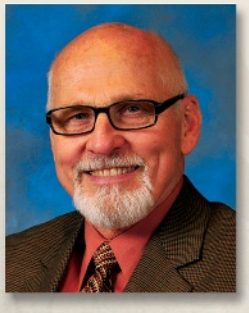
Volume 86 No. 1

Bulletin

PACIFIC COAST SOCIETY OF ORTHODONTISTS

Many thanks to our outgoing PCSO editors and contributors for all their hard work. Welcome to our new editorial team!



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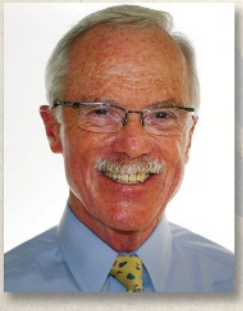
Outgoing PCSO *Bulletin* Editor:
Dr. Gerald Nelson
Incoming: Dr. Jae Hyun Park

Outgoing "Faculty Files" Editor:
Dr. Ib Leth Nielsen
Incoming: Dr. Jaleh Pourhamidi

Faculty Files



Outgoing "Earl's Pearls"
Editor: Dr. Earl Johnson
Incoming "Pearls of the Pacific"
Editor: Dr. Hee Soo Oh

Pearls of the Pacific

New and Younger Members

New Contributors:
"New and Younger Members" column: Dr. Vanessa Browne
"Healing" column: Jenifer Vetter, CDA, CPFDA

Healing

SPRING 2014

PCSO WIOC

Partners in Excellence. Leading Through Innovation.

Joint Meeting for the Pacific Coast Society of Orthodontists and the World Implant Orthodontic Conference

78th Annual Session

- Marriott Hotel and Conference Center, Anaheim, California

Preview Program Coming Soon

Watch for it at www.pcsortho.org

PCSO Bulletin

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A MAGICAL, SPOOKY, INTERNATIONAL, EDUCATIONAL TIME IN ANAHEIM

Jill Nowak

A few years ago, as Pacific Coast Society of Orthodontists (PCSO) board members were discussing the perfect place to hold a PCSO Annual Session, Anaheim kept coming up. PCSO had never held a meeting there, but the longer the discussion continued, the more the excitement grew.

There are so many positives about the location: Anaheim is in Southern California, so the weather should be perfect. Many PCSO members and their staff are within driving distance, and hotel rooms are plentiful in every price range. Disneyland is there so members with kids or grandkids, or those who are kids at heart, can have loads of fun. And what awesome timing, to be there October 2 - 5, during the huge Halloween celebration! Great restaurants, sports venues, and everything L.A. are not too far away.

So it was decided, and we began planning the meeting. Then, it became even more exciting. PCSO was approached by the leaders of the World Implant Orthodontic Conference (WIOC) to explore the possibility of joining PCSO in Anaheim for WIOC's very first U.S. conference. The WIOC conference has been held for the past five years in locations all over the world. In October, a roster of internationally renowned speakers will present cutting-edge lectures focused on temporary anchorage devices (TADs), and other implant technology. We are anticipating a number of international attendees as well as delegates from across North America.

We hope to see hundreds of PCSO members and their staff there. I encourage you to plan early. Registration is now open at: https://s3.goeshow.com/aao/pcso/annual/2014/attendee_registration.cfm. We opened a little early this year to facilitate planning. We hope PCSO members find it helpful to make their arrangements now and spend the next few months planning.

I look forward to seeing you in October – and so does Mickey!

Jill Nowak

PCSO Executive Director
jnowak@aaortho.org

EDITORIAL

NEW COLUMNS

By Dr. Jae Park, PCSO Bulletin *Editor-in-Chief*

Dr. Park

Beginning with this issue, the *Bulletin* will feature two new columns: the "Healing" column and the "New and Younger Member Files."

The "Healing" column will be where practitioners and staff alike can turn for engaging, up-to-date health information that they can apply to everyday life. Topics will include reducing team stress, the importance of healing, ergonomics in the orthodontic office, alternative medicines and naturopathic dentistry, how to spend your leisure time, and the importance of team-building.

Topics will always be open for discussion, and the column will be dedicated to providing tips and advice to our members to help them lead healthy professional lives.

Hippocrates said, "Healing is a matter of time, but it is also sometimes a matter of opportunity." Healing, whether it be physical, mental, or spiritual, affects the person and those around him or her. I am adding this new column because I want PCSO members to share methods for reducing work-related stress, thereby helping their colleagues improve their own lives. I hope this column will motivate not only practitioners but also their staffs to contribute manuscripts to the *Bulletin* so that there is broader, more active participation in our organization. If you, as a practitioner or team member, would like to write an article for an upcoming edition of the *Bulletin*, please contact Jenifer Vetter at jvetter@atsu.edu.

The second new addition is the "New and Younger Member Files." This column will feature 12 orthodontic program residents or recent graduates who are practicing in PCSO. Starting alphabetically, this issue's contributor is a resident and graduate from the Arizona School of Dentistry & Oral Health. Because there are 12 programs within PCSO, each program will return every third year. PCSO residents or new/younger members are encouraged to submit manuscripts about their residencies, or personal or professional lives. I hope this column will instill loyalty to organized orthodontics in our residents and newer members, and that they will join PCSO or another constituent society.

Dr. Vanessa Browne (vnbrowne@gmail.com) will be the contact for this column.

We will continue publishing "Earl's Pearls," but under a different title: "Pearls of the Pacific." Contributors need only provide us with a few photos, along with the essence of the "pearl," and we will assist in the writing of the article. Your participation is appreciated. Dr. Earl Johnson has graciously agreed to continue reviewing manuscripts for the newly named column. PCSO members have enjoyed and benefited from "Earl's Pearls" for years. Recently, Dr. Heesoo Oh, program director at the University of the Pacific, agreed to serve as editor of this column. Dr. Aaron Rouleau will be helping Dr. Oh to gather more pearls from the practitioners. We have a profound appreciation for Dr. Johnson and all the support and wisdom he has provided over the years. For now, if you are interested in writing an article for an upcoming *Bulletin*, please contact Dr. Johnson at earljohnsondds@comcast.net.

Dr. Ib Leth Nielsen has announced that he is stepping down from his position as editor of "Faculty Files." In the past, he gathered information from almost every orthodontic program on the West Coast, but when he was short on contributions, he sometimes submitted articles of his own. I have really enjoyed reading his column and wish to express my heartfelt appreciation for his dedication to and support of the *Bulletin*. I feel it has been quite valuable. I am pleased that Dr. Jaleh Pourhamidi, dean of the College of Dental Medicine at Roseman University of Health Sciences, has agreed to become the column's new editor. If you are interested in contributing, please contact her at jpourhamidi@roseman.edu.

Also, starting with this issue, we will post video presentations of our Case Reports on the PCSO website. Once your case has been accepted, we will provide you with guidelines and help you produce your case report video. If you have an interesting case report to share with our members, please contact Dr. Andrew Harner, drewharner@gmail.com.

Your participation is very important in making the PCSO *Bulletin* stronger. I look forward to being able to share valuable and informative contributions from our members. Enjoy the new columns!

— Dr. Jae Hyun Park, DMD, MSD, MS, PhD, Diplomate, American Board of Orthodontics; Associate Professor and Chair, Postgraduate Orthodontic Program, Arizona School of Dentistry & Oral Health (Mesa, AZ)
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PRESIDENT'S MESSAGE

By Dr. Ronald Jawor, PCSO President 2013 - 2014

Dr. Jawor

THE VIEW FROM THE TOP:

A PRESIDENT'S PERSPECTIVE

Becoming the president of an organization of PCSO's stature is an extraordinary honor, but it comes with its challenges and trepidations. Every step of the journey, from board and volunteer service, to finally becoming a member of the Executive Committee, to serving as a chairperson is a true learning experience. With each new position comes new responsibilities and further insight into the inner workings of the organization, as well as new knowledge and the management skills necessary to be successful. Before being handed the gavel in San Diego last October, I'd wondered, "What's the real view from the top?" Well, now I can tell you firsthand that the view is even more outstanding, and even spectacular, than I believed possible

You might think "spectacular" is too strong a word. True, we are not an international organization — or even a national one. True, we are not a new organization — the type that pops up occasionally with a brilliant and new, albeit short-lived, message. But PCSO has been around for 102 years, and with that history has evolved an amazing culture of accomplishment that remains alive and well today. It would be impossible to list all of the many volunteer efforts currently underway, but I'd like to share some of them.

In short, PCSO is dedicated to providing educational opportunities, information, and benefits for its members through its many strategically charged committees and task forces. Here are just a few examples of these groups:

- The New and Younger Member Committee is chaired by Dr. Aaron Molen. Populated by some of the most knowledgeable and enthusiastic young orthodontists and residents in our region, this committee addresses issues facing those new to our specialty and identifies ways in which PCSO can support them as they transition from their orthodontic program to active practice.
- The Member Needs Assessment Task Force is chaired by PCSO Past President Dr. Rob Merrill and involves many current and past PCSO board members. The group convenes periodically to survey our members and listen to their comments. This task force then makes recommendations to the PCSO board as to how programs and benefits can be tailored to better meet member needs.
- The Nominating Committee is chaired by immediate Past President Dr. Bryan Williams. Dr. Williams serves along with other past presidents and Dr. Norman Nagel, who is the trustee to the AAO. This group identifies future PCSO leaders and recommends them to its members. It is great to have these seasoned individuals looking out for the future of PCSO, and future officers are sure to respond in kind.

There are many other volunteers serving PCSO. The Critical Issues Task Force is a blast furnace of creativity; this think tank of more than 20 astute volunteers works to address the biggest issues facing the specialty of orthodontics on the West Coast. The Annual Session Planning Committees begin their work more than two years before each meeting to find the best topics and lectures and plan for space and equipment to ensure a quality experience for attendees. This year's General Chair, PCSO Past President Dr. Lili Horton, will attest to the fact that planning such a large meeting and pulling it off without a hitch is very demanding. When she hands the baton to Dr. Tom Merrill, the General Chair for 2015, it will be a bittersweet moment, and one with a great sense of accomplishment that will be shared by all.

Thanks to the efforts of the board and the Annual Session Planning Committees, PCSO Annual Sessions are highly successful by many standards. Attendance in the past few years has been strong, and the trend is positive. Both

staff and doctor lectures are highly rated, and PCSO has maintained very high standards for speakers. Attendance from outside the PCSO region is growing, and many residents attend each year. After a few years of negative financial results, the meeting has come in on budget the past few years and is on strong financial ground.

The percentage of PCSO expenditures for administration has fallen during the past several years, while the quality of our support has continued to be high. Our staff is very cost-conscious and helps the board to consider where money can be spent to leverage member benefits. One example is PCSO's use of technology to get information to members — from the online PCSO *Bulletin*, to the new PCSO mobile app, to PCSO's first e-book of Earl's Pearls. PCSO has invested in engaging members 24/7 in an important way.

Beyond the borders of our region, PCSO continues to be a strong national voice. Earlier this year, nearly 20 young PCSO members and residents were invited to the AAO Leadership Conference, where they learned how they could support the specialty and shared their ideas about how to keep orthodontics strong in these changing times. As I write this, several PCSO members, including Past Presidents Dr. Howard Hunt and Dr. Rob Merrill, are in Washington, D.C. at the AAO's Advocacy Conference and meeting with the board of the AAO PAC and Council on Governmental Affairs.

Many other PCSO leaders are representatives to AAO councils or task forces. This year, the AAO convened a very important task force to review the governance of AAO and its constituent organizations. PCSO President Elect Dr. Frank Beglin devoted considerable time and thought as a key member of this task force.

In addition to the work of PCSO Council Representatives, the AAO Delegation — chaired by PCSO Past President Dr. Ron Wolk — participates in the annual AAO House of Delegates, which is the primary governing body of the AAO. Thus, PCSO delegates are the voice of our components to the proceedings of the House. Their work each year truly influences organized orthodontics at its very roots by tending to bylaws and policies, setting membership standards and dues, and overseeing AAO programs to ensure they remain relevant and cost-effective for all AAO members.

As you can see, the list is long, and I've just scratched the surface! Our leaders are committed and the PCSO network is extensive. A PCSO member can get his or her idea to the board, to the AAO, or to the component organization with little effort. And while I have the title of president, I have the honor of being able to facilitate the interweaving of these many ideas and initiatives into a vibrant organizational fabric focused on the mission of bringing quality education and information to its members, while serving those members at the highest possible level. Now, perhaps you can see why I feel that "spectacular" is exactly the right word from my new perspective as PCSO president!

AAO COUNCIL ON SCIENTIFIC AFFAIRS (COSA) REPORT

by Dr. David Covell, PCSO Representative

The AAO Council on Scientific Affairs (COSA) met via videoconference on January 8, 2014. COSA reviewed 32 applications for the Hellman, Sicher, and Graber Awards. The winners will present their lectures during the 2014 Annual Session. The winners of the 2014 AAO Research Awards are as follows:

Dr. Covell

The Milo Hellman Research Award is awarded to Dr. Lucia H. S. Cevidanes from the University of Michigan for research entitled Integrating Biology and Imaging of Temporomandibular Joint in Health and Disease.

The Harry Sicher Research Award is awarded to Dr. Wanida Ono from the Harvard Medical School for research entitled PTH/PTHrP Receptor Signaling in Osterix-Expressing Progenitors is Essential for Root Formation.

Thomas M. Graber Awards of Special Merit are awarded to:

- Dr. Nancy Huynh from the University of Florida, for research entitled Osteoclast-Derived Exosomes: Novel Regulators of Bone Remodeling and Markers of Resorption.
- Dr. Sarah M. Smith from the University of Michigan, for research entitled Local Delivery of Recombinant RANKL Protein Enhances Root Resorption and Orthodontic Tooth Movement in Sprague-Dawley Rats.
- Dr. Tharon L. Smith from the University of Illinois – Chicago, for research entitled Mesio-Distal Tip and Facio-Lingual Torque Outcomes in Computer-Assisted Orthodontic Treatment.

COSA changed the deadline date for submission of completed 2015 Hellman, Sicher, and Graber applications from October 15, 2014 to October 1, 2014. The 2015 Hellman, Sicher, and Graber Award application will be available April 1, 2014 on the AAO website.

COSA accepted 28 Oral Research applications, 390 E-Poster applications, and 52 Table Clinic applications to be presented at the 2014 AAO Annual Session. Hard copies of posters will not be displayed at the Annual Session. E-Posters will be available for viewing during the Annual Session and for two months afterwards on the AAO website.

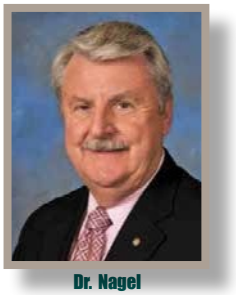
Dr. Greg Huang talked to COSA about the AAO Practice-Based Research Network (PBRN). He presented a history of the AAO PBRN and the National Dental Practice-Based Research Network (NDPBRN) to COSA, and suggested several ways in which the Council can become involved with the AAO PBRN.

COSA continues to review published evidence-based orthodontic research. Appropriate article citations are being added to the evidence-based orthodontic research section of the AAO website on a regular basis.

COSA's next meeting will be on Friday, April 25, 2014, prior to the start of the Annual Session. During the Annual Session, COSA members will judge the Charley Schultz Resident Scholar Award presentations and the Table Clinics, present the Joseph E. Johnson Table Clinic Award, and moderate the Hellman, Sicher, and Graber lectures and Oral Research presentations.

COSA meets every January by videoconference. The next videoconference meeting is scheduled for January 7, 2015.

