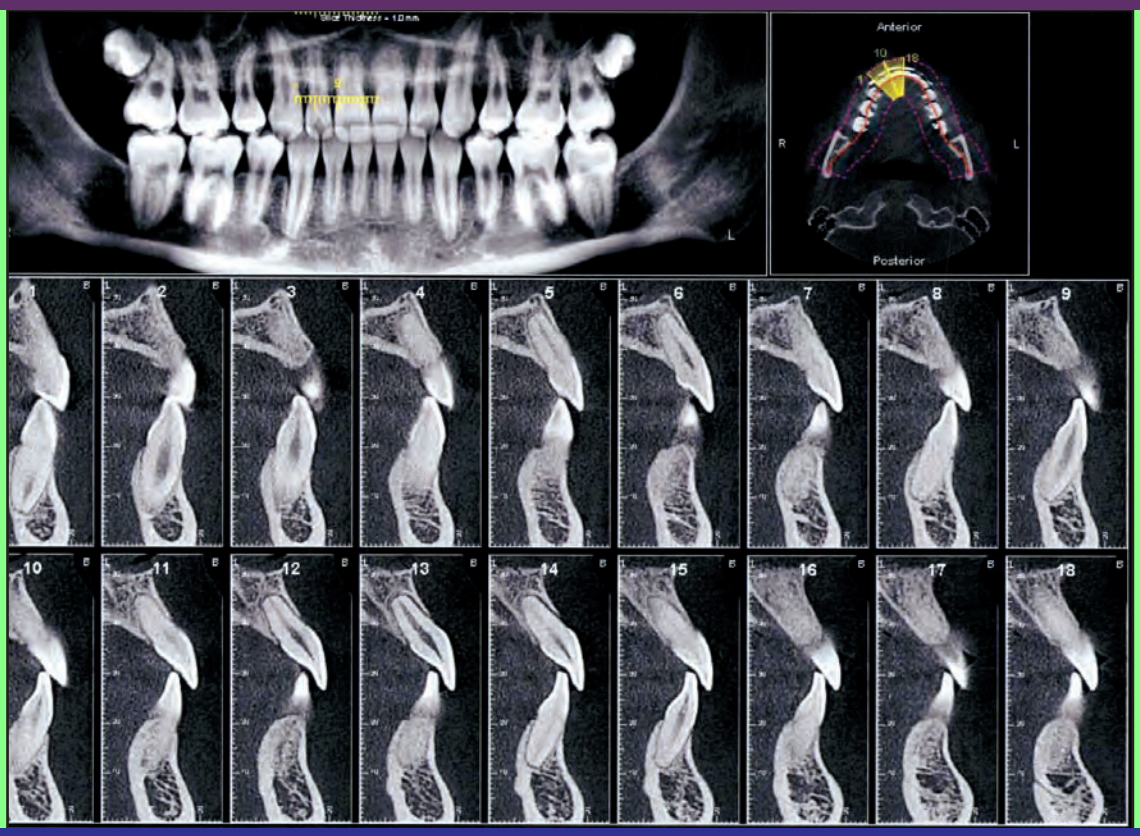
VOLUME 84 | NO. 1

PCSO Bulletin

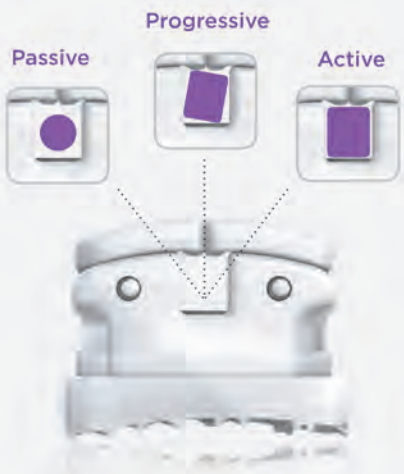
PACIFIC COAST SOCIETY OF ORTHODONTISTS



SPRING 2012

CLICK-IT® PUTS YOU IN TOTAL CONTROL

The aesthetic, self-ligating bracket system that delivers non-stop performance in every phase.



Total Control, Every Phase

Click-It is built for total control in every phase with a unique, four-walled design. Your patients can be confident treatment will go as planned.

The Two-Minute Wire Change

Opens easily with forceps that apply no unilateral force. Closes with light, fingertip pressure. Less chair time for you and less inconvenience for your patients.

Breakthrough Aesthetic Design

Complete ceramic face without any visible metal parts or clips. With exclusive Personalized Color-Matching Technology®, you can assure patients they'll look great during and after treatment.

CLICK-IT®

AESTHETIC SELF-LIGATING BRACKETS

Learn how Click-It adjusts to the archwire, matching your treatment objectives every time. Call 800-348-8856 or visit ClickIt.TPOrtho.com.

TP Orthodontics, Inc.

Innovators of Personalized Color-Matching Technology®

Facebook.com/TPOrtho
YouTube.com/TPOrtho

AAOF
PLATINUM CORPORATE PARTNER

Published quarterly by and for the
Pacific Coast Society of Orthodontists

USPS 114-950 ISSN 0191-7951

EDITOR
Gerald Nelson, DDS
279 Vernon St., Apt. 2
Oakland, CA 94619
(510) 530-0744

NORTHERN REGION EDITORS
Bruce P. Hawley, DDS, MSD
4215 -198th St. S.W., #204
Lynnwood, WA 98036-6738

Charity H. Siu, DMD, FRCD (C)
1807-805 W Broadway
Vancouver, BC V5Z 1K1 Canada

CENTRAL REGION EDITOR
Dr. Shahram Nabipour
2295 Francisco St #105
San Francisco CA 94123

SOUTHERN REGION EDITOR
Douglas Hom, DDS
1245 W Huntington Dr #200
Arcadia, CA 91007

PUBLICATION MANAGER
Anne Evers
2856 Diamond Street
San Francisco, CA 94131
(415) 333-4785 phone/fax

ADVERTISING MANAGER
Kathy Richardson/AAOSI
401 N. Lindbergh Blvd.
St. Louis, MO 63141
(314) 292-6547 phone
(314) 997-1745 fax

PCSO EXECUTIVE DIRECTOR
Jill Nowak, AAOSI

CONTRIBUTIONS FOR PUBLICATION
Address letters and/or editorial copy to the Editor. The Pacific Coast Society of Orthodontists does not necessarily approve of nor endorse the information or opinions presented in the PCSO *Bulletin*.

ADVERTISEMENTS
The PCSO *Bulletin* is published in March, June, September and December. Dates vary with meetings. Rates sent upon request. Acceptance of advertising contingent upon approval. Contact the Advertising Manager.

SUBSCRIPTIONS
The *PCSO Bulletin* (ISSN 0191-7951) is published quarterly by the Pacific Coast Society of Orthodontists, 401 N. Lindbergh Blvd. St. Louis, MO 63141

Annual subscriptions–
Members $22.00; Nonmembers $35.00.
Outside U.S./Canada: $45.00

PREPARATION
Art Director–
Sharon Skolnick-Bagnoli

PRINTING
Allen Press

POSTMASTER
Send address changes to:
PCSO *Bulletin*
401 N. Lindbergh Blvd.
St. Louis, MO 63141

Periodicals postage paid at St. Louis, MO and at additional mailing offices.

PCSO Bulletin

NEWS AND REVIEWS OF THE PACIFIC COAST SOCIETY OF ORTHODONTISTS

Features

Departments

SPRING 2012

PCSO Delegation to the AAO

by Dr. Rob Merrill, PCSO President


Dr. Merrill

Spring brings the AAO Annual Session and the annual meetings of the AAO House of Delegates. It will be held in Honolulu, right here in the PCSO area. All one has to do to ascertain that PCSO is a desirable place for meetings is to look at the schedule of future AAO Annual Sessions and mid-winter meetings, many of which will be held within PCSO. We all already knew that—we chose to live here, after all—but it is satisfying to see that others recognize it as well.

The House of Delegates is the ultimate policymaking body of the AAO, and for many years PCSO has had the largest group of delegates to this body. The House of Delegates approves the AAO operating budget and oversees reserve fund policy and practice. It provides direction to the Board of Trustees through development of the AAO Strategic Plan and Critical Issues, which determine the allocation of AAO resources. In addition, the members of the HOD elect the officers of the AAO and approve all appointments to AAO Councils.

For many years, the PCSO has benefited from the insight of talented colleagues who have shared their time, energy and expertise to serve as chairs of our delegation. The position of chairman was held most recently by Dr. Gary Baughman, who was elected by the House of Delegates to be the next Speaker of the AAO House. By virtue of that position, he will sit on the AAO Board of Trustees. This year, he is shadowing the Speaker in preparation for his term.

PCSO has a tradition of excellence in delegation chairs, and this year is no exception. Dr. Norm Nagel (Thousand Oaks, CA) leads us as delegation chair. Norm has served in the California Dental Association, the American Dental Association and the California Association of Orthodontists, and is past president of PCSO. He has served on the board of AAO Services, Inc. and has been instrumental in bringing the soon-to-launch AAO Credit Union into existence. Norm brings a tremendous breadth and depth of experience to us, and we are fortunate that he has accepted the invitation to serve as our delegation chair.

Dr. Nagel and the delegation chairs from the other seven AAO constituents meet by conference call throughout the year to discuss issues that face the AAO and that will require action by the House of Delegates. This process helps to streamline the work of the House and allow more time for discussion and deliberation of the issues and less time spent in housekeeping and posturing. It allows much of that discussion to occur prior to the House, so that our time is used most effectively when we meet at the AAO.

The PCSO delegation is well respected within the AAO as a group of dedicated and thoughtful professionals, and the PCSO delegation represents a range of PCSO members. In addition to Dr. Nagel, this year's delegation members are:

Dr. Bob Varner, our Trustee to the AAO Board of Trustees, also participates with our delegation. Jill Nowak, our

DELEGATES

Ken Fischer	CA
Frank Beglin	NV
Bryan Hicks	BC, CAN
Ron Jawor	CA
Doug Klein	OR
Rob Merrill	WA
Gerald Nelson	CA
Erik TinHan	HI
Bryan Williams	WA
Lesley Williams	BC, CAN
Ron Wolk	AL

ALTERNATE DELEGATES

Alan Curtis	AZ
Chris Henry	AK
Lili Horton	HI
Howard Hunt	CA
Thomas Merrill	WA

PRESIDENT'S MESSAGE

talented executive director, helps us in the work of the delegation.

In order to be conversant in the issues to be discussed within the House, all delegates and alternates spend a lot of time preparing for this meeting. Our delegation meets in March, in conjunction with the PCSO board, to begin the process of preparation. All AAO members have the opportunity to participate in the process as well, because every resolution to be decided by the House goes to a Reference Committee, where any AAO member can offer his or her opinion or insight on it. Information on upcoming resolutions is typically published on the AAO Web site prior to the Annual Session.

As I mentioned in the last issue of the *Bulletin*, the year 2012 holds a special significance for PCSO because it marks 100 years since the Pacific Coast Society of Orthodontists was established. We hope that you will plan to join your fellow members in Monterey as we celebrate a century of orthodontic excellence, or, as expressed in our meeting theme, "A Century of Smiles."

In Monterey, we will host a centennial celebration that marks the first century of our organization and launches us into the next century of PCSO. Plan to join your colleagues in a program of education and entertainment, food and fun, sunsets and sea lions. The meeting will have something for the entire family, and will provide the opportunity to associate with friends while learning in that beautiful city by the sea. Feel free to bring your staff for what will be a memorable celebration.

We will join together to celebrate our shared past, present and future. Monterey welcomes PCSO and you October 5–7, 2012. A great post-meeting program is planned at Carmel Valley Ranch for those who want to extend their stay for a few extra credits of CE and some relaxing golf, hiking, yoga or spa treatments to complement the learning (http://www.carmelvalleyranch.com/index.php). I hope you will all make plans now to attend the Annual Session this year in Monterey as we celebrate A Century of Smiles for PCSO.

— Dr. Rob Merrill
East Wenatchee, WA
PCSO President

BITTERSWEET

Ms. Nowak

This time of year (January, as I write this) is always bittersweet. In a week or so, we will drop from our membership roster those members who have not renewed by paying their dues. Ironically, it is also a time of year when members who have let their memberships lapse often contact us to reinstate membership. Whether the discussion is regretful—as I learn why members have chosen not to renew, or uplifting—as I learn why they are reinstating, it is always a great opportunity to speak directly with PCSO members. Typically, these are not the members I have seen at PCSO meetings or have had an opportunity to work with over the past few years.

But I so wish to see them at a meeting—maybe they would see what I see there. The primary mission of PCSO is to provide quality education to its members and their staffs. Nowhere is this mission more evident than at the Annual Session, when lecturers come from around the world to share their knowledge with PCSO members. But the PCSO Annual Session is so much more than that.

The essence of the PCSO is the belief that when one member becomes a better orthodontist, the entire membership benefits, and conversely, that when the membership as a whole improves the quality of care, each member benefits, as do our patients. In a period of increasing challenges—a tough economy, new competition, information overload and rapidly changing technology—the PCSO Annual Session ventures to directly support members in their efforts to provide the highest level of care to their patients. In an atmosphere of professional collegiality, with lecturers and fellow attendees who share the same concerns, values and beliefs, members can address issues facing them as individuals, and in the profession as a whole. It is a place where members learn that they are not alone in their challenges; that they have friends who can help them to embrace the opportunities that challenges inevitably bring.

Please plan to attend the PCSO Annual Session in Monterey this October. Come to hear the fantastic lectures, come to support your profession and your professional society and, most of all, to re-engage, re-energize and re-ignite your passion for the orthodontic profession. I promise you, you will see many members there doing the same thing.

Jill Nowak
PCSO Executive Director
jnowak@aaortho.org

EDITORIAL

ACCREDITATION

Orthodontists in private practice have it easy! Those of us in academics must every seven years put up with an outside committee of our colleagues coming in and looking at every aspect of our clinical practices. At UCSF, we are presently going through the accreditation process, and it is both wonderful and extremely trying. We have repeatedly emerged very cleanly from this process, but not without enduring many challenges and meetings, and handling gigabytes of documents.

