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SPECTRUM Dental TEAMWORK

CJRDP/JCDRP

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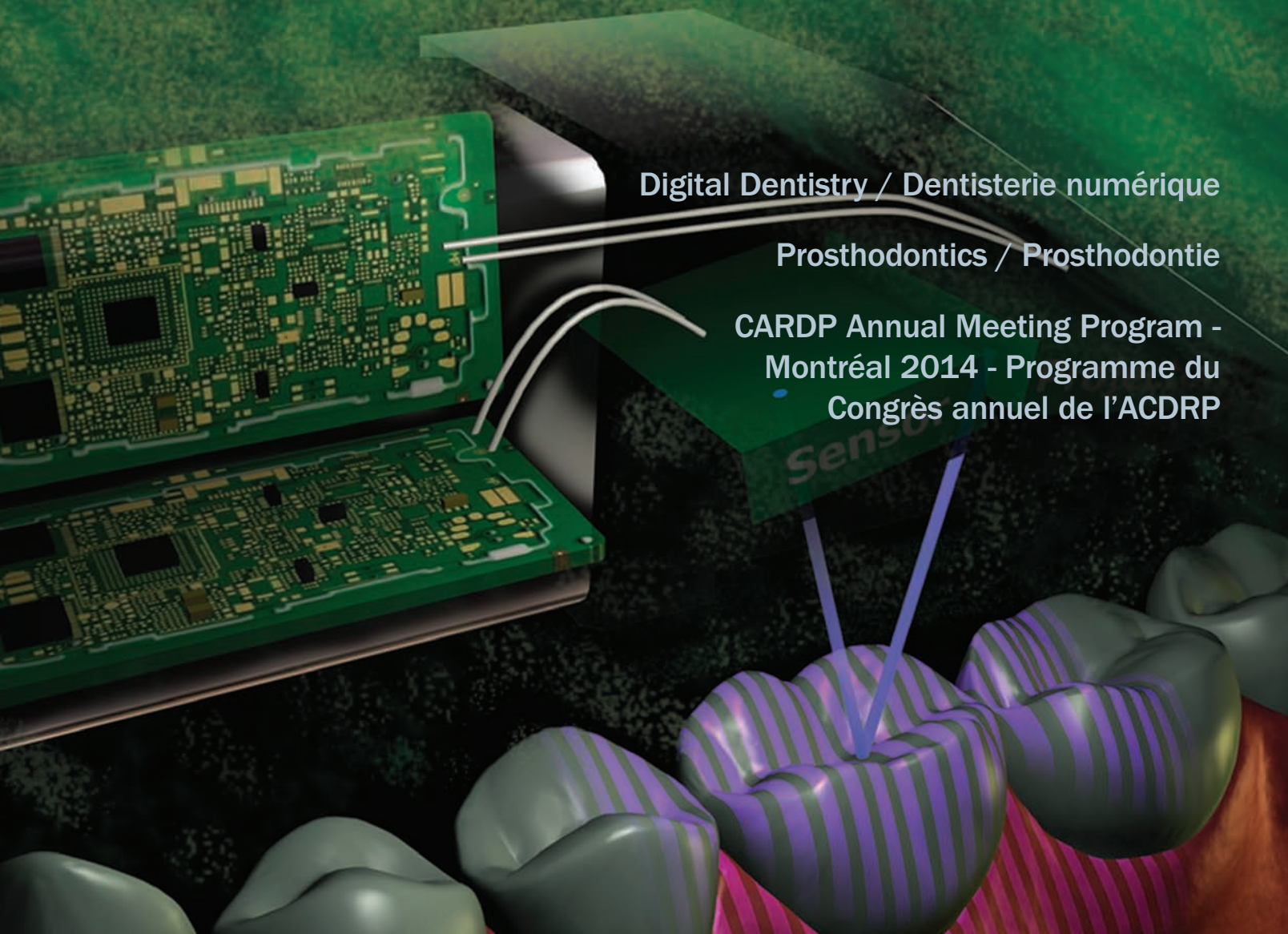

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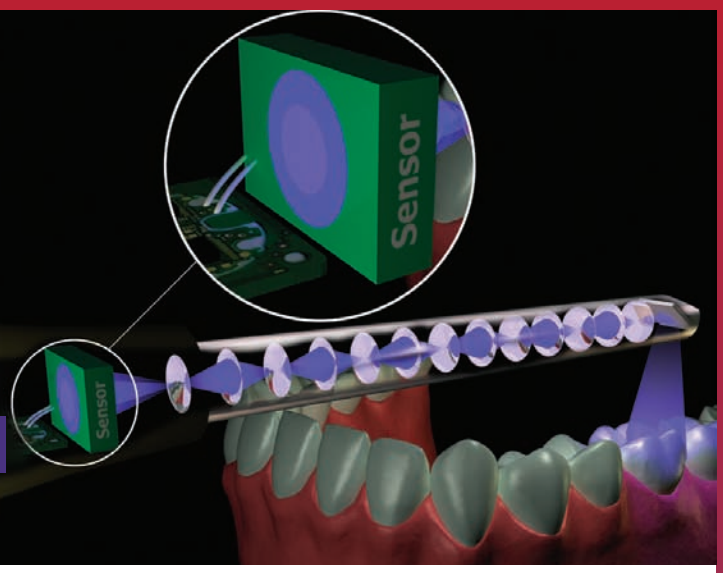