AAO TRUSTEE REPORT


Dr. Nagel

By Norman J. Nagel, DDS, MS, AAO Trustee

As we've progressed from fall into the winter months, the AAO Board of Trustees' activities have kicked into full gear. Since my last report, we've had a board meeting, participated in the ADA Annual Session and their House of Delegates, and hosted the AAO Professional Advocacy Conference in Washington, D.C. and the Winter Meeting in Las Vegas, NV. By the time you read this, we will have had another board meeting and will be well on our way to the March PCSO board meeting, and preparations for the AAO Annual Session in late April.

Several exciting things have happened on the national front that I want to share with you.

I'm pleased to inform you that Dr. Rolf Behrents has been named editor-in-chief of the AJO/DO. Dr. Behrents humbly accepted the position, which opened with the passing of Dr. Vince Kokich, Sr. Dr. Behrents is the orthodontic program director at the Center for Advanced Dental Education at St. Louis University. The AAO board also expressed heartfelt gratitude to past Editor-in-Chief Dr. David Turpin, who has filled the role during the last few months and will continue through May, working alongside Dr. Behrents.

AAO is also moving forward with its plan to implement a Practice-Based Research Initiative with the goal of gathering data from members in all geographic regions. This data will be used to create a comprehensive database to support all members in their efforts to provide superior orthodontic care and manage effective practices. Dr. Greg Huang, who recently completed his term on the AAO's Council for Scientific Affairs, will chair the committee leading this effort.

Additional efforts are underway to assist members in their professional careers. The board requested that the AAO Services, Inc. board continue to investigate programs to assist younger members in managing their student debt. The Council on Communications recommended a lecture be held at the AAO Annual Session which would present creative ways for members to use AAO Consumer Awareness materials to market their practices. It was requested that the Council on Insurance add a plan to its docket to investigate the details of cyber liability insurance for orthodontic practices, and that its findings be presented as guidelines for members interested in acquiring such insurance.

The AAO board supported the AAO Services, Inc. Board of Directors in their efforts to develop a relationship with a bank in order to establish a practice lending program for members and to develop a relationship with a human resources consulting firm that could provide support to members. In addition, the board endorsed AAO Services' efforts to continue to grow relationships aimed at providing professional education to AAO members and their staff.

Speaking of orthodontic staff, we all recognize the important role they play in our specialty. The AAO recognizes that role as well, and the AAO board has begun an effort to increase the visibility of orthodontic staff at the Annual Session, in publications, and through program offerings. As the AAO is an association focused on excellence in the orthodontic specialty, I'm excited to see our view broaden to emphasize a crucial element to success in fulfilling our mission.

I am committed to educating the public, the dental community, and insurance carriers about comprehensive orthodontic care. How can we ensure that the patient receives the highest quality of care, and that payment for that care—particularly under insurance plans – be fair and reflect the efforts of each member of the care team? To that end, the Council on Orthodontic Health Care, on which I served as a member and an advisor, is closely reviewing the AAO definition of Medically Necessary Orthodontia Care (MNOC). MNOC is embedded in the Affordable Care Act (ACA). I will share more with you on this subject as it unfolds.

The AAO board is very committed to accomplishing work that benefits its members and their practices now, but they are also a group of individuals who care deeply about preserving the specialty in the future. No small amount of time is spent in research and analysis of trends in orthodontics. In November, AAO Executive Director Chris Vranas led the board through a discussion of our specialty and the trends that could potentially affect our profession and patients in the near future. From this discussion, several next steps were developed. I feel confident that, due to the proactive nature of our discussions, the AAO will continue to position itself and its members for the best possible future.

I encourage you to contact me with your comments, concerns, and ideas. The PCSO region has always been a thought leader in the dental profession and the orthodontic specialty. Many of the ideas that are now realities originally began as kernels of conversation between fellow practitioners who were passionate about patient care, orthodontic education, and organized dentistry. I'm honored to be in a position that makes it possible for me to carry the ideas of my colleagues to the national organization, and hope to have the opportunity to hear from each of you about your ideas.

UPDATE ON THE AMERICAN BOARD OF ORTHODONTICS


Dr. Dugoni

Congratulations to the following PCSO orthodontists who became certified or recertified at the June and November 2013 Clinical Examinations in St. Louis, Missouri: Jacklyn Kurth, James Lee, Perry Ormiston, Vahid Babaeian, Brian Rosenzweig, Vivian Chui, Martin Schellinck, Thao Nguyen, Sarah Yoon, Tal Masserman, Khaled Abul Sharaf, Behzad Nejat, Brendan O'Neill, Kashif Ismail, Reena Khullar, Alexander Nee, James Chen, Amy Gimlen, Corey Corpodian, Matthew Hillstead, William Yao, Jacob DaBell, Eshan Karimian, Kimberley Wiu, Courtney Ray, Michael Hawkins, Ryan McComb, Thuan Le, Mehrnaz Tajaddod, Desy Wilson, Benjamin McDowell, Tracy Hagan, Hedi Kermani, John Hintz, Hillel Well, Virginia Hong Kim, Camille Walker, Adam Welmerink, Justin Ward, Jennifer Ashmore, Andrew Summers, Jeffery Schaefer, Sheldon Salins, Donal Flanagan, and Sophia Updike.

PCSO orthodontists Bradford Baker, David Lee, Charles Low, and Reid Winkler were selected to show their ABO cases at the AAO meeting in Philadelphia last year. At this year's AAO meeting in New Orleans, the following PCSO orthodontists have been invited to show cases: Benjamin McDowell, John Hintz, Justin Ward, Alexander Nee, and William Yao. Congratulations to all for being selected by the ABO to display their cases at the AAO meeting.

The ABO applauds the residents attending programs within the PCSO constituent who have registered for the ABO Written Examination being held April 8-11 at the Pearson Vue Testing Centers. The ABO urges orthodontic residents to complete the board-certification process by taking the Initial Certification Examination (ICE). Orthodontic residents are encouraged to register for the ICE soon after passing the ABO Written Examination, as Clinical Examination sessions fill quickly. Orthodontic residents must register for the Written Examination before they may register for the ICE.

Registration is open for the August 2014 Clinical Examination. Space is limited, and exam sessions may close prior to the registration deadline.

The ABO would like to remind future candidates that we accept universal digital formats for pretreatment and interim models that are constructed according to ABO standards and specifications. These files must pass the ABO Utility in order to be used for the Clinical Examination. Please review the ABO Digital Model Requirements on the ABO website before submitting digital models. Be sure to test your digital models as soon as possible to make sure they pass the ABO Utility; if they do not pass the ABO Utility, please contact your vendor. All vendors received the ABO specifications in January 2013.

The ABO is hosting a conference for department chairs and program directors (or any two faculty members from each ADA-Accredited Graduate Orthodontic Program in the United States and Canada), along with ABO-appointed advocates, to attend the Vincent G. Kokich - American Board of Orthodontics Educators' Symposium on March 29, 2014 in St. Louis. Topics to be covered will include the Written and Clinical Examinations, ABO certification and recertification, ethical issues related to the ABO examinations, the value of Diplomate status, and promoting certification throughout the world.

If you have any questions regarding the American Board of Orthodontics, please send me an email at Dugoni@americanboardortho.com.

– Steven Dugoni, Director, American Board of Orthodontics

Members in the News


Dr. Horton

Dr. Lili Horton (*Honolulu, HI*), former PCSO president, is now president of the Hawaii Dental Association (installed Nov. 23, 2013, at the 111th Annual Session of the House of Delegates). She was also inducted as a fellow of the International College of Dentists in November 2013, in New Orleans, LA.

Dr. Greg Huang, professor and chair of the Department of Orthodontics, Univ. of Washington, was appointed chair of the AAO Practice Based Research Network Committee. The committee is charged with developing methods to conduct collaborative research with the National Dental Practice Based Research Network, an NIDCR-funded project that will run through 2017.


Dr. Huang

NEW PCSO AAOF DIRECTOR

Dr. Terrie Yoshikane has been appointed by PCSO President Dr. Ron Jawor to fill the remaining years of Dr. Tom Bales' term as PCSO director on the AAO Foundation Board. Dr. Bales will retire after serving four years on the board. Dr. Yoshikane practices in the San Diego area and is a past PCSO board and delegation member as well as past president of the California Association of Orthodontists. Dr. Yoshikane's term will begin after the AAO Annual Session in April, 2014.

AAO FOUNDATION AWARDS

Prior to the mid-December 2013 deadline, there were a total of 37 proposals, requesting an aggregate of just under $1 million in funding, with a total of $650,000 budgeted. The following represents the types of proposals invited:

- Junior Faculty
  - Orthodontic Faculty Development Fellowship Awards (OFDFA)
  - Postdoctoral Fellowship Award (PFA)
  - Biomedical Research Awards (BRA)
- Residents and Part-Time Faculty
  - Research Aid Awards (RA)
- Collaborative Awards
  - Center Awards (CA)

Also, shortly after the first of the year, the directors received a proposal for Stage Three funding for the AAO Foundation Craniofacial Growth Legacy Collections Project (www.aaoflegacycollection.org), as well as a Stage Two proposal for further funding for the Educational Innovative Award.

- Participating Collections in the Collections Project include:
  - Mathews Growth-University of the Pacific, Sheldon Baumrind
  - Oregon Growth-University of Oregon, David Covell
- One of the two (currently) separate EIA Awards is at the University of Washington, with Gene King being the principal investigator.

AAO BRANDING AND RESEARCH INITIATIVE

At the November conference call meeting of the AAOF BOD, the Directors took steps to further integrate the Foundation into the overall AAO Branding Effort, with new printed materials and a revised website expected to be available in time for the 2014 AAO Annual Session in New Orleans in late April.

The Research Initiative, the previously announced campaign to help ensure that the very best orthodontic research in the world takes place in graduate orthodontic residency programs in the U.S. and Canada, will remain the focus of the organization's fundraising efforts, and this new branding look will be reflected in those materials as well. (See the flier at http://tinyurl.com/cxeuv35 for more information, including how you can be a part of this important effort.)

KEYSTONE SOCIETY

Members of the Foundation's Keystone Society are those individuals who have made a Continued Commitment to the Specialty® to include the AAOF in their estate plans. A total of 352 AAO members have become Keystone Society members, including 114 of those who are also members of the Schulman Study Group. This represents an increase of some 50 percent in Keystone Society membership, and SSG members now constitute just under one-third of all Keystone Society members.

The Foundation encourages all of us to speak to our alumni group members, study club members and others within the orthodontic community to encourage them to become AAOF Keystones.

FOR MORE INFORMATION

The AAO Foundation website may be reached either through the AAO members' website (www.AAOmembers.org) or directly at www.aaofoundation.net.

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

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

COMPONENT REPORTS

California

California Association of Orthodontists (CAO) has streamlined the Orthodontic Assistant Permit (OAP) training course application process! The newest version of the staff training program is more user-friendly and includes features that will make the program easier to implement in your office. For those of you who have purchased the course but have not accessed the material lately, take a few minutes to log on (http://www.caortho.org/careers-and-education/orthodontic-assistant-permit-training) and have a look. If you haven't purchased the course or begun the process, please consider doing it now!

CAO will once again be offering training that your staff won't want to miss. Register them (http://www.pcsortho.org/Educational-Opportunities/Annual-Session.aspx) to join us on Thursday, October 2, 2014, immediately before the start of the PCSO Annual Session in Anaheim. Lee Ann Peniche, a staff favorite, is scheduled to deliver a program that promises to make earning continuing education credits informative, dynamic, and fun.

In addition to orthodontic care, CAO recognizes the importance of general dental care by supporting the CDA Cares program. The program sponsors two dental clinics per year that offer pro bono care to over 4,000 individuals. CDA Cares exemplifies the best of our profession in action, as volunteers provide health care to underserved populations throughout California. CAO is also initiating collaborations with pro bono orthodontic care organizations in order to support their expansion in California. Our goal is to be the go-to source for information on donated orthodontic care for our members who are interested in being providers, and also to facilitate these organizations becoming functional in the community.

Implementation of the Affordable Care Act (ACA) is causing many changes in health care, and will impact benefits for many of our patients. The CAO board is using every resource to advocate for orthodontists and to protect insurance benefits for routine orthodontic treatment. Information explaining how ACA changes will affect patient benefits will be posted on our website soon. Be sure to visit www.caortho.org.

Additional features are coming to the CAO website as well. We expect to launch our new online store in the coming weeks. The new version of the store will offer more efficient purchasing options. Members can also expect to see a new section devoted to consumer awareness and marketing your practice.

Watch for more information about CAO activities and initiatives coming your way!

–Robert Meister, President
California Association of Orthodontists

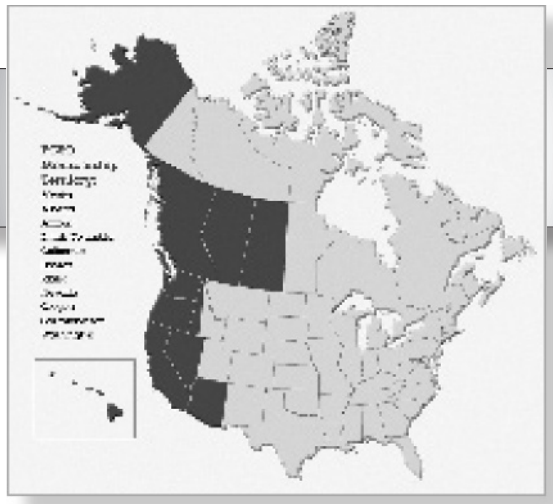
Washington

The Washington State Society of Orthodontists hosted an all-day continuing education event for orthodontists and their staff members on Friday, February 28, at the Meydenbauer Conference Center in Bellevue, WA. Ms. Andrea Cook discussed practice management issues, with a focus on simplifying systems in the pursuit of quality of patient care.

Ms. Cook's presentation was directed at doctors as well as their staff during the morning session, and concentrated on staff members during the afternoon session. Dr. David Musich discussed treatment of Class III malocclusions with the doctors during the afternoon session. A breakfast buffet and lunch were provided for both doctors and their staff, and staff members were invited to have roundtable lunch discussions with their colleagues, centered on a topic of interest. Several vendors were also present at the meeting.

–Dr. Jackie Bunce, President,
Washington State Society of Orthodontists

PCSO at a glance



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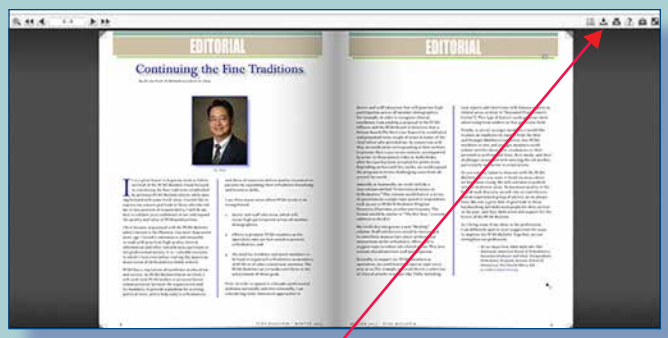
HOW TO SAVE A PCSO *BULLETIN* ARTICLE AS A .PDF FILE

By Jenifer Vetter, CDA, CPFDA
Edited by Jae Hyun Park, DMD, MSD, MS, PhD

PLEASE NOTE: *To save a .PDF file as described in this article, you must have Adobe Acrobat software installed on your computer. This software is widely available (via Adobe.com, Amazon.com, etc.).*

1. Click on the PCSO link:
   http://www.pcsortho.org/News-Publications/PCSO-*Bulletin*.aspx

2. Click on the Flipbook link.



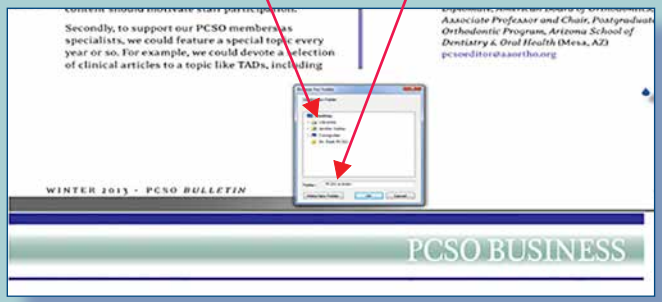
3. Flip through the journal, choose the article to save, and click the Download button.

