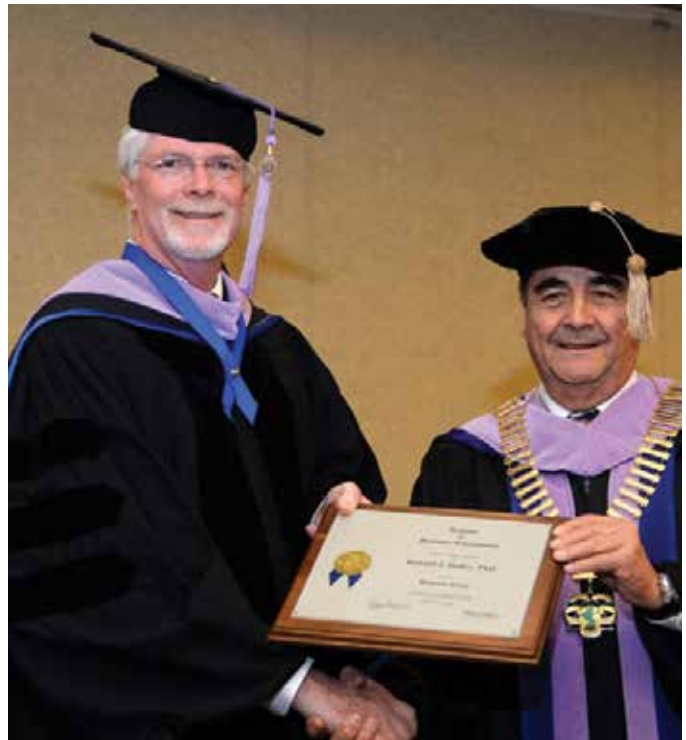
Dean Dailey receives honorary fellowship

Ronald J. Dailey, PhD, dean, Loma Linda School of Dentistry, was presented with Honorary Fellowship in the Academy of Dentistry International on October 19, 2016, during its annual convocation and awards ceremony in Denver, Colorado.

Dr. Dailey was nominated by Ronald Fritz, DDS'72, MPH, chair, ADI USA, for the Honorary Fellowship bestowed on those who through eminent service have promoted the advancement of the profession and human welfare.

After reviewing Dr. Dailey's 39 years of service to LLUSD, ADI President Ramon Baez, DDS, described his contributions "in various capacities for the American Dental Education Association and the American Association of Dental Schools. He has made numerous presentations both nationally and internationally and served as a consultant for Adventist Universities Dental Programs in Argentina, Brazil, Chile and the Philippines.

"Dr. Dailey serves on the City Council of Loma Linda, California and has served as a Board member of The San Bernardino International Airport Authority, the Inland Valley Development Agency, the Loma Linda Redevelopment Agency, and OmniTrans," Dr. Baez concluded.



LLUSD receives E. "Bud" Tarrson Dental School Student Community Leadership Award

For the third year in a row LLUSD has won the \$5,000 E. "Bud" Tarrson Dental School Student Community Leadership Award from the ADA Foundation, in recognition for its excellence in providing oral healthcare services to underserved populations.

Kyle Leis, D3, clinic vice president and chair, Section on Community Outreach, ASDA student government, wrote the proposal for this year's award that will benefit the School's Compassion Clinic in nearby Redlands, California.

The award was given in support of the outcomes ascribed to the clinic: Compassion Clinic fulfills an unmet need in the community by harnessing the enthusiasm of dental students to provide access to high quality care to vulnerable populations. Service at the clinic cultivates community involvement and a sense of responsibility to its neighbors, reinforcing a commitment among future dentists to meet the needs of those who lack adequate access to care.

The students affirmed the role of mentor Mark Carpenter, DDS'80, in exemplifying a life of compassionate service to humanity, especially to those in need.



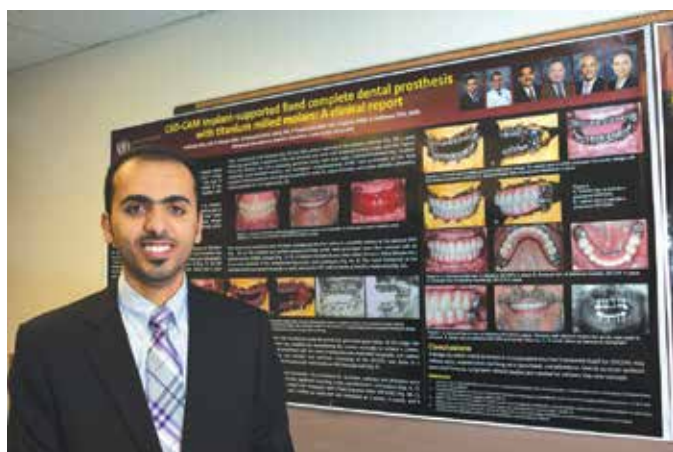
Kyle Leis, D3, is assisted at the Compassion Clinic by Azusa Pacific University nursing students.

LLUSD NEWS

LLUSD residents sweep AAID poster prizes

Resident teams from the LLU School of Dentistry's Advanced Education Program in Implant Dentistry were awarded first, second, and third places for their poster presentations during the 65th annual meetings of the American Academy of Implant Dentistry, October 24-29, 2016, in New Orleans, Louisiana.

First place went to class of 2016 prosthodontics resident Aziz AlHelal, DDS, and class of 2016 prosthodontics resident Badr AlBadr, DDS, for their poster entitled, "CAD-CAM implant-supported fixed complete dental prosthesis with titanium milled molars: A clinical report."



Dr. Aziz AlHelal

Then third-year [Prosth/Implant] residents Brian Goodacre, DDS'13, and Raj Swamidass, DDS'13, were awarded second place for their poster entitled "A 3D Printed Solution to Precise Lateral Approach Sinus Augmentation."



Dr. Brian Goodacre and Dr. Raj Swamidass

And third place went to third-year implant dentistry resident Eric Chen, DDS'14, and first-year implant dentistry resident Yuen-Lok Ching, DDS, for their poster entitled, "Use of Modified Wax Rims for Planning Full-Arch Fixed Dental Prostheses in Edentulous Arches."