FEATURES

Dental Research is Transitioning Too:

The Clear Advantages of Engaging Patients in their Treatment Process

In our Journal's Winter Issue, I summarized the key forces that are reshaping the dental landscape.[1]

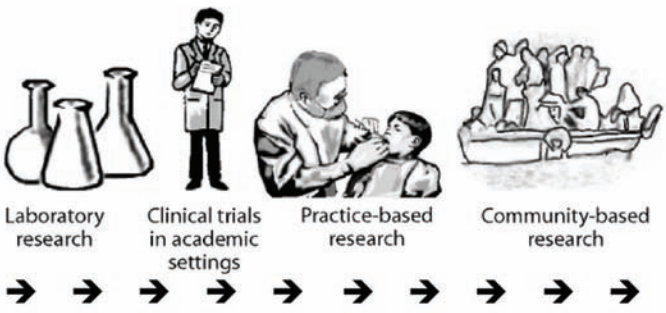
The classic, closed dental research model that once pervaded Academe, must now face our new socio-economic reality. Our Dental Faculties are running out of money,[2] and along with such a crisis, comes the realization that their survival will become progressively more dependent on the private sector(s).[3]

This is a historical turning point, as the institutional white flag is raised, calling for a truce with heretofore dreaded mercantilism.

Not only research activities, but qualified teaching faculty, as well as advanced technologies, have been dwindling as government funding is inexorably drying up. So, what was once, not that long ago, eyed with suspicious disdain and fear that commercialism would permeate the very fiber of academia and jeopardize its intellectual integrity, is now transforming into a new symbiosis. The old Ivory Tower has started to crumble and is being replaced by an emerging collaborative frame of mind.

As for the "it works for me" approach to so-called research, it remains, to say the least, unscientific, specious and inadmissible.

As we deliberate over the matter, let's also open the door to a germane topic, that of Dental Practice Based Research (DPBR) that I also previously broached, and which is fundamental to the new research-university-practice-patient continuum. Why? Because it is precisely through our **universities,** in collaboration with the **Dental Industry,** that Dental Practice Based Research is to be spearheaded, managed and validated.



The validity of the research increases as well as its impact on the practice [4]

Since 2010 an innovative research model is being heavily funded in the US and it is geared primarily towards engaging patients in the research process: [5]

"**Patient-Centered Outcomes Research** (**PCOR**) helps people and their caregivers communicate and make informed healthcare decisions, allowing their voices to be heard in assessing the value of healthcare options. This research answers patient-centered questions such as:"

1. "Given my personal characteristics, conditions and preferences, what should I expect will happen to me?"
2. "What are my options and what are the potential benefits and harms of those options?"
3. "What can I do to improve the outcomes that are most important to me?"
4. "How can clinicians and the care delivery systems they work in help me make the best decisions about my health and healthcare?"

While emphasis is placed on methodology, study design and analyses in **DPBR,** the effective inclusion of a patient's input, as well as the dissemination and implementation of the research results would also require university involvement. "Patient-Centered Outcomes Research Institute" [6] (**PCORI**) can generate relevant and trustworthy information for patients to base their own choices among treatment options.

The role of the clinician is therefore central to this process. Doctors Barry and Edgman-Levitan[7] speak of **shared decision making,** whereby the clinician, basing his information on research results, describes the risks, benefits and costs of plausible options to the patient, who then expresses his preferences. Educated with a better knowledge of these factors, the patient shares in the responsibility of the final treatment choices. In turn, such a process requires that the clinician relinquish his traditional, unilateral authority, in favor of a partnership with the patient.

One of the hurdles facing this type of research, albeit a minor one, is to have dentists implement Evidence Based Dentistry, for the purpose of gathering the required data. In an ideal EBD-DPBR world, practitioners too must become main players in the research process.

What is the new role of Dental Faculties in clinical research?

Since the overwhelming majority of systematic reviews in dentistry fail to meet the satisfactory methodologies and analyses required by EBD, it befalls our dental faculties to orchestrate and oversee, as partners and facilitators, the DPBR and PCOR research processes. One example is the Pittsburg University Data Center[8] and there are many more flourishing worldwide.

Dental Faculties at national and international levels must interact and collaborate to plan and execute comprehensive research programs that will address **DPBR** and **PCOR,** thereby avoiding duplication and overall financial waste.

Dental curricula at all levels must include student activities in the areas of DPBR and PCOR to ensure that new graduates seamlessly incorporate their research skills into their practices. This will also enhance the recruitment of Faculty members among these trained and research focused graduates.