4. Choose Click here to download the .PDF version of this publication.

5. Open your .PDF file, click on the Document tab, then Extract, then Save As to your desktop. Choose the pages you want (I chose pages 10 and 11 on the .PDF, not the *Bulletin* FlipBook pages), and select Extract Pages as Separate Files, and click OK.

6. You will be prompted to create a destination folder; set this up wherever you would like. For simplicity's sake, I created one on the desktop.The file name is *PCSO Articles*, so it can be used for future articles as well.

* If the files do not combine automatically, you can hold down the Control button + click on each file; once all desired files are selected, right click on one of the selected files. Choose Combine Supported Files in Adobe Acrobat, and follow the prompts.



THE IMPORTANCE OF HEALING

By Jenifer Vetter, CDA, CFPDA, (jvetter@atsu.edu),
Program Manager for the Orthodontic Residency Program, Arizona School of Dentistry & Oral Health

Ms. Vetter

In 2004, *Harvard Business Review* noted that a company's workforce is its single greatest intangible asset. Staff members are worth far more than the tangible assets around them. Merriam-Webster defines healing as "restoring health" or "restoring to original integrity." Many different types of healing (i.e., physical, emotional, medicinal, alternative, and religious) are practiced throughout the world. Taking time out of each day to ensure peace of mind for yourself and your team promotes healing and protects your intangible assets.

MAKE TIME FOR YOURSELF

It is important to begin the healing with yourself. Make time for yourself each day, even if it is only 10 minutes of quiet time while driving to or from work. Turn off the radio, put the phone down, and bask in the peace and quiet. Researchers have shown that certain types of cancer (prostate cancer, for example) are activated by stress. Various modes of healing and stress releasers counteract the negative effects of stress. Without taking the time to relax and decompress, one stays in constant motion. Constantly being "on" is exhausting and leads to burnout. There are many different ways to focus on you, and many of these can be incorporated into group or team activities.

Exercise is a great stress reliever. It helps us feel better about how we look, and allows for much-needed quiet time. For many parents, this is the only time each day that they do not have to make excuses or feel guilty about slipping away for a bit. Exercise has been shown to be more effective than pharmaceutical therapy in mildly depressed individuals. Many organizations now offer wellness incentives as part of their healthcare packages, and provide bonuses for employees who exercise because they see benefits to individuals as well as their overall healthcare premiums. Tai Chi, yoga, running, and walking are all great forms of exercise; try to find an exercise partner who will keep you accountable.

Another key component to good health is getting enough rest. Most adults do not get an adequate amount of sleep each night, which can lead to fatigue, irritability, and further insomnia. Research shows a relationship between lack of sleep and loss of cognition or function. Turn off electronic devices such as games, televisions, and music at least two hours before bedtime to allow your body and brain time to quiet down for the night.

LESS MULTI-TASKING!

Make "you" a priority. Far too often, we place others' needs before our own, leaving very little energy for ourselves. Whether you're running a multi-site orthodontic practice or a family of five, endless multi-tasking and devotion are required. Do not lose sight of the fact that you are still a person, and to serve the practice or your family, you need to be at 100%. Whether it is something as small as taking a walk, getting a pedicure because you saw what seemed like 300 patients that day, or taking a vacation, do it. You have carefully chosen a workplace support team who can handle things while you are away; let them shine!

QUIET TIME

Meditation or quiet time is an ancient healing method that has been taught for thousands of years. Meditation can be done for a few seconds or for hours, and focuses on deep breathing to promote relaxation. Originated by Buddhist monks, meditation can be used by people of any religion as a form of relaxation, and is an effective method of reducing blood pressure, anxiety, and depression. It can be intimidating at first, sitting quietly for minutes at a time, your mind racing with all the things on your to-do list. Start small: sit in a quiet room and plan on five minutes for the first session. Set a timer before you start, so that you are not tempted to check your watch, or worse, your phone. Sit in a comfortable position. Your eyes can be closed or open and focused on an object. Try to clear your mind of all the chatter running through it. Focus only on your breathing. Breathe in slowly for 5 to 10 seconds, and out slowly for 5 to 10 seconds. In the movie Eat, Pray, Love, the main character, Liz, is on a healing journey, and struggles with meditation and "monkey mind," as the Buddhists call it. This is when thoughts "swing from limb to limb, from the distant past to the unknowable future." Work your way up from 5 minutes to 10 minutes, gradually up to a half-hour per day if possible, and you will find you will be able to escape the monkey mind trap.

Businesses go to great lengths to protect their physical assets, by employing insurance, security systems, and financial planning, but the most valuable assets — human assets — need to be guarded as well. Organizations, managers, and individuals should be aware of the effects of persistent stress on the body, and the positive effects of looking after human assets, including one's own health. Taking the time to restore yourself by exercising, getting enough rest, setting aside personal time, and practicing meditation are keys to healthful living.

Incoming and Outgoing Radiographs

By Dr. Gerald Nelson

An incoming X-ray can be a ticking time bomb if not properly handled. An X-ray that gets filed before you review it leads to frustration and anger on the part of the patient family or referring dentist. On the other hand, reading an X-ray that simply should have been filed or scanned is a waste of time. Losing an X-ray results in valuable time spent searching, presents a potential for additional radiation for the patient and, in the end, can make for a very unhappy patient family.

Outgoing X-rays can cause similar frustrations. For example, a patient is in the oral surgeon's office to have teeth extracted, but your office has failed to send X-rays and an extraction slip, resulting in delays and confusion. Or, your staff person responds to a lawyer's request for X-rays without first checking with you, resulting in legal problems.

LOGGING RECORDS IN AND OUT

The treatment record must always reflect when, what, who, and why. Examples are as follows: 1/1/14: Ordered pano from B Dental XR for 3rd molars; or 2/3/13: Beg. rec. and surv. (If the X-rays are done in your office, there is no need to note the location.)

HOW RECORDS ARRIVE

X-rays may arrive by mail or email; they may be brought in by a patient or another doctor; they may be left on your doorstep; a doctor may walk in with them under his or her arm. Set up a system so that incoming X-rays that need the doctor's attention will appear on his or her screen or desk first thing in the morning.

INCOMING RECORDS

Several kinds of X-rays might arrive:

- Beginning survey
- Progress X-rays
- Dental periapical X-rays
- Individual panogram
- CBCT on a disk or download from the cloud (is a reader included?)
- TMJ series
- Transfer patient records
- Second opinion records

For each of these incoming X-rays, you might have slightly different instructions for the team member on how to handle the delivery. They may simply need to be returned to your files, or they may arrive as an unannounced delivery with no note, be a request for immediate information from a doctor or the patient file, or an X-ray from an attorney. Your team members should know the difference between these types of records, and whether the DR needs to see them or not.

OUTGOING RECORDS

All patient records (X-rays, models, and written records) are the property of the doctor. However, the patient has the right to receive a copy of these records or to have copies of these records sent to other professionals. Charges for reproduction may be appropriate. If litigation might be involved, you can withhold records under the advice of your attorney.

You may be asking for trouble if you refuse to forward copies of records — even if the patient has not yet paid for them — as this could be construed

by the courts to mean that you interfered with the orderly progress of the patient's treatment (or start of treatment).

You may receive a request for patient records from the following sources:

From another orthodontist for a second opinion: As stated above, if your patient visits another orthodontic office for a second opinion, you may receive a request to forward the patient's records to the second orthodontist. Team members should be instructed to check with the doctor before sending anything in these cases.

From another dentist, dental specialist, or physician: A team member will review the patient's treatment record to see if there is anything related to the request. For example, was an extraction requested, but your extraction slip and X-ray not sent? If so, ask your doctor to complete the extraction slip so that you can forward it with the X-rays. For unexpected requests, the team member should bring the request and the treatment record to the doctor.

From a lawyer's office: Your staff receives X-rays from a lawyer who is seeking an expert's advice, or a subpoena arrives demanding X-rays, models, or written records. Such requests always require the doctor's attention. Never send records out to an attorney without the doctor's approval.

From an insurance company: Insurance companies sometimes request patient records in order to substantiate a benefit claim you have made on behalf of a patient. No X-rays are to be sent to an insurance company without the doctor's approval.

From another orthodontist: The office may receive this request because your patient is seeking a second opinion or a disgruntled patient is seeking to transfer to another office. Staff members should always consult with the doctor. If you receive a request because your patient has moved to another area, the staff should provide the financial record and an AAO transfer form.

CONCLUSION

It is an important responsibility to manage the coming and going of X-rays from the office. Always log them in and out on the treatment record, and include information such as the date, type of X-ray, source or destination, and the reasons for receiving or sending them.

The Class of 2014, first day in the clinic. Left to right: Drs. Owtad, Rajyaguru, Gardiner, Prince, Surgill.

RESIDENT SPOTLIGHT

A.T. Still University, Arizona School of Dentistry & Oral Health Postgraduate Orthodontic Program

By Vanessa Browne, DDS

This column is for our PCSO residents or New/Younger Members, who are encouraged to submit manuscripts about their residency, personal, or professional life. I hope this column will instill loyalty to organized orthodontics in our residents and newer members and that they will join PCSO or some another constituent society. Dr. Vanessa Browne, vnbrowne@gmail.com, will be in charge of this column. – Ed.

I asked Dr. Payam Owtad, an AAO student member and PCSO resident representative at the Arizona School of Dentistry & Oral Health (ASDOH) postgraduate orthodontic program, to share some highlights about his life as a resident.

Dr. Owtad

VB: Why did you apply to the orthodontic program?

PO: I grew up playing music, which gave me an appreciation for beauty, balance, and harmony. While attending dental school, I found that creating beautiful smiles with orthodontics is in many ways similar to creating beautiful compositions with musical instruments; this similarity is in part what attracts me to orthodontics. Following this passion, I studied in Iran, Australia, and the United States, which has been the center of my focus and desire since I was 20 years old.

VB: Tell me about your orthodontic residency program.

PO: My co-residents and I really feel fortunate to be working with Dr. Jae Hyun Park (chair/program director), Dr. Michael Papademetriou (clinical director), the orthodontic department's outstanding adjunct faculties, and the great staff. The school provides us with a very professional and convivial educational environment, along with a deep exposure to orthodontics that isn't just rooted in the fundamentals of orthodontics and conventional orthodontic methods, but extends beyond to include exposure to the latest technological advancements in clinical orthodontics and unique surgical cases. These include a variety of the most recent conventional and self-ligating bracket systems, lingual orthodontics (Incognito, Harmony), and digital orthodontics such as OrthoCAD, SureSmile, Insignia, Orapix, and Invisalign. In addition, each resident has to perform research — which for me involves a double-blinded randomized clinical trial that focuses on the effects of low-level laser therapy on orthodontic tooth movements and associated pain. I was also involved as an author in publishing three peer-reviewed scientific and clinical articles during my first year of residency, in addition to two other papers that are currently under review. Our program strongly supports our research projects and encourages us to perform high-quality clinical studies and to be involved in public health services.

VB: What are some highlights of your residency?

PO: There are many highlights of my residency. Some of the most memorable events were traveling to orthodontic gatherings and meetings such as GORP,

the AAO and PCSO's Annual Sessions, and the Tweed course in Tucson. These meetings provided a chance to strengthen our friendship as co-residents, and they gave us opportunities to socialize and network with residents and orthodontists from other schools while expanding our professional knowledge and skills. Probably the most formative time we had on the road to graduation came while we worked with the 100-plus patients assigned to each resident here at the clinic. We also saw diverse patients through the community service we performed every month at the St. Vincent De Paul clinic and learned about orthodontic treatment for patients with craniofacial anomalies and cleft lip and palate at St. Joseph Hospital in Phoenix. Treating patients to ABO standards is highly emphasized in our program, and many of our residents become board certified quickly after graduation.

VB: What are your plans for after graduation?

PO: My goal is to be a private orthodontic clinician providing high-quality treatment, while staying involved in academic activities, orthodontic leadership, teaching, and new advancements in orthodontics. My ideal post-residency plan would be to find an associateship or long-term partnership position in Arizona, while keeping my eyes open for other opportunities to purchase my own practice.

VB: Are you involved in any activities within the PCSO/AAO?

PO: Serving as the PCSO resident representative helped me to get more involved in orthodontic leadership, and I realized that there are many opportunities to learn and to contribute to the profession through organized orthodontics. PCSO is a great professional platform and I encourage residents and young orthodontists to join us in the New and Younger Members Committee. Fortunately, my school and residency program has facilitated my participation in orthodontic leadership activities.

Halloween 2013: Faculty, staff, and classes of 2014 and 2015.

2013 Graduation Day. Left to right: Drs. Papademetriou, Cox, Owtad, Milde, Surgill, Gardiner, Shastry, Rajyaguru, Hillstead, Bullen, Park, and Prince.

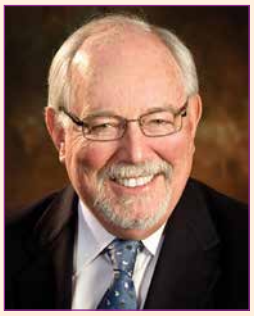
Class of 2014, Tweed Course in Tucson, AZ.

VB: Tell me about your family and personal interests.

PO: I am privileged to have a loving family: my parents, my six brothers and their significant others, most of whom now live in Arizona. I love outdoor activities, music, volleyball, running, stand-up comedy, and most of all, spending time with family and friends.

I would like to thank my teachers for their dedication and mentorship over the course of 12 years of my dental and orthodontic education.

SEASONED Practitioner's Corner



Dr. McDonald

Dr. Flores

Use of the XBOW™ Appliance Vs. the FORSUS™ Appliance for Class II Correction

Dr. Terry McDonald Interviews Dr. Carlos Flores-Mir

MULTIPLE TREATMENT MODALITIES *using functional appliances are being promoted for correction of Class II malocclusions. Some of these promotional claims are supported by scientific evidence; most aren't. Sorting through the variety of these appliances can be confusing in terms of their impact on both a desirable solution to the malocclusion and to time taken to achieve a satisfactory result. The interviewee for this issue of the* Bulletin, *Dr. Carlos Flores-Mir, is a contributing author to an article published in the May 2013 issue of* The Angle Orthodontist, *wherein two compliance-free Class II correctors were statistically evaluated as to their treatment length and incisor proclination on two consecutively treated samples of patients (one with the Forsus appliance and one with the Crossbow [Xbow] appliance). Dr. Flores-Mir explains the construction of the Xbow appliance and offers his candid opinions as to the methodology and results of the comparison study.*

Dr. Flores completed his dental training in 1994, and his orthodontic training in 1998, both at Universidad Peruana Cayetano Heredia in Lima, Peru. He held various academic positions in Peru from 1998 to 2002 before moving to Canada for a three-year postdoctoral fellowship at the University of Alberta, where he took a full-time faculty position upon completion of his fellowship. He remains there today as Head of the Division and Director of the Orthodontics & Orthodontic Program, University of Alberta, positions he has held since April 2010. He has published over 120 peer-reviewed articles, is a recognized international speaker, and is a member of the Royal College of Dentists of Canada, the AAO, PCSO, and the Northeast Component of the Edward H. Angle Society. His email address is carlosflores@ualberta.ca.