Let me ask, do you have to:

- Prove that you follow communicable disease regulations? That your sterilization procedures are completely in compliance?
- Prove that you follow all HIPPA regulations?
- Produce patient feedback surveys that support your contention of ethical, efficient, and humane service?
- Show alumni surveys that support your contention that you have graduated orthodontists who are competent?
- Prove that you know all aspects of the body of knowledge of orthodontic diagnosis, treatment planning, and treatment, and prove that you have transferred this knowledge?
- Show that you have been able to teach a crew of 29-year-olds who have never had a job how to run a small business?
- Prove that your organization can handle emergency situations in accordance with normal medical procedure?
- Show that your treatment outcomes are consistently good enough to serve as an example of excellent orthodontic care?
- Demonstrate your competence with interdisciplinary, craniofacial, or orthognathic cases?

The wonderful thing about the accreditation process by the ADA Committee on Dental Accreditation (CODA) is that it makes the entire UCSF team look at our protocols, processes, habits, and documents with a fresh eye. I was in private practice for over 40 years. For me, it was an advantage to have partners; they were a form of accreditation, since any protocol had to be subjected to scrutiny. As a solo practitioner, the burden is to constantly show yourself you are doing the very best possible for each and every patient.

– Gerald Nelson, DDS,
PCSO Bulletin *Editor*

COMPONENT REPORTS

California

California Association of Orthodontists (CAO)

The CAO Board of Directors recently voted to launch an extensive public awareness campaign intended to focus on issues that specifically affect California orthodontists. The initiative's goal is to improve our members' practices through statewide marketing and branding efforts. The campaign is being funded solely from CAO's operating budget with NO dues increase or assessments planned at this time and will be conducted independently by CAO with no ties to the public awareness campaign that is currently underway at the AAO level.

The CAO Board recognized that practice revenues have suffered a significant decline in production and know that it is incumbent upon our organization and profession to provide advocacy by educating the general public on seeking treatment from those most professionally qualified to treat orthodontic cases and by providing robust marketing tools and templates designed to attract new patients. CAO has contracted with SonnysideUP!, an independent branding and marketing firm with healthcare-related expertise to oversee the campaign.

The existing CAO logo that has been in place for some time is being redesigned to reflect strength, stability and authority, helping to position CAO as the gold standard and trusted authority and advocate for California orthodontists and the public. A tag line will accompany the logo to help project exactly what CAO stands for and to complete the "brand."

You will be seeing much more about this initiative in future eblasts, articles and definitely on the CAO Web site. Be sure to visit the site at www.caortho.org.

—Thomas Bales
CAO President

Washington

The Washington State Society of Orthodontists had a great turnout for our joint PCSO/WSSO Northern Regional Meeting, on Friday, February 24, 2012 at the Seattle Sheraton Hotel. Ms. LeeAnn Peniche presented practice management issues to both the doctors and staff for the morning session, and continued her presentation to the staff in the afternoon session. Dr. James Mah presented information on 3-D imaging to the doctors for their afternoon session.

There has been concern lately in Washington State regarding insurance issues. Insurance companies can reduce their reimbursement rates or total orthodontic case fees and there really is no legal action that can be taken to prevent this. Dentists are not legally allowed to organize as a group to encourage other dentists to not sign up as preferred providers.

The Dental Practitioner Bill Passed the Senate Health Committee in Washington State recently. This means that the Senate version of the "dental practitioner" legislation moves out of committee and can potentially be considered by the full Senate. The Washington State Dental Association continues to oppose SB 6126 because it increases patient risk, and is not an economically viable model. With the help of WSDA's grassroots dentists, Washington dentists will continue to fight against this legislation.

—Jackie Bunce
Secretary-Treasurer
Washington State Society of Orthodontists

PCSO to Name AAO Trustee in 2012

PCSO is currently accepting Letters of Interest from potential candidates for the position of AAO Trustee. Dr. Robert Varner will complete his term as trustee in May, 2013 when he ascends to the position of AAO Secretary-Treasurer. The new trustee will be appointed for a two-year term beginning May, 2013. The ideal candidate will plan to serve as trustee for four two-year terms as well as to serve as an AAO officer for four years immediately after his/her term as trustee.

Duties of an AAO Trustee include:

- Attend all meetings of the Board of Trustees—three meetings per year (typically Friday & Saturday in St. Louis, MO), pre- and post-Annual Session meetings and a multi-day board planning session.
- Attend conference calls of the Board of Trustees.
- Act as liaison to an AAO Council or Committee, which includes attending meetings and conference calls.
- Attend PCSO Board and Executive Committee meetings and conference calls.
- Serve as member of the PCSO Delegation to the AAO House of Delegates.
- Represent the AAO and its members at all professional functions and meetings and consider all AAO members in all positions taken as a Trustee.

Note that AAO Trustees receive an annual honorarium for their service as well as reimbursement of expenses incurred in fulfilling their duties.

The PCSO Board of Directors has constituted a Review Committee to interview candidates and report to the Board. The committee will begin their work this summer and selected candidates will interview with the full Board of Directors in September, 2012.

Qualified candidates must be an AAO and PCSO Active Member in good standing and must remain an Active member throughout his/her term of service if named Trustee.

Interested candidates should send a current CV and a Letter of Interest to Lauri Repp by May 15, 2012, at lrepp@aaortho.org. Questions regarding the position of Trustee or the selection process may be directed to Jill Nowak at jnowak@aaortho.org or by phone at 888-292-3425.

RESOURCES

AAO

Take a look at the short video on the AAO Web site to see how AAO Members11 meet to hear from national congressmen and senators, and discuss ways to influence legislation at the 2012 Political Advocacy Conference in DC. http://vimeopro.com/aaoinfo/american-association-of-orthodontists/video/35600982

ADA

The ADA has just released the second in a series of papers that examines the challenges of and solutions for bringing good oral health to millions of Americans who currently do not receive adequate dental care. Download the paper at http://www.ada.org/sections/advocacy/pdfs/breaking-down-barriers.pdf

PCSO

The PCSO has invited orthodontic study clubs across the constituency to view internet broadcasts of the PCSO Regional meetings, February 3 in San Mateo CA, 8 a.m. to 1 p.m; February 24 in Seattle WA 1 p.m. to 4 p.m; and March 2 in Los Angeles, CA 8 a.m. to 1 p.m. This test program precedes a plan to make these broadcasts available to all members.

TRUSTEE'S REPORT TO PCSO

NOVEMBER 2011

By Dr. Robert Varner, AAO Trustee

The following is a report of discussions and actions taken at the recent meeting of the Board of Trustees (BOT):

TRENDS IN ORTHODONTICS

There seems to be a trend, particularly among our younger members, to primarily practice orthodontics but also to practice some general or pediatric dentistry in order to make ends meet. This trend can be attributed, in part, to the state of the economy and the challenge in finding positions. The BOT has assigned a committee to study the issue and bring recommendations to its February meeting.

In Massachusetts, Delta Dental is restricting sterilization of hand instruments—such as pliers—to autoclave sterilization, with each plier required to be bagged. They have specifically stated that the use of dry heat sterilization is not adequate. The BOT has requested that Council of Scientific Affairs (COSA) study whether dry sterilization is satisfactory and report back in February.

ADA SPECIALTY NEWSLETTER

The ADA has started to publish electronic newsletters educating its members on various specialties, including orthodontics. At the ADA's request, its BOT has agreed to participate in the development of the newsletter and to make it available to our members on the AAO member Web site. Dr. Vince Kokich, Dr. Brent Larson and Dr. Nahid Maleki were appointed to work with the ADA on the orthodontic publication, with Dr. Kokich serving as chair. This action is consistent with AAO's critical issue dealing with general dental and healthcare relationships.

TASK FORCE ON RELATIONSHIPS WITH GENERAL DENTISTS

Building relationships with general dentists is one of AAO's critical issues. A task force was appointed two years ago and has made some progress. As a way of moving things along, the AAO offered to conduct focus groups with the Academy of General Dentistry (AGD) to discuss referral patterns and education, among other things. The AAO is waiting for the AGD's response.

Dr. Varner

MEMBERSHIP NEEDS ASSESSMENT SURVEY

The BOT received the results of the recent membership needs assessment survey. The results have been assigned to the AAO survey committee for further study. The committee will choose the most relevant information and ask various councils and committees to study it further for potential recommendations. As with the AAO economic survey, we will be sharing some of the results with the membership via the AAO *Bulletin*.

ACCESS TO CARE

The AAO endorses the pilot program Donated Orthodontic Services (DOS), which is expanding beyond its initial five states. Many similar programs provide orthodontic care to children in need. The BOT believes it would be beneficial to look at potential ways for those organizations to collaborate.

AAO AWARDS

The BOT approved changes to the Hellman, Sicher and Graber awards, including raising the financial awards. Interested candidates may find the 2013 award applications at www.aaoinfo.org in July.

BUILDING RENOVATION

The AAO Central Office building is in need of substantial renovations. The BOT reviewed bids from construction companies in August. After a long discussion, the BOT

decided to engage an independent consultant to review the bids for cost effectiveness and loan options. The consultant's report was accepted at the November BOT meeting. The BOT will proceed with the contract phase to confirm actual pricing. A formal presentation was provided to the delegate chairs during the December conference call.

STUDENT DEBT

Along with staff, the Council on Orthodontic Education (COE) will gather information from other organizations as to the issue of student debt. Within the tremendous amount of available data on student debt, the BOT has asked that COE focus on how debt may affect practice opportunities and AAO membership. Additionally, COE will be asked to determine which issues may be within the AAO's sphere of influence.

AAO CREDIT UNION

The AAO BOT accepted nominations for the AAO Credit Union Board of Directors and other appointed positions.

The credit union is in the process of completing all necessary documents in order to be open for business by the end of March 2012. Please note that to date, over $6 million has been committed by individual members and AAO entities.

AAO ORTHODONTIC SUPPLIERS COMMITTEE

The AAO meets with the heads of the Orthodontic Suppliers Committee each November. We discuss issues of concern to our members. This year, we presented an update on the consumer awareness program (CAP) and AAO's Donated Orthodontic Services program, and reviewed other issues that were on their agenda. An issue that we have discussed with the constituent organizations in the past is their concern with attendance at constituent meetings. While the constituents have made several enhancements to their meetings (meals in the exhibits, joint meetings, etc.), representatives of the Orthodontic Suppliers wish to continue the discussion. Therefore, two representatives from the group will be invited to the AAO Constituent EDs' meeting being held in Hawaii.

FOUNDATION AWARDS

2012 Awards Program

By the deadline of December 15, 2011, 37 proposals were received for the 2012 Awards Program, requesting an aggregate of $775,000. These included 20 Orthodontic Faculty Development Fellowship Award proposals, 15 Biomedical Research Award proposals, and two Educational Innovation Award proposals. Of the total submissions, 12 were from the PCSO.
Particulars for the 2012 AAO Foundation Awards Program, as previously announced, were as follows:

AGGREGATE OF A MAXIMUM OF $500,000 Offerings include:

Education Innovation Award Planning Grant – maximum of $50,000

The specialty's concerns with respect to craniofacial anomalies and special care patients are to be included within this CFP.

This CFP shall be in the form of a Planning Grant, similar to that which was done for the Collections Project.

Support of junior faculty – $450,000
Orthodontic Faculty Development Fellowship Award

- Maximum of $15,000 for any one OFDFA
- One-year option only (i.e., the three-year option not offered for 2012)

Proposals are invited that address the specialty's concerns with respect to craniofacial anomalies and special care patients.

Biomedical Research Awards

- Maximum of $25,000 for any one BRA

To accommodate mid-career academics as well as junior faculty, the eligibility period has been increased from a maximum of 10 years in full-time academics to 14 years in full-time academics.

Proposals are invited that address the specialty's concerns with respect to craniofacial anomalies and special care patients.

Funding also continues for Stage Two of the AAO Foundation Collections Project (www.aaoflegacycollection.org), an unprecedented undertaking whose mission is to preserve decades-old historic (but deteriorating) x-rays and other records from children and adolescents who did not receive orthodontic treatment.

AWARDS PROGRAM GOALS, OUTCOMES AND ACCOMPLISHMENTS

THE GOALS OF THE FOUNDATION'S AWARDS PROGRAM

- The AAOF's mission is "to advance the orthodontic specialty by supporting education and research."
- Foundation funding is designed to ensure the future viability of the specialty by investing in the next generation of educators and researchers.

AWARDS OUTCOMES TO DATE

Since 1994, the AAO Foundation Awards Program has provided $8.2 million in funding, primarily in support of junior faculty, including:

- 148 Fellowship Awards
- 148 Research Awards
- Over 1,000 Gifts in Support of orthodontic education

Support for junior faculty has resulted in:

- Publications – Over 100 articles and abstracts have been published, most in journals within orthodontics, but many in journals outside the specialty and the profession.
- Lectures – Scores of lectures have been presented at dental, orthodontic and other scientific meetings.
- Professional advancement – To date at the 70 graduate orthodontic residency programs in the U.S. and Canada there are:
  - 28 department chairs and/or program directors funded while junior faculty (up from a previously announced 24).
  - Numerous tenured, associate and full professor positions
  - 12 NIH funding recipients (an increase from the previously announced nine).
- 80% of junior faculty supported by the AAOF remain in full-time academics after five years.
- On the AAOF Web site, there are final reports from some 250 peer-reviewed, funded proposals.

LEGACY 300 CAMPAIGN

In late 2010, the AAOF launched Legacy 300, a fundraising campaign for the AAOF Craniofacial Growth Legacy Collection. The Board is pleased to report that this campaign recently met its $1.5 million goal more than a month ahead of an ambitious self-imposed deadline. Those within the PCSO led the way in support of this important project, accounting for $400,000 of the total amount pledged. PCSO support came from the following orthodontists, orthodontic residents, and alumni associations, who pledged in this chronological order:

UCSF Alumni and Residents

Sara Asghavi
Emil Bailey
James Chen
Krista Hirasuna
Nga Hoang
Jeffrey Nichelini
Ken Shanahan
Yoshi Shen
Beau Ulrich
William Yao

UOP Alumni Association

Michelle Bittner Eberle
Kiri Herchold
James Galea
Sarah Chung
Mihee Hong
Katherine Kieu
Courtney Ray
Marta Parisek
Justin Hannon
David Lee
Justin Cooper
Stephanie Hannon
Brian Dugoni
Tom Bales
Shelly Baumrind
W. Ronald Redmond
Donald Ray Montano
Robert Boyd
Thomas Chin
Wanda Claro
Anthony Cucalon
Kelly Giannetti
Andrew Harner
Paul Kasrovi
Robert Meister
Michael Ricupito
Todd Walkow
Susan Zand
Jacqueline Bunce
Robert Merrill
Norm Nagel
Kamrin Olfert
Brian Hicks
Robert Varner
Jay Allen Schofield
Kathleen J. Nuckles
Arthur Dugoni
Glenn Sameshima
Harry Dougherty, Jr.
Paul Hoang
Bert D. Rouleau
Gary Baughman
Steve Alexander
Jennifer Lynn Egli
Reena Khullar
Peter Joohak Lee
Matt MacGinnis
Eric Kang Ting
Lesley Williams
Bryan J. Williams
Glenna M. Grykuliak
Arash Abolfazlian
Ji Hyun Ahn
Jeong Rae Cho
Nadim Guirguis
Ehsan Karimian
Victor Lee
Kenny Liu
Bertrand Rouleau

CONTINUED COMMITMENT TO THE SPECIALTY®

The choice is yours when it comes to making a Continued Commitment to the Specialty® in support of the AAO Foundation. You may:

- Make a restricted gift to the Foundation's endowment
- Make an unrestricted gift, which would allow the Foundation's Board of Directors the flexibility to use your support to fulfill the mission of the organization at their discretion.