Dr. Yuen-Lok Ching and Dr. Eric Chen

LLUSD offers Orthodontic Assisting Permit Program

This 84-hour course (52 hours at LLU laboratory, 32 hours at extramural facility) **makes RDA students eligible to take the written state board examination for Orthodontic Assisting Permit licensure.**

This Orthodontic Assisting Permit course will train you to

- prepare teeth for bonding, and select, pre-position, and cure orthodontic brackets after their position has been approved by a licensed dentist;
- remove only orthodontic brackets and attachments with removal of the bonding material by a supervising licensed dentist;
- size, fit, and cement orthodontic bands;
- remove orthodontic bands and excess cement from supragingival surfaces of teeth with a hand instrument;
- place and ligate archwires.

Tuition: **\$1,500**

Program dates: **April 2, 9, 23, 30; May 7, 9, 11, 16**

To register, contact Jeri at: **JLFowler@llu.edu**

For details call: **(909) 558-4399**

LLUSD NEWS

Nadim Baba installed as VP of ACP

Nadim Z. Baba, DMD, MSD, professor, Advanced Specialty Education Program in Prosthodontics, was installed as vice president of the American College of Prosthodontists (ACP) for a one-year term during the College's 46th Annual Session in San Diego, October 5-8, 2016.

Since August of 2012, Dr. Baba has served as LLUSD's director for the Hugh Love Center for Research & Education in Technology.

A diplomate of the American Board of Prosthodontics, Dr. Baba has been on the ACP Board of Directors, and served as the Region 5 director (Pacific) for the last four years. He also served on the Private Practice Manual Task Force that, during his tenure, developed a DVD version of the private practice manual.

"I am very grateful to the members of the College for the trust they put in me," said Dr. Baba, who views the ACP as "a great, strong organization comprised of a remarkable group of professionals. What a great honor to serve and be part of the ACP," he added.

Dr. Baba has given over 100 national and international presentations, most recently a general session lecture at the Academy of Microscope Enhanced Dentistry annual meetings in Huntington Beach, California.

He regularly reviews and edits industry publications the *Journal of Prosthodontics*, *Journal of Prosthetic Dentistry*, and the *Journal of Dental Traumatology* where he also serves as an associate editor.



Dr. Nadim Baba

Jung-Wei Chen stars on Colgate Oral Health Network

As a live dental webinar and on-demand webinar speaker for the Colgate Oral Health Network, in 2015, Jung-Wei Chen, DDS, MS, MS, PhD, director, Advanced Specialty Education Program in Pediatric Dentistry, gave the most highly attended live webinar of the year with over 900 viewers worldwide. Colgate hosted another Live Dental Webinar by Dr. Chen on May 12, 2016, her topic: "Injection/Local Anesthesia for the Pediatric Patient." Her presentation remains available until Sunday, May 6, 2018, at <http://www.colgateoralhealthnetwork.com/?s=Chen>

Dr. Chen speaks in venues near and far, as illustrated in the cover story for this issue that represents her intensely scheduled lecture tour in China this past July.

The screenshot shows the Colgate Oral Health Network website. At the top, the URL "colgateoralhealthnetwork.com" is visible. The main header features the Colgate logo and the text "Oral Health Network for Professional Education and Development". A "Menu" button is in the top right. Below the header, a featured webinar is displayed for "Thu. 12th May 2016 08:00 PM EST" titled "INJECTION /LOCAL ANESTHESIA FOR THE PEDIATRIC PATIENT" by "Jung-Wei Chen DDS, MS, MS, PhD, FACD". A red "REGISTER" button is present. Below this, a section titled "Upcoming Live Dental Webinars" lists three more events:

- LIVE** Thu. 12 May. 2016, 08:00 PM EST: "Injection /Local Anesthesia for the Pediatric Patient" by Jung-Wei Chen DDS, MS, MS, PhD, FACD.
- LIVE** Wed. 15 Jun. 2016, 08:00 PM EST: "Management of Caries as a Dynamic Disease Process" by Domenick T. Zero DDS, MS.
- LIVE** Tue. 19 Jul. 2016, 08:00 PM EST: "Generational Differences as they relate to the Oral Health of your Patients" by Trisha Cloutier Associate Professor in Dental Hygiene, CDA, RDH, BS, MA.

 Navigation arrows and social media icons are at the bottom.

LLUSD NEWS

LLUSD residents shine at California Society of Pediatric Dentists annual meetings

The LLU School of Dentistry had a significant presence at the California Society of Pediatric Dentists/Western Society of Pediatric Dentists 2016 annual meetings at the Silverado Resort & Spa in Napa, California, this past April.

Jung-Wei Chen, DDS, MS, PhD, MS, professor and program director, Advanced Specialty Education Program in Pediatric Dentistry, and Bonnie Nelson, DDS'88, chair, Department of

Their classmates Hanieh Hassani, DDS'15 (IDP), and Christine Kim, DDS, also represented the pediatric residency program with posters delineating research on "Microbial Flora Associated With the Use of Pre-surgical Naso-Alveolar Molding (PNAM) Appliance, A Pilot Study," and "Prefabricated Zirconia Crowns on Primary Posterior Teeth: Literature Review and Case Report."

Because of the high demand by parents wanting esthetically



(L-R): Dr. Linda Ngo and Dr. Jessica Machado, receive their awards from Dr. Andrew Soderstrom, DDS, executive director, CPSD

Pediatric Dentistry, led a contingent of pediatric residents, two of which won awards for their poster presentations. First place went to second-year resident Linda Ngo, DDS, for the "Application of Presurgical Nasoalveolar Molding (PNAM) in Bilateral Cleft Lip and Palate," and second place to her classmate Jessica Machado, DMD, for "Management of Crown Dilaceration in Permanent Mandibular Central Incisors."

optimal smiles for their children, dentists increasingly are using zirconia crowns on their pediatric patients. Dr. Chen focused on this growing trend in a course she taught entitled, "Zirconia Crown and the Evidences of Support." And as the speaker for CSPD's closing address, she discussed the relative merits of Zirconia crowns marketed by four different manufacturers: Cheng Crown, EZ Pedo, KinderKrown, and NuSmile. CEOs for three of the four corporations were in attendance.