TERRY MCDONALD (TM): Would you please briefly describe the construction of the Xbow appliance and how it is used in Class II treatment? When might the Xbow appliance be clinically indicated?

CARLOS FLORES (CF): The Xbow appliance itself is a combination of pieces that most orthodontists should be comfortable with. For those who have used lingual arches, palatal expansion appliances, and Class II fixed-type springs (either Esprit™ or Forsus), the learning curve should be short (*Figures 1-4*).

The palatal expansion component, most commonly a Hyrax-type expander, serves two purposes: firstly, to provide a platform to dissipate the fixed spring-delivered force among the included maxillary posterior teeth without straining the anterior teeth (more about this concept below), and secondly to expand the palate when required. Relative palatal constriction, either dentally and/or skeletally, is common in Class II malocclusions. Timing of the expansion will be discussed below. Occlusal stops for the upper second molars, when erupted, are recommended to prevent over-eruption and assist in avoiding the tendency for intrusion of the upper first molars.

The lingual arch (Triple "L" Arch™) features a few extra components. First, the buccal segment is contoured 5 mm away from the buccal surfaces of the premolars. This bend provides a railing in which the Class II fixed corrector can move back and forth, thus allowing mandibular functional movement to be minimally restricted. Anteriorly, the labial portion is closely adapted to the labial aspect of the mandibular incisors. This anterior aspect of the labial bow, plus the anterior aspect of the lingual arch, are in close contact with the mandibular incisor crowns, serving as a mechanism to assist in reducing excessive incisor proclination during Class II correction. The other extra components are a series of occlusal stops that should be bonded to at least two premolars and, if available, both mandibular second molars. These will serve as extra support to better distribute the spring-generated forces among the mandibular teeth and, in the case of mandibular second molars (if already erupted), to avoid over-eruption and/or intrusion of mandibular first molars and to function as additional anchorage. With this overall mandibular design, the spring force is delivered to the banded mandibular first molars and bonded mandibular first premolars, and indirectly to the mandibular incisors by the lingual arch. The sizes of the wires for appliance construction are: lower

labial wire - .045"; lower lingual wire - .040"; upper RPE connecting wires - .036"; occlusal rests - .029".

The Class II fixed correctors are basically the engines that provide the forces required to improve the occlusion. Their insertion in the maxillary first molar's triple tubes is no different than when used in fully bonded cases, while the lower insertion is modified by having the rod components go over the labial bow of the triple arch (Triple "L" Arch), with the Guerin lock serving as positioning lock and stop. This Guerin lock also serves to activate and later reactivate, if needed, the force delivery as well as to modify the direction of the force by the springs when required.

I personally think that the Xbow is best suited for a Class I skeletal malocclusion with a Class II occlusion, or a mild Class II skeletal malocclusion with acceptable profile and minimal to no crowding in the lower arch. Based on the related research results so far, the produced changes are more dental than skeletal. This actually makes sense due to the relative short active Class II treatment time of four to eight months. Therefore, changes should be more dental in nature. The most common treatment effects are maxillary molar distalization and mandibular incisor proclination. The latter is common among all Class II inter-arch mechanics. Although the average amount of proclination is relatively minor (around 4 degrees), there is a large variation from case to case. For this reason, each case needs to be individually followed to monitor and curtail any excessive proclination. In moderate to severe Class II skeletal malocclusion cases, a combined surgical and orthodontic approach is in the patient's best interest. If an Xbow is used, then the expectation should be tempered; expect mainly dental changes with the associated dental compensation lip changes (i.e., "lip switch": upper lip back, lower lip forward).

TM: You are one of the authors of a research paper on the Xbow appliance that was published in the May 2013 issue of The Angle Orthodontist. Would you please share with our readers the purpose of the study, the methodology used, and the conclusions reported?

CF: As a practicing orthodontist who has in the past used Forsus springs concomitant with fully bonded appliances for Class II correction, one important question was whether the end result achieved by using the Xbow initially, followed by full fixed appliances, was at least equivalent to – if not better than – the treatment option I was currently using in patients with similar malocclusions. Dr. Miller graciously offered to open his practice records so a sample of consecutively treated patients of both treatment approaches could be analyzed. A few years before, he was facing the same clinical question and had treated his patients with one or the other approach for a couple of years until he gathered enough clinical evidence to demonstrate that using the Xbow appliance followed by full fixed appliances was the course he wanted to follow.

The key in this research project was to analyze consecutively treated cases so that not only the successfully completed cases were included. In addition, the fact that all of the cases were treated by the same clinician with the same fixed appliances and all in the same environment created a research scenario in which a significant number of important confounders could be accounted for. Although the initial goal was to analyze 40 cases per treatment approach, a few cases were not included because of problems with the available records. In the final analysis, the number analyzed (>36 per group) was still significant.

As expected, the final quantified results from the two treatment approaches were similar (the clinician's finishing standards should be the same). However, a few differences in variables of great interest to a practicing orthodontist were noted. The first important finding was that the treatment time with the Xbow approach was six months shorter than with the more conventional approach (a mean of 24 – including a three- to four-month rest period – vs. 30 months respectively). The actual time with full fixed appliances was reduced by 10 months when Xbow was used. Theoretically, this should reduce the risk of external root resorption, enamel decalcification, and gingival overgrowth, all of which would be additional benefits. I am currently working on research projects to determine whether this is indeed the case.

TM: What are the main differences (positive and negative) with the Xbow in comparison to the Herbst appliance?

CF: A direct comparison between the Xbow and the Herbst appliance has not yet been made in a clinical setting. A difficulty that researchers would face in this endeavor is the innumerable number of Herbst variations currently on the market. Which one should be selected for the comparison? Would the results from one Herbst variation be representative of the others? Comparisons have only been made based on published data, but the treatment effects appear to be relatively similar. Theoretical differences perceived to favor the Xbow include: a simpler and less expensive construction

SEASONED Practitioner's Corner

(depending on local laboratory fees), faster and less expensive repair (most of the clinical complications can be easily solved in the office on the same day), and comfort with the Xbow individual components (for novice users). Another significant advantage is that stainless steel crowns are not required, as their removal is sometimes cumbersome. The Herbst appliance's theoretical advantages are: a long history of use and extensive clinical experience, multiple available modifications that allow its use in different clinical scenarios, and vast amounts of published data. Studies have shown that although there is a short-term acceleration of mandibular growth with the Herbst appliance, there does not appear to be any difference in mandibular length in the long term when compared to normal growth.

Neither appliance is problem-free, so the question for me as a clinician is, which one is less prone to problems and, when problems do arise, how simply and expediently can those problems be solved? For me, the Xbow has an advantage in this regard. Typical Xbow complications are discomfort in the cheek area and uncemented bands. Breakage of the Forsus seems to be at approximately the same rate as when it is connected to the archwire. The Esprit Class II corrector has just entered the orthodontic market, so I am looking forward to evaluating its performance clinically. Anecdotal reports shared by Dr. Miller on the Esprit indicate both durability and improved patient comfort.

TM: Should maxillary expansion, when indicated, precede Class II correction in a Xbow case?

CF: There are two ways to approach the need for palatal expansion. It can be done either before or after the active Class II correction phase. My approach is that if the palatal constriction is such that when a fixed Class II corrector is inserted, it interferes with proper mandibular movement, then palatal expansion is required in advance. In all other cases, I prefer to achieve the Class II correction first so that I have a more precise idea of just how much expansion is needed. This also gives us the opportunity to test the Class II correction during the expansion retention period, and to replace the springs on one or both sides as necessary. Primary maxillary expansion for maxillary constriction and significant posterior crossbite is completed before the springs are placed. Secondary or compensatory maxillary expansion can be done after the springs are placed. As some maxillary expansion is needed in most Class II patients, it is acceptable to expand before springs are placed, or while the springs are on. This can also shorten the Xbow treatment time.

TM: Is the Xbow, followed by full brackets, more comfortable than a combined fully bracketed case with a fixed Class II corrector?

CF: Yes, if comfort can be defined as the length of time the patient is in full fixed appliances. Thus far, we have only anecdotal evidence on this question. I am currently conducting a randomized controlled trial (RCT) that, among the planned outcomes, will try to determine whether this is the case. We need to keep in mind that there are so many clinical variables acting simultaneously that a clear answer may be elusive. Just a few months ago, I published a study reporting the patient experience with the Forsus appliance. I am using a similar approach for the above-mentioned RCT.

TM: What is the theoretical advantage of not using a 2x4 appliance in Xbow cases?

CF: An overall reduction in the length of time that fixed appliances are on the maxillary incisors is a conceptual goal. Previous research has suggested that a shorter treatment time and less apical displacement with braces is associated with a smaller probability of orthodontically-induced external apical root resorption (OIEARR). The teeth most commonly affected by OIEARR are the maxillary incisors. Therefore, if Class II occlusion can be corrected with minimal apical root displacement and the shortest time possible with braces on those incisors, the less likely it will be that OIEARR will express itself. Based on these findings, 2x4 appliances are only to be placed when the initial position of the maxillary incisors is such that they will preclude proper overjet correction. If a 2x4 appliance is required for incisor alignment, the incisor brackets are removed when such alignment is achieved or the archwire is segmented from lateral incisor to lateral incisor, or canine to canine, and the Class II correction is initiated.

TM: What are a few of the contraindications for use of the Xbow appliance in Class II correction?

CF: One contraindication for this approach is when mandibular incisors are already proclined before treatment is started. I am more conservative with the use of Xbow in cases that are already proclined (I set 100 degrees to MP as my red flag). Assuming that 4 degrees of mandibular incisor proclination will be produced, numbers larger than 105 degrees make me uncomfortable for periodontal reasons. Having said that, two systematic reviews have concluded that incisor proclination by itself does not automatically produce gingival recession. It has to be associated with a thin gingival biotype and poor oral hygiene.

Patients with deep overbite and short lower facial height sometimes need to be treated to a higher incisor inclination number and a more acute inter-incisal angle for profile and overbite stability reasons.

An excessive amount of crowding would be a second contraindication. If the plan does not involve extraction, then the incisors will procline to gain arch perimeter. If an Xbow is then inserted, further proclination is to be expected.

Finally, if the treatment goal is to produce significant facial changes in moderate to severe Class II cases, then the Xbow should not be the first choice. Research has failed to show clinically significant skeletal and profile changes. If increased chin projection is the goal, then jaw surgery would be a better plan.

Editor's Note: *Suggested laboratories for fabrication of the Xbow appliance include:*

Extreme Dental Lab Inc. has licenses to fabricate Xbows in Canada and the United States. Their address is 87 Thornmount, Unit 27, Toronto, Ontario, M1B 5S5; phone: (416) 286-0111 or (888) 237-5950. This company makes an alternative Xbow design called the Extreme Bow.

Great Lakes Orthodontics, Ltd. has a license to fabricate Xbows in the United States.

DynaFlex has a license to fabricate Xbows in the United States.

Integral Dental Lab has a license to fabricate Xbows in Canada. The address is 1402-805 Broadway Street, Vancouver, BC V5Z 1K1. They can be reached by phone at (604) 872-6656.

Preferred Ortho Dental Laboratory has a license to fabricate Xbows in Canada. The address is 14065 Victoria Trail NW #207, Edmonton, AB T5Y 2B6, Canada. They can be reached by phone at (780) 490-6585.

FIGURE 1. *Maxillary occlusal view showing Hyrax-type RPE; note occlusal stops on second molars.*

FIGURE 2. *Mandibular occlusal view showing Guerin locks on buccal rails of Triple "L" Arch.*

FIGURE 3. *Anterior view showing Forsus springs, which are attached to maxillary first molars and distal to Guerin locks on buccal rails of lower Triple "L" Arch.*

FIGURE 4. *Espirit Class II corrector attached to Xbow appliance.*

FACULTY Files

ADVANCED RESEARCH AVENUES
AT THE ROSEMAN UNIVERSITY OF HEALTH SCIENCES ORTHODONTIC PROGRAM

By Prashanti Bollu, DMD, MS, MBA, Director of Dental Research, College of Dental Medicine, Henderson Campus, Roseman University of Health Sciences

In November 2013, many political and business community leaders throughout Southern Nevada attended the ribbon-cutting ceremony for the new Research Laboratory.

In this Faculty Files column, we profile Roseman University of Health Sciences' orthodontic program. We will feature other orthodontic programs in future issues, in addition to clinical articles. – Ed.

For a young program that has graduated only three classes thus far, the Advanced Education in Orthodontics & Dentofacial Orthopedics/Master in Business Administration (AEODO/MBA) Residency Program at the College of Dental Medicine, Roseman University of Health Sciences in Henderson, NV is making significant advances in research. Two new research tools – the Instron E1000, a dynamic universal testing machine, and the QLF-D Biluminator 2 System, a fluorescence-based camera technology – will aid us in moving our research forward.

OVERVIEW OF THE AEODO/MBA RESIDENCY PROGRAM

Under the leadership of Dean & Program Director Dr. Jaleh Pourhamidi, the AEODO/MBA Residency Program has evolved quickly since its inception in 2008. The 35-month residency program admits up to 10 residents per year. At the completion of the program, each receives a certificate in Orthodontics and Dentofacial Orthopedics as well as an MBA. The curriculum seeks to integrate clinical, research, and business components for careers in clinical orthodontics, academics, or entrepreneurship.

NEW RESEARCH FACILITY

In the fall of 2013, Roseman completed construction on a new 42,500-square-foot Research Laboratory. The facility brings together researchers from the Colleges of Pharmacy and Dental Medicine and the proposed College of Medicine, broadening the University's commitment to inter-professional education and research. Orthodontic residents now have an opportunity to be involved in cancer, salivary, and drug-related research. One project resulting from the collaboration with the College of Pharmacy has led to new observations on the anti-cancer effects of known nutraceuticals in oral cancer. Our findings on this novel concept will soon be published.

With the newly installed Instron E1000 at the inaugural opening of the research lab. On left, Director of Dental Research Dr. Prashanti Bollu and right, Dean & Program Director Dr. Jaleh Pourhamidi, AEODO/MBA Residency Program, College of Dental Medicine, Roseman University of Health Sciences.

The Instron E1000

The most exciting addition to our research equipment is the Instron ElectroPuls 1000. As far as we know, the research facility at Roseman University of Health Sciences is the first in the U.S. to bring dynamic load testing to an orthodontic academic setting, thanks to the Instron.

The Instron E1000 is currently being used by our residents in studies involving bond strength and bond failure testing. The device's ability to conduct cyclic testing in dry as well as wet media (e.g., saliva bath) can mimic the natural oral environment much better than the static testing modes used until recently. This feature opens up avenues to verify existing standards on static loads as well as to assess the physical endurance of several new products in a dynamic state. Color stability of various materials in different oral environments is another area under exploration. By changing various grips, we are able to test samples ranging in thickness from 0.1 mm to 6.5 mm, expanding testability to a broad spectrum of products.

The QLF-D Biluminator 2 System

The AEODO/MBA Residency Program has also recently acquired the Quantitative Light-induced Fluorescence (QLF)-D Biluminator 2 system, which consists of a single-lens reflex (SLR) camera with a 60 mm macrolens. This specialized camera and software takes two images, five seconds apart: one is a regular white image, and the other is a QLF image that shows demineralized tissues as fluorescent. The extent of fluorescence allows for quantification of the extent of demineralization. The older version of QLF, which was introduced almost two decades ago, had some associated complexities, but the newer QLF-D system is simpler to use, making easier the diagnosis and management of demineralized lesions, even at a very early stage. White spot lesions (WSLs) are commonly seen at the end of orthodontic treatment. Although direct visual examination is the most commonly used diagnostic approach, more advanced techniques – including QLF – can detect decalcification even before the defective lesion is visible, allowing for earlier diagnosis and management. Several agents for WSL management are currently available

and on the market. However, the true effectiveness in resolving or reversing demineralization is yet to be determined. Moreover, the intensity of effectiveness in remineralization is dependent on several factors, including the depth of the lesion and severity of decalcification.