Innovative funding structures and programs, from both the private and public sectors, that encourage the Dental Profession to partner effectively with Faculties, will use the contemporary research tools that DPBR and PCOR represent.

What is the new role of Organized Dentistry in clinical research?

Our Profession has very serious problems. For one thing, collaborative research is anathema to many of its decision making players and policy makers. There is a dichotomy, if not an outright disconnect, in what is offered in terms of dental care guidelines and actual mission statements.

Here is one of many examples: I recently had the privilege of proposing a coherent, collaborative Evidence Based Dentistry and Dental Practice Based Research project to the Executive committees of several Organized Dentistry entities. Some feedback was slow in coming and negative. What is particularly dumbfounding however, is that they based their decision exclusively on their organism's internal rules prohibiting any participation in research activities. Others did not even bother to oblige with a response. What does that tell us?

Fiscal and R&D exemptions supporting the legal incorporation of the above clinical research activities must be made available, as compensation, to practitioners. The way things now stand, Dental services have mostly been excluded from Public Healthcare funding. This situation needs to change, where dentists are clearly participating in, documenting and advancing dental research.

Conclusion:

True Scientific research, providing substantive results, is the cornerstone of a legitimate profession. Using comprehensive data rigorously culled from a variety of sources, it is unbiased, can withstand scrutiny, and its final recommendations, based on the conclusions of its statistics, are its benchmark. Is it any wonder that we've arrived at the point where all players should be involved in this process? Research, for the reasons summarized herein, is no longer the exclusive domain of a handful of experimenters, contented with their small samples and limited means. We can now expand our databases to include patients, clinicians, laboratories, manufacturers. Each of these participants plays an important role, with the university as project coordinator.

As with any other major transitional endeavor, we will no doubt come across stumbling blocks, but none of them, I assure you, are insurmountable. Who could say no to this noble undertaking, aimed at preserving the much needed credibility of the Dental profession?

Dr. Hubert Gaucher
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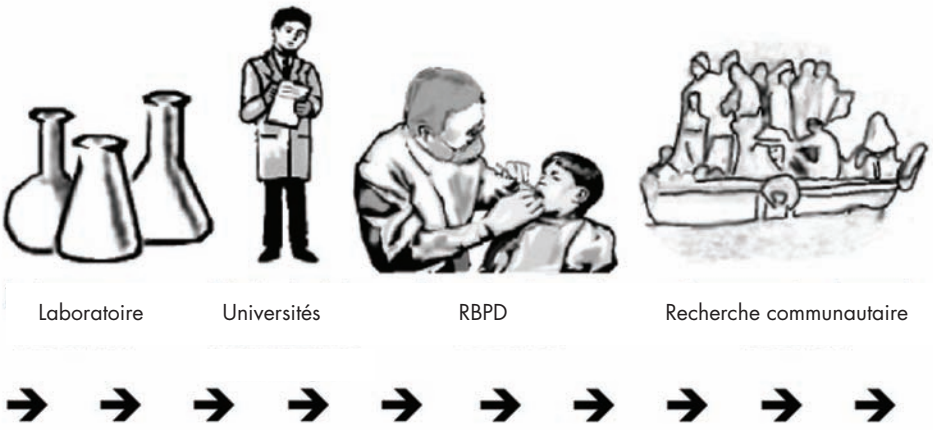
Retired tenured Faculty member, Oral Rehabilitation department and administrator at Laval University, Québec, full-time Prosthodontic practice, Founder and President of the Canadian Dental Research Institute (CDRI)

La recherche en dentisterie: une autre transition

Les avantages évidents de l'engagement du patient dans son cheminement thérapeutique

Dans un récent numéro de notre Journal, j'ai résumé les influences qui changent le paysage dentaire. [1]

Le modèle de recherche classique, replié sur lui-même et typique du milieu universitaire, fait face aujourd'hui à une nouvelle réalité socio-économique. Nos facultés dentaires sont à bout de souffle financier[2] et se rendent à l'évidence que leur survie dépendra de plus en plus sur le secteur privé. Il s'agit non seulement de leurs besoins dans le champs de la recherche, mais aussi du personnel enseignant qualifié et de technologies de fine pointe.[3]



La validité de la recherche augmente ainsi que son impacte sur la pratique [4]

Ceci est un point tournant historique, où l'on doit concéder que le mercantilisme peut avoir sa place dans une institution du savoir.

Ce qui, il n'y a pas tellement longtemps, était lorgné, par l'Université, avec un certain dédain, sinon une phobie de toute bannière commerciale qui s'infiltrerait de façon systémique et mettrait en péril son intégrité intellectuelle, se transforme aujourd'hui en nouvelle symbiose. La tour d'ivoire s'écroule en faveur d'une prédisposition collaboratrice.

Pour ce qui est de recherches bidon, du type «Cela fonctionne bien pour moi», elles demeurent, pour dire le moindre, trompeuses et inadmissibles dans une démarche scientifique.