Jacobs and Thakker newly inducted ACS fellows

Murray Jacobs, DDS, assistant professor, Department of Oral and Maxillofacial Surgery, and Jayini Thakker, DDS, MD, program director, Advanced Specialty Education Program in Oral and Maxillofacial Surgery, were inducted as fellows of the American College of Surgeons (ACS) during the College's 2016



Dr. Murray Jacobs

Convocation Ceremony on Sunday, October 16, at the Walter E. Washington Convention Center in Washington, D.C.

The ACS is a scientific and educational association of surgeons that was founded in 1913 to improve the quality of



Dr. Jayini Thakker

care for the surgical patient by setting high standards for surgical education and practice.

In an implicit acknowledgment of the quality of training received by dentists with advanced specialty education in OMFS at American schools of dentistry, the ACS began in 2016 awarding fel-

lowships to single degree oral and maxillofacial surgeons.

With 80,000 members, the ACS is the largest organization of surgeons in the world, and more than 1,800 initiates were inducted into the College this year.

CDR passes FDA audit with flying colors

Yiming Li, DDS, PhD, MSD, associate dean for Research, and director, Center for Dental Research (CDR), received a letter (05/09/2016) from the US Food and Drug Administration (FDA) on Department of Health & Human Services stationery, regarding an FDA "inspection conducted at your site (1/13/2016-1/19/2016)."

The CDR conducts multiple clinical studies annually, which include FDA clinical trials that are subject to inspection by the FDA. An FDA inspector reviewed the CDR's conduct of two multi-center, randomized, double-blind, parallel-groups clinical trials that compared the efficacy of the investigational drug Tetracaine 3% and Oxymetazoline 0.05% Nasal Spray (Kovanaze®) to a placebo for anesthetizing maxillary teeth in adult patients and in pediatric patients.

Besides Dr. Li being the principal investigator and Ms. Michele Arambula serving as the project coordinator for these two projects, a number of faculty served as co-investigators, including Sean Lee, DDS, professor and associate director,

Center for Dental Research; Michael Meharry, DDS'80, assistant professor, Clinical Care Faculty, Midwestern University College of Dental Medicine—Arizona; Jung-Wei Chen, DDS, MS, PhD, MS, program director, Advanced Specialty Education Program for Pediatric Dentistry; Bonnie Nelson, DDS'88, chair, Department of Pediatric Dentistry; and Samah Omar, DDS'07 (IDP), associate professor, Pediatric Dentistry.

The inspection was conducted as part of the FDA's Bioresearch Monitoring Program designed to evaluate the conduct of FDA-regulated research to ensure that the data are scientifically valid and accurate, and to help ensure that the rights, safety, and welfare of the human subjects of those studies are protected.

"Following our review," the FDA regulatory health project manager concluded, the CDR "adhered to the applicable statutory requirements and FDA regulations governing the conduct of clinical investigations and the protection of human subjects."



LOMA LINDA UNIVERSITY
School of Dentistry

AAID MaxiCourse®
PRACTICAL IMPLANT EDUCATION

2017 LLU/AAID



Implant MaxiCourse®

For more than 30 years, the Advanced Education Program in Implant Dentistry through the Continuing Dental Education Division has provided part-time didactic and clinical training in implant dentistry to general practitioners and specialists.

The 2017 LLU/AAID MaxiCourse® offers 300 hours of lectures, hands-on workshop sessions, live surgical demonstrations, online lectures and clinical experiences placing dental implants on participants' patients. The LLU/AAID MaxiCourse® brings the experience of renowned instructors and clinicians from Loma Linda University and around the world.

The 10-month sessions (two days per month) also help prepare the participant to take the written portion of the AAID Associate Fellow Membership Examination. The didactic portion of the course includes information for beginners, intermediate and advanced clinicians in implant dentistry wishing to expand their knowledge in this field.

The program is designed to take the participants through a systematic learning approach of implant dentistry.

Starting with basic concepts, diagnosis, treatment planning, dental implant surgery and implant prosthodontics, the attendees have the opportunity to develop sequential treatment plans on their own patients and participate in performing surgeries with the assistance of experienced faculty and residents of the Advanced Education Program in Implant Dentistry.

The attendees also experience hands-on workshops where procedures such as cone-beam imaging analysis, simulated patient-based dental implant surgery on life-like mannequins and guided-bone regeneration procedures on cadavers and pig jaws complete the understanding of basic and advanced dental surgical procedures.

Dates: March 9 - December 8, 2017

Tuition: \$15,000

REGISTRATION INFORMATION

To register for LLU/AAID MaxiCourse contact Loma Linda University School of Dentistry Continuing Dental Education office at **(909) 651-5673** or visit us online at **dentistry.llu.edu**

Nearly 450 participants have completed the LLU School of Dentistry and AAID MaxiCourse program.

A tent in the Kalahari

by Doyle Nick, DDS'78

What kind of event involves at least 200 emails sent and received, eight meetings, almost a ton of equipment and supplies, 85 hours of travel, and 14 tents?

From June 12 to 28, 2016, eleven people from Loma Linda University School of Dentistry participated in a service learning trip to Africa. Our team had been invited to Botswana, by the administration of Kanye Seventh-day Adventist Hospital in Kanye, Botswana, to provide restorative and surgical dental care for people and begin preventative programs for school-aged children in a remote location in the Kalahari Desert. Indeed we were told that our visit there would be the first time that most of the people of that area would have an opportunity to benefit from dental care and that unless things radically change, most would not have another chance in their lifetime.

The American component of the team consisted of dental faculty members, dental students, dental hygiene students, an International Dentist Program student, and a pediatric dentistry resident.

The Botswanan team included a dentist, two dental therapists, and dental assistants. In addition, a number of the support people from Kanye SDA Hospital volunteered to cook, translate, and provide various support roles.

Funds granted by the Academy of Dentistry International, Oral Health Foundation, Pierre Fauchard Academy, and other organizations, as well as contributions from the volunteers and Loma Linda University School of Dentistry, made it possible to buy materials and equipment for the trip.

The Botswana professionals provided most of the extraction care, and we were able to concentrate more on restorative and preventative treatment. Altogether, the team treated more than 500 patients, while the US component cared for 230 children and 70 adults.

The children brought to our tent clinic from six different schools were provided dental restorations, caries arresting treatments, sealants, fluoride varnish, and a few endodontic procedures. In addition, students received hygiene treatment; and most were instructed in dental home care and provided toothbrushes.