Residents at our program are currently involved in multiple projects investigating the accuracy of QLF-D in detecting varying degrees of artificially created WSLs, as well as existing WSLs collected from routine diagnostic orthodontic records. Prospective clinical trials to verify the effectiveness of several products claiming to remineralize WSLs are currently being designed.

A Large CBCT Sample

As part of routine diagnostic records, the orthodontic clinic at Roseman acquires cone-beam computed tomography (CBCT) scans (with an iCAT) before and after orthodontic treatment. Progress scans at low resolution are taken as needed. Over the last five years, our CBCT records sample has reached about 1,500 scans. This collection of information, categorized systematically, offers an excellent resource for residents pursuing certain retrospective research. Each scan is interpreted by an oral radiologist through the BeamReaders service. A systematic and organized filing of all CBCT and BeamReaders reports allowed us to conduct a thorough investigation on the incidence of various pathologies in the local demographics, which we plan to publish soon.

Research Portal

With 30 residents working on graduate research projects at any given time, in addition to other ongoing faculty research projects, Roseman needs an efficient system to audit its various research projects. With the help of the University's IT team, the AEODO/MBA Residency Program has recently developed a research portal that houses individual research projects under a common hub. Layers of security have been attached to all information on the portal, and each project is accessible only by its individual research team. Each project has its own collaboration site, which offers an active interface for all research activities related to that specific project and also serves as a repository for all current and archived information. This approach has improved the efficiency of running multiple projects effectively; it also allows investigators in other locations to collaborate on any particular research project.

Dr. Melineh Dereghishian, a second year resident, assisting Dr. Prashanti Bollu with stabilizing a sample on the Instron E1000.

Dr. Jay Joshi, a second-year resident, working with QLF images.

In addition to the emphasis on research and clinical aspects, the program provides a focus on business principles – as part of the MBA curriculum – which encourages residents to pursue practice management-based research with various mentors. On average, our program is involved in one to two practice management-based research projects each year. The research team at the AEODO/MBA Residency Program at Roseman University of Health Sciences believes that collaboration is crucial to investigating new concepts in dentistry and orthodontics. Our program offers a conducive environment for residents and faculty to contribute to the field via cutting-edge research.

DR. GERALD NELSON

SAN FRANCISCO, CALIFORNIA

By Dr. Shahram Nabipour, PCSO Bulletin
Central Region Editor

AT THE 2013 AAO MEETING IN PHILADELPHIA, VINCE KOKICH PRESENTS A COVER TO JERRY.

SN (Shahram Nabipour): ***Tell me something about your childhood: where you were born, a bit about your immediate family, and where you grew up. Are there other dentists in the family?***

GN (Gerald "Jerry" Nelson):

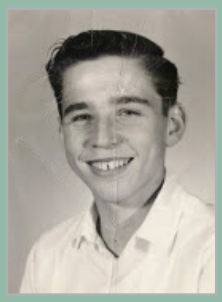
I was born in Oakland, California, on May 8, 1941. The next day, the German submarine containing the Enigma cryptography machine was captured, thus allowing the Allies to crack the Nazi encryption code. WWII is still one of my earliest memories from Mill Valley, CA, where we lived until I was six. I still recall having to turn off all the lights in the house during an air raid drill. I remember the ice man and milkman making deliveries. I'm the third of four boys. My dad's family immigrated to Oregon on the Columbus River from Lulio, Sweden, when he was a year old. My dad, Carl, had an eighth-grade education, and my mom, Violetta, had a high school degree. They both studied for and obtained real estate broker's licenses before I was born. By the time I was ten, we had moved to Castro Valley, California. From that time until I left home for college, we four boys remodeled and flipped East Bay houses for my parents. As a result, I'm a somewhat competent amateur painter, plumber, and electrician! There are no other dentists in the family.

SN: ***How did you choose dentistry and orthodontics?***

GN: My first dentist provided poor service for our family; in fact, he extracted my two lower first molars, which were replaced with bridges in dental school. Fortunately, my parents transferred me to a very competent Castro Valley dentist, Dr. Tom Pursiano, who educated me about my teeth. In my senior year of high school, he suggested I consider the orthodontic specialty, which he had always thought would be rewarding. I took his advice and made my plans. In those days, you could apply after 120 units of pre-dental courses; no degree was necessary. So after three semesters and a summer session, I was accepted in 1961 to the UCSF School of Dentistry.

SN: ***Tell us about your orthodontic training.***

GN: In that era, the competition to enter orthodontics was a lot less intense. UC had a special program called Curriculum II, which was an undergrad orthodontic specialty program. A first-year dental student could apply for one of nine positions in the orthodontic curriculum. Only UC students were considered. Earl Johnson, my best friend among my classmates, and I were admitted. Starting with the second year of dental school, our time in perio, endo, crown and bridge, and oral surgery was cut back to make room for the orthodontic classes and clinic. We both graduated in four years with a DDS and an ADA-approved orthodontic specialty certificate. In 1970, the ADA decided to require orthodontic



JERRY AT 11 YEARS OLD.

IN FIRST GRADE: JERRY IS IN THE LAST ROW, SECOND FROM END, ON RIGHT (BIG EARS).

HIGH SCHOOL GROUP: (R) DICK VANDERBILT, ALSO A DENTIST, AND DAN VANDERBILT, A MECHANIC, THUS: DANNY AND THE PARADOCS.

programs to be post-grad, so UC switched to a two-year grad program. The current UCSF orthodontic residency is a three-year term and includes a Master's degree.

My classmates included Earl Johnson, Jim Duffin, Jack Rosser, Ken Takeda, and John Jones. Earl and I enhanced our experiences in the clinic by observing each other's patients. This paved the way for my future partnership with Earl (or as we say, EJ).

SN: ***Who were your faculty mentors?***

GN: I had some great teachers. Eugene (Big Daddy) West was chair, and the faculty included Don Poulton, Bill Paden, Rodney Mathews, and George Payne.

SN: ***What techniques were taught?***

GN: We were taught to place a fully banded appliance with 0.022 standard edgewise brackets. We had to cut and weld our bands from SS banding stock, and weld on the brackets. There was no torque or tip in the brackets, so we had to bend the wire! We learned Steiner cephalometric analysis. The lab and clinic was technique-sensitive. Instructors insisted on high-level digital skills.

SN: ***Did you do research?***

GN: Research was not required, nor was there any time allowed for it.

SN: ***What happened after graduation?***

GN: I married my high school girlfriend, Cathie, in the spring prior to graduation. I entered the Air Force and we were stationed in Athens, Greece, for two-and-a-half years. I was assigned to the dental clinic to care for patients with braces who were stationed at the air base. I followed another orthodontist from UC, Bob Scholz. We had a six-month overlap, and became friends and scuba pals. Bob had started the base scuba club, which I took over when he left. My wife and I adopted a boy from a Greek orphanage before returning to California. Bob had let me know that Wayne Watson in Berkeley was looking for an associate, and I was very lucky to join him in 1965. Wayne was an editor of the PCSO *Bulletin*, and later of the *AJO/DO*. He was an important mentor for me.

It was a two-day-a-week practice. I have always liked working with others, so after five years of growing the practice, I called Gene West to ask if he could recommend one of his students who was soon to graduate. He gave me the name of Michael Meyer, who bought into the practice six months later. We were partners for 40+ years; it was a wonderful experience, as Mike is incredibly creative and a great orthodontist. A few years later, EJ and I started a satellite partnership practice in Tiburon, CA, which we held for 13 years. Earl's main practice was in Mill Valley.

Portrait of a Professional

JERRY CONSTRUCTED THIS VEHICLE FOR FOUR KIDS: (L TO R), JON, SARAH, SALLY, AND DAVID.

THE PARTHENON: WHEN JERRY WAS IN ATHENS IN THE LATE '60S, YOU COULD WALK RIGHT UP TO IT.

As the practice grew, Mike and I added offices on Berkeley's North Side and in Orinda. We took on associates: the first was Nancy Ung; then we added David Johnson, Andy Trosien, and finally Paul Kasrovi, who bought the practice from us. Mike and Nancy continue to associate in the practice, as does Min Kim, Claire Ferrari, and Nga Hoang.

SN: ***Tell me about your immediate family.***

GN: My immediate family grew rather large. After Cathie and I adopted David in Greece, she became pregnant with Jon, who was born in Greece. Then we came to Berkeley and adopted two girls, Sally Ann and Sarah. When those kids were adolescents, Cathie and I separated, but we continued to live a few blocks apart and shared the job of raising them. Quite a few years later, Cathie died of cancer.

In 1980, I met and very quickly married Pamela Grove. She gave birth (at home) to Nick, and four years later, Margaret (Maggie). How Pamela ever had the nerve to marry me, with four adolescent children in tow, remains to me a great mystery. I'm so happy she did! David, the oldest, lives in LA with his mate, Keith. David is a primary trainer in a top-level English riding stable, and does some horse trading and scriptwriting on the side. Sally Ann is a social worker working with disabled kids, and is married with two children; one is an excellent baseball player and the other a wonderful dancer. Sarah, a psychologist, also has two children, both girls. Jon and his wife Terri have a 17-year-old boy and 13-year-old girl. Jon is a forensic IT specialist. Maggie and Nick are both married, without kids (yet). I might finally get my dentist family member, as Maggie's husband, McGarrett, has applied to dental school. Nick is a primary care doctor at Highland Hospital in Oakland.

SN: ***Have there been periods in your adult life spent in other careers or venues?***

GN: After I withdrew from the practice in Tiburon, Mike — who had been teaching at UCSF — encouraged Bob Boyd, the ortho chair, to invite me to join the faculty, where I have participated ever since. I'm now the interim chair of the Division of Orthodontics. Most of the orthodontists who have ever worked in our Berkeley offices are also involved in teaching at UCSF.

SN: ***How did you manage to practice and teach at the same time? How much time did you devote to teaching when you first started?***

GN: I had the advantage of partners in both the Berkeley and Tiburon practices. This gave me flexibility. Mike and I were each able to take a three-month sabbatical during a two-year period in our practice. The stay-at-home partner worked a bit harder. Neither of us ever worked more than four days per week. For several years, it was three days each. We had a couple of summers during which we

JERRY NELSON AND MIKE MEYER IN TAHOE.

KOREAN PARTNERS: DR. SUNNY KIM AND PROF KYU-RHIM CHUNG COLLABORATE ANNUALLY WITH UCSF.

worked from 7 AM to 2 PM.

As my kids grew older, the partnership gave me the time to teach. Why was I drawn to it? Working with Mike and Earl meant we collaborated on systems and treatment protocols, so as we developed systems, it was fun to tell others about them. Mike was teaching at UCSF as soon as he graduated, and mentored me into it as well. Mike, Karen Mowad, and I wrote a practice management newsletter for several years. Mike and I did a lecture tour in Japan, and at a couple of AAO meetings. We taught an annual four-day practice management session at the Unitek plant.

When we sold the practice to Dr. Kasrovi, I had the choice to keep working for him or to teach more. I went from 20% to 50%, and I'm now teaching full time. Private practice was great fun, but teaching is more challenging and rewarding. Now I keep at it as I learn so much, and the 29-year-olds are so interesting.

Another thing about partnership: we split up areas of responsibility. I managed the staff and performed office maintenance while Mike managed all financial matters. Partnerships are kind of unusual; the arrangement does not work for all. I think you have to collaborate on all treatment plans before starting. You can't be overly worried about money or treatment plans. Having a partner does moderate the bottom line.

SN: ***Did you take the ABO or belong to study clubs?***

GN: I passed the ABO in 1999, and since 1979 I've been a member of the Northern California Component of the Angle Society. Earl and I were part of the Marin County Orthodontic Study club for several decades.

SN: ***Are there other activities you spend time doing?***

GN: Pamela and I spend time on a piece of rural property in Paso Robles, CA. We have made a lot of improvements to the two

SEONG-HUN KIM VISITS UCSF.

EARL JOHNSON

PART OF THE UCSF TEAM: PAUL KASROVI, IB NIELSEN, AND FRED FULLMER.

Portrait of a Professional

houses on this property, which our family and friends use as a retreat. I have honed my house maintenance skills there, and Pamela is our sommelier. UCSF residents come for a weekend every September.

SN: ***Have you been involved in civic or volunteer work?***

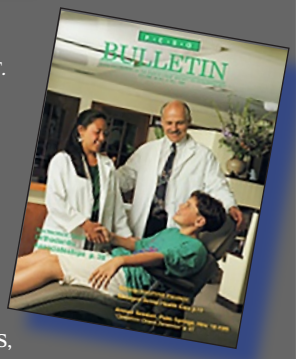
GN: In 1970, Mike Meyer and I started an evening orthodontic clinic at La Clinica de la Raza in Oakland. We attended the clinic every three weeks. It still functions today. UCSF residents rotate through the clinic, and attending faculty includes Andy Trosien and Nancy Ung.

SN: ***Have you been involved with PCSO, or with other dental associations?***

GN: I guess you could say that: in fact, PCSO has been a major part of my life. I was appointed PCSO *Bulletin* Editor in 1992, and only recently stepped down from that position. (I'm so pleased with my successor, Dr. Jae Hyun Park.) Serving as the editor of this publication for 20+ years helped me grow as an orthodontist and teacher. Readers of the *Bulletin* often say hello to me at meetings, which is truly satisfying. As editor, I had the privilege of attending PCSO board meetings.

JERRY VISITS NEW PCSO *BULLETIN* EDITOR, JAE PARK, ON HIS TURF AT A. T. STILL UNIVERSITY.

THE PCSO LEADERSHIP IN 2010.



IN THIS ISSUE OF THE PCSO *BULLETIN*, JERRY WROTE AN ARTICLE ON ASSOCIATIONS, SO DAUGHTER SARAH AND SON NICK EACH PLAYED A PART.

UCSF PROGRAM DIRECTOR IB NIELSEN GETS HIS CHARGE.

MORE OF THE TEAM AT UC SF: KARIN VARGERVIK, JERRY, HELAINE KAN, AND SNEHA OBEROI.

UCSF ALUMNI IN 2013.

A PASO ROBLES VIEW: THE QUIET ZONE ON THE PROPERTY.

JOHN DUMARS, NAPA ORTHODONTIST AND UCSF FACULTY MEMBER, THROWS THE SHOE.

THIS DINING AREA IN THE NELSONS' PASO ROBLES GUEST HOUSE IS INVADED BY RESIDENTS EACH SEPTEMBER.

UCSF STUDENTS: IN PASO ROBLES IN 2007.

It has been a wonderful experience to witness the dynamic and devoted people involved. Phil Rollins was executive director; now Jill Nowak serves in this position. Their leadership and influence has provided guidance that has allowed the PCSO Board to become the most effective group I have ever worked with. During that time, I was also involved with the *AJO/DO* as the Clinician's Corner Editor, and as a PCSO Delegate with the AAO House of Delegates.

PCSO is a remarkable organization. The people involved are intensely committed to improving our specialty. I had the opportunity to meet so many men and women of character and intelligence, including orthodontists and association staff members.

SN: ***Do you have advice for new PCSO members?***

GN: Firstly, always keep in mind that each patient family trusts you to not only plan and execute quality treatment, but to educate them and empathize with their feelings about the process. We are very lucky to get to know our patient families over a two- to five-year year period, and witness their successes — and sometimes, their trials.