Puisque nous discutons du milieu universitaire, ouvrons le volet sur un sujet connexe, à savoir, la recherche basée sur la pratique dentaire (RBPD), que j'ai aussi abordé auparavant, et qui s'avère l'épine dorsale du continuum recherche-université-pratique-patient. Comment se fait-il?

Parce que c'est précisément à travers nos **universités,** en collaboration étroite avec **l'industrie dentaire,** que la RBPD prendra son essor, sera chapeautée et validée.

Bien que l'accent soit placé sur la méthodologie, l'organigramme et l'analyse de la RBPD, l'université impliquera aussi le **patient** dans le processus, pour ensuite disséminer et implanter les résultats de recherche. Il est question de **résultats centrés sur les patients** (**Patient-Centered Outcomes Research Institute, PCORI),**[3] relevant de renseignements pertinents et fiables, afin de les aider dans leurs choix d'options de traitements.Le rôle du clinicien constitue donc le pivot de cette exécution. Les docteurs Barry et Edgman-Levitan[7] parlent de prise de décision partagée, où le clinicien, en utilisant les résultats de recherche, décrit les risques, bénéfices et coûts de traitements plausibles au patient, et ce dernier exprime ses préférences. Armé de cette connaissance plus approfondie des divers facteurs, le patient partage la responsabilité du choix final de son plan de traitements. En revanche, le clinicien délaisse son autorité unilatérale traditionnelle pour un partenariat avec le patient.

Une entrave à ce type de recherche, mais loin d'être insurmontable, est d'intégrer la Dentisterie fondée sur les faits (DFF) dans la pratique du dentiste aux fins de cueillette des données; car dans un monde idéal DDF-RBPD, le praticien aussi fera partie intégrante de l'équipe de recherche.

Quel est le nouveau rôle des facultés dentaires en recherche clinique?

Étant donné la piètre performance des revues systématiques en dentisterie, puisqu'elles ne rencontrent aucunement les critères de la DFF, il en revient aux **facultés dentaires** d'orchestrer et de surveiller, en tant que partenaires et facilitateurs, les démarches RBPD et PCOR. Un exemple concret est le Pittsburg Data Center[8] et il y en a bien d'autres encore à travers le monde.

Les facultés dentaires, **aux niveaux national et international,** doivent **interagir et collaborer** dans la planification et la mise en place de programmes de recherche qui incorporent RBPD et PCOR, dans le but d'éviter le doublement des efforts et le gaspillage des ressources.

Les curricula dentaires à toutes les étapes doivent incorporer des exercices portant sur **RBPD et PCOR** afin d'assurer une transition fluide de l'étudiant vers sa pratique. Ceci aura comme effet secondaire le recrutement facile de professeurs déjà habilités dans le domaine.

La mise en place de **structures et programmes de financement novateurs** des secteurs privés et publics, qui encouragent le partenariat de la profession avec les facultés dentaires, la RBPD et PCOR.

Quel est le nouveau rôle de la dentisterie organisée en recherche clinique?

Notre profession connaît de sérieux problèmes. D'une part, bon nombre de ses directeurs et décideurs ont une hantise de soutenir des projets collaborateurs. Il y a dichotomie, sinon un véritable décrochage entre ses directives concernant les soins dentaires versus ses énoncés de position.

En voici un exemple: J'ai eu le plaisir récemment de proposer un projet cohérent de collaboration DFF et RBPD aux comités exécutifs de plusieurs entités. Leur rétroaction se fit attendre, et était négative de surcroît. Ce qui stupéfie cependant, c'est que leur décision était basée uniquement sur leurs règlements qui interdisaient toute participation dans les activités de recherche. D'autres organismes ne se sont même pas donnés la peine de répondre. Que peut-on conclure de ce comportement?

Les exemptions fiscales et de R&D qui supportent les activités de recherche doivent être accessibles, pour compenser les praticiens/chercheurs. Jusqu'à ce jour, les services dentaires sont exclus du financement des soins de santé. Cela doit changer puisque les dentistes qui participent dans la recherche et documentent leurs interventions et résultats contribuent à l'avancement de la recherche dentaire.

Conclusion

La vraie recherche scientifique, celle qui produit des résultats indépendants, constitue la pierre angulaire d'une profession légitime. Elle comptabilise les données rigoureusement cueillies de diverses sources impartiales, et ses recommandations finales, fondées sur des statistiques concluantes, sont sa référence. Il n'est guère étonnant que nous en sommes rendus au point d'impliquer un plus grand éventail de participants dans cette démarche. La recherche, pour les raisons évoquées ci-haut, n'est plus la chasse gardée d'une poignée d'expérimentateurs qui doivent se contenter d'un échantillonage restreint et de ressources réduites. Nous avons aujourd'hui la capacité d'élargir nos bases de données pour y inclure patients, cliniciens, laboratoires, manufacturiers. Chacun de ces intervenants joue son rôle indispensable dans l'ensemble, ayant pour coordonnatrice, l'Université.