Fulfillment options include:

- Pledging at a certain level, whether a new, first-time pledge or a pledge increase.
- Joining the Century Club by making an open-ended, ongoing commitment of a minimum of $100 per month, either by bank authorization or credit card
- Committing to include the AAOF in your estate plans and become a member of the Keystone Society

See the AAOF's Web site (www.aaofoundation.net/campaign) for more details about how you can make a Continued Commitment to the Specialty®.

FOR MORE INFORMATION

The AAO Foundation Web site may be reached either through the AAO Members Web site (www.AAOmembers.org) or directly at (www.aaofoundation.net).

If you should have any questions, please call Robert Hazel, AAO Foundation EVP, at (800) 424-2841, ext. 546 (rhazel@aaortho.org), or contact me at your convenience.

—Thomas Bales, PCSO Representative to the AAO Foundation Board of Directors

COUNCIL ON SCIENTIFIC AFFAIRS REPORT

The Council on Scientific Affairs (COSA) met via videoconference on January 6, 2012.

COSA reviewed 22 applications for the Hellman, Sicher, and Graber Awards. The winners will present their lectures during Annual Session. The following are the 2012 AAO Research Awards winners:

- Milo Hellman Research Award to Dr. Ashwini Joshi from the University of Michigan for research titled Temporomandibular IGF-1 Injections Enhance Mandibular Growth and Condylar Bone Deposition in Male Adolescent Sprague Dawley Rats
- Harry Sicher Research Award to Dr. Brienne Roloff-Chiang from the University of Washington for research titled The Effectiveness of Mi Paste Plus and Prevident® Fluoride Varnish for Treatment of White Spot Lesions: A Randomized Controlled Trial
- Thomas M. Graber Award of Special Merit to:
    - Dr. Jordan Lamberton from the University of Colorado for research titled Compound Topical Versus Injection in Perception of Pain During Miniscrew Implant Placement: A Randomized Clinical Trial
    - Dr. Alfonso Navarrete from the University of Washington for research titled Botulinum Neurotoxin Type A: Effects on Bite Force, Masticatory Function and Incisor Eruption in Rabbits
    - Dr. Neelambar Kaipatur from the University of Alberta for research titled Bone Burden of Bisphosphonates During Orthodontic Tooth Movement in a Rat Model
    - Dr. Jessica R. Lynch from the University of Connecticut for research titled Effect of Maxillary Incisor Retraction on the Labial and Palatal Alveolar Bone: A Case-Control Study Using CBCT

The 2013 Hellman, Sicher, Graber Award application will be available on March 15, 2012, on the AAO Web site. The deadline to apply for these awards is October 15, 2012.

COSA accepted 24 Oral Research applications, 442 E-Poster applications and 42 Table Clinic applications to be presented at the 2012 AAO Annual Session. There will be no hard copies of Posterboards displayed at Annual Session. E-Posters will be available for viewing during the Annual Session and for two months after Annual Session on the AAO Web site.

The BOT has asked COSA to monitor research on orthodontic appliances and processes that could potentially change the doctor/patient relationship through "direct-to-consumer" products for orthodontic treatment, for the potential impact on the well-being of the patient. COSA members will review this directive at their meetings.

COSA continues to be involved with evidence based orthodontic research. Article citations are being added to the evidence based orthodontic research Web site on a regular basis. The Web site is found on the AAO Web site.

COSA's next meeting is on Friday, May 4, 2012 prior to the start of the Annual Session. During the Annual Session, COSA members will be involved with judging the Charley Schultz Resident Scholar Award presentations, judging the Table Clinics and awarding the Joseph E. Johnson Table Clinic Award and moderating the Oral Research presentations.

COSA meets every January by videoconference. The next videoconference meeting is scheduled for January 4, 2013.

—Dr. Greg Huang, PCSO COSA Representative, Seattle, WA

Upcoming Meeting: The American Cleft Palate-Craniofacial Association

Mark your calendar for the 69th Annual Meeting April 17-21, 2012 at the Doubletree San Jose, San Jose, CA.

Program: Caring for the Patient with Cleft Lip and Palate

Primers for Orthodontists and Speech-Language Pathologists Saturday, April 21, 2012 www.acpa-cpf.org/primers

Symposium Co-Chairs: Janet K. Salomonson, MD, Cleft Palate Center, Saint John's Health Center, Santa Monica, Sandra Sulprizio, MSPA, Northern California Kaiser Craniofacial Team, Oakland, Karin Vargervik, DDS, University of California, San Francisco.

This symposium is designed for the orthodontist or speech-language pathologist who wishes to supplement his/her knowledge and skills pertaining to the treatment of patients with cleft lip and palate. The focus is on orthodontic and speech and language treatment in the broad context of an interactive coordinated team approach to care, with the goal of encouraging community orthodontists and speech-language pathologists to work with their local cleft/craniofacial teams. The primers will address important modifications in sequencing and timing of interventions that are unique and critical to patients with clefts and provide the community orthodontist and speech-language pathologist with the knowledge and confidence to treat these patients.

Hidden. Clear. Confidence.

The Choice For Aesthetics.

3M Unitek

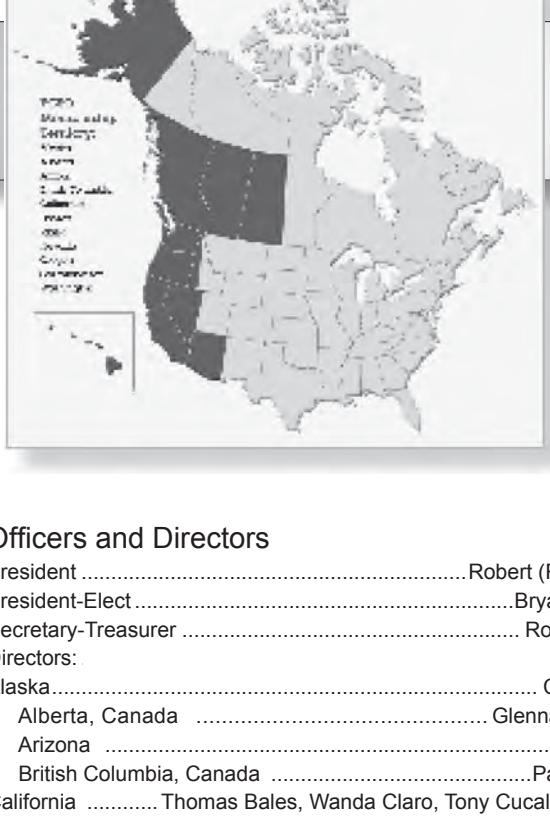
Incognito™ Appliance System

CLARITY™ | ADVANCED
advanced ceramic brackets

Patients' smiles mean the world to them. Their smile not only enhances their appearance, but boosts confidence. At 3M Unitek, it is our mission to help you create beautiful and lasting smiles through our ever growing suite of aesthetic products and systems. Orthodontists all over the globe choose and trust 3M Unitek products for their patients, not just because they are created with the highest quality materials and the smartest technologies, but because they work with great success. From our Clarity™ ADVANCED Ceramic Brackets to our highly popular Incognito™ Appliance System, we offer many choices to help you create your patient's perfect smile!

Call your 3M Unitek Sales Representative for more information at 800-423-4588.

PCSO at a glance



Component Societies

ALASKA
President: Robert Felker
Pres. Elect: Brian Hartman
Sec.-Treas.: Robert DeKay

ALBERTA
President: Cory Liss
Pres. Elect: Warren Cohen
Sec.-Treas.: Ivan Hucal

ARIZONA
President: Matthew Dunn
Pres. Elect: Charles Wait
Sec.-Treas.: Courtney Dunn

BRITISH COLUMBIA, CANADA
President: Ryan Bulat
Pres. Elect: Alexa Herbertson
Sec.-Treas.: Gina Ball

CALIFORNIA
President: Thomas Bales
Pres. Elect: Paul Kasrovi
Sec.-Treas.: Robert Meiser

HAWAII
President: Keith Vodzak
Secretary: Gerald Kim
Treasurer: Katherine Masaki

IDAHO
President: Neal Webster
Pres.-Elect: Daron Stevens
Sec.-Treas.: Scott Alexander

NEVADA
President: Frank Beglin
Pres.-Elect: Matthew Wirig
Sec.-Treas.: Frank Washburn

OREGON
President: Lloyd Noel
Pres. Elect: Gray Grieve
Sec-Treas.: Marie Lathrop

SASKATCHEWAN, CANADA
President: Mike Ziglo
Pres.-Elect: Kent Goldade
Sec.-Treas.: Kamrin Olfert

WASHINGTON
President:Thomas Merrill
Pres. Elect: Issac Fu
Sec.-Treas.: Jackie Bunce

Officers and Directors

President ..... Robert (Rob) Merrill
President-Elect ..... Bryan Williams
Secretary-Treasurer ..... Ronald Jawor
Directors:
Alaska ..... Chris Henry
Alberta, Canada ..... Glenna Grykuliak
Arizona ..... Alan Curtis
British Columbia, Canada ..... Paul Helgard
California ..... Thomas Bales, Wanda Claro, Tony Cucalon, Andrew Harner, Paul Kasrovi, Robert Meister, Gilbert Snow
Hawaii ..... Tammy Chang-Motooka
Idaho ..... Robert Agnetta
Nevada ..... Frank Beglin
Oregon ..... Jay Schofield
Saskatchewan, Canada ..... Kamrin Olfert
Washington ..... Jackie Bunce
AAO Trustee ..... Robert Varner
Past President ..... Lesley Williams
PCSO *Bulletin* Editor ..... Gerald Nelson
Electronic Communication Editor ..... Pramod Sinha
Executive Director ..... Jill Nowak

Committee Chairs

Budget & Finance ..... Ronald Jawor
Bylaws ..... Open
Communications ..... Gerald Nelson
Critical Issues Task Force ..... Bryan Williams
Orthodontic Educators ..... Joseph Caruso
Meetings: 2012 Annual Session General Chair ..... Bryan Williams
Annual Session Member Doctor Program Chair ..... Glenn Sameshima
Annual Session Staff Program Co-Chairs ..... Jahnavi Rao/Aaron Molen
Annual Session Local Arrangements Chair ..... Tim Auger
Regional Meetings Chairs:
Northern ..... Jackie Bunce
Central ..... Marcus Kai/Yan Kalika
Southern ..... Jahnavi Rao/Kevin Bakar
New and Younger Members ..... Aaron Molen
Nominating ..... Lesley Williams
Publications ..... Gerald Nelson, Editor
Northern Editors ..... Bruce Hawley, Charity Siu
Central Editors ..... Shahram Nabipour
Southern Editors ..... Douglas Hom
Reserves and Investment ..... Bryan Williams

AAO Council Members

Communications
Ken Fischer

Insurance
Barton Soper

Government Affairs
Greg Ogata

Membership
Ronald Wolk

New & Younger Members
Laura Owen-Nichols
Michael Meru, Resident Representative

Orthodontic Education
Edwin Yen

Orthodontic Health Care
Robert MacLean

Orthodontic Practice
Alan Curtis

Scientific Affairs
Greg Huang

Committee on Information Technology
Aaron Molen

AAOF Director

Thomas Bales

AAO Delegates

Norman Nagel, Chair

Frank Beglin
Ken Fischer
Bryan Hicks
Ronald Jawor
Doug Klein
Robert (Rob) Merrill
Gerald Nelson
Eric TinHan
Bryan Williams
Lesley Williams
Ronald Wolk

AAO Alternates

Alan Curtis
Chris Henry
Lili Horton
Howard Hunt
Tom Merrill

AAOPAC Representative

Howard Hunt

ABO Director

Steve Dugoni

CDABO Councilor

Michael Guess

LONG-TERM STABILITY STUDY OF AMERICAN BOARD OF ORTHODONTICS CASES

By Dr. Raymond M. Sugiyama, DDS, MS, FACD, FICD, Los Alamitos/Loma Linda University

Edited by Dr. Ib Nielsen

In this edition of Faculty Files*, we are fortunate to have Dr. Raymond Sugiyama present two cases with long-term followup. Dr. Sugiyama has been on the faculty at Loma Linda University for many years, and has shared his vast clinical experience with the residents in that program. These cases were part of a recent presentation to the Northern California component of the Angle Society; the long-term results were so impressive that we asked him to present this in "Faculty Files" for all to enjoy. Far too often, we hear that orthodontic treatment results are not stable in the long term, and some studies leave us with a less than favorable impression of the benefits of orthodontic treatment on a long-term basis. These examples are part of a series of cases that Dr. Sugiyama has treated—with excellent results—and they show great stability many years post-treatment. It is unique that Dr. Sugiyama is able to recall these patients more than 20 years post-treatment, and we appreciate his willingness to share his results with PCSO members.*

MY ACADEMIC BACKGROUND AND EDUCATION

I received my orthodontic education at Loma Linda University, graduating in 1968. Dr. Tom Zwemer started the orthodontic program in the early 1960s, and he was later succeeded by Drs. Howard Conley and Alden Chase. It was a two-year program and each student was required to do a research project leading to a Master's degree. The orthodontic department had a dedicated faculty who taught us excellent clinical skills and mentored us on our research projects. I would like to give you a little insight into how orthodontics was taught to the residents at Loma Linda at that time.

My orthodontic training took place from 1966 to 1968. All of my ABO cases were treated with the basic standard edgewise technique, consisting of full bands on all of the teeth (*Figure 1*).