Secondly, find a way to provide care to those who can't pay the standard fees for your services. Good treatment of a malocclusion can change a person's life.

THE NELSON BOYS: THREE BROTHERS (L-R), DON, WITH DOT, JERRY, WITH PAMELA, MEL, WITH BEV, AND WAYNE, WITH SUSAN.

JERRY AND PAMELA ENJOYING THE CAFÉ CUBANO IN MIAMI'S LITTLE HAVANA.

ALL TOGETHER LAST YEAR: JERRY, PAMELA, AND: MAGGIE, PAMELA, SARAH, SALLY, DAVID, NICK, JERRY, AND JON.

Thirdly, orthodontic treatment protocols change extremely quickly, so it is a challenge to stay current. Be sure to use the AAO website; it offers many resources to facilitate your success in practice. Besides the many journals of which you need to keep abreast, please join or start a regular study club so you can share ideas with your colleagues.

Finally, contact PCSO Executive Director Jill Nowak at jnowak@aaortho.org to learn how you can participate in the association. You will be amazed how rewarding it can be.

DR. GERALD NELSON ON HIS MOTORCYCLE.

Case Report

Beginning with this issue, a video of the Case Report will be posted on the PCSO website. –Ed.

Pre-Treatment

PROFILE

FRONTAL

SMILING

How would you treat this malocclusion?

Case M.L. 11 years, 10 months

History

An 11-year and 10-month-old Asian female presents to your office with a chief complaint of an unerupted tooth. Her medical history is non-contributory, and she receives routine dental care.

Extraoral Findings

Facial analysis reveals full, competent lips with proportional facial thirds. Overall facial symmetry is noted.

Intraoral Findings

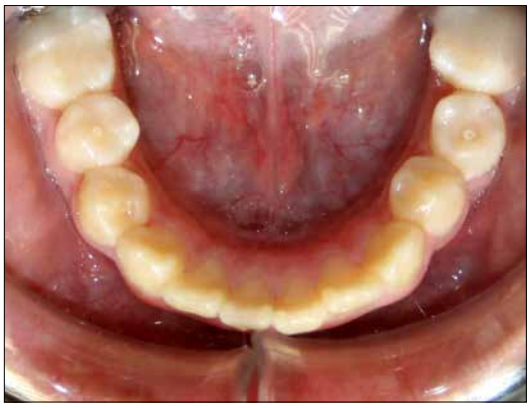
The clinical examination reveals a Class II subdivision left malocclusion with retained maxillary right deciduous canine. The patient has moderate crowding on her maxillary arch and mild crowding on her mandibular arch. She also has a 10% overbite on the maxillary central incisors. Her maxillary left lateral incisor is edge-to-edge and her maxillary right lateral incisor is in crossbite. There is no functional shift. The mandibular dental midline is coincident with her facial midline, but her maxillary dental midline is shifted to the right side by approximately 2 mm. Gingival attachment appears within normal limits, and oral hygiene is good.

RIGHT LATERAL

FRONTAL

LEFT LATERAL

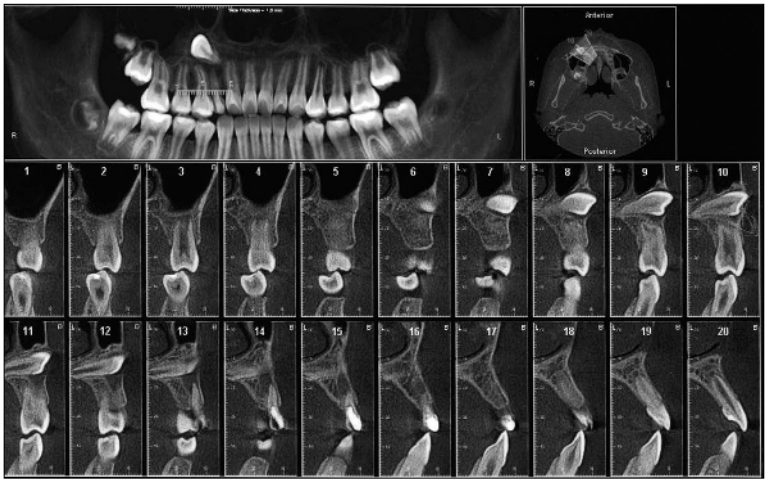
MAXILLARY OCCLUSAL



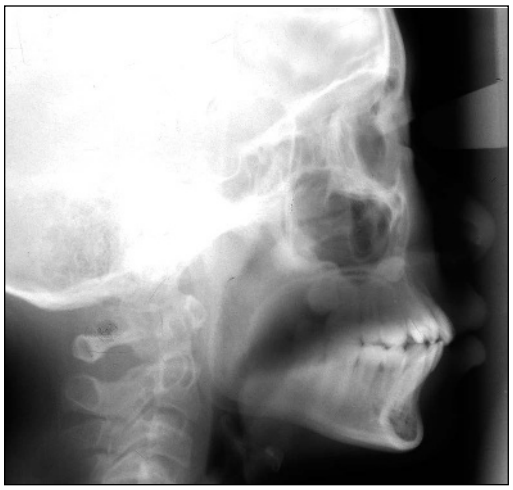
MANDIBULAR OCCLUSAL

Radiographic Findings

Review of the cone-beam computed tomography (CBCT) reveals that the maxillary right permanent canine is horizontally impacted and is very close to the sinus floor. General symmetry of the condyles and mandible is noted. All teeth are present except for the maxillary left third molar. The lateral cephalogram reveals a mild Class II skeletal pattern and proclined mandibular incisors. The airway appears to be patent.



CBCT IMAGES



INITIAL CEPHALOGRAM

CBCT IMAGES OF TOOTH #6

LATERAL CEPHALOMETRIC MEASUREMENTS

	MEAN	PRE-TREATMENT
SNA (°)	82	75
SNB (°)	80	70
ANB (°)	2	5
U1-NA (°)	23	24
U1-NA (mm)	4	5
L1-NB (°)	25	33
L1-NB (mm)	4	9
FMA (°)	25	27
FMIA (°)	68	48
IMPA (°)	87	105

Treatment Options

1. Comprehensive orthodontic treatment to guide the impacted tooth #6 into place.
2. Comprehensive orthodontic treatment with extraction of tooth #6; replacement of tooth #6 with an implant.
3. Comprehensive orthodontic treatment with extraction of tooth #6; closure of the extraction space via protraction of the maxillary right posterior teeth.

For Post-Treatment of Case M.L., see page 45.

The Interdisciplinary Team:

Managing Patients with Impacted or Ectopically Positioned Teeth

Presented by Dr. Douglas Knight and Dr. Jim Janakievski at the PCSO Annual Session, October 18, 2013.
Summarized by Dr. Shahram Nabipour, PCSO Bulletin *Central Region Editor*

Dr. Janakievski

Dr. Knight

Dr. Janakievski is a periodontist; Dr. Knight is an orthodontist. They both practice in Tacoma, WA. They showed several cases of impactions and ectopically erupted teeth that they have treated together. Dr. Knight emphasized that in treating multidisciplinary cases, it is important to work with a surgeon who not only is skilled at treating impactions, but also is able to educate the orthodontist in terms of specific treatments and can communicate that clearly and effectively. A gentle nature also helps, especially when it comes to treating younger patients.

Why is the topic of impactions important? Consider the following statistics:

- There is a 1% to 2.5% occurrence rate in the population.
- Canines are the second most commonly impacted teeth.
- Canine impactions are twice as common in girls as in boys.
- Almost 1% of kids between the ages of 10 to 13 have root resorption of the incisors as the canine erupts.
- 8% to 10% of all canine impactions are bilateral.
- Palatal impactions are more common compared to labial impactions by a 2:1 ratio.

Considering the very low occurrence rate, then, why is this topic so important? The most common reason for litigation against orthodontists is the claim that they have not managed a patient periodontally. The second most common reason for litigation is impacted canines.

In coordination with the surgeon, the orthodontist has to consider the proper surgical technique (closed vs. open eruption), the proper mechanics, and the esthetic predictability of each method.

DIAGNOSIS OF CANINE IMPACTIONS

Impacted canines are found in one of three positions: labial, mid-alveolar, or palatal. The position of the impacted canine can be determined using the object buccal rule on an anterior PA X-ray periapical radiograph. But a cone-beam computed tomography (CBCT) scan is a much more valuable tool in determining the relative position of the canine as well as its proximity to the roots of the adjacent teeth.

PALATAL IMPACTIONS: OPEN OR CLOSED ERUPTION

Palatal impactions are the most common and can be treated by either open or closed eruption techniques. Before tackling the surgical technique, it's important to consider post-treatment esthetics on impacted canines. Would you be able to tell the difference between an impacted canine and the contralateral, non-impacted canine post-treatment? Symmetry, it turns out, has a lot to do with our view of dental esthetics, and as such, slight differences between an impacted canine and its contralateral counterpart can have a great impact on the esthetic outcome of the case. The following questions are important when comparing the impacted canine vs. the naturally erupted contralateral canine:

- What is the inclination of the canine?
- What is the anatomy and color of the impacted canine vs. the non-impacted canine?
- What is the architecture of the gingival framework?
- Will the bone level be any different on the impacted canine vs. the non-impacted side?

A recent study by Dr. Vince Kokich, Jr. looked at symmetry and esthetics, and found that asymmetric alterations make teeth more unattractive not only to dental professionals, but also to the lay public.[1] The challenge, then, is to get the esthetics right on both the impacted and the non-impacted sides. A major component of achieving good esthetics is the canine inclination.

Proper inclination of the canine is achieved through torquing the root and achieving root parallelism. This may not be difficult to do, but it takes a rather long time, a fact that needs to be conveyed to the patient and his/her parents. Treating the facial surface of the canine to match that of the non-impacted canine will result in good esthetics.

Gingival framework is also an important consideration, and is ultimately determined by the underlying bone.

Closed Eruption. The closed eruption sequence is familiar to most orthodontists. The patient is bonded; after initial leveling and aligning, big heavy archwires are placed. These provide a stable anchor for the eruption mechanics. The patient is then sent to the surgeon where the canine is exposed and a gold chain is bonded to the tooth and it is covered again. The orthodontist then proceeds with force-erupting the canine.

There are several reasons that the closed eruption technique may not be the best method for handling an impacted canine. A 1994 study by Woloshyn[2] found that with closed eruption sequence, the sulcus depth is different in the impacted canine, and the crestal bone height is different on the impacted canine and the distal aspect of the lateral incisor.

Side effects of this technique include possible resorption of the lateral incisor and the premolar, and relapse. Over 40% of previously impacted canines showed relapse. This technique also results in esthetics that are not ideal.

Open Eruption. Open eruption can be split into two categories:

Simple: the patient is younger; the canine is positioned more vertically and is shallow.

Complex: the patient is older; the canine is much more horizontal and is positioned deeper.

It is better to have the exposure done even before orthodontic appliances go on. With this technique, it is important that bone not be removed past the cemento-enamel junction (CEJ). If bone is removed past the CEJ, there is more risk of resorption or loss of attachment. Dr. Janakievski likes to place a button on the tooth to help hold the dressing in place. The dressing is placed to prevent the tissue from growing back after the tooth is exposed.

In simple cases, it is recommended that the exposure is done at least six months prior to starting orthodontic treatment. Dr. Knight does see the patient every few months to see how the canine is erupting on its own, but does not place appliances until the canine is at the level of the occlusal plane.

In complex cases, the impacted teeth don't move as easily or as quickly. Bone is denser around these teeth, and PDL undergoes atrophy and gets smaller from lack of use. Moving these teeth will take more effort, but the same technique is used to open and expose the canines.

In some complex cases in which the canine is positioned very high and has already started to resorb the roots of the incisors, the orthodontist needs to be prepared to deal with resorbed roots post-treatment. In these cases, it is important that a prosthodontist is also consulted. For example, in some instances in which the lateral roots have been severely resorbed, a better course may be to extract the lateral incisors and do a canine substitution. Regardless, if the final outcome does include incisors that have gone through root resorption during the eruption of an impacted canine, Dr. Knight and Dr. Janakievski recommend that the resorbed tooth/teeth be kept for as long as possible. Dr. Vince Kokich published a good article summarizing the longevity of resorbed teeth.[3]

Keeping a tooth that has undergone root resorption will preserve the space and the ridge. When the tooth does become symptomatic and has to be extracted, an implant or other restoration can be placed.

Three keys to the open eruption technique are as follows:

1. Uncover early, before orthodontic appliances are placed.
2. Upon uncovering a full thickness flap, remove bone from height of contour, but not past the CEJ.
3. Wait for tooth to be at the level of occlusal plain before pulling on canine.

Labial impaction exposure methods include:

- Gingival excision
- Closed eruption
- Apically positioned flap

Dr. Janakievski recommends the following criteria to determine which technique to employ:

- Where is the canine in the buccolingual position?
- Where is the canine in the mesiodistal position?
- Where is the crown in the vertical position in relation to the mucogingival junction (MGJ)?

TIPS FOR HIGH LABIAL IMPACTIONS (CLOSE TO THE FLOOR OF THE NOSE)

In these cases, because of the high position, the tissue often comes back up over the dressing. For this reason, a chain is advantageous — though the chain isn't to pull the tooth down with, but rather to pull the tooth out with buccally. Once the crown is outside of the bone, normal mechanics can be used to bring the tooth into the arch. High impactions are often prone to relapse, and in these cases the tooth can be maintained with a bonded lingual wire.

WHAT IS THE PERFECT METHOD FOR LABIAL IMPACTIONS?

Closed eruption provides the most esthetic result when the tooth is vertically in the slot. If the tooth is more coronal than MGJ, use the gingival excision technique. If teeth are displaced mesiodistally, then use a pedicle flap.

All of these techniques can result in very successful treatment of canine impactions, as the speakers showed in several superbly treated cases from their practices. They reiterated that treating these patients is a team approach and requires careful coordination of care.

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Miniplate Anchorage for Midface Protraction in Class III Patients and Molar Distalization in Class II Malocclusions

Presented by Dr. Hugo De Clerck at thePCSO Annual Session, October 19, 2013.
Summarized by Dr. Bruce P. Hawley, PCSO Bulletin *Northern Region Editor.*

Miniplates are better at resisting high discontinuous forces than are miniscrews, and they can be used for intermaxillary orthopedic traction in the growing Class III patient. Because successful Class III orthopedics often result in a dental Class II relationship, miniplates are also used as anchors in order to achieve a Class I posterior occlusion during later comprehensive orthodontic intervention.

Dr. De Clerck

MINIPLATE ANCHORS

Primate studies have demonstrated that facial sutures respond like periodontal ligaments under pressure. Anteriorly directed forces to the midface in primates show sutural distractions and changes in the position and growth of the midface. Delaire facemasks have been used clinically since the 1960s, with generally 1 to 2 mm of downward and forward maxillary changes and counterclockwise rotation of the mandible commonly seen. Less skeletal response is observed with relatively increasing age, and it has long been posited by many practitioners that facemask therapy is more effective following rapid maxillary expansion (RME).

Bone-anchored maxillary protraction (BAMP) uses Bollard miniplates, which have three holes for maxillary units and two holes for mandibular units (all the holes are in a straight line on the plates). At the end of the miniplate opposite the holes is a hook, which is the only portion that is exposed intraorally. The miniplates are placed bilaterally in a vertical orientation by the oral and maxillofacial surgeon at the zygomatic crest in the maxilla and on the mandibular body mesial to the lower permanent canines. In order to reduce the possibility of localized infection, the hooks should exit in the areas of attached gingiva. In the maxilla, the hook exits in the region superior to the crowns of the upper permanent first and second molars, and in the mandible it exits inferiorly to the crowns of the lateral incisors and canines. Dr. De Clerck likes to see the patient 10 days post-op in order to provide oral hygiene instruction, but the initial traction is not begun until two to three weeks post-op.