Adult patients were treated with scaling and root planing, extractions (simple to surgical), as well as restorations and endodontic procedures. One of the more rewarding treatments was the restoration of anterior broken incisors.

A number of our Botswanan patients had met with trauma, and it was such a joy to restore their broken teeth with composite and see the joyous smiles of people who felt that their mouths were whole again, sometimes after years of debilitation. Because we had a mobile X-ray unit and endodontic capability, we were able to be sure that necrotic teeth were properly treated and would likely remain healthy.

Thanks to the Kanye SDA Adventist Hospital administration and staff, we were quite comfortable, healthy, and safe in the tiny, very modest town of Mabutsane in which our camp was located. The temperatures dropped to the very low 40's or high 30's (°F) at night, so a nightly campfire, water heated over the fire, and plenty of blankets were necessary. Because the only

guesthouses or hotels are many hours away, we slept, ate, and treated patients in tents that were organized and pitched by the hospital personnel. We had a large tent in which to set up our clinic and another in which to eat and a third where the

kitchen crew worked. In addition there was a whole village of small tents used as residences, storage, HIV testing, and other uses for the nine days that we were there.

One preparation task was getting licensed to practice dentistry in the country of Botswana. This process, of course, requires CV's, diplomas, licenses, letters of recommendation, etc., properly notarized and in the right color ink, thank you. Thankfully we escaped clinical examinations but there were still a number of envelopes that traveled back and forth.

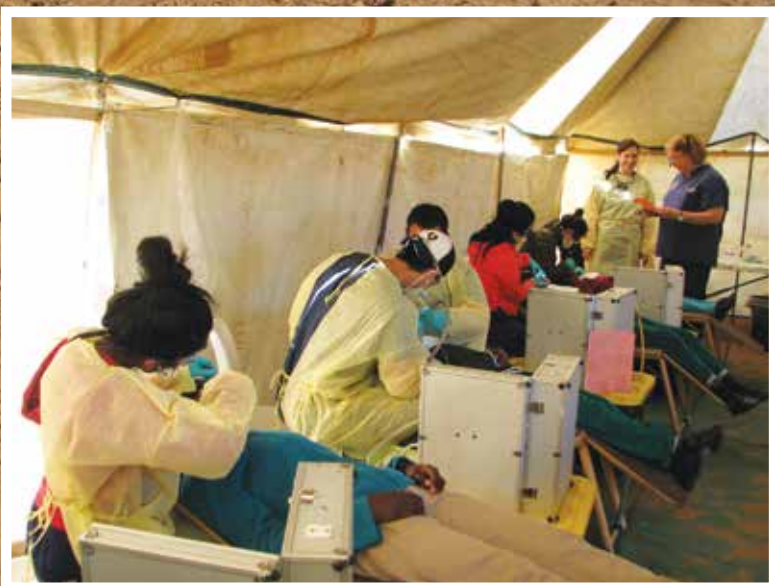
As part of an international research program, many participants volunteered to answer questions about oral health, diet, and oral hygiene that may shed light on perceptions and expectations around the world and strengthen the School of Dentistry's service learning program.

It is such a joy for us to answer a request for service when the need is so great and well received! In addition, it is a pleasure to work with like-minded Christians who are involved and invested in their work and who are committed to continuing the effort indefinitely. We enjoyed the cross cultural exchanges that found us learning essential words in Setswana, trying new foods and menus, and learning new ways of thinking and perceiving the world. We grew close to those who managed public speaking opportunities, organized, cooked, cleaned, and interpreted. Most of the participants were asked to speak to local groups

*It is such a joy for us to
answer a request for service
when the need is so great and
so well received.*



Dental clinic, Kalahari Desert.



Loma Linda University team's busy dental clinic.

A patient practices holding her fingers properly to floss as she watches flossing technique demonstrated on a stuffed lion.



Two complete central incisors, the patient and the artists: Martha Senar, IDP4 and David Lee, D4





The Loma Linda University School of Dentistry team and some of the people from Botswana, on arrival at the airport.

such as schools, the local police force, construction workers, and the area chief and local government officials, and it was a good experience to spread the good word about dental health, prevention, and care. .

During our visit we were guided to a small stand of special wild bushes to harvest some of the roots that traditionally have been used to chew into an effective, fibrous toothbrush employed in times past to maintain good oral hygiene. These “chew sticks”—along with other substances such as charcoal, wood ashes, and clay—have been used in different parts of Africa for oral hygiene maintenance, each natural environment having its own unique species of bush or tree for such use.

Kanye SDA Hospital recently purchased two excellent mobile dental units and a strong dental compressor. Using that equipment, along with two dental chairs and materials we left for the purpose, the Botswanan team has committed to travel to the region twice each year to continue the preventative work we have started. In this way, the local children of future generations will receive care that can result in significantly improved oral health.

At the end of our stay, just before we departed for an almost three-day visit to Chobe National Game Park and Victoria Falls, we had to say goodbye to the new good friends with whom we had bonded. There were plenty of tears and hugs as we

took our leave, looking back at the site of so much work and fun. We continue to pray for the people who showed us such warm hospitality and for the patients that we were able to treat and for whom we were able to initiate the possibility of better health for generations to come. In addition we thank God that Adventist dental schools exist to inspire and involve young dental professionals in the joy of service.

We would like to thank the wonderful people of Kanye SDA Hospital, Loma Linda University School of Dentistry, The Academy of International Dentistry, and Pierre Fauchard Academy for financial and logistic support for this worthy program. Especially we want to mention Gary Kerstetter, DDS'82, director, Service Learning and Dental Education Services; Anne Nicolas, administrative assistant, Service Learning/Spiritual Life and Wholeness; James Trott, DDS'82, assistant professor, Dental Education Services; and Stan Lillard, director, and Mark Mattheson, Dental Maintenance; Katie Layon, senior administration assistant, Office of International Dentistry; and several people from the Department of Pediatric Dentistry who all helped us in significant ways to prepare for this trip. Theirs too is the satisfaction that the King's words from Mathew 25:40 (NET Bible) have been heard; “I tell you the truth, just as you did it for one of the least of these brothers or sisters of mine, you did it for me.”