Comme dans toute entreprise en transition, nous rencontrerons sans doute des obstacles, mais je vous assure, ils sont loin d'être infranchissables. Qui s'opposerait à une oeuvre aussi digne, qui se veut sentinelle de la crédibilité de notre profession?

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References / Références

1. CJRDP/JCDRP: Editorial, Vol 6-4, Winter/hiver 2013 (www.cardp.ca)
2. CDA–OASIS: Oral Health Research in Canada: Trends and Implications http://www.oasisdiscussions.ca/2014/04/24/ohr/
3. Universités: le salut passe par le financement privé, dit Brière; Le Soleil, 1 mai 2014
4. Ivar A. Mjör, Valeria V. Gordan, Amer Abu-hanna and Gregg H. Gilbert; Research in general dental practice, Acta Odontologica Scandinavica, 2005, Vol. 63, No. 1, Pages 1-9
5. Patient-Centered Outcomes Research Institute: http://www.pcori.org/
6. Methodological Standards and Patient-Centeredness in Comparative Effectiveness Research
   The PCORI Perspective; JAMA. 2012;307(15):1636-1640
7. Shared Decision Making — The Pinnacle of Patient-Centered Care Michael J. Barry, M.D., and Susan Edgman-Levitan, P.A. N Engl J Med 2012; 366:780-781
8. http://www.crhc.pitt.edu/DataCenter/index.html

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1. Radiographic Analysis of Crestal Bone Levels on Laser-Lok® Collar Dental Implants. CA Shapoff, B Lahey, P Wasserlauf, D Kim. Int J Periodontics Restorative Dent 2010;30:129-137.
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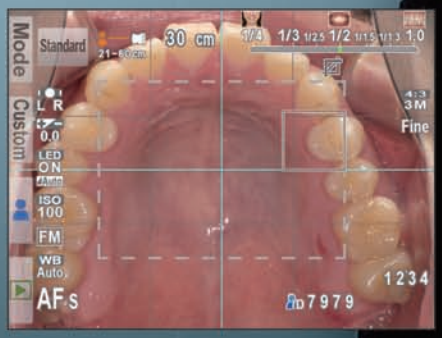

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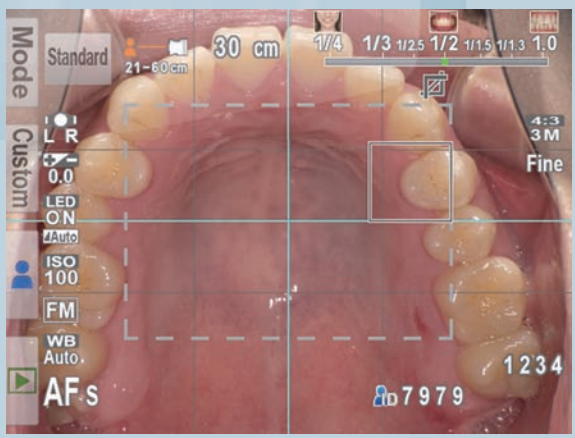

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Hannah Sung

Mark Jutzi

Brian Marshall, general manager of Camlog Canada is pleased to announce the addition of two experienced sales rep. to the Camlog team.

Hannah's primary focus is to help provide the best outcome for the patient, She brings 17 years of experience within the Calgary Dental industry to the Camlog Team. Leveraging a strong foundation as a comprehensive Ceramist, she specialized in full mouth cosmetic and functional rehabilitation.

Mark joins the Camlog team with 2 years experience in the dental industry and prior experience selling surgical equipment to hospitals while supporting major surgeries in the operating room setting. Mark's education background allows him to teach and advise doctors on surgical procedures with ease as well as being a valuable chair side resource.

Vident Promotes Stephen Moore to Director of North American Lab Sales

Vident is pleased to announce that Stephen Moore has been promoted to Director, North American Lab Sales. Most recently, Moore held the position of Vident Region Sales Manager for Canada before being tapped for the Director role. In his new position, Moore is responsible for the recently created North America Lab Sales Team, which combines both the Canadian and U.S. outside sales team.

"Stephen has created a strong, sustainable, and successfully talented sales team across the Canadian Region," says Fred Ketcho, President of Vident. "His successful leadership in Canada gives me confidence in the success of this new team strategy."

Biomet 3i Announces New Redesigned Website with Customized Homepage

Biomet 3i is pleased to announce the launch of its new redesigned website (www.biomet3i.com) that now includes a way for users to customize their homepage.

The new website includes a scrolling news ticker, a customer feedback form, and a login button that allows users to select their specialty and receive tailored homepage information. In addition, the site has a more colorful look and simplified navigation.

"At Biomet 3i, we are keenly focused on customer centricity and want to ensure that we are making our website as user-friendly as possible. We want to ensure you see the information that you're interested in without having to wade through content that doesn't apply to you," said Biomet 3i President, Bart Doedens.