MOLAR DISTALIZATION

The maxillary miniplates can be used in Class II cases to achieve Class I molars, including those with maxillary arch length deficiency, by distalizing the canines through the second molars with sliding coil mechanics off the miniplate. Remember that the miniplate is anchored superiorly to the roots of the molar teeth, so it is possible to move the teeth without interference and without the orthopedic effect of Class III elastics, which may have been used previously in the case. A closed nickel-titanium (NiTi) coil spring is attached to a sliding hook mesial to the first premolar brackets. Steel ligatures are placed on the distal wings of the first and second premolar brackets in order to prevent rotation. The maxillary canines are not yet bracketed, and self-ligating brackets are not very effective here. Use a maximum of 150 g of traction between the sliding jig and the miniplate, with the stretched coil spring (and not an elastic). This is a low-friction full-time system, and it often can assist in avoiding the need for maxillary first premolar extractions in many maxillary deficiency cases. Bite opening can sometimes take place, and the unbracketed canine follows the first premolar distally. After the premolars and molars have retracted fully, the roots of the canines need to be distalized in order to avoid tipping, which frequently occurs. In order to avoid anchorage loss, Dr. De Clerck

will use a Begg bracket on the maxillary canines, upright, and then go to a standard straightwire bracket. A tieback from the canines directly to the miniplate hook will help avoid anchorage loss at this point following posterior tooth retraction. This technique can be used in both original Class II cases and previously treated Class III cases that were overcorrected to a Class II dental tendency in the molar and premolar regions in the process of maximizing the amount of skeletal change.

CLASS III CORRECTION

For management of Class III problems, Dr. De Clerck's rule is to never begin treatment with miniplates before age 11. There are two reasons for this rule: eruption of the mandibular permanent canines needs to have already taken place (as this is the region where the lower miniplates will be placed); and the general quality of bone is simply not good enough before age 11 to ensure successful placement. Standard intraoral orthodontic elastics are used for this correction, and depending on the distance between the miniplate hooks, can be of 3/16, 1/4, or 5/16-inch size. Use as guidance any specific instructions from the surgeon related to possible bone fragility, and due to the variation in elastic strength among different manufacturers, use a measuring gauge. Dr. De Clerck uses forces of around half of what was previously recommended in the literature; this results in a reduced chance of loosening the miniplates. Do not exceed 175 g per side, and use 24-hour-per-day traction with these Class III elastics for one year. Avoid resorting to maxillary first premolar removal if possible, even if there is limited space for the maxillary permanent canines. The mandibular incisors will frequently (and desirably) procline autonomously along with the Class III improvement. This movement can sometimes give a false impression that the case is not correcting so evaluate the molar occlusion to get a better sense of the true level of correction. Of course, Class III growth can continue after full orthodontics is completed by age 14. Open bite cases work less favorably, both skeletally and facially.

Primate studies have shown that the zygomaticotemporal and the transverse palatine sutures open favorably during maxillary protraction. Because there is high resistance in the zygomaticomaxillary sutures, the zygoma tends to move forward with the maxilla. This has been demonstrated by Cevidanes using 25 consecutively treated University of North Carolina orthodontic Class III cases in which there was an average of 5 mm maxillary advancement, with both the zygomas and maxillas moving anteriorly.[1] The actual center of resistance for the maxilla is probably in the pterygoid plate region and not, as has long been believed, in the zygomatic region, according to Dr. De Clerck. No significant counterclockwise maxillary rotation is observed. Soft tissue changes are hard to predict, but as far as is seen clinically, there may be advancement of the upper lip and some upward rotation of the nasal tip. This is in spite of the fact that the maxilla comes forward cephalometrically. Relative to controls, BAMP gives an average +2.9 mm advancement of the maxilla, +3.9 mm at point A, and -2.7 mm at point B. This is to say that the chin moves further posteriorly during treatment with BAMP than in controls without mandibular plane opening. Continuous forces seem to be much more efficient than the intermittent forces associated with facemask therapy, giving an average of +2.3 mm more protraction.

In comparing RME and facemask treatment in seven- to eight-year-olds using 800 g of force, there was an average of 2 to 3 mm forward maxillary movement. BAMP (without RME) on 11- to 12-year-olds, using an average of 200 g of continuous forces, results in an average of 4 to 5 mm forward maxillary movement, or approximately twice as much advancement. There is no significant difference between RME and non-RME with facemask treatment in protraction, so RME should be used only when there is an associated transverse problem, not to "facilitate" the maxillary protraction. In fact, Dr. De Clerck does not expand prior to BAMP protraction for unilateral crossbites, but only for more significant maxillary and mandibular transverse discrepancies, as the transverse will typically improve during the process of protraction. Only a slight counterclockwise rotation of the mandible is observed with BAMP, while facemask therapy frequently results in mandibular clockwise rotation.

Is condylar growth restricted with midface protraction using miniplate anchorage? Comparison with untreated controls shows that there is no significant difference in the size of the mandibular body and ramus. Remodeling of the condylar head does not take place, either. Rather, remodeling of the glenoid fossa occurs, with relative posterior displacement of the condyle (at an average of

2.1 mm) in all treated cases. Reduction of the gonial angle also takes place by an average of 4.1 degrees, This accounts for approximately half of the mandibular change. In this process, there is resorption of the posterior wall of the glenoid fossa and apposition in the region of the articular eminence. A voxel-based registration algorithm has now been developed as an alternative to anterior cranial base registration. This allows us to measure the growth of the condyle in a similar way to what Bjork and Skieller did in their classic study of skeletal growth in the 1970s using metallic implants.[2] It has become possible with this alternative means of superimposition to confirm the findings of Mimura and Deguchi (1996) that with chin cup therapy on young, growing patients, there are both maxillary advancement and mandibular shape and repositioning changes (but not size changes).[3] Dr. De Clerck has also utilized BAMP for the correction of asymmetrical Class III cases, using full-time Class III elastics on the more affected side.

CONCLUSIONS

Dr. De Clerck uses bone-anchored maxillary protraction for patients who are around 11 to 13 years of age; this is approximately three years later than the average age of facemask treatment. The forces are purely skeletal in nature, and low forces of around 175 g seem to work fine. Dr. De Clerck likes continuous, around-the-clock elastic usage, including while eating (as patients often neglect or forget to put elastics back on after meals). Dr. De Clerck rarely gets complaints of TMJ clicking or discomfort, and only one case out of a sample of 150 showed moderate (and asymptomatic) condylar resorption.

So now we really have three potential alternatives for management of Class III malocclusions: facemask at age seven to eight years, BAMP at age 11 to 12 years, or orthognathic surgery later. Which is the best approach from the standpoint of treatment outcomes, cost, and efficiency? Should there be a combination of these modalities? Certainly from a social services perspective, the most efficient treatment at the lowest cost makes good sense. While more research is needed, miniplate anchorage is extremely promising as one means of successfully managing these often challenging malocclusions thus far.

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Achieving Financial Independence

Presented by John McGill, CEO, McGill and Hill Group, at the PCSO Annual Session, October 19, 2013.
Summarized by Dr. Shahram Nabipour, PCSO Bulletin *Northern Region Editor.*

A New and Younger Members Featured Lecture

Mr. McGill

Fewer than 25% of orthodontists have enough funds to retire at age 65 and maintain the standard of living of their working years. Seventy is the new 65: many docs are practicing later because they have to.

If your practice provides health insurance to staff members, be sure to look up IRS Form 8941, which is the Small Business Health Insurance tax credit. This begs the question: which would you rather have, a tax credit or a tax deduction?

A tax credit is a dollar-for-dollar reduction in your tax liability, whereas a deduction is based on your tax bracket: if you are in the 45% tax bracket, a $1,000 deduction saves you $450, but if you have a tax credit of $1,000, that saves you $1,000.

About 50% of the doctors who are eligible for this credit are not taking advantage of it, either because their CPAs are not aware of it or because it has not been done correctly. The good news is that you can file an amended return, and go as far back as 2010 to file this form.

Also, you should be deducting medical insurance premiums from your practice's tax return. This can be done for 2014 and 2015, but after 2015 new non-discrimination rules will kick in as part of the Affordable Care Act. However, these rules haven't been written yet, so no one knows what they will consist of.

Why do orthodontists fail to reach their financial goals?

- Overhead: The average overhead rate in an orthodontic practice is around 70%. A good practice should be in 40% to 45% profit margin, but many are not in that range.
- High debt level: This is a particular problem for those orthodontists who bought real estate and were caught up in the 2008 financial and housing meltdown.
- High taxes: The average orthodontist's taxes will go up about $20K per year unless action is taken.
- Lavish personal lifestyle and no savings.

How much will you need in order to retire?

The answer to this question depends on many factors, including life expectancy, spending habits, tax rates, and investment returns. For example, if you plan to spend $10K per month (after taxes) on living expenses, you would need to have about $160,000 per year in pre-tax income, based on an average tax rate of 25%.

The goal is to figure out where you are now, and to determine the specific "number" that will help you reach your financial goals.

The first step is to find out how much you spend per month. The best way to track your personal living expenses is by using financial software such as Quicken or Quickbooks. Mint.com allows you to see an aggregate of your bank and credit card accounts, all in one place.

In terms of saving, the time at which an individual starts saving is more important than the amount contributed. The earlier in life you start saving, the better.

Where should you put your money?

It's always a good idea to save money toward retirement. Many young doctors make the mistake of paying off a mortgage or student loans before they start saving. Mr. McGill recommends that student loans be consolidated and then paid at their current term. As far as other debt is concerned, he recommends that high-interest debt be paid off first, before investing or saving.

FOUR RETIREMENT STRATEGIES

- Simple IRA: This is a low-cost, simple option. The maximum amount to match for staff is 3%. Mr. McGill recommends contributing about $30K per year.
- 401(k): One must pay to set up and maintain this account. It's a good option if you have about $50K per year to put away.
- HSA (Health Savings Account): This device is best used if you have a high-deductible health insurance plan. Money set aside in this account is used toward health-related expenses without a tax penalty. The other advantage of an HSA is that you can continue to put money in the account and use it as a second retirement plan. Unlike an FSA, where you can contribute a maximum of $2,500 toward health expenses but lose any money that is not used by the

- end of the year, the funds in an HSA account can remain there, be invested, and be replenished. Use it like you would an IRA.
- Roth IRA: The McGill Group recommends that every doctor have a Roth IRA, with the goal of having $1 million therein by age 70. Currently, you can contribute $5,500 per year to any IRA account. There are two ways to get a Roth IRA: Firstly, if your income is $178,000 per year or less, you can put money directly into a Roth IRA. Secondly, if your income is higher than $178,000, you can put money into a regular IRA account and then convert it immediately to a Roth IRA.

FEES

90% of orthodontists have their fees denominated by treatment time. The problem is that with newer techniques like Invisalign and self-ligating brackets, treatments are more efficient, take less time, and require fewer office visits. If you use these techniques, you will see lower fees for treatment that is more efficient and shorter in duration — exactly the opposite of what your fees should be. Mr. McGill recommends setting fees based on the difficulty of the case, with the fee range of at most $500 from the most to the least difficult.

AFFORDABLE CARE ACT (OBAMACARE)

Every child will be covered by dental benefits starting in 2014. Orthodontic treatment is covered if it is "medically necessary." There is to be a rule that defines what is medically necessary, but it hasn't been written yet. If orthodontics is a covered benefit under this provision (it's been estimated that 30% of patients will be covered based on medical necessity), there will be some changes for orthodontists. As an example, under Obamacare there is no annual or lifetime limit for benefit coverage, unlike most dental insurance plans that have a lifetime cap of $1,500 or $2,000. This means that insurance companies will be paying a lot more for orthodontic coverage than before Obamacare, and as a result they will likely start setting fees.

THE BEST MARKETING STRATEGY IS INTERNAL MARKETING

To obtain patient referrals through internal marketing, you need to:

- Provide an excellent customer service experience of 9 or 10 out of 10.
- Ask for referrals.
- Reward those referrals in a way that is legal in your state.
- Have a high-quality website and an effective web and social media presence. Mr. McGill recommends posting video testimonials instead of written ones.

The difference between sales and marketing, according to Mr. McGill, is as follows: marketing is everything you do to get the telephone to ring; sales is what happens after the telephone rings and the patient arrives at the office.

Begin recording incoming phone calls to your office to observe what is happening in the practice. This allows you to properly train your staff and see how patients are being spoken to and treated. To ensure that your TC is on par, Mr. McGill recommends recording your TC's patient interactions as well. This will require obtaining the patient's consent, of course, but it will provide valuable insight into how your TC is doing with case presentation. A sales coach can be brought in to get the verbiage right.

Since the amount employees can contribute to an FSA was cut to $2,500 per year, many patients will not have enough funds in this account to cover their treatment. To counter this problem, Mr. McGill suggests that orthodontists be more flexible with their payment terms. Lower the required down payment to $500. The general standard of living has declined over the last few years, and most people don't have $1,200 or $1,500 to put toward their treatment. It is suggested that the remainder be collected at a rate of $175 to $200 per month. Patients can receive this arrangement only by putting this amount on an automatic monthly withdrawal from a credit card or bank draft. It doesn't matter if the arrangement goes on longer than the treatment time; in most cases, it will.

Some numbers to keep in mind:

- Your office rent should never go above 7% of collections.
- Lab and supply costs should be 11% of collections. If this is higher because of Invisalign, SureSmile, etc., then labor costs should be lower.
- One full-time employee (FTE) of 32 hours per week can be employed for every $200K of collections. If your practice is grossing $1 million, then you would need five FTEs.
- If your labor costs are too high, each staff member's job duties should be reviewed.
- One way to allocate clinical labor is as follows: one assistant for every 16 patients per day. By that formula, if 80 patients are being seen per day, five assistants would be required.

The McGill Group recommends doing away with automatic pay raises for staff. Instead, a bonus system should be implemented. The advice here is to look at the first six months of this year and compare it to the same six-month period one year ago. Twenty percent of the collections increase should be allocated to the bonus pool. The same is done for the second half of the year, and the payout is made by December 15 to coincide with and take the place of a holiday bonus. Bonuses are based on individual performance.

The Role of Orthodontics in Trauma Management

Presented by John Christensen, DDS, MS ,PCSO Annual Session, October 19, 2013.
Summarized by Dr. Bruce P. Hawley, PCSO Bulletin *Northern Region Editor.*

Dr. Christensen believes that as orthodontists, we can help to manage teeth that have sustained trauma, either prior to orthodontics or during active treatment.

PREVENTION

With respect to prevention, mouthguards are very protective against traumatic dental injuries. Orthodontic patients can wear either a stock mouthguard or a boil-and-bite type (the latter may not work well, depending on the arch form). The best mouthguard is the one that is worn, however. Males have a somewhat higher rate of dental trauma than females, and the maxillary central incisor is the most commonly traumatized tooth. Increasing overjet results in progressively inadequate lip coverage, and in turn, an increased risk of trauma. Does an increased risk of trauma warrant orthodontic treatment? Previous studies recommended that orthodontic treatment not be rendered for excess overjet strictly to prevent trauma.[1,2] The risk factors should be based on the individual's general activity level and history, according to Dr. Christensen.

IMMEDIATE TRAUMA

Should orthodontics be used to improve trauma outcomes in patients not already undergoing concurrent orthodontic care? To optimize healing, keep the area of root surface of a traumatized tooth as non-traumatically involved, and with as low an orthodontic force, as possible. Manual repositioning of a displaced tooth may be appropriate, as can the use of orthodontic forces. Each traumatic incident is unique, so the practitioner should use his/her previous experience and clinical judgment in each given situation. With an intrusive luxation, the stage of root development and the degree of intrusion are important. If the intrusion is less than 3 mm, observation may be in order.