CHANGING LIVES AROUND THE WORLD

The story of Mission Service and Loma Linda University School of Dentistry

All Are Precious: LLUSD alumni serve their calling

Heart warming, heart rending, harrowing, and heroic, the stories in this volume describe the adventures of LLU School of Dentistry alumni who trade earning opportunities, discretionary time, their comfort, and sometimes their safety to provide oral healthcare to the wretched of the earth—compelling stories of LLUSD alumni who believe “service is our calling.”

Published by:
The Big Umbrella, Pub. 2017 Loma Linda, CA

Coming out of the store, Quint Nicola, SD '69, saw “hundreds of men, children, and women (with babies in “kangas”) running in the street. Sounds of gunfire and panic-stricken screams in French confirmed that rebels planned to take Goma. Civilians lay slain in the street. . . .”

A Mission Book: Special support provided by
N A S D A D

President's Address Dr. J. Russell Mitchell, 1942

...That we co-operate with the General Conference Foreign Mission Board in encouraging our dentists to look with favor on going to foreign fields to do self-supporting missionary work or to connect with the foreign medical work if the call and opening is made.

Also that we pray that divine wisdom may guide our General Conference in its study into the feasibility of establishing a dental college of our own...

Amy Hauschildt, SD '05, caring for Andean villagers at 10,000 feet, applies a CS Lewis quote:

“I think the best results are obtained by people who work quietly away at limited objectives”—such as the removal of an abscessed tooth—not by those who think they can achieve universal justice, or health, or peace.”



LOMA LINDA UNIVERSITY
School of Dentistry

FOND FAREWELLS

Daniel Badzik*Dr. Daniel Badzik*

Born (1935) in Warren, Michigan, **Daniel Badzik**, DDS'62, spent his childhood in North Carolina before moving to California, where he completed pre dental studies at Glendale City College.

After graduating in LLUSD's class of '62, Dr. Badzik served as a dentist in the army at Fort Leonard Wood, Missouri. When his service term ended, he pursued a full-time practice in the Sacramento area, 1965-95. During that time he also raised cattle on a 40-acre ranch and established a getaway cabin at

Eagle Lake out of Susanville, California, for a family retreat. In semi-retirement, Dr. Badzik practiced in Lincoln, California, until 2005.

When he died in Riverside, California, on December 9, 2016, Dr. Badzik left to mourn his wife Marilyn (LLUSN'62) of Reston, Virginia; his sons—Douglas (wife Nikki), LLUSM'98, of Reston; and Gregory (wife Lorilyn) of Johnstown, Colorado—and five grandchildren.

Darrel Ray Blehm*Dr. Darrel Blehm*

A Grand Junction, Colorado, dentist for 34 years, **Darrel Ray Blehm**, DDS'75B, died peacefully in his sleep after a heart attack on April 13, 2015. Born December 24, 1950, in St. Helens, Oregon, Dr. Blehm had pursued dental prerequisites at Walla Walla College, College Place, Washington, before joining the class of '75B at LLUSD.

After dental graduation he provided dental care for the Indian Public Health Service in Anadarka, Oklahoma, for two years, then moved to private practice in Kremmling, Colorado (1978-1981), before opening his long-term practice in

Grand Junction, Colorado, where he received recognition as one of America's Top Dentists by the Consumers' Research Council of America. Dr. Blehm, a nature and animal lover, also enjoyed traveling and dancing.

Surviving Dr. Blehm are his wife, Karen Chenoweth-Blehm of Grand Junction, Colorado, and her children, Audrey and Clint Kelly of Grand Junction; the mother of his children, Carol Blehm of Westcliffe, Colorado; their daughter, Christine of Acton, Massachusetts, and sons—Benjamin of Grand Junction, Colorado, and Joseph of Lone Tree, Colorado—and four grandchildren.

The family has suggested memorial gifts in Dr. Blehm's memory be made to A Safe Place for Teens, Roice-Hurst Humane Society, or Grand Junction Fire Fighters Union, all located in Grand Junction, Colorado.

Donald Beglau*Dr. Donald Beglau*

Born on November 8, 1932, in San Mateo, California, **Donald Beglau**, DDS'62, studied at Pacific Union College before being drafted into the United States Army. During two years' service in Korea, he wrote daily to Barbara Fortner, and won her hand in marriage a month after his return. After completing pre dental studies at La Sierra University, he entered LLUSD's class of 1962.

Upon graduation, Dr. Beglau began a nine-year practice in Nevada City, California, before joining the faculty of a new dental school in Augusta, Georgia (1971). Finding considerable satisfaction

in teaching, he returned to LLUSD in 1974. There he spent 25 years teaching restorative dentistry while engaging in a part-time practice in Yucaipa, California. He also joined students on a memorable dental mission trip to Nepal. He sought adventure when hiking, camping, and riding the sand dunes in a dune buggy he built.

Predeceased by his son, Steven, DDS'90, in 2010, Dr. Beglau leaves to mourn his death on October 29, 2016, his wife Barbara of Yucaipa; his daughters—Lori Suzanne (LLUSAH'85) of Cypress, California, and Pamela, AS'78 (DA) (husband Robert) Cole of San Tan, Arizona—and seven grandchildren.

Earl Brenneise*Dr. Earl Brenneise*

Earl Brenneise, SD'62, was born (March 8, 1929) and raised on a farm near Greenway, South Dakota. He attended Plainfield Academy in Redfield, South Dakota, and completed his bachelor's degree at Union College, Lincoln, Nebraska, before serving in the army. His service term (1952-56), included eight months of duty in Korea. Later he would return to Korea to replace a missionary dentist on sabbatical; he also provided dental care in Haiti.

When he completed dental education in LLUSD's class of '62, Dr. Brenneise established a practice first in Sonora, California (1962-75), then moved to Lincoln, Nebraska, where he practiced until his retirement in 2012.

When he died in Lincoln on August 15, 2016, Dr. Brenneise's survivors included his son, Earl Burns (who legally shortened his name for ease of pronunciation) of Lincoln; the mother of his son, Carole Brenneise, SD'75A, of Omaha, Nebraska; and his sister, Shirley Goetz of Lincoln.