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Ask the Experts

Buying a Practice

Q "What is a pro forma"

Definition: Assumed, forecasted, or informal information presented in advance of the actual or formal information. The common objective of a pro forma document is to give a fair idea of the cash outlay for a shipment or an anticipated occurrence. Pro forma financial statements give an idea of how the actual statement will look if the underlying assumptions hold true. Latin for, according to form or for form's sake[1]

Nadean Burkett answers:

A pro forma is essentially a projected profit and loss statement prepared as part of a complete business plan for a start-up or when planning for expansion or other changes in an existing business operation. As the definition (above) asserts, certain assumptions are made in the forecast of revenue and expenses. Such assumptions should be clearly stated in the document, as well as the intended use and purpose of the projections as part of the decision-making process. In other words, context is important.

The pro forma should include forecasted revenues, operating costs and cost of capital (debt servicing). Most dentists will rely on their accountant or business adviser to do this but it doesn't mean that the dentist should remain at arm's length during the process. After all, it is the owner/operator who will have to live with the results of the decisions made on the basis of the projections and assumptions made in that document. For most of our clients, we include a break even analysis based on average monthly cash flow so that they will be able to monitor their practice performance against the projections in the pro forma. This allows us (and the client) to make refinements based on actual data rather than waiting for an entire year's worth of results. The keys to success are one's ability to recognize what is working (and more importantly, what is not), and to adjust accordingly.

Even purchasing a new piece of equipment, or adopting new technology in a business should be subject to a pro forma. There are always multiple impacts to a business/practice model when change occurs, therefore the pro forma process should include consideration to how the changes will affect other parts of the operation – will you need more operators/staff (hiring or replacing personnel); will existing employees and operators need training (downtime and cost of training); will policy and systems be affected to accommodate the changes you are contemplating; what affect will the change have on the patient experience?

The pro forma is only one piece of a complete business plan and in my opinion should be the final step in the process, after the other four components are well defined and planned (Place, Product, People and Promotion). In doing so, a professional business/practice adviser will be able to help their client to identify potential risks and defects in their plan which should lead to creation of options (Plan B, C, etc) to address future challenges.

1. http://www.businessdictionary.com/definition/proforma.html#ixzz30rF0NErY

Nadean Burkett is a career and business transition coach with more than 30 years experience in the dental profession – now assist-ing accountants and other professionals in private practice by referral. Trusted practice evaluator, business planner and respected coach and advisor for the past 10 years – Nadean facilitates The EMPOWERMENT Program series, Career & Practice Management for Dentists both online and from NBAI's head office situated in beautiful Vancouver, British Columbia.

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Dale Tucci is owner and president of Tucci Management Consultants Inc. Dale and her team offers a wide variety of custom practice manage-ment solutions, transition planning, business coaching, associate recruiting, marketing and human resource services.
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Steve Mccarron is a practice sales agent. Steve is no stranger to the corporate dental world having previously worked at IDH and responsible for finding practices suitable for a corporate acquisition.

Practice Leadership

Q As a general dentist I find myself frustrated by the open time our practice is experiencing in the hygiene area of the practice. My team have tried their best to get a handle on this problem but every month the open time is significant. Can you offer reasons as well as solutions?

Dale Tucci explains:

This may be the most common question being asked of me during the first few months of 2014 by a general dentist. You are certainly not alone in terms of struggling with open time in hygiene schedules in the early months of this year.

Let me begin by saying that I will address this in general terms because I do not know the specifics about your practice. In addition, I am not privy to the solutions you and your team have implemented to date to resolve this issue.

The challenge of downtime in hygiene provider schedules is not a new one. Every business person in your office dreads the "downtime" discussion because team members often feel responsible for the open time. As a business owner you have likely addressed this issue with your team, either in a team

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meeting or on an individual basis with business personnel. No doubt the focus was on solutions to reduce downtime with less emphasis around the reasons for the loss of patient appointments. I would urge you to investigate the reasons and identify any new trends in hygiene scheduling so you can take corrective action.

The practical advice I can offer is to evaluate the downtime in the first four months by identifying specific factors unique to this year. As we can all attest to, this winter and the weather patterns had an impact on appointment compliance, especially if the practice is located in an area where winter weather was unusually poor. Next, look at other factors that could have increased downtime, such as the dentist or hygienists' time off and compare 2013 and 2014 hygiene downtime in the same months. In addition, there may be economic factors or reduction of insurance benefits that may be part of the reason for increased loss of hygiene appointments.

As you discover the solutions, examine the confirmation method to ensure patient confirmation is being completed and resulting in direct communication. Confirmation needs to include email and text message confirmation to ensure greater direct communication with patients. If you are confident that confirmation is not a primary cause move on to examining scheduling.

Moving on with possible reasons for the open time, take a hard look at personnel managing the recare system. If a team member has been frustrated by the amount of open time and feels that part of the problem is their skill, this can definitely have a bearing on the performance of the team member and the recare system. To explain this further, sometimes there are stellar employees accountable for a specific system who perform well when things are running smoothly but falter when the going gets rough. This by no means detracts from them as team members but it illustrates that in certain circumstances a different person should be deployed to handle the present challenge.