We used the .022 slot and leveled and aligned with a multi-stranded wire called Twistflex. We bent all round stainless steel wires by hand, and used a turret to bend arch forms in square and rectangular stainless steel arch wires, which were then heat-treated (Figure 2). Finishing wires were bent similar to the beginning arch form to preserve muscular balance and to keep the roots in the middle of the basal bone. Proper torque was bent into the finishing wires, and all wires were tied in with ligature wires and cinched to tie-back loops. Prior to the placement of bands, brass wire was

used to separate the posterior teeth, and rubber bands to separate the anterior teeth. Bands were cemented on the posterior teeth using a band seating bite stick. Bands on the anterior teeth were tapped on with a mallet and band seating instrument. This was very uncomfortable for patients, who would grimace and shed tears during the procedure. This was one of the main disadvantages of the full-banded technique. The advantages of using full bands were that the marginal ridges were all at the same level, the roots were parallel, the central grooves of the bicuspids and molars were aligned properly and bands rarely came loose. The standard protocol for retention at Loma Linda was to use upper and lower Hawley retainers worn for 20 hours per day for one year, and for nights only thereafter. The Loma Linda faculty consisted of doctors who received their orthodontic training at the University of Illinois, Loyola University, Curriculum II at the University of California in San Francisco, and at Loma Linda University.

At Loma Linda, students were taught to overcorrect deep bite cases, open bite cases and teeth that were rotated. Although stability was one of the main treatment goals, along with improved esthetics and function, very few articles in the literature prior to 1968 described techniques to minimize relapse and maintain stability. One of the classic presentations on stability[1] was given by Robert H. W. Strang, M.D., D.D.S in 1947 to the Edward H. Angle Society in Santa Barbara, California. Dr. Strang emphasized the importance of maintaining muscular balance during orthodontic treatment to improve the chances for stability.
In 1975, I took the American Board of Orthodontics examination. At that time, candidates had to present one mixed dentition case, one surgical case, four extraction cases, four non-extraction cases and five other optional cases. Beginning and final records were required, along with full records at two years post-treatment. It was a challenging experience to document all of the cases, especially the two-year post-treatment records.

I made it a goal to do a follow-up study on as many of my ABO cases as possible, and to have them visit the office to have photos taken. Now, with help from the Internet, I have been able to track seven of my ABO cases. Two of the cases are presented in this article.

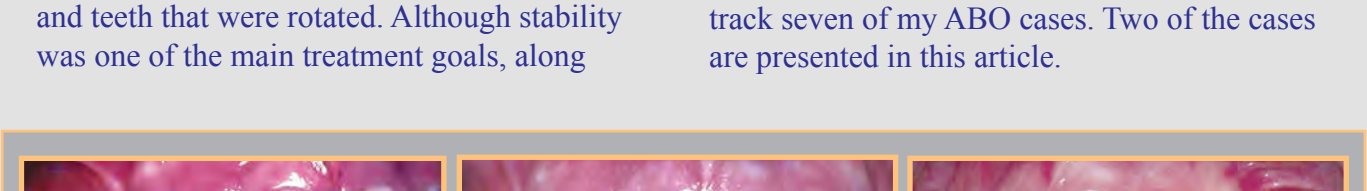
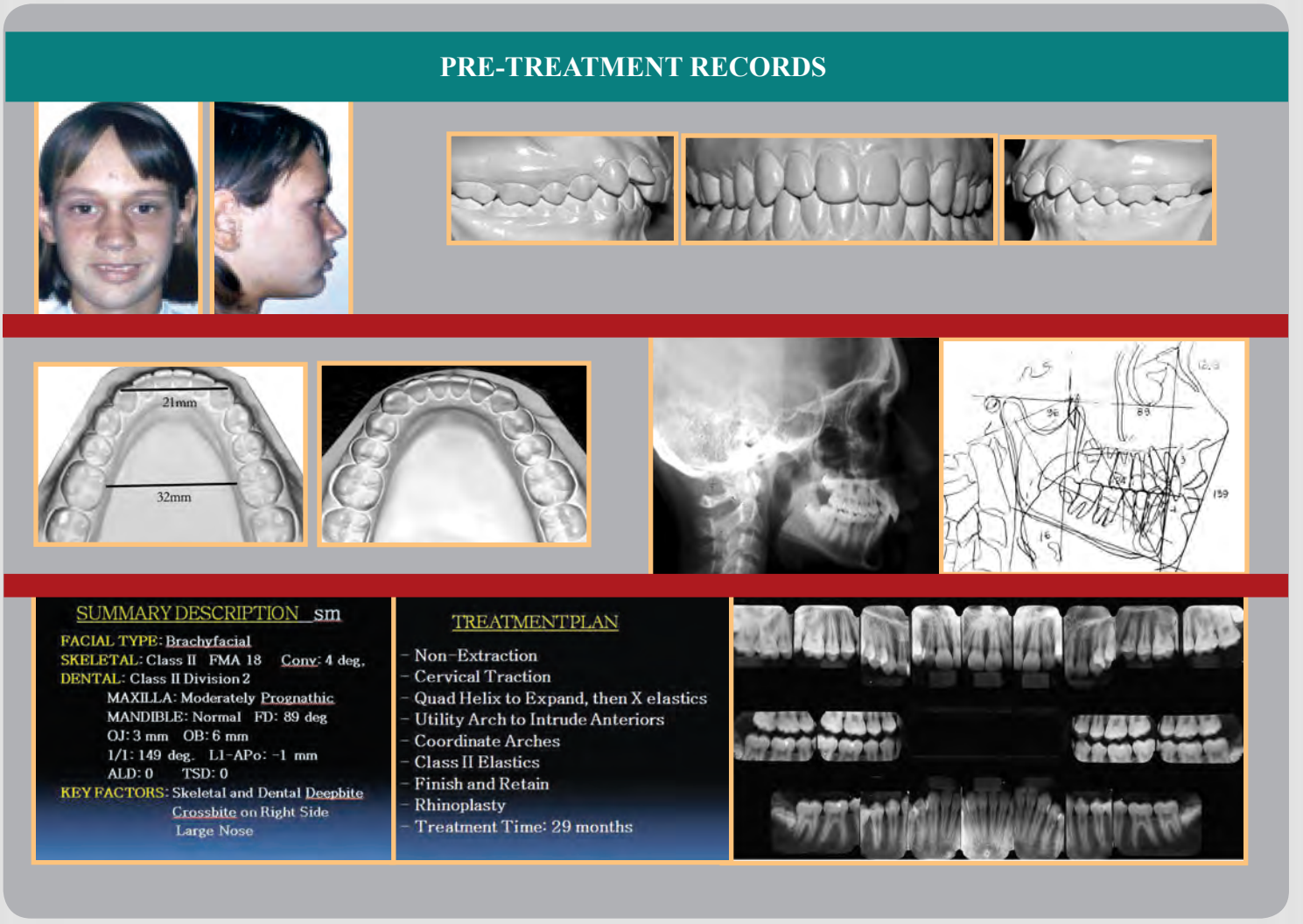


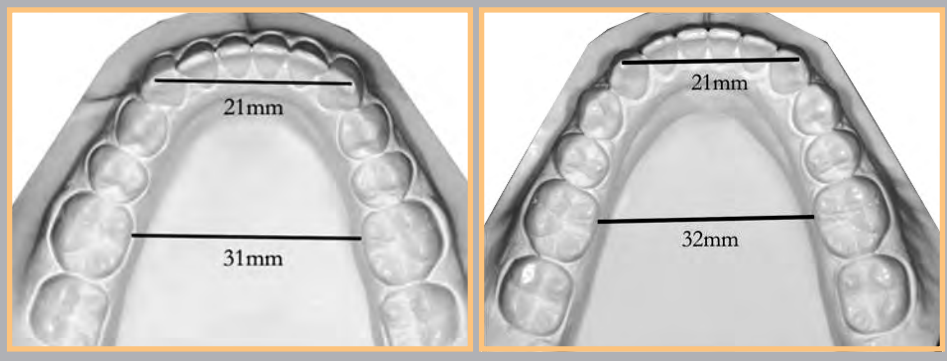
Figure 1. ***We used the .022 slot and leveled and aligned with a multi-strand-ed wire called Twistflex. We bent all round stainless steel wires by hand and used a turret to bend arch forms in square and rectilinear stainless.***

Figure 2.



CASE #1

Treatment was started at the age of 12 years, 4 months. The patient was fully banded from second molar to second molar on both arches. The upper central incisors were intruded with a utility arch followed by leveling and aligning with round stainless steel arch wires, and finished with rectangular stainless steel arch wires. Cervical headgear was worn at night and light Class II elastics during the day. The case was completed in 22 months. Upper and lower Hawley retainers were worn full-time for one year and nights only thereafter.



Maintaining the intercanine and intermolar width aids stability.

FINAL RECORDS

Left side lingual occlusion before and after treatment

Right side lingual occlusion before and after treatment

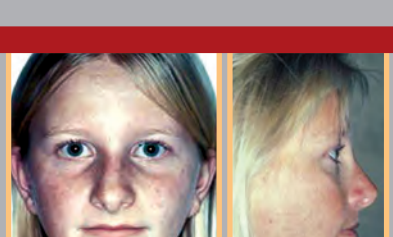
24 YEARS POST-TREATMENT RECORDS

No fixed or removeable appliances were used following treatment.

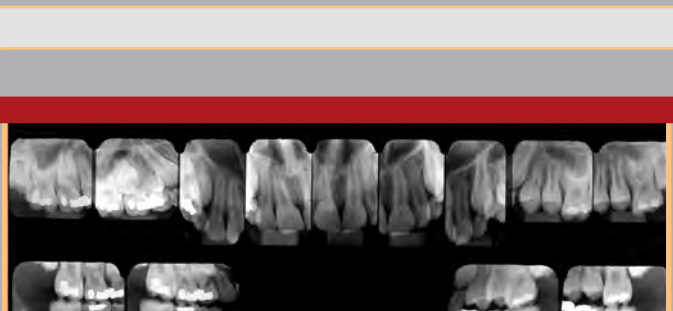
Anterior guidance *Right and left canine guidance*

CASE #2

This patient's treatment started at the age of 11 years, 2 months, while she was in the mixed dentition. She had a true unilateral crossbite on the right side, as there was no deviation of the midline. Two younger siblings exhibited the same crossbite situation. At the time of consultation, it was suggested to the parents that a rhinoplasty should be considered if the patient's nose continued to grow. Phase I treatment was initiated with the use of a Quad Helix appliance to correct the crossbite and also to rotate the upper molars. This was followed by the use of a utility arch (Ricketts) to intrude and procline the upper anterior teeth. Deciduous teeth were removed by the patient as they became loose. After all of the permanent teeth had erupted, full bands were cemented and the teeth were leveled and aligned by a sequence of round stainless steel wires followed by finishing rectangular wires. The initial phase of treatment took five months. Once full appliances were placed, treatment took 24 months to complete. The patient was fitted with upper and lower Hawley retainers, which she was instructed to wear full-time for one year, followed by night wear only thereafter. The patient had a second nasal surgery later in her adult life, as noted in the last facial photographs. Finishing the occlusion in maximum interdigitation, along with good retainer wear, helped the long-term stability of this case. Keeping the same arch form throughout treatment was also helpful in minimizing any relapse tendency.







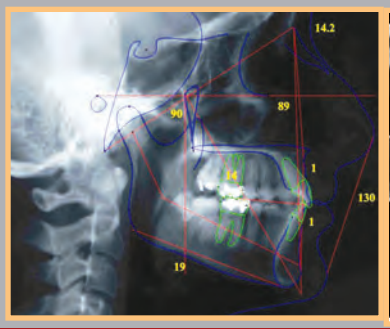

SUMMARY DESCRIPTION sm

FACIAL TYPE: Brachyfacial
SKELETAL: Class II FMA 18 Conv: 4 deg,
DENTAL: Class II Division 2
MAXILLA: Moderately Prognathic
MANDIBLE: Normal FD: 89 deg
OJ: 3 mm OB: 6 mm
1/1: 149 deg. L1-APo: -1 mm
ALD: 0 TSD: 0
KEY FACTORS: Skeletal and Dental Deepbite
Crossbite on Right Side
Large Nose

TREATMENTPLAN

- Non-Extraction
- Cervical Traction
- Quad Helix to Expand, then X elastics
- Utility Arch to Intrude Anteriors
- Coordinate Arches
- Class II Elastics
- Finish and Retain
- Rhinoplasty
- Treatment Time: 29 months

Final Records



Occlusion 2 years post-treatment after 2nd molars had erupted

Left side lingual occlusion before and after treatment

Final Note

Patients are living monuments to our success or failure as orthodontists, and it is therefore wise to finish all cases to the standards of the ABO. Because presentations of ABO cases represent a Diplomate's finest work, it is wise to follow these cases to monitor stability over the long term.

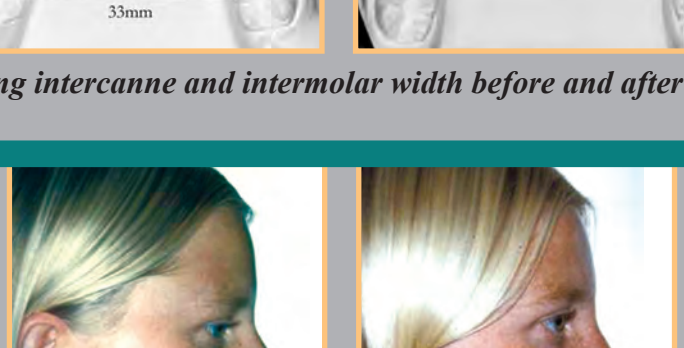
In the words of Dr. G.V. Black, "The professional person has no right other than to be a continuous student."

References

1. Strang, R. H. W., *The Fallacy of Denture Expansion as a Treatment Procedure.* Paper presented to the Edward H. Angle Society; March 24, 1947; Santa Barbara, California.

Right side lingual before and after treatment

Comparing intercanne and intermolar width before and after treatment



Patient before and after rhinoplasty


33 YEARS POST-TREATMENT PHOTOS

No fixed or removable appliances were used fo latest CXllowing treatment.