For intrusions of 3 to 6 mm, observe or possibly use orthodontic brackets to extrude the tooth. If greater than 6 mm, extrude with orthodontic brackets, or possibly with surgical repositioning. The good news is that 9 out of 10 cases can be repositioned successfully with orthodontics. (Note that neither surgery nor orthodontics has been shown to be superior to the other.) Dr. Christensen will start managing an intruded tooth right away, even though, as is often the case, the patient cannot be seen until four to five hours have transpired after the injury. The use of self-ligating brackets (SLBs) can help, as the doors open and close and o-rings do not need to be used. Remember to bond SLBs with the doors open, so that they do not have to be opened intraorally after bonding in order to place the archwire. A .012 or .014 nickel-titanium (NiTi) wire with appropriate stops is frequently the wire of choice, although up to a .018 SS wire can be used. Of course, obtain appropriate radiographs, including periapical radiographs. Photographs can be taken for documentation as well as for insurance purposes.

Dr. Christensen

For the highest degree of success, it is important to have a plan before performing clinical intervention following trauma. Identify which teeth are the ones injured or displaced, and establish which anchor teeth will be used for stabilization or movement of a displaced tooth. Control any hemorrhage with cotton gauze. For avulsions, the amount of time that the tooth is out of the mouth is a major determinant of treatment success, with the prognosis becoming considerably less favorable beyond 30 minutes. In reimplantation, Dr. Christensen likes to use brackets to aid in final repositioning and stabilizing, as hydrostatic pressure tends to push the tooth back out. The doors to the SLBs can be opened in order to facilitate checking the mobility of the tooth in the days and weeks following reimplantation, and in order to determine when to remove the brackets.

RECENT TRAUMA AND ORTHODONTIC TREATMENT

For the patient who has recently experienced dental trauma, should we change the way the patient is managed orthodontically by waiting or postponing orthodontics? Decide on the type of injury that has occurred; as appropriate, monitor with a follow-up X-ray. Dr. Christensen uses the "3 and 1" rule: for minor dental trauma, which would include dental concussion, crown fracture, or subluxation, wait three months before starting orthodontics.

For major trauma, which would include significant intrusion, avulsion with re-implantation, and root fracture, wait one year. Root canal treatment and an appropriate waiting period have been shown to result in less root resorption on teeth that have experienced major trauma.

For root fractures near the apex, one can move the tooth orthodontically. If the root fracture is near the cemento-enamel junction, you may need to explore long-term alternatives. Surface resorption, which is repair related, will often take place at the periodontal ligament , and these teeth can be moved orthodontically. Inflammatory resorption tends to take place within the pulp after major trauma, which is why root canal treatment and deferring orthodontics by a year can be helpful.

Ankylosis is replacement resorption; if it happens before age 10 and the pubertal growth spurt, it can be a major problem since the tooth fails to erupt normally. Often it is best to extract the ankylosed tooth and later bond the crown of that tooth (sectioned from the root) to the adjacent teeth. Recoronation, whereby the root is left in place but the crown is removed, is also a consideration.

Orthodontic substitution of a lateral incisor for a missing upper central incisor can work, with eventual restorative buildup of the incisal edge and crown. Other alternatives include a single tooth osteotomy with movement of the segment orthodontically, as well as autotransplantation.

These treatments can provide excellent outcomes. Keep in mind that maintenance of an involved tooth can help to maintain alveolar bone. When moving these teeth as a part of full orthodontics, keep the force levels low and of short duration.

Pause for three months if resorption is occurring. Consider the remaining treatment time and the severity of the injury in making your assessment.

SUMMARY

1. For immediate treatment, manage with light NiTi wires and brackets.
2. Remember the 3 and 1 rule: wait three months after minor dental trauma, and one year after major trauma, before initiating orthodontics.
3. Monitor traumatized teeth with radiographs, while using light orthodontic forces.

Visit www.dentaltraumaguide.org; this nonprofit website based in Copenhagen covers trauma management in a detailed and user-friendly way. Keep it on your computer for ready reference.

REFERENCES

1. Tulloch JF, Proffit WR, Phillips C. Outcomes in a 2-phase randomized clinical trial of early Class II treatment. *Am J Orthod Dentofacial Orthop* 2004;125:657-667.

2. Wheeler TT, McGorray SP, Dolce C, Taylor MG, King GJ. Effectiveness of early treatment of Class II malocclusion. *Am J Orthod Dentofacial Orthop* 2002:121:9-17.

Post-Treatment

How would you treat this malocclusion?

Case M.L.

Treatment Plan

After taking into consideration the potential risks involved with extraction, the patient's parents chose option #1: comprehensive orthodontic treatment to guide tooth #6 in place.

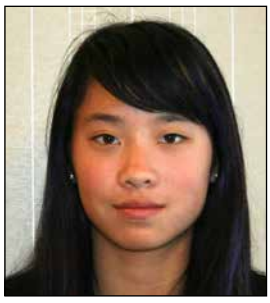
Treatment Sequence

The diagnostic records, including CBCT, were reviewed with the patient's mother, and informed consent was obtained to initiate treatment.

In the maxillary arch, a pendulum appliance was placed in order to increase the arch length for future guidance of the impacted maxillary right permanent canine and to achieve a Class I molar relationship. After three months, more than adequate arch length was gained. The pendulum appliance was replaced by a Nance holding arch, and .018" preadjusted edgewise fixed appliances were placed. She was then referred for surgical exposure of tooth #6.

PROGRESS PHOTOS – Patient M.L. 13 years, 5 months

PROFILE



FRONTAL

SMILING

RIGHT LATERAL

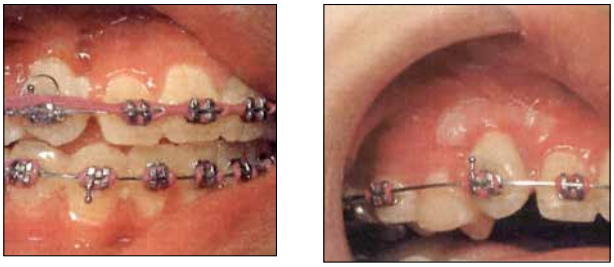
FRONTAL

LEFT LATERAL

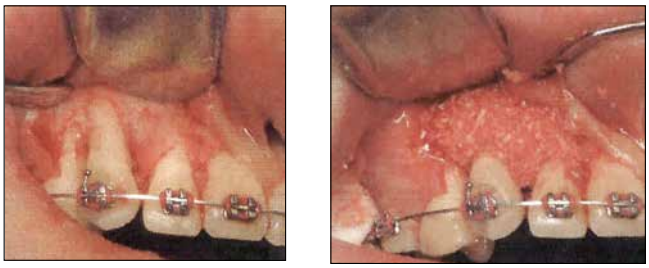
MAXILLARY OCCLUSAL

MANDIBULAR OCCLUSAL

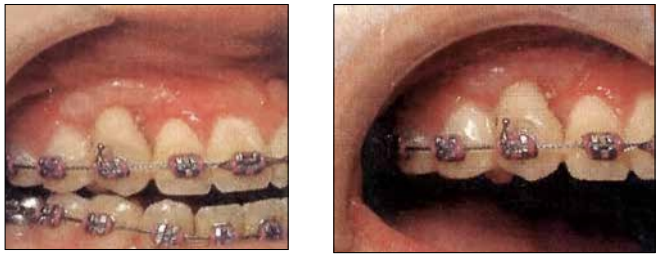
PERIODONTAL SURGICAL PHOTOS



BEFORE SURGERY



DURING SURGERY



AFTER HEALING

Due to its poor position, a closed eruption technique was performed. After initial healing, elastic chain was utilized to begin moving tooth #6 into its normal position. Once the crown of the tooth was visible, the gold chain was removed and a bracket was bonded. The tooth was then moved into position with archwires. Once in a .016" X .022" SS wire, a Warren torquing spring was used to increase the lingual root torque of tooth #6.

Due to a lack of attached gingiva over tooth #6, the patient was referred to a periodontist for evaluation. Clinical evaluation of tooth #6 revealed lack of attached gingiva, thin alveolar mucosa, buccal bony dehiscence, and a buccal frenum attached close to the buccal marginal gingiva. To correct these problems, two stages of surgery were performed. Free gingival grafting was first performed — this increased the thickness and width of the attached gingiva and increased the depth of the vestibule. After two months of healing, a second surgery of alveolar plate augmentation on the buccal of tooth #6 was performed. During the surgery, a buccal dehiscence and a mesial two-walled defect were noted, with bone loss of about 6–7 mm. The procedure employed combined xenograft and allograft material, and was covered with a bioresorbable membrane.

PROGRESS PHOTOS – Patient M.L. 14 years, 11 months

PROFILE

FRONTAL

SMILING

RIGHT LATERAL

FRONTAL

LEFT LATERAL

MAXILLARY OCCLUSAL

MANDIBULAR OCCLUSAL

The recipient cortical bone was perforated into the intra-marrow space in order to allow vascular and cellular access to the augmentation site. Deproteinized bovine bone was mixed with allograft bone material at a ratio of 1:1, and a 3-5 mm-thick bone graft mixture was placed on the buccal of tooth #6 to cover the denuded root. This mixture was also placed on tooth #7 in order to increase the thickness of the buccal plate. Then, an absorbable collagen membrane was trimmed to cover the grafts completely. The gingival flap was then sutured in a tension-free manner. The patient tolerated the procedure well, and post-operative healing was uneventful.

The occlusion was detailed, and finishing elastics were used to settle the bite. In addition, a tooth positioner was delivered to refine her occlusion.

Patient M.L. 15 years, 10 months

PROFILE

FRONTAL

SMILING

Results Achieved and Discussion

CBCT was an important and necessary diagnostic tool to adequately develop the treatment plan in this case. It provided the clinician and the patient's family a much better understanding of the impacted canine's unfavorable position and the potential risks involved by either guiding the tooth into position or extracting it. The parents were very happy that the tooth was recovered and that the overall esthetics of the case were optimal. Particularly in this case, without proper support from the oral surgeon, Dr. Joy Wang, and the periodontist, Dr. Dennis Chen, it would have been impossible to achieve our treatment goals.

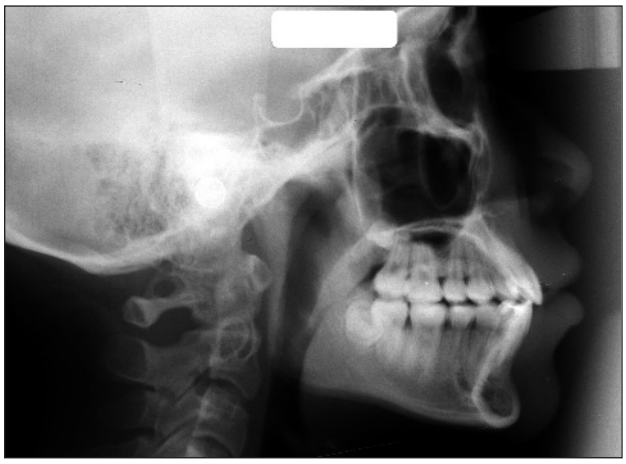
RIGHT LATERAL

FRONTAL

LEFT LATERAL

MAXILLARY OCCLUSAL

MANDIBULAR OCCLUSAL



FINAL CEPHALOGRAM

Editor's Comments

This case underscores the absolute necessity of having a competent team of specialists for assistance in complex cases. After retrieving a difficult impaction, the additional periodontal surgical procedures have made this area predictably stable and produced an esthetic result.

Dr. Lee

LATERAL CEPHALOMETRIC MEASUREMENTS

	MEAN	PRE-TREATMENT	POST-TREATMENT
SNA (°)	82	75	75
SNB (°)	80	70	72
ANB (°)	2	5	3
U1-NA (°)	23	24	27
U1-NA (mm)	4	5	5
L1-NB (°)	25	33	30
L1-NB (mm)	4	9	7
FMA (°)	25	27	23
FMIA (°)	68	48	55
IMPA (°)	87	105	102

Dr. 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 in Milpitas, CA.*

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For Pre-Treatment of Case M.L., see page 32.

By Michael Papademetriou, DMD, MS, Assistant Professor and Clinical Director, Arizona School of Dentistry & Oral Health

Converting a Tube

Have you ever run into a situation in which you wanted to convert a tube but could not find the blade or the pliers to convert it? What follows is an easy solution.

1. Cut a small piece of edgewise wire, 19x25SS for a .022-inch slot or 17x25SS for a .018-inch slot.
2. Insert the wire into the tube and cinch it back on the distal.
3. With Weingart pliers, grab the free mesial end and roll it back over the tube in a buccal/distal direction. This will peel off the cup and open the tube. Viola!

FIGURE 1.

FIGURE 2.

FIGURE 3.

FIGURE 4.

FIGURE 5.

FIGURE 6.

FIGURE 7.

Problem...

Bonding attachments to clear aligners.

Solution!

Bond Aligner™*

Place Bond Aligner™ on attachment

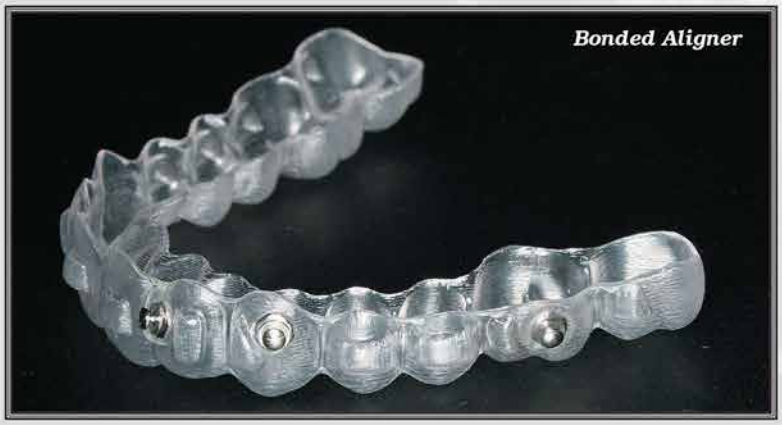
Place attachment on aligner

Cure the Bond Aligner™

Bond Aligner™ from Reliance Orthodontics was developed by Orthodontist Dr. Laurel Martin. Bond Aligner™ features include:

- Will bond any attachment to most aligner materials including Essix ACE®, Invisalign®, Invisalign® Smart Track™ and Tru-Tain® material.
- A clear light cure paste for excellent aesthetics.
- Bonds to plastic aligners without plastic preparation, primers or conditioners.
- Low modulus of elasticity - Bond Aligner™ flexes with plastic and will not crack or separate.

* Patent Pending



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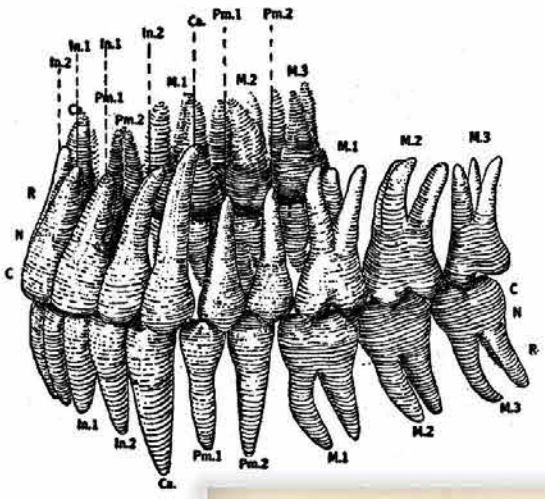

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