Another cause may be patient compliance to hygiene services. In practices where the recall and scaling information is documented for patients, we advise the practice manager or hygiene coordinator to run reports showing the number of active patients and their assigned hygiene interval. By doing this exercise, the appropriate number of hygiene hours or appointments can be calculated based on patient demand. This may reveal an over-supply of hygiene appointments compared to patient demand for care. A word of caution here! This will only be helpful if the software recare data reflects active patients' hygiene treatment interval and not the patients' insurance interval.

In the quest of searching for the reasons for fewer hygiene appointments, the next area to turn your attention to is diminishing hygiene growth. The practice may be experiencing lower new patient growth and higher attrition of active hygiene patients which would result in fewer hygiene appointments. I would recommend delving into this to determine if that may be the primary culprit.

I appreciate your concern about increasing downtime in hygiene schedules because as a general dentist the volume of active hygiene patients affects your ability to diagnose. There is a ripple effect throughout the general practice when the hygiene area of the practice is under-performing. I trust you will be persistent about getting the facts around the decrease in hygiene appointments and take action to correct the issue sooner rather than later.

Practice Sales and Acquisitions

Q I've been told that if I sell my practice to a corporate I will have to stay on for five years and won't get all of the sale proceeds up front - is this true?

Steve McCarron says:

A corporate will look to protect their investment by a variety of means, one of which is 'tying you in' for a number of years. However this depends on the split of NHS and/or private income. lf the private percentage is on the high side (and especially if it is all PFPI) a corporate will generally introduce a number of 'levers' to protect itself against any such drop in revenue. These are commonly:

- **Tie in period.** The ex-principal will be required to stay within the practice as an associate. This means he / she is likely to continue to generate the same levels of private revenue, and help maintain the income required to achieve the target profitability.
- **Targeted private fee income.** The ex-principal is likely to have an annual private fees target to achieve. Any underperformance against the target and they will be expected to repay an agreed percentage of the actual underperformance.
- **Retention of sale monies.** This will be an agreed amount of money retained by the corporate after the deal is done. This money will be repaid to the ex-principal when certain conditions are met, e.g. when the entire practice's annualised private income target has been achieved.

Having a payment plan in the practice, such as Practice Plan or Denplan will help the corporate become more comfortable that the practice will achieve its private income and so reduce the necessity to impose these conditions as part of the agreed purchase. Not all corporates have the same opinion on these issues.

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"JUST LET IT FLOW"

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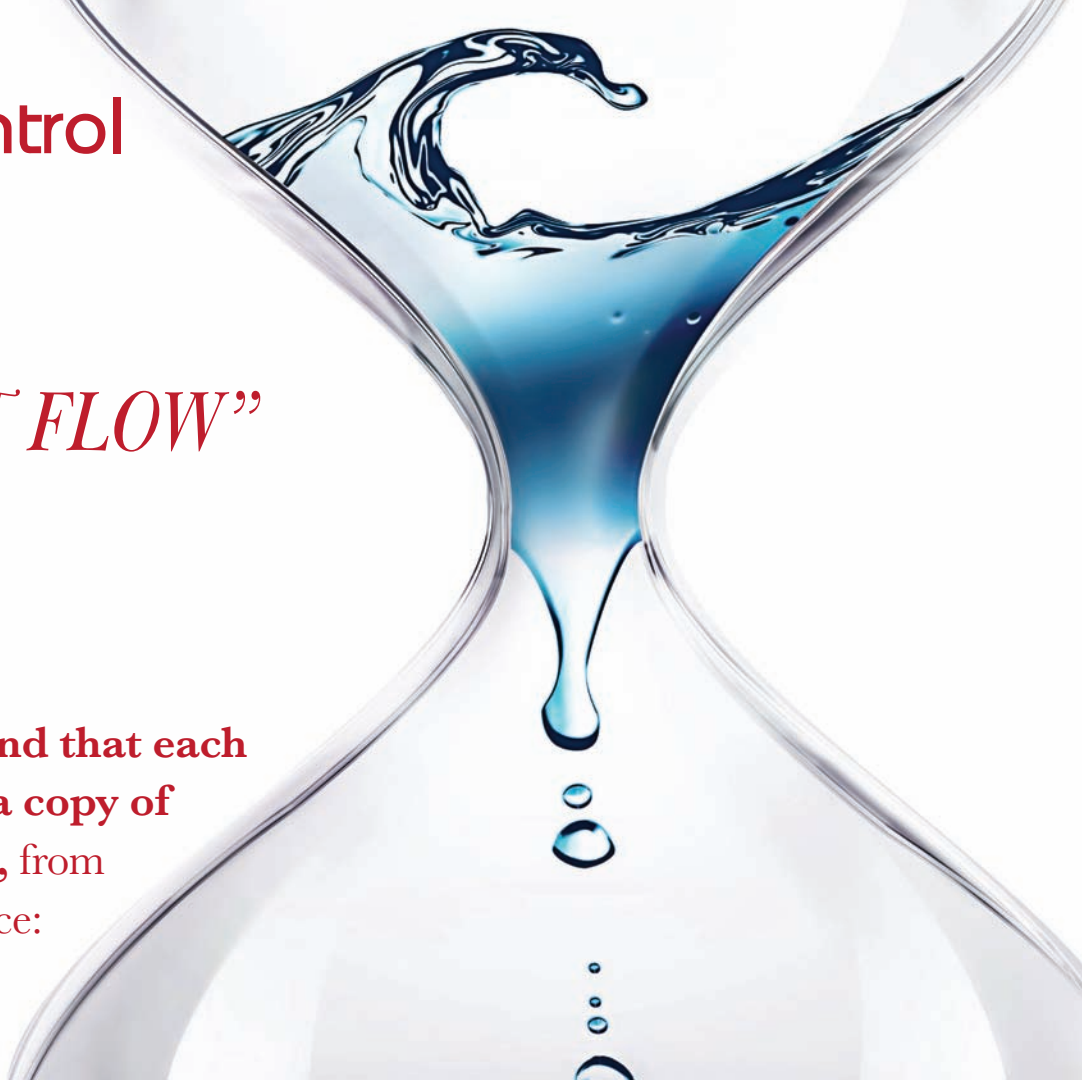