A CENTURY OF SMILES

PCSO CENTENNIAL 1912-2012

Monterey, California

ANNUAL SESSION • OCTOBER 4-7, 2012

CELEBRATE THE PCSO CENTENNIAL

REGISTRATION OPENS MAY 15, 2012

Join Us For

A Variety of Interesting and Educational Lectures

FOR DOCTORS, CLINICAL AND ADMINISTRATIVE STAFF

Managing Your Stress – How to Relax and Enjoy

Jerry Teplitz, JD, PLD, CSP

3D Image-Aided Treatment of Impacted and Transposed Teeth

Sunil Kapila, DDS, MS, Ph.D.

Innovative Practice Marketing

John Pobanz, DDS, MS

Create The Future By Looking Back – 100 YEARS

David Turpin, DDS, MSD

Class II Correction – Diagnosis, Treatment Planning & Treatment Options

Richard McLaughlin, DDS

Effective Posterior Space Closure with Sliding Mechanics

Will A. Andrews, DDS

Extreme Case Acceptance: Go Big or Go Home!

Nickole Bradfield

Improving Management of Patients with Autism & ADHD

Heather Whitney Sesma, Ph.D., L.P.

From My Side of the Chair: Sterilization in Today's Orthodontic Practice

Andrea Cook

Tracking Referral Sources and the Value of Marketing Dollars

Robert Haeger, DDS, MS

WITH YOUR FRIENDS & COLLEAGUES

LEARN MORE AT WWW.PCSORTHO.ORG

Handouts

By Gerald Nelson, DDS, PCSO Bulletin *Editor*

At the initial orthodontic examination appointment, most clinicians provide the patient family with general information about orthodontics, appointment policies, or how orthodontics can change facial appearance and enhance a patient's self-image.

Handouts that relate to the patient's specific problem are very helpful. In our office, we have a folder with eight pockets: four on each side, in a ladder format. On the left side, we place standard handouts that cover the DX/TX process, a staff roster, appointment policy, insurance reimbursement and fees. On the right side, we may insert other specific pieces, including monographs on relevant topics, such as:

- ORTHOGNATHIC SURGERY
- SERIAL EXTRACTION
- TSADS
- ALIGNER TREATMENT
- PHASE I TREATMENT

This presentation builds significant confidence in the orthodontic practice among the family members who attend the initial consultation; when the message comes home to the other family members, the rapport is confirmed. Links to the office Web site, plus links for further information on the AAO Web site, can be included on the handout.

If you would like to see any of the insert pieces we use on the above topics, contact me at gdnelson41@gmail.com.

SEASONED

Practitioner's Corner

Dr. McDonald

Dr. Chan

Congenital absence of maxillary lateral incisors or the presence of peg-shaped maxillary laterals often presents major treatment challenges for the orthodontist. If canine substitution is selected as the treatment of choice, the success of that treatment, as is usually the case in the majority of orthodontic treatment, is very dependent on the pre-treatment planning and attention to treatment details by the doctor providing the treatment. Dr. Milton Chan, the interviewee for this issue of the Bulletin, *herein presents his detailed protocol for accomplishing canine substitution. As he explains and illustrates, if one is diligent in both planning and executing the treatment, a very satisfactory esthetic result can be obtained.*

Dr. Terry McDonald Interviews Dr. Milton Chan on Canine Substitution

DR. TERRY McDONALD: Dr. Chan, I recently heard you give some clinical tips on how to make canine substitution cases better. You showed some very nicely handled cases. What helped you put those ideas together?

DR. MILTON CHAN: It doesn't take long in orthodontics to realize that at some point, you will have to deal with unilateral or bilateral missing, malformed or damaged maxillary lateral incisors. I was exposed to canine substitution as an option for helping with these types of cases during my orthodontic residency at USC. One of my instructors was Dr. Donald Tuverson from Pasadena, California. I had the good fortune of being asked to practice with him during the last 14 years of his career, and I learned so much from our time together. Don Tuverson was one of our profession's best at promoting quality orthodontic treatment–lecturing on early treatment, unusual extraction cases, adult treatments, surgical treatments, indirect bonding and techniques for dealing with anterior tooth size discrepancies such as mesio-distal enamel reduction (now popularly called IPR). In 1970, he published a classic article on canine substitution in the AJO.[1]

TM: The April 2011 AJODO had an excellent Point/Counterpoint article on canine substitutions. Before you give us your clinical tips, would you give us your take on that recent article?

MC: In that article, two contrasting views on the subject were presented. One side, presented by Dr. Bjorn Zachrisson, et al.,[2] advocated closing space either unilaterally or bilaterally, and the use of thin porcelain veneers to camouflage the maxillary canine as a lateral incisor. The other side, presented by Dr. Vincent Kokich, Jr., et al.,[3] recommended opening spaces for implants in the lateral space, and leaving the canines in the normal position. Both sides presented beautifully treated cases and the reasons for their treatment preference. They also presented good arguments against the opposing viewpoint. There was great background material on frequency of missing or peg laterals presented–I learned much by reviewing both positions and I think both positions have their place; however, my thoughts about treating cases of this type are slightly different. I feel that by using the proper techniques, canine substitution can often be accomplished without the need for any restorative work.

SEASONED

Practitioner's Corner

To do that, you need to follow certain principles: appropriate case selection, judicious treatment planning, proper bracket selection, and correct bracket placement, along with an aggressive technique to reshape the canines, which I usually do without any anesthesia or cosmetic bonding. (Please do not think that I treatment-plan all missing or peg lateral cases as canine substitutions.)

TM: Perhaps we can go over these points one by one.

MC: Obviously, when considering canine substitution, diagnosis and treatment planning is crucial. Any space closure that would be required must take into consideration lip support and facial esthetics. Canine shape and color must also be evaluated. Although we attempt to change the canine shape to look like a lateral incisor, a small, light-colored canine is definitely preferable. I also find that handling canine substitution cases bilaterally gives a much better-looking case finish because it doesn't draw attention to the affected side. If labial esthetics is a problem, porcelain veneers are preferable to more costly implants and ceramic crowns.

TM: You mentioned bracket selection. I have heard some say it's best to use the lateral bracket on the canine; others have said it's best to use the lower premolar bracket. What is your preference?

MC: The great restorative dentists will tell you (even if they are planning to veneer or crown the tooth) that the difficulty in making a canine look like a lateral incisor is the emergence profile. Assuming the use of a pre-programmed appliance, a canine bracket is pre-programmed to leave the root fairly *upright* in the labial lingual position. To reduce the normal canine root prominence as it emerges from the gingival tissue, it is necessary to add significant lingual root torque. A preprogrammed lateral incisor bracket doesn't have enough torque to position the root and crown properly (even after reshaping the crown) and it insets the canine. I was taught by Dr. Tuverson to use a pre-programmed maxillary central incisor bracket on the canine, which can assist with the lingual root torque needed to improve the emergence profile of the canine (*Figures 1-2*).

Another thing that catches the eye is tooth size and shape. You have to be bold and somewhat aggressive to reshape the edge and the interproximal area. In Tuverson's classic reshaping article in 1970, he advocated several enamel reshaping steps. The first is to reduce the cusp tip. This is to give an incisal edge and to reduce the incisal-gingival dimension. The second step is to narrow the width of the tooth by flattening the interproximal contacts of the canine. The trick to making the tooth look like a lateral is that you must blend the created edge into the incisal embrasure.

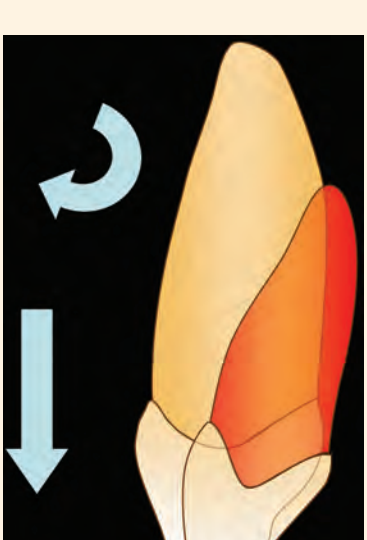


Figure 1. CANINE LATERAL OVERLAY 1

Figure 2. CANINE LATERAL OVERLAY 2

Dr. Vince Kokich, Sr., taught so many of us about the principle of anterior gingival esthetics—high, low, high, on the upper centrals, laterals and canines. To mimic this on a substitution case, you must reduce the canine cusp tip enough to extrude the ginigival margin downward to give the "low" of a lateral incisor. This also brings the mesial and distal bulges down to a point at which they can be reduced without destroying the papilla. Finally, to clear the future occlusion from the lower incisors, you must reduce the lingual incisal area to allow the eruption of the tooth and the oc-

Figure 3. CENTER BEFORE

Figure 4. SIDE BEFORE

Figure 5. SIDE AFTER

clusal contact from the lower incisor. The reshaping of the labial surface is no longer recommended, since it tends to thin the translucent labial enamel and allow the yellow dentin to show through. The visual effect of the curved canine labial surface is not significant if you do the incisal, interproximal and lingual reshaping well. The key is camouflage and illusion.

TM: What about reshaping the premolar that takes the canine position?

MC: I generally do not find a need to reshape the premolar, but there are two bracketing issues that can help. First, if you bracket the premolar a bit to the distal, it will tend to move the lingual cusp tip to the distal and out of view while moving the buccal cusp more to the mesial for better appearance and function. Some have also suggested placing the bracket more incisally to intrude the tooth (thereby raising the ginigival margin like a canine) and having the restorative dentist bond on a longer tip. I would like to repeat this: I try to close missing lateral spaces without any cosmetic restorative treatment—such as adding length, bonding thin veneers or implants and crowns—so I do not intrude the premolars.

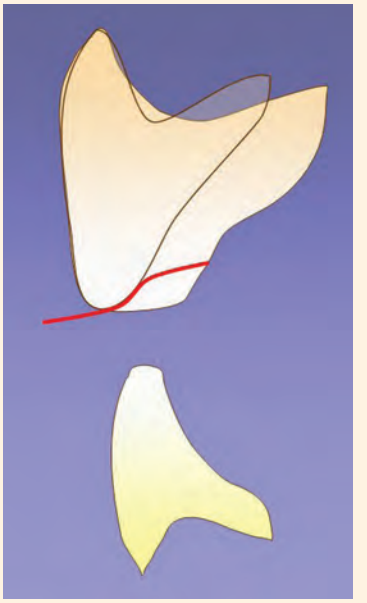


Figure 6. OCCLUSAL CONTACT FROM THE LOWER INCISOR

TM: Many of us have tried reshaping canines to simulate lateral incisors. Your cases look particularly nice. Do you care to elaborate on anything you've shared so far? I'm sure the little details make a big difference in the final result.

MC: Yes, I believe the little details can make a big difference (*Figures 3-6*). Generally, I do the majority of the canine reshaping prior to placing any brackets. This allows for better visualization for bracket placement, and therefore fewer bracket repositionings. Remember, we want to extrude the tooth, so reducing the cusp tip makes you want to bond the bracket higher, which brings down the higher gingival margin to look more like a lateral.

I want to emphasize that placing a central incisor bracket on the canine to increase the lingual root torque decreases the root prominence and gives a better emergence profile to the canine. Because the canine has a curved labial surface, you may have to use a three-pronged plier to slightly curve the twin bracket pad and adapt it to the tooth. As you finish the case, you will also notice that although the arch form as viewed from the labial surfaces of the teeth looks fairly normal, the additional lingual root torque of the canine causes the cingulum to move lingually and make the arch appear more "V" shaped.

SEASONED

Practitioner's Corner

In reshaping the canine, you have to be aggressive while staying within the limits of the enamel. I was taught by Dr. Tuverson to use an Elliot separator (used historically to assist in doing small interproximal gold foils), which looks like a miniature "jaws of life," to create sufficient space to gain access for a flexible paper abrasive disk or even a double-sided diamond disk to do the interproximal reduction (Figure 7). The major advantage of using the Elliot separator is immediate and temporary separation without the tooth soreness and accompanying gingival irritation that often result from elastic separators. The pressure created by the device also gives "pressure anesthesia" so that no topical or local anesthetic needs to be given. Also, the "jaws" of the separator hold the papillae away from the rotary instrument while you work. Once you get the initial disk through the contact, you can ease up on the clamp pressure and work at shaping the interproximal area. I find the Elliot separator invaluable in doing IPR. I think paper polishing disks, while more time-consuming, give a much smoother surface than the diamond. As with any IPR procedure, it is important when reducing the proximal surfaces of the crowded teeth to separate and reduce the least crowded teeth first, providing space for the separation of the more crowded teeth. This allows for a more controlled reduction and less discomfort for the patient. Finally, I always provide a fluoride rinse after any IPR procedure.

Elliot separators can be purchased through Pearson Dental Supply. Buy the single-winged version. The double-winged version blocks handpiece access. Also, be aware that the screw on the separator can be moved to accommodate for upper or lower arch IPR or left-handed operators.

Other little details on reshaping: I generally take more off the distal than the mesial surface, but don't finish the IPR until finishing stages, as the upper first premolar may be small. Also, central incisors on missing or peg lateral cases tend to be small, so over-reducing the substituted canine(s) may require you to reduce the lower arch length in order to avoid upper spaces and gain incisor coupleing.

When reducing the cusp tip, I learned to blend the created flat edge into the interproximal. What makes the tooth appear narrower is to not have a wide, flat edge. We know "normal" lateral incisors have a lot of variability of shape, so it is best to use that variety in creating an illusion. Reduce any sharp lingual corners after you reduce the lingual to allow your planned occlusion with the lower. (Nature doesn't have any sharp angles unless there has been attrition.) Although I don't attempt to flatten the labial, I may narrow the width between the labial line angles and blend it into the labial interproximal embrasure–this again gives the illusion of a narrower tooth.

Figure 7. ELLIOT SEPARATORS

This type of labial reduction doesn't tend to yellow the tooth color because it is not backed with dentin as much as the center of the tooth.

TM: Great ideas. Any final thoughts?

MC: Many of these substitution cases are on very young patients referred to the practice because the family dentist notices a congenitally missing or a peg lateral. The parents are looking for a way to treat without the added expense of cosmetic restorative treatment, which might have to be repeated several times during the patient's lifetime. They are also looking for a way not to have a "flipper" during the formative school years before an implant can be placed. If possible, I try to offer the option of camouflaging the peg or missing lateral by extracting the pegs and closing the spaces. This prevents the expense of a lifetime of restorative work as well as the problem of cosmetic emergencies when a flipper tooth breaks. One also has to consider that not all implant restorations may look as nice as a nicely shaped canine substitution.