FOND FAREWELLS

Jennifer Castillo**Jennifer Castillo**

Born in Kalamazoo, Michigan, October 19, 1971, **Jennifer Slocum Castillo**, BS'95 (DH) prepared for dental hygiene education at Pacific Union College, Angwin, California, and La Sierra University, Riverside, California. Graduating with LLUSD's dental hygiene class of '95, she practiced in North Dakota for a year before returning to California. Here she pursued dental hygiene in Chino, Upland, and Yucaipa. She has been characterized as "a phenomenal hygienist and extremely respected for her thoroughness and professionalism" by her employers, colleagues and patients.

An accomplished equestrian, Ms. Castillo

was also an avid animal lover. In her final year, battling cancer, she was confidently expectant of a future life. She died peacefully on August 29 at her home in Norco, California.

Mourning her death are Ms. Castillo's husband, Armando of Norco; her father, Donald Slocum of Corona, California; and her brother, Brian Slocum of Sacramento, California. Those wishing to contribute to a memorial for Ms. Castillo can make donations in her name to radiation oncology at Loma Linda University Cancer Center.

Terri Kunihiro**Dr. Terri Kunihiro**

Her friends have called **Terri Tsuyako Mitoma-Kunihiro**, DDS'86, super smart, super athletic, super nice, and super competitive. Born on January 8, 1960, in Sacramento, California, Dr. Kunihiro was a "ferocious competitor" in sports, music, and academics. After high school graduation at Sacramento Union Academy (1977), she studied at Pacific Union College then completed nursing studies at LLUSD in 1982, and entered LLUSD's dental class of '88. She would practice dentistry, 1988-1999, in Ontario, California. With the birth of her children, she soon became an active

supporter of Loma Linda Academy and its symphonic band.

Dr. Kunihiro pursued many overseas adventures with her husband Richard, DDS '86, sometimes inviting her parents and in-laws to join them. Three years ago the family toured the Holy Land; last year, just months before suffering a debilitating accident, she went on her "dream trip," exploring Argentina, Brazil, and Peru with close family and friends.

Mourning Dr. Kunihiro's death on June 8, 2016, in Redlands, California, are her husband Richard, DDS'86, of Loma Linda, California; her mother, Mary Mitoma, of Redlands; and her three children: Karissa (LLUSD class of '19) of Loma Linda; Kyle of Glendale, California; and Kallan of Loma Linda.

Phillip Dale Hanley**Dr. Phillip Hanley**

Born in Portland, Oregon, on August 21, 1936, **Philip "Dale" Hanley**, DDS'63, grew up in Eureka, California, where he met and married Callie Sue Houser. He pursued pre-dental studies at Walla Walla College and Pacific Union College before entering LLUSD. When he graduated in 1963, he had also just completed eight years of service in the United States navy reserves.

Upon dental graduation, Dr. Hanley established a dental office in Redding, California, where he practiced for 47 years until his retirement in 2010.

Active in his local dental society and at his church, Dr. Hanley was well-known in the community because of his outgoing nature. He loved dentistry and his patients, which made the decision to retire very difficult. Many patients recall receiving bills for extensive care with a balance of \$00.00 because Dr. Hanley knew they couldn't afford the care.

Dr. Hanley passed away August 1, 2016, in Redding, California. He is survived by his wife Sue of Redding; sister Joyce Furtado of Susanville, California; his son Michael (wife Debbie) of Redding and daughter Myrna of Napa, California; his five grand children, Brandon, April, Alysha, Ashley, and Andrea; and his 24/7 companion yellow lab—LEXI.

Carol Merritt**Ms. Carol Merritt**

Carol Merritt, BS'63 (DH) was born September 21, 1941, in Fort Collins, Colorado. After attending Pacific Union College, Angwin, California, she joined LLUSD's dental hygiene class of 1963.

Two years later she married James Murphy; the couple welcomed two daughters into their home before James' untimely death in 1976. Marrying Gene Merritt in 1979, Ms. Merritt achieved a blended family with his three children, a happy arrangement until his death in 2013.

With indomitable spirit, Ms. Merritt pursued gardening, flower arranging, decorating, family, friends, travel and a variety of sports—scuba diving, tennis, skiing (water and snow), parasailing, and mountain biking. She was also an active member of her church's Women's Ministries team.

She made her home in a series of Oregon sites—Salem, Eugene, Bend, and Oregon City. In California she lived in Glendale, Turlock, Chico, Redding, and Simi Valley. Wherever she lived, she provided a warm, friendly home.

Predeceased by her stepdaughter Cheryl in 2010, Ms. Merritt left at her death in Simi Valley on December 30, 2016, these children: Krishawn Murphy, Erin Murphy, Bert Merritt, Leonard Merritt, and nine grand children.

Donations in Ms. Merritt's honor can be made to the Violet Bates Scholarship Endowment Fund #P1570, at Loma Linda University Health, Office of Philanthropy for Dental Hygiene Scholarships.

FOND FAREWELLS

Newel Nyeland**Dr. Newel Nyeland**

Born on September 23, 1978, in San Francisco, California, **Newel Nyeland**, DDS'12, attended Berkeley and Edison high schools. He received a bachelor's degree in art and computer science at UC Santa Cruz, then graduated at SAE Creative Media Institute and worked in the film industry, editing movies, before pursuing a dental career.

Upon dental school graduation, Dr. Newel practiced dentistry in Colorado and California, most recently at Dientes Community Dental Care, a non-profit serving the neediest populations in Santa Cruz and Watsonville, including

the homeless, undocumented, uninsured, developmentally disabled, victims of domestic violence, and children. He also continued artistic expression in rapping, writing, and producing music, and creating visual art in various media. As Howie Loot\$, the original 2nd Rate Hustler, he gained a global audience.

When he died September 29, 2016, in Santa Cruz, Dr. Newel's survivors included his sweetheart Charlene Varela; former spouses, Tracy Edwards and Jacci Peachey; father Spencer Newel, mother Gail Newel, stepmother Kelli Beingesser, and siblings Conlin Newel and Madeline Newel. The family has suggested that memorial gifts be directed to Dientes Community Dental Care in Santa Cruz.