We recommend that each practice obtain a copy of osap's publication, from policy to practice: OSAP's guide to the guidelines.

Let it flow…Just let it flow. One of the most common areas in a dental office to address during one of our mock audits is the central sterilization area. According to the CDC, we designate a central processing area for 1) receiving, cleaning, and decontamination; 2) preparation and packaging; 3) sterilization; and 4) storage.

It is challenging for dental practices to accomplish this flow in the sterilization area if old routine habits are hard to break or if the space is small. Whether the sterilization area is small or spacious, however, our goal is to avoid cross-contamination and promote efficiency.

To launch the effort to improve this area of infection control, let us begin by concluding patient care and breaking down the treatment room:

First, remove disposable, contaminated materials in the operatory. Dispose of contaminated sharps such as needles, blades, orthodontic bands, orthodontic wires, and burs chairside. There is no need to carry these items to the sterilization area and risk an injury. Thus, sharps containers are located in each treatment room, near the hazard.

Speaking of sharps containers, a number of dental offices are reluctant to place sharps containers in the operatories out of concern that it diminishes the esthetics of the room. However, according to OSHA, the location of the sharps containers shall be at the point of use (i.e., each operatory). NIOSH suggests that the container be placed in a visible location, within easy horizontal reach and below eye level. The containers should be placed away from any obstructed areas such as near doors, under sinks, near light switches, etc.

In reference to instrument processing, OSAP says "all procedures must be performed correctly every time to make sure that items are processed properly and in the safest way possible." Thus, in order to perform such procedures correctly every time, it is helpful to implement standard operating procedures for infection control. We recommend that each practice obtain a copy of OSAP's publication, From Policy to Practice: OSAP's Guide to the Guidelines.

Once the disposable contaminated sharps are disposed of, we safely remove the reusable contaminated sharps — instruments. When handling contaminated instruments, wear appropriate personal protective equipment such as puncture-resistant utility gloves and face/eye protection.

Busy, high volume practices may find it helpful to utilize a holding solution comprised of detergent or enzymatic cleaner if automatic debridement cannot be accomplished for a length of time. This will help prevent debris such as

blood from "sticking" to the instruments. Place the holding solution in the "dirty" area.

Automatic cleaning is preferred over hand scrubbing. Never presoak dirty instruments in a high-level disinfectant. Glutaraldehyde (an ingredient in sterilant/high-level disinfectant) makes it more difficult to get debris off of the instruments. In addition, it is a toxic chemical and is not designed for use as a precleaner.

Proceed with the ultrasonic or the FDA-approved dental instrument washer. Run the ultrasonic with its lid in place to avoid cross-contamination via droplets and aerosols. Be sure to change the ultrasonic detergent at least daily, or more often if necessary.

Inspect the instruments and arrange into sets. This somewhat time-consuming step is not necessary if you are utilizing sterilization cassettes such as Hu-Friedy's Instrument Management System (IMS). When using IMS, the instruments are put back into place in the cassette during the procedure, saving valuable time and protecting the instruments from damage or loss.

After the cassette and instruments are dry, you are now ready to package. Designate a space for this step whether you are wrapping cassettes or using pouches. Seal pouches carefully and make certain instruments are not poking out. Package hinged instruments in the open position.

Place a chemical indicator on the inside of each package. If the internal indicator is not visible from the outside, also place an exterior chemical indicator on the package. Label and date the packages.

Moving on in our flow, we are now ready for sterilization.