Dr. Milton Chan *received his dental degree in 1983 and his orthodontic specialty certificate in 1985 from the University of Southern California. He is a Diplomate of the American Board of Orthodontics and is the Immediate Past President of the Southern California Component of the Edward H. Angle Society. He serves on the graduate orthodontic faculty of the University of Southern California. Dr. Chan is in full-time private practice in Pasadena, California.*

REFERENCES

1. Tuverson DL. Orthodontic treatment using canines in place of missing maxillary lateral incisors. *Am J Orthod.* August 1970;58:109-27.
2. Zachrisson BU, Rosa M, Toreskog S. Congenitally missing maxillary lateral incisors: Canine substitution. Point. *Am J Orthod.* April 2011;139:434, 436, 438, 440, 442, 444.
3. Kokich VO, Kinzer GA, Janakeivski J. Congenitally missing maxillary lateral incisors: Restorative replacement. Counterpoint. *Am J. Orthod.* April 2011;139:435, 437, 439, 441, 443, 445.

PRE-TREATMENT


PROFILE RELAXED


RELAXED


SMILING

How would you treat this malocclusion?

Case R. C. 16 years, 9 months

INTRODUCTION

This female adolescent with bilabial protrusion and flared upper anterior teeth presents as a transfer case after four years of treatment from her previous orthodontist. She is anxious to have her braces removed, but is also looking for desirable results.

DIAGNOSIS AND ETIOLOGY

After the patient's initial records are obtained from her previous orthodontist, it is noted that patient R. C. had less than 4 mm crowding in each arch, and her upper and lower lips were 2–3 mm in front of the E-line. She was treated with four first bicuspid extractions. After four years of orthodontic treatment, she presents with flared upper anterior teeth, loss of vertical dimension, extraction spaces on the upper and lower arches and prominent upper and lower anterior roots. A cone beam CT with 1 mm incremental vertical cuts on the dentition was ordered. The CBCT reveals that the lower anterior roots are positioned against the cortical plate, and the alveolar bone support on the labial side of the upper and lower anterior teeth is minimal.


RIGHT BUCCAL


FRONTAL INTRAORAL

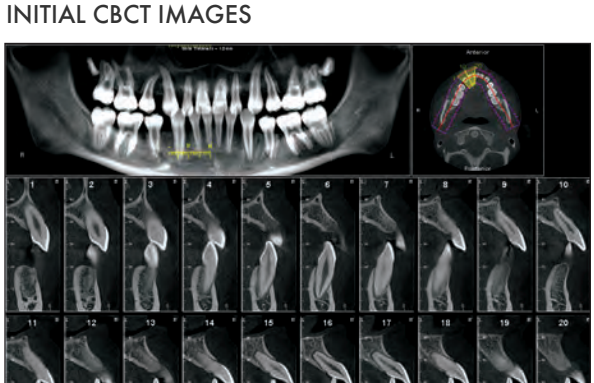

LEFT BUCCAL


MAXILLARY OCCLUSAL

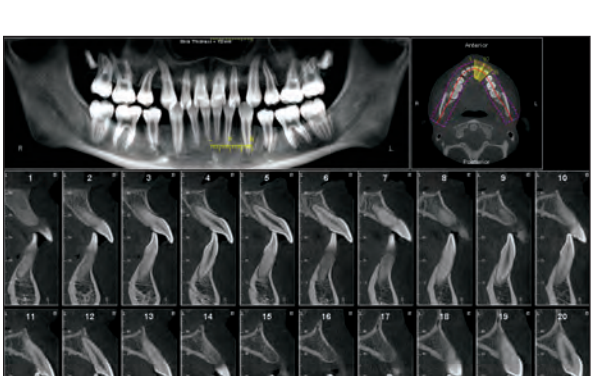

MANDIBULAR OCCLUSAL

BE SURE TO SEE ADDITIONAL PRE-TREATMENT RECORDS FOR THIS CASE ONLINE: HTTP://WWW.PCSORTHO.ORG/NEWS-PUBLICATIONS/PCSO-BULLETIN.ASPX (LOOK FOR 2012 PCSO *BULLETIN*/CASE REPORT — DR. LEE FULL ARTICLE).

INITIAL CBCT IMAGES



INITIAL 3 D X-RAY (RIGHT SIDE)



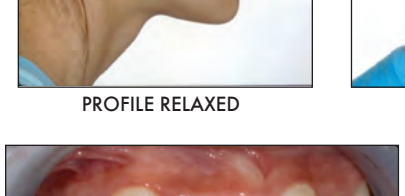
INITIAL 3 D X-RAY (LEFT SIDE)

PROFILE RELAXED

RELAXED

SMILING

INITIAL RECORDS FROM PREVIOUS ORTHODONTIST: AGE 12 YEARS, 8 MONTHS



RIGHT BUCCAL

FRONTAL INTRAORAL

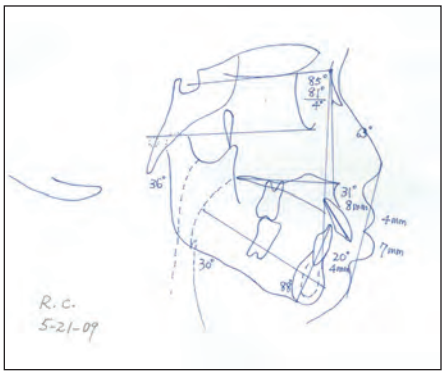
LEFT BUCCAL

MAXILLARY OCCLUSAL

MANDIBULAR OCCLUSAL

BE SURE TO SEE ADDITIONAL PRE-TREATMENT RECORDS FOR THIS CASE ONLINE: HTTP://WWW.PCSORTHO.ORG/NEWS-PUBLICATIONS/PCSO-BULLETIN.ASPX (LOOK FOR 2012 PCSO *BULLETIN*/CASE REPORT — DR. LEE FULL ARTICLE).

CEPHALOMETRIC X-RAY



CEPHALOMETRIC X-RAY TRACING

CEPHALOMETRIC MEASUREMENTS

	PRE-TREATMENT	MEAN
SNA	85°	82°
SNB	81°	80°
ANB	4°	2°
U1 - NA (degree)	31°	23°
U1 - NA (mm)	8mm	4mm
L1 - NB (degree)	20°	25°
L1 - NB (mm)	4mm	4mm
MP-SN	36°	33°
FMA	30°	26°
FMIA	63°	63°
IMPA	88°	95°

TREATMENT OPTIONS

1. Combined procedures of orthodontics and segmental osteotomy to correct deep curve of Spee on the lower arch and to retract the upper anterior segment.
2. Comprehensive orthodontic treatment with corticotomy and bone grafting to alter her alveolar bone structure.
3. Continue comprehensive orthodontic treatment, but reopen extraction spaces and plan for implants.
4. Continue comprehensive orthodontic treatment and utilize TADs to help intrude the upper incisors and close all extraction spaces.

For Post-Treatment of Case R C., see page 44.

BE SURE TO SEE ADDITIONAL PRE-TREATMENT RECORDS FOR THIS CASE ONLINE: HTTP://WWW.PCSORTHO.ORG/NEWS-PUBLICATIONS/PCSO-BULLETIN.ASPX (LOOK FOR 2012 PCSO *BULLETIN*/CASE REPORT — DR. LEE FULL ARTICLE).

Leonard V. Cheney, DDS

By Dr. Shahram Nabipour, PCSO *Bulletin* Central Region Editor

SHAHRAM NABIPOUR: How did you become interested in orthodontics?

LEONARD CHENEY:

It seems it was just yesterday that I graduated from the University of California School of Dentistry with a certificate in orthodontics (at that time, 1964, it was referred to as Curriculum II). I was still single, and with the Vietnam War going on, I thought that a stint with the Air Force as an orthodontist was a good option. The Air Force decided I was needed in Okinawa, and with Dr. Arthur Najera, I created an orthodontic office in the dental dispensary.

Early on in my military career, an alert was sounded, and all personnel were required to be at the dispensary. Our colonel came in wearing his fatigues, and I noticed his eagles were sewn on improperly. Not wanting him to be embarrassed in front of his fellow colonels, I made mention of the error. He responded that if his eagles were sewn on his a**, they would be in the right place! I had a lot to learn.

Dr. Cheney

My obligation was for two years, and I enjoyed the experience and the camaraderie of service life. I was able to take my discharge in Okinawa, and later traveled to Japan, across Russia on the Trans-Siberian Railway, and to St. Petersburg, Germany, France, Switzerland, and back to the Far East before returning home. I obtained a license to practice in Hong Kong, but with "Red

Sue Cheney

Guard" activity in the mainland, no orthodontist was interested in an associate. They were interested in selling their practices and moving to the States.

SN: What happened after you returned home?

LC: After returning to the Bay Area in 1966, I learned that Dr. Jim Thurston was looking for an associate in San Leandro. I spent three years with Jim, and it proved to be a very happy time. Sue had recently graduated from Cal Berkeley; we married in 1970 and bought a house in Pleasanton (they were less expensive then). I opened an office in Pleasanton, while still working with Jim in San Leandro. Jim was very generous and understanding; he allowed me to establish my own hours.

SN: What about family life and hobbies?

LC: In retrospect, Pleasanton was a fine choice of community for our growing family, which soon included daughters Laura and Ana, and son Alex. As we settled into our new community, I was fortunate to pursue a long-standing interest in sports car racing. I purchased a Porsche Speedster from Berndt Weber of Weber Motors in San Leandro. It needed work, and so Berndt, the mechanics and I worked on it after hours. We would send out for Chinese food and remove BMW hubcaps from stock to use as plates.

While at the University of the Pacific, I met Roger Boero, who had an interest in sailboat racing, and that led to many years of racing on the bay. As our family grew, I enjoyed years of Little League managing. I still have an interest in vintage cars and enjoy meeting folks with a similar interest. These days, though, if I am not at the office, one can find me trying to play the wonderful game of golf. It is a constant challenge.

SN: How did you become interested in teaching at UOP?

LC: Over time, I came to appreciate the collegiate experience with Drs. Gene West, Don Poulton, and George Payne at Cal, Dr. Jim Thurston in San Leandro, and my good friend Dr. Bill Patterson in San Ramon. Dr. Thurston was teaching at the University of the Pacific Dental School; he wished to lessen his time and suggested that perhaps I would like to take his place. So, on Thursday afternoons, I taught alongside other faculty, including Drs. Richard Rutter, Roger Boero and Bob Griffin, and was stimulated by the energy and interest of the graduate students. As my practice grew, I too had to limit my time at the University. Six years ago, I realized how much I had missed that contact with the School's faculty and residents, so I returned to teaching on Thursday afternoons. I am told they appreciate my help, but I would also like to say how much they have expanded my knowledge and helped my practice of orthodontics.

A family milestone

SN: Any reflections on your orthodontic career?

LC: This June will mark my forty-eighth year in the practice of orthodontics, and I can only reflect on how fortunate I am to have chosen this profession. It has given me the opportunity to help and become a part of our Pleasanton community, and develop many cherished memories.

As a freshman dental student, I was asked to visit with Dr. Peter Ceremello in Hayward, CA. Well, there I was, still wet behind the ears, and Dr. Ceremello introduced me to his patients and parents as Dr. Cheney visiting from the University of California. He was enthusiastic as to how cephalometric films would become a useful tool in diagnosis and case evaluation. I spent the whole afternoon at his office, and knew then what I wanted to study.

One challenge now is how to best relate to my adult children. I shared this concern with my good friend Brent, who is an accountant, and he was quick to comment on how he counseled his own children by saying that if they ever had a need for advice in financial planning or accounting, he would be open to having them come to him. I felt that I had shared a real concern and wasn't ready for his quick fix. But Brent went on to say, after a brief pause, that they never came. I thought it was a great story. So I try to treasure, not teach, my children. It is hard to keep all those opinions to oneself.

SN: Any advice for young graduates?

LC: I believe it comes down to "being grateful." Be grateful for the love and energy of your spouse, grateful for the wonder of children placed in your care, grateful for a loving community and the many friends you will make, grateful for the energy and commitment of your office staff, grateful for being part of a profession that always tries to do better. Other than that, I can only recommend you see the delightful film IQ, with Walter Matthau and Meg Ryan. And be grateful.

TECHNOLOGY IN ORTHODONTIC PRACTICE— WHAT IS THE TIPPING POINT FOR REAL APPLICATION?

Presented by David M. Sarver, DMD, MS, at the PCSO Annual Session, Vancouver, B.C., September 24, 2011.
Summarized by Dr. Bruce P. Hawley, PCSO Bulletin *Northern Region Editor.*

Dr. Sarver

In today's orthodontic practices, we are barraged with a virtual deluge of orthodontic technologies, including cone beam computed tomography (CBCT), robot wires, Cad-Cam brackets, digital imaging, diode lasers, and communication through the internet, Web sites, and social media—and the list goes on. Which should we buy? Will any of these items benefit the patient, the doctor, or practice? To decide, Dr. Sarver asks himself whether an item is cost-effective or merely a luxury; if it is just a luxury, will it make him enjoy practice more? What are the initial costs, maintenance fees, and ongoing needs, and will it be outdated quickly? These can be genuinely overwhelming questions for the orthodontist.

THE PLACE OF TECHNOLOGY

Dr. Sarver believes that as orthodontists, our knowledge level and how we treat our patients are the important issues, not the technology itself. Technology should help us to provide better orthodontic care with the best possible treatment outcomes. The systematic examination and visualization of treatment goals and communications is essential, and we should not be limited by procedural thinking. Practice efficiency is time management, while marketing is communication with patients and other doctors.

The available technology includes hardware, software, and the cloud (offsite data storage). In assessing technology, Dr. Sarver assesses the cost/benefit ratio, along with the effort required and the possible return on investment. This analysis is partially financial, to be sure, but also considers enhancement of patient care—charges for services, time management, patient burden and perception, and radiation exposure all are factors. The salient question may not always be "when do I *have to* acquire this technology?"—it may instead be "when do I *get to* acquire it?"

CBCT

Dr. Sarver often utilizes cone beam technology to visualize upper canine impactions, supernumerary teeth, root resorption associated with teeth adjacent to impactions, and TMJ. The radiation dosage of current dental CBCT units is now dramatically lower than comparable medical units. Dr. Sarver often uses CBCT images rather than panoramic x-rays as part of his observation protocol, limiting it in many cases to the anterior area of the patient, where most eruption problems take place. The CBCT has a high return on investment for Dr. Sarver. It is incorporated in his fees and provides a reasonable benefit from a radiation dosage standpoint.