Mark Rocha Jr.**Dr. Mark Rocha, Jr.**

Born in Norco, California, January 9, 1955, **Mark William Rocha Jr.**, DDS'87, achieved a spotlight while still in grade school. He appeared on the Art Linkletter Show representing his school, Queen of Angels Catholic School in Riverside, California. He completed predoctoral studies at Riverside City College and University of California Riverside before entering LLUSD's class of '87. For several years after graduation he participated in the School of Dentistry's admissions workshop for Minorities in Dentistry. Practicing initially in Anza, California, he soon

established dual practices in San Bernardino and Indio, California.

Known for his charity work locally and abroad, Dr. Rocha used his skills to aid the needy in the jungles of Mexico, and those devastated by a great tsunami in India. His vigorous recreational activities included riding, racing and building motorcycles as well as tennis, bicycling, and auto racing.

Surrounded by loved ones, Dr. Rocha died May 24, 2016, in Desert Regional Hospital, Palm Springs, California. His survivors include his wife Carmen of Banning, California; his father, Mark Rocha of Riverside; his brothers—Thomas (wife Kim) of Bloomington, California; and David (wife Kimberly) of Santa Monica—and his sister Nancy of Riverside.

Brenda Reimche-Vu**Dr. Brenda Reimche-Vu**

Brenda Reimche-Vu, SD'96, spent most of her life not far from Walla Walla, Washington, her birth place on August 23, 1970. She completed predoctoral studies at Walla Walla College in 1992.

After graduating with LLUSD's class of '96, Dr. Reimche-Vu and her husband, David Vu, DDS'95, established their dental practices in Goldendale, Washington. There Dr. Brenda helped manage the office while doing surgeries and removable dentures. She was well-loved by her patients.

At home she enjoyed sewing, baking bread, music, and many other family projects, but especially gardening. An energetic gardener, she pitted her gardening skills against the deer and ground squirrels, though the squirrels and deer usually won in the end.

The mother of eight children, Dr. Reimche-Vu was dedicated to her family, devoting considerable time to be with her children, whom she home schooled.

Shed passed away in Tijuana, Mexico, on October 2, 2014, after an 18-month battle with cancer. She left to mourn her husband David Vu and eight children, ages 19 months to 17 years, at the time of her death—Nathan, Micah, Hannah, Havilah, Sarah, Adam, Isaiah, and Elijah—all of Goldendale.

Willis Schlenker**Dr. Willis Schlenker**

When he was born on March 28, 1926, in Goodrich, North Dakota, **Willis Schlenker**, DDS'57, MS'80, had an early introduction to hearty farm labor. Moving to Lodi, California, he worked in the grape vineyards. During World War II he served as a medic in France, then returned home to complete predoctoral studies at Pacific Union College.

Graduating in LLUSD's first dental class, Dr. Schlenker practiced first in Bishop, California. He joined LLUSD's orthodontic faculty (1979-2009), serving for 20 of those years as clinic director.

Applying his dental skills globally, Dr. Schlenker performed mission dentistry in Chili, Ecuador, the Philippines, Guatemala, and at various sites in Africa.

During yard work on August 1, 2016, Dr. Schlenker suffered cardiac arrest and died the next day. Family members mourning his death include his wife of 31 years, Doyleen Schlenker of Loma Linda; his daughter Cynthia Schlenker (husband Jan Soltys) of Groveland, California; his sons—Bradley Schlenker of Lucerne, California, and Richard Schlenker (wife Kathy) of Lodi—stepdaughter Lavaun Shattuck of Yucaipa, California; two stepsons—Benton Anderson of Idaho, and Barton (wife Jenelle) Anderson of Pasadena, California—as well as three grandchildren, three step grandchildren, and two great grandchildren.

FOND FAREWELLS

Charles Sturgeon II*Dr. Charles Sturgeon*

Born in Glendale, California, on February 17, 1929, **Charles Sturgeon II**, DDS'59, attended an array of schools—La Sierra University, California; Atlantic Union College, Massachusetts; Walla Walla College, Washington, and University of Southern California. As an x-ray technician during a two-year military service at Fort Pickett, Virginia, Dr. Sturgeon heard advice from his supervising physician: "You should apply to dental school."

Thus prompted, when his military service ended, Dr. Sturgeon entered LLUSD's class of '59. Upon graduation he established a 35-year dental practice in Canoga Park, California. For several years he dedicated his Mondays to teaching restorative dentistry at LLUSD (September 1960 to February 1969).

In 1994, after "trying to retire," Dr. Sturgeon found considerable satisfaction providing dental care for nursing home patients and supervising dentistry in a Stockton clinic dedicated to dental services for low income patients.

Predeceasing his wife Carolyn of 64 years, who died October 7, 2016, Dr. Sturgeon died June 5, 2016, in San Luis Obispo, leaving to mourn his death two sons—Charles III, LLUSMD'82 (wife Stephanie, LLUSN'80) of Atascadero, California; and David, DDS'87 (wife Julia, LLUSD'89) of Malibu—a daughter, Janyce Fletcher (LLUSN'82; MS, NP, UCLA, 1990) of Sutter Creek, California; and six grandchildren.

Darlene Vitelle*Darlene Vitelle*

Arriving in Fort Morgan, Colorado, on August 31, 1940, **Darlene Vitelle**, BS'63 (DH) would head for Pacific Union College, Angwin, California, to pursue pre-dental hygiene studies. After completing dental hygiene at LLUSD with the class of '63, Ms. Vitelle practiced dental hygiene in Victorville, California.

Her marriage to Duane Vitelle, DDS'61, in 1978 brought together her son and his four daughters, who were raised in the Vitelle family home in Upland, California. A cancer survivor, Ms. Vitelle actively pursued gardening, trips to Europe, and involvement in

Upland's Assistance League.

Mourning her November 16, 2016, death in Apple Valley, California, are Ms. Vitelle's husband, Duane (SD'61), and the children of the couple: her son Robert John Bray (wife Betty) of Bend, Oregon; Dr. Vitelle's daughters—Judy (husband Scott) Byington of Bend, Oregon, Cindy (husband Roy) Day of Upland, Pamela (husband Brad) Byington of Victorville, California, and Patty (husband Jeff) Miller of Tahoe, California—ten grandchildren, and ten great-grandchildren.

Dean Thomas*Dr. Dean Thomas*

A Northwesterner by birth (Salem, Oregon, December 3, 1927) **Dean Thomas**, DDS'58, pursued pre-dental studies at Walla Walla College, College Place, Washington, before entering LLUSD's class of 1958. He returned to the northwest (Spokane, Washington) to establish a practice, where he served his patients for 37 years. He also was involved in teaching oral pathology at Spokane Community College, and pursued advanced dental credentials while practicing.

Dr. Thomas was a man of diverse interests; he was supportive of his local church and church school. He loved boating, cars, and the ocean. With his patients he earned a reputation for being entertaining. "We didn't know we were getting our teeth fixed when we sat in his dental chair," they would say.

Soon after retirement, Dr. Thomas moved to Otter Rock, Oregon (1999). He died July 6, 2016, in Lincoln City, Oregon. His survivors include his wife of 32 years, Robyn of Otter Rock, Oregon; the mother of his children, Orpha Dempsey of Portland, Oregon; his son Jeff (wife Robin) of Portland, Oregon; and his daughter Candace Spitzer (significant other Kyle Patterson), of Spokane, Washington.

David Warner*Dr. David Warner*

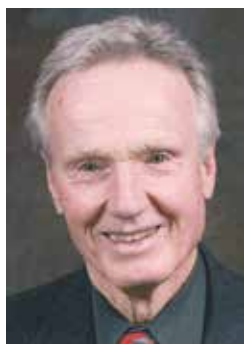
David "Doc" Francis Warner, SD'77, became certified in medical technology at Madison College, Madison, Tennessee, and received a bachelor's degree at Walla Walla College, College Place, Washington, before entering dental school.

A member of LLUSD's class of '77, Dr. Warner chose to return to Canada to establish a dental practice in Sylvan Lake, Alberta. His friends and patients said he blessed them "with love and guidance."

At his death in Red Deer, Alberta, Canada, on September 12, 2016, Dr. Warner's survivors included his wife, Ida, of Sylvan Lake; his children—Debbie (husband Stan) Bell of Sylvan Lake, Alberta; Diane (husband Randall) Reiman, of Peoria, Illinois; Dennis (wife Tanya) Warner of Wainham, Alberta; David (wife Dorothy) Warner of St. Albert, Alberta—14 grandchildren, and eight great-grandchildren.

Donations in Dr. Warner's memory will be gratefully accepted at Sylvan Meadows Adventist School.

FOND FAREWELLS

Gene Wilson*Dr. Gene Wilson*

Granville Gene Wilson, SD'61, MS'84, bore a name that became almost synonymous with Monument Valley dental services.

Born June 10, 1930, in Sacramento, California, he spent two years in the U.S. Army before completing pre dental studies at Pacific Union College. Upon graduation, Dr. Wilson established a dental practice in Fort Bragg, California.

He interrupted his practice there to direct LLUSD's extension school in Monument Valley—a "temporary" assignment that lasted 46 years. There he and his wife Blanche, who had been

on the reservation as a child when her father, Audrey Nicola, DDS, had practiced there, raised their five children. Scores of LLUSD dental students processed through the dental clinic under Dr. Wilson, who was appointed professor of orthodontics after he completed an orthodontics master's degree in 1984.

Notably active, Dr. Wilson used his air pilot skills to transport students to remote clinics on the reservation. He also pursued gardening and running, participating in 15 running marathons.

Facing an eight-week cancer bout with calm, he died peacefully at home January 16, 2017. Mourning Dr. Wilson's death are wife of 60 years, Blanche, of Loma Linda, California; his children—Della (husband Gary) Davenport, of Battle Creek, Michigan; Diane (husband Kent) Johnson of Waynesville, North Carolina; Rodney (wife Kella) of Flagstaff, Arizona; Barry (wife Metylene) of Colton, California; and Daniel (wife Christine) of Yucaipa, California—12 grandchildren, and six great-grandchildren.

*Dr. Donald Young**Donald Young*

After 50 years of dental practice, **Donald Alvin Young**, DDS'62, retired in 2012, having cared in many cases for three generations in Red Bluff, California.

Born in Lancaster, Ohio, March 13, 1936, Dr. Young attended Rogue River and Newbury Park academies and Walla Walla University before completing pre dental studies at Southern Oregon University, Ashland, Oregon, in 1958. After receiving his DDS in 1962, he practiced four years in Revelstoke, B.C., Canada, then moved to Red Bluff. His office there, providing vast views of the

Sacramento River, was featured in a national dental magazine for its spectacular view and beautiful interior.

An enthusiastic outdoorsman, Dr. Young pursued skiing, hiking, golfing, jogging, quading, tennis, and racquetball. Active also in his church, local dental society, and Kiwanis Club, Dr. Young made his last mission trip to Nairobi, Kenya, in 2012; there his team provided dental care for hundreds of patients.

Predeceased by his wife Sharon, Dr. Young's August 5, 2016, death is mourned by his wife of 11 years, Denise of Redding, California; his son Todd, DDS'00 (wife Ellen, DH'85) of Yreka, California; his daughter Wendy Marto of Yreka, and five grandchildren. Memorial gifts can be sent to Madrone Hospice House, Yreka, to add bird feeders outside patients' windows.

CDA Anaheim LLUSD Alumni Reception

Join us!

Friday, May 5, 5:00 - 7:30 pm
Open-house Style

McCormick & Schmicks Grille
321 West Katella Avenue
Anaheim, CA 92802

All LLUSD alumni are welcome!
Come visit with Dean Ronald Dailey,
your classmates, and friends.

CALLING ALL ALUMNI!



Errata: In the summer/autumn 2015 *Articulator*, page 27, six class of 2015 dental students who graduated and were commissioned as officers in the armed services were pictured with the wrong rank. Their names, service, and corrected rank follow here with our apology: Taylor Bingham, DDS'15, Air Force, Captain; Kristofer Ceredon, DDS'15, Navy, Lieutenant; Yu-Sheng "David" Chen, DDS'15, Army, Captain; Lucas Kim, DDS'15, Air Force, Captain; Andrew Korcek, DDS'15, Navy, Lieutenant; Anthony Marin, DDS'15, Navy, Lieutenant.

And a photo in the Winter/spring 2016 *Articulator* that included Gene Wilson, DDS'61, MS'84, captioned him incorrectly as Quint Nicola, DDS'69. Our sincere apologies to both gentlemen.