CEPHALOMETRICS

Cephalometric radiology has changed considerably from its past days, and the time will come when we will be able to "wrap" soft tissues around hard tissues as part of our imaging process. According to Alan G. Brodie, (Brodie AG, Downs WB, Goldstein A, Myer E. Cephalometric appraisal of orthodontic results. Angle Orthod 1938;8:261-5), cephalometrics is not the sole decision-making factor in orthodontics, as it mainly allows us to quantify for growth and research. However, it is still important and beneficial in assessing the response to treatment, in Class III monitoring, and in other uses.

DIODE LASER

The diode laser can help to reduce treatment time through exposure of unerupted teeth and crown lengthening. The improved treatment efficiency that results can balance the now-lower costs for these units. While the time management factor is great, the coolness factor is not so good ("it hurts," say patients afterwards!).

MINI ESTHETIC ANAYLSIS

In Dr. Sarver's practice, a mini esthetic analysis is performed on all new patients. He measures the philtrum and commissure heights, upper incisor rest position, lower facial height, tooth and gingival display in millimeters upon smiling, maxillary incisor crown height dimension, lip incompetence, buccal corridors, smile arc, and incisor display at rest. For example, the ideology of a gummy smile could include vertical maxillary excess, short crown height, short upper lip, hypermobile smile, and/or retroclined maxillary incisors. Dr. Sarver wants to keep each patient's good aspects, while treating and eradicating the bad aspects.

COMMUNICATION AND MARKETING

We need power, experience, and presence with our patients and in our communities, and power tends to be visual. At the initial patient examination, Dr. Sarver starts a conversation that leads progressively to interaction, orientation, visual animation ("is this what you're talking about?"), and finally action (i.e., orthodontic treatment). Dr. Sarver prefers to have a panoramic x-ray and photos of the patient before he actually renders his initial clinical examination. He may create a digital painting to simulate the potential change in short maxillary incisors with the addition of restorative veneers. By showing the patient the esthetic before and after, he allows him or her to see the benefits and assist in plotting the orthodontic changes quantitatively with the dentist.

Contemporary imaging has an excellent cost/benefit ratio and appeals to patient sensibility. Web conferencing is an impressive way to bring an absent parent or a referring dentist into a case. Dr. Sarver's strategy is to make his Web site captivating and worth seeking out by patients or potential patients. Viral marketing such as Facebook participation can be effective, but requires time and monitoring. Dr. Sarver attempts to merge high and low technology in a creative video available on his Web site that shows the doctor with patients.

OVERBITE AND OVERJET DILEMMAS: ARE THEY REALLY A PROBLEM?

Presented by Dr. Vincent Kokich, Jr., at the PCSO Annual Session, September 24, 2011.
Summarized by Dr. Shahram Nabipour, PCSO Bulletin *Central Regional Editor.*

Dr. Kokich

The treatment of adult patients often requires a multidisciplinary approach, especially in cases where orthodontic treatment is only one aspect of a comprehensive treatment plan. When such patients present with malposed anterior teeth due to inappropriate overbite and overjet, the task for the orthodontist can be very challenging. In most cases orthodontic treatment is necessary before the general dentist can restore these teeth. In this presentation Dr. Kokich outlined several parameters that are important in successfully treating such patients. Dr. Kokich made a strong case for the benefits of orthodontic treatment for such patients and how the interdisciplinary approach can yield excellent esthetic results.

The typical adult patient who presents to the orthodontist with a deep overbite or excessive overjet, and is in need for restorative work, Dr. Kokich recommends taking note of the following:

Trace the incisal edges.
Are they following the lower lip? Where are they relative to the occlusal plane?

What is the incisal display at rest?
This is an important record to have and Dr. Kokich suggests having the patient say "Emma" and then taking a photo of the incisal display at rest. For a patient who is 40 years old, at least 2 mm of incisal display at rest would be normal.

The following are what present the greatest difficulty in the treatment planning process:

Eruption following tooth wear, whether they are at the incisal edges or facial of lowers/ lingual of upper incisors, can result in super eruption and create overbite and overjet problems.

LACK OF ANTERIOR GUIDANCE

Anterior guidance serves to disclude the posterior teeth during functional movements of the mandible. Dr. Kokich states that there is no magic number for overbite here. Every patient is different and each has to be treatment-planned accordingly. But if there isn't adequate anterior guidance, then several problems can arise including wear or fracture of posterior teeth; increased muscle activity and muscle incoordination; and envelope of function problems. Envelope of function refers to how the mandible functions—whether it's more vertical or horizontal.

This is most often seen by the restorative dentist when multiple restorations can fail in the same patient. In general, when there is a single tooth failure it is likely an occlusal contact problem. When there are multiple tooth failures it is often an envelope of function problem.

What are the treatment options for deep overbite or excess overjet? There are four main options:

- Orthodontics
- Crown Lengthening followed by restoration
- Posterior restoration to increase vertical dimension
- Orthognathic surgery

For the majority of patients more than one of these options will be employed for the best result.

How do we evaluate a patient who is a candidate for multidisciplinary treatment? Here are the parameters that Dr. Kokich utilizes:

Incisor to face ratio
Maxillary incisor display at rest for someone in their 30s is about 3–4 mm. On smiling the normal lip moves 6–8 mm; however, a hyper mobile lip could elevate up to 14 mm! Record this measurement; it will help set your goal for the direction of incisor tooth movement.

Occlusal plane to incisal edge
Compare the posterior occlusal plane to the incisal plane. Look for super-erupted teeth or lack of full eruption. These two planes are ideally on a flat plane.

Incisor inclination
The labial surface of the upper centrals should be perpendicular to the line of sight to provide good good light reflection.

GINGIVAL LEVELS

The gingival levels are symmetrical between right and left. Canines and centrals are about the same level, with the laterals ~1mm coronal. Excess supracrestal gingiva may need to be adjusted.

ETIOLOGY OF EXCESSIVE OVERBITE

Excessive overjet.
Most often where there is excess overjet, teeth super erupt causing excessive overbite.

Wear of anterior teeth and compensatory eruption (vertical bruxer).

In these patients the palatal of upper incisors and the facial of lower incisors have been worn down. This make bracket placement on these teeth very difficult.

In further discussion of the etiology of excess overbite, Dr. Kokich cited a recent paper by Dr. McNamara where it was shown that a deep bite in the mixed dentition is alleviated by growth as the ramus elongates and the mandibular teeth erupt. The deep bite essentially self-corrects into a more normal overbite. In adult patients who have no eruption potential or growth left, several relationships need to be evaluated:

- Upper incisor to lip to evaluate incisal display at rest
- Lower incisor to occlusal plane, indicating the presence or absence of a curve of Spee
- Facial height to evaluate no loss of vertical dimension
- Once these observations have been made, the appropriate treatment option can be chosen.

Dr. Kokich emphasizes that several factors can influence the success of the restorative outcome. When orthodontic intrusion is indicated, for example, consider:

Root length.
The crown/root ratio needs to be at least 1:1 (crown lengthening will likely change this ratio negatively).

Root form (external taper).
This can affect the emergence profile around the CEJ. If crown lengthening is planned and the root is tapered, then it will affect esthetics.

Gingival architecture.
Generally speaking this will not change with orthodontic intrusion, as the tissue follows the tooth.

Future restorations.
The most effective and long-lasting restorations are done on enamel rather than dentin or cementum. This would be possible on teeth that have been intruded orthodontically as crown margins can still be placed on enamel. However if crown lengthening is done, then often the margin is on dentin or cementum, which is not as strong a bond as enamel.

Dr. Kokich recommends that severely worn down lower incisors be restored prior to bracket placement. Placing brackets at worn lower incisors could cause root movement through the lingual cortical bone and lead to periodontal problems.

FINAL THOUGHTS

Excess overjet needs correction because it affects overbite stability and causes poor anterior guidance. It can also cause restricted envelope of function problems, lack of restorative space, and poor anterior esthetics.

ORTHODONTICS—THE KEY TO SUCCESSFUL INTERDISCIPLINARY TREATMENT

Presented by Dr. Robert "Slick" Vanarsdall at the PCSO Annual Session September 23, 2011.
Summarized by Dr. Shahram Nabipour, PCSO Bulletin *Central Regional Editor.*

Dr Vanarsdall

There are several hot topics in orthodontics today, including self-ligating brackets, TADs, Invisalign, and practice management, all of which are regularly discussed at conferences. However, Dr. Vanarsdall contends that little is being discussed about the health benefits of orthodontics as it relates to periodontal health and in this lecture he made a strong case in support of this topic.

Periodontal benefits of orthodontic treatment include:

- Reformatting of the periodontium
- Reduction of pathogenic subgingival bacteria
- Elimination of important periodontal risk factors
- Recognition of the susceptibility of the periodontium
- Implant site development.

Dr. Vanarsdall strongly believes that the most cost-effective service we can provide to our patients is to preserve their natural teeth. There are too many instances, he believes, where teeth with periodontal issues are being extracted in favor of implants. "There is nothing permanent about an implant" in periodontally susceptible patients.

In the 1960s, orthodontics was used primarily to level and align the teeth prior to placement of a bridge. But one surprising side effect was how the orthodontic treatment reformatted the periodontium, resulting in good bone levels. Some ways that orthodontic treatment can reformat the periodontium include:

- Forced eruption to treat one and two-wall infra-bony osseous defects
- When teeth erupt it reduces the depth at which subgingival bacteria can exist and inflammation is reduced.
- Ortho extrusion used to relocate the interdental papilla
- Esthetic enhancement through ortho extrusion combined with grafting PRN procedure to allow more predictable placement of implant

Placing in an implant, to replace a lateral incisor for example, in a periodontally compromised patient who is a vertical grower, can result in bone loss and defects on the adjacent teeth and an implant with a crown that is in infraocclusion. Dr. Vanarsdall showed some examples of this where the whole block of bone containing the implant had to be cut out and extruded in order to remove the implant.

We all know the benefits of well-aligned teeth but there are tremendous benefits for the health of the periodontium of well-aligned lower incisors. When you line up lower incisors, the gingiva always looks healthier because it reduces the pseudo-pocketing on malposed teeth. Loss of tissue attachment is caused by subgingiveal bacteria, not surface plaque. Tooth movement alters the composition of subgingival bacteria. Dr. Vanarsdall cited a study that identified seven different bacteria associated with crowded lower incisors and only two varieties on well-aligned lower incisors. There is a tremendous preventive aspect to having well-aligned teeth.

However, periodontal disease is a multi-factorial etiologic process and there are many people with periodontal disease with well-aligned teeth and a Class I occlusion. In regard to the effect of occlusion on periodontal health, there is clear evidence that patients with Class II div I malocclusion present more often with periodontal disease than controls. This is due primarily to the functional malocclusion and compensated incisor angulations, which may lead to mobility and alter the subgingival bacterial flora. Bruxism can further increase the risk of disease.

IMPLANT DEVELOPMENT

Dr Vanarsdall cautions clinicians—do not move teeth into a vertical defect in the supporting alveolar bone. The defect needs to be prepared prior to tooth movement. Too often we view the implant site too locally. Remember that an implant, just like a natural tooth, can be lost if placed in poor relation to opposing or adjacent teeth, in areas of at-risk bone support, or in a location with excess functional demands. Do your implant placement planning with a view of the full functioning occlusion.

NEW APPROACHES FOR 3-D DIAGNOSIS AND TREATMENT PLANNING

Presented by Lucia H. S. Cevidanes, DDS, MS, PhD, at the PCSO Annual Session, Vancouver, B.C., Canada, September 23, 2011.
Summarized by Dr. Bruce P. Hawley, PCSO Bulletin *Northern Region Editor.*

Dr. Cevidanes

When should 3-D imaging be used in the orthodontic practice? To date, there is not a lot of scientific information on the indications for the use of cone beam computed tomography (CBCT). Certainly, 3-D imaging provides us with the opportunity to learn more about the craniofacial structures we treat—and to be more scientific in the process.

Research should help the clinician and be of value to the orthodontist—if it is not useful, 3-D imaging is really little more than a video game. A November 22, 2010 New York Times article entitled "Radiation in the Dentist Chair" was unfortunately somewhat slanted, but it should tell us what our responsibilities will be in CBCT utilization. Some of us might be fearful of how little we know, and what we do not know, about 3-D imaging, and there continue to be concerns about associated radiation exposure.

UTILIZATION AND USEFULNESS

Despite the increase in popularity of CBCT in orthodontics, there are questions about its overall general usefulness. What type of scanner and software is best? What clinical questions can be answered using this technology? Perhaps technology can lead the way to answer certain questions related to hard and soft tissues and the long term responses to treatment. Potential areas for focus may include problems of erupting teeth, facial asymmetry, placement of temporary anchorage devices (TADs), craniofacial anomalies, temporomandibular joint (TMJ) disorder, and root resorption.

FAILURE OF ERUPTION AND PATHOLOGIES

Perhaps it is possible to plan new biomechanical procedures to aid in orthodontically recovering unerupted posterior permanent teeth. With respect to impacted maxillary permanent canines, 3-D assessment affords increased precision (compared to 2-D assessment) in localizing those teeth and planning the biomechanical tactics for recovery. In many cases, 3-D information will certainly contribute to a better clinically oriented approach for patient management. Alveolar clefts and teeth in the vicinity of clefts can be usefully identified in 3-D. In some cases, root angulations for a given tooth may be misrepresented on a panoramic x-ray, and more accurately pictured in a CBCT. Atypical condylar morphologies have been reported using 3-D imaging—a useful diagnostic aid when confronted with TMD, osteoarthritis, or condyliasis.

ASYMMETRY

Asymmetry can be extremely challenging to manage. One may see asymmetry on 3-D, but how does one use that information? Clinicians have suggested duplicating one side of the frontal image and mirroring it on the other side to analyze the asymmetry. Dr. Cervidanes says this does not provide a very accurate analysis. Using the mirroring technique might be helpful in cases of hemifacial microsomia or hemimandibular hypotrophy. However diagnosis should not rest entirely on mirroring. Dr. Cevidanes has treated hemifacial disorders with a hybrid functional appliance or surgery, following identification of the correct mandibular position in the face.

MANAGING 3-D IMAGES

3-D renderings are "projected rendering" types of images. They are wonderful for case presentations, but do not allow measurements for diagnostic purposes. Constructed 3-D surface models are called segmentations, and are useful for registrations and superimpositions. Measuring 3-D morphology is a problem, as volume is a poor descriptor of morphological shape changes and cannot localize these morphological changes. Commercially available public software is described as locating "closest point surface distances," which provide nice-looking images but cause difficulty in delineating corresponding surface distances.

3-D software often enhances the surfaces of the image, and the result may not be anatomically accurate. Superimpositions of 3-D images first require construction of a surface model, and then a second rigid registration, which in turn requires a definition of where to register (landmarks, surfaces best fit). It becomes extremely difficult and challenging in three dimensions. Voxel-based registration has been done with superimposition on the anterior cranial base. Model-to-model registration involves surface-to-surface registration. Software development is under way via the NIH Road Map for Medical Research and the National Alliance of Medical Image Computing.

TREATMENT MEASUREMENTS AND SUPERIMPOSITIONS

Regional superimposition at the maxilla involves selecting certain anatomic structures to use, e.g., the hard palate for RME therapy. The further away the structure for regional superimposition, the greater the chance of error. The key ridge (zygomatic bone) could be a stable structure for 3-D maxillary superimposition, but this has not been proven using samples of untreated patients. Stability following orthognathic surgery could be measured at the cranial base or by a regional superimposition approach. Bone displacement can vary on account of bone remodeling as well as translation.

Currently, all commercial programs use "closest point surface" distances. This can be very good for small displacements or changes, but it can be a problem for large magnitude changes (e.g., comparing pre vs. post surgical). Corresponding vectors using vector maps could be more useful for larger changes. Tensor-based morphometry is presently being tested in 3-D; this results not in millimeters or angles but in a mathematical output, which can be hard to interpret. Regardless, this may have promise in craniofacial cases or cases with mandibular asymmetry. Airway measurements are probably the most challenging of all, because the patient's head posture makes a large difference in 3-D measuring. CBCT represents one moment in time, while respiration is a dynamic process analogous to inflation of a balloon; therefore, images may vary depending on what stage of breathing the image is taken.

CONCLUSION

Whenever possible, clinical treatment decisions should be based on reliable studies of treatment outcomes. Recognition of the clinical importance of 3-D diagnosis and treatment planning has led us to place a greater emphasis on determining which patients would truly benefit from CBCT imaging. Research is continuing on the use of 3-D imaging, and a future AAO Position Paper on the indications for CBCT will be forthcoming.

PROGRESS AND POST-TREATMENT

How would you treat this malocclusion?

Case R. C. 18 years, 0 months

TREATMENT PLAN

After the treatment options were presented, the parents chose option #2: comprehensive orthodontic treatment with corticotomy and bone grafting.

TREATMENT SEQUENCE

The diagnostic records were reviewed with the parents and an informed consent was obtained to initiate treatment. The fixed appliances from the previous orthodontist were removed, and an upper anterior biteplate was made. On the next visit, .018″ slot fixed appliances were placed on the lower arch, with a .016″ x .016″ TMA utility arch wire on the four lower anterior teeth and .016″ x .016″ SS segmental wire from lower cuspids to second molars on both sides to initiate lower incisor intrusion and leveling of the lower dentition. The patient was referred for corticotomy and bone grafting on the labial and lingual sides of the lower anterior teeth. A full thickness flap was made from the mandibular right to left canine on the labial and lingual side. Decortication was performed in the interradicular areas, using a slow speed #4 round bur. Then, deproteinized bovine bone (BioOss3) was grafted starting from the alveolar crest and proceeding beyond the root apices, ranging in thickness from 2–4 mm. A resorbable barrier membrane was utilized.

Two weeks after this procedure, a .016″ x .022″ TMA reverse curve archwire was placed on the lower arch for additional intrusion. Brackets were then placed on the upper arch, with a .0175″ x .0175″ TMA archwire.

A transpalatal arch was delivered in order to derotate the upper first molars. Following this procedure, the patient was referred for corticotomy and bone grafting on the upper arch from the upper right first bicuspid to upper left first bicuspid. After a full thickness flap was elevated from the maxillary right second premolar to the maxillary left second premolar, peizosurgery was utilized to perform vertical cuts at the interradicular areas. BioOss was then grafted without placement of a resorbable membrane.

After a few days, a .016″ x .022″ TMA archwire was placed on the upper arch to retract the upper anterior teeth. The occlusion was detailed with finishing elastics to settle the bite. After 15 months of treatment, the patient was debanded and an elastofinisher was delivered with instructions for nighttime wear.

RESULTS ACHIEVED AND DISCUSSION

In this case, cone beam CT was extremely important to the successful outcome of the treatment. It facilitated labial and lingual bone thickness views. Because R.C. presented at my office with perforation and dehiscence on her upper and lower anterior teeth, further retraction of the anterior teeth would have most likely been detrimental to her alveolar bone support. Therefore, bone grafting was performed in order to provide protection during the necessary space closure. The apices and lingual aspects of the lower anterior roots were surrounded by the thick cortical plate, which made the intrusion movement less effective. Corticotomy was performed to avoid cortical anchorage. Treatment was completed in 15 months, with significant improvements in overbite (6 mm to 2 mm), overjet (8 mm to 2 mm), facial profile (upper lip to E line 4 mm to 0.5 mm), (lower lip to E line 7 mm to 0 mm), bite relation and al-

BE SURE TO SEE ADDITIONAL PROGRESS AND LONG-TERM RETENTION RECORDS FOR THIS CASE ONLINE: HTTP://WWW.PCSORTHO.ORG/NEWS-PUBLICATIONS/PCSO-BULLETIN.ASPX (LOOK FOR 2012 PCSO *BULLETIN*/CASE REPORT — DR. LEE FULL ARTICLE).

PROGRESS PHOTOS

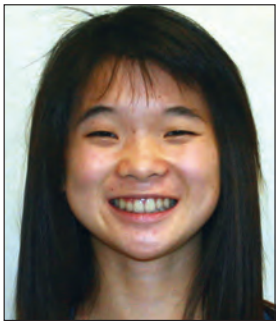
MANDIBULAR CORTICOTOMY AND BONE GRAFTING

FINAL PHOTOS

18 YEARS 0 MONTHS

PROFILE

RELAXED



SMILING

RIGHT BUCCAL

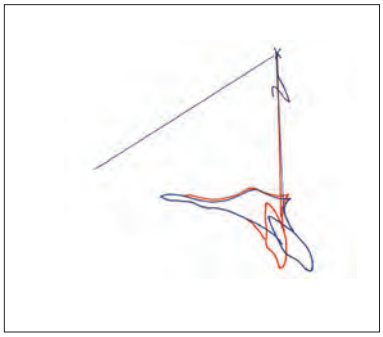
FRONTAL INTRAORAL

LEFT BUCCAL

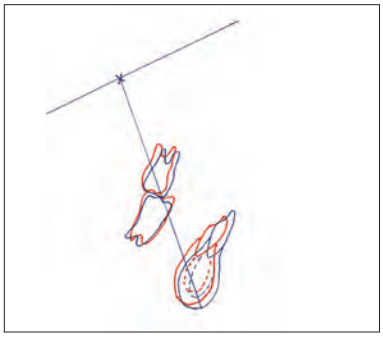
MAXILLARY OCCLUSAL

MANDIBULAR OCCLUSAL

BE SURE TO SEE ADDITIONAL PROGRESS AND LONG-TERM RETENTION RECORDS FOR THIS CASE ONLINE: HTTP://WWW.PCSORTHO.ORG/NEWS-PUBLICATIONS/PCSO-BULLETIN.ASPX (LOOK FOR 2012 PCSO *BULLETIN*/CASE REPORT — DR. LEE FULL ARTICLE).



MAXILLARY SUPERIMPOSITION

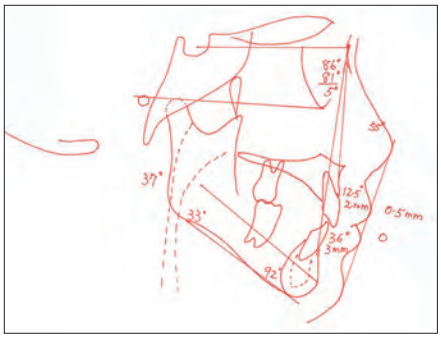


MANDIBULAR SUPERIMPOSITION

GENERAL SUPERIMPOSITION

CEPHALOMETRIC MEASUREMENTS

	PRE-TREATMENT	POST-TREATMENT	MEAN
SNA	85°	86°	82°
SNB	81°	81°	80°
ANB	4°	5°	2°
U1 - NA (degree)	31°	12.5°	23°
U1 - NA (mm)	8mm	2mm	4mm
L1 - NB (degree)	20°	36°	25°
L1 - NB (mm)	4mm	3mm	4mm
MP-SN	36°	37°	33°
FMA	30°	33°	26°
FMIA	63°	55°	63°
IMPA	88°	92°	95°



POST-TREATMENT CEPHALOMETRIC TRACING

Dr. Lee

veolar bone support on her upper and lower anterior teeth.

EDITOR'S COMMENTS

We have all encountered cases that, for some reason, don't progress as expected. In this case, the patient was fortunate Dr. Lee accepted her as a transfer case and for his insight to use CBCT to assess the anatomy that was limiting the necessary tooth movements to finish the case. Based on this knowledge, the combination of selective corticotomies and alveolar bone grafting provided the means to achieve a very nice outcome in a relatively short period of 15 months. As can be seen online, the one-year retention photos show just how stable the result is. It is also nice that the one-year post-treatment CBCT shows sufficient bone support in the areas in question.

PAUL Y. LEE, DDS, *attended dental school at the University of Southern California. He graduated with a doctorate of Dental Surgery. He attended University of Pennsylvania School of Dental Medicine to specialize in orthodontics. Dr. Lee continues to practice orthodontics for adults and children in Cupertino and Milpitas, California.*

PCSO *Bulletin* Case Report Editor:
Andrew Harner, DDS, MS
Huntington Beach, California

For Pre-Treatment of Case R.C., see page 31.

BE SURE TO SEE ADDITIONAL PROGRESS AND LONG-TERM RETENTION RECORDS FOR THIS CASE ONLINE: HTTP://WWW.PCSORTHO.ORG/NEWS-PUBLICATIONS/PCSO-BULLETIN.ASPX (LOOK FOR 2012 PCSO *BULLETIN*/CASE REPORT — DR. LEE FULL ARTICLE).

BACK TO THE BASICS: MIXING ALGINATE

By Dr. Earl S. Johnson

Mixing alginate for impressions should not be a new adventure every time. We came up with a mixing procedure that consistently produces alginate with good flow characteristics and a constant setting time, every time!

EQUIPMENT NEEDED

CADCO Alginator http://www.domeortho.com/supplies_cadco.htm: This machine easily produces a consistently smooth mixture. The mixed alginate can be easily loaded onto a spatula. It is also very easy to clean for the next mix (*Figure 1*).

Juice canister with fish tank heater (*Figure 2*): The heater keeps the alginate water at exactly the same temperature all day. The water's temperature controls the alginate's overall setting time.

Custom-trimmed water measurement vials. (Make several slightly different sizes, as water needs vary slightly from case to case of alginate.) These are trimmed to individual volume sizes (two-scoop, three-scoop, etc.) using the model grinder (*Figure 3*). When used, they are filled to overflowing and emptied. No need to look at obscure lines on the vial; just overfill and pour (Figure 4). The amount of water controls the viscosity of the mixed alginate.

Alginate containing vials of two or more sizes holding accurately pre-measured alginate for two, three or four scoop mixes (*Figure 1*). Alginate is measured and loaded into the vials during down time in the clinic. Vials can be obtained at any pharmacy.

Figure 1. CADCO mixer and vials containing pre-measured alginate.

Figure 2. Fish tank heater will maintain *constant* water temperature in the juice canister.

MIXING PROCESS

Empty all of the alginate from the pre-measured vial into the CADCO mixing bowl.

Fill the pre-sized water vial to overflowing from the temperature-controlled water pitcher.

Blend and mix in the CADCO alginator. (Mixing time must be consistent.)

Load alginate into impression tray. (Loading time must be consistent.)

Seat the impression tray. The alginate should have the proper flow characteristics and set in 10 to 15 seconds. If not, see "Fine-Tuning" below.

Remember:

- Alginate consistency and flow characteristics are controlled by water volume.
- The set time is controlled by the water temperature.
- Mixing and loading times should always be very consistent.

FINE-TUNING THE PROCESS

Adjust flow characteristics by modifying choice of water vials to hold slightly more or less water when overflowing.

Setting Time: Start with warm water for your first mix. Then slowly raise your water temperature until the setting time is the correct length. In our clinic environment, we eventually settled on 94°.

CLEANING UP

When done with the impression, spin the CADCO bowl and scrape the bits of remaining alginate out with a spatula. Final cleanup can be done with a damp paper towel if needed. If you have a garbage disposal in your records sink, just flush the bits and pieces in the sink down the drain! Large chunks should still go in the garbage (*Figure 5*).

You now have an alginate mix with consistent viscosity and a dependable setting time! Cleanup will also be easy.

Figure 3. Adjusting content of water measuring vial with model trimmer.

Figure 4. Filling measurement vial to overflowing. Just overfill and pour into mixing bowl.

Figure 5. Records sink equipped with an alginate-eating garbage disposal.

Carestream DENTAL

The power of together…

… integrates stunning patient images into clinical records

… increases case acceptance with powerful communication tools

… makes paperless a reality

… simplifies collaboration with and growing referral resources

… helps your practice run more smoothly than ever

Experience the power of together and see
why so many orthodontists choose Carestream Dental.

800.944.6365 • www.carestreamdental.com/together2

Ultra Band Lok®

...a band cement in name only.

Ultra **Band Lok®** in Luer Loc Syringe

Ultra **Band Lok®** in Standard Syringe

Ultra Versatile.

- Bonds to stainless, gold and buccal amalgam
- Bite Turbos
- Occlusal Buildups
- Seal and lock RPE screws

Ultra Strong.

- Bonds chemically to metal
- Easy cleanup
- Minimal residual adhesive on tooth surface

Ultra Easy.

- No mixing
- Fluoride releasing
- Available in tooth shade or high visibility blue shade
- Choice of 2 dispensing methods

Reliance Orthodontic Products, Inc.

(800) 323-4348 · (630) 773-4009 · Fax (630) 250-7704 · Web: www.relianceorthodontics.com

P.O. BOX 678 · ITASCA, ILLINOIS 60143 U.S.A.

* U.S. Patent 5,846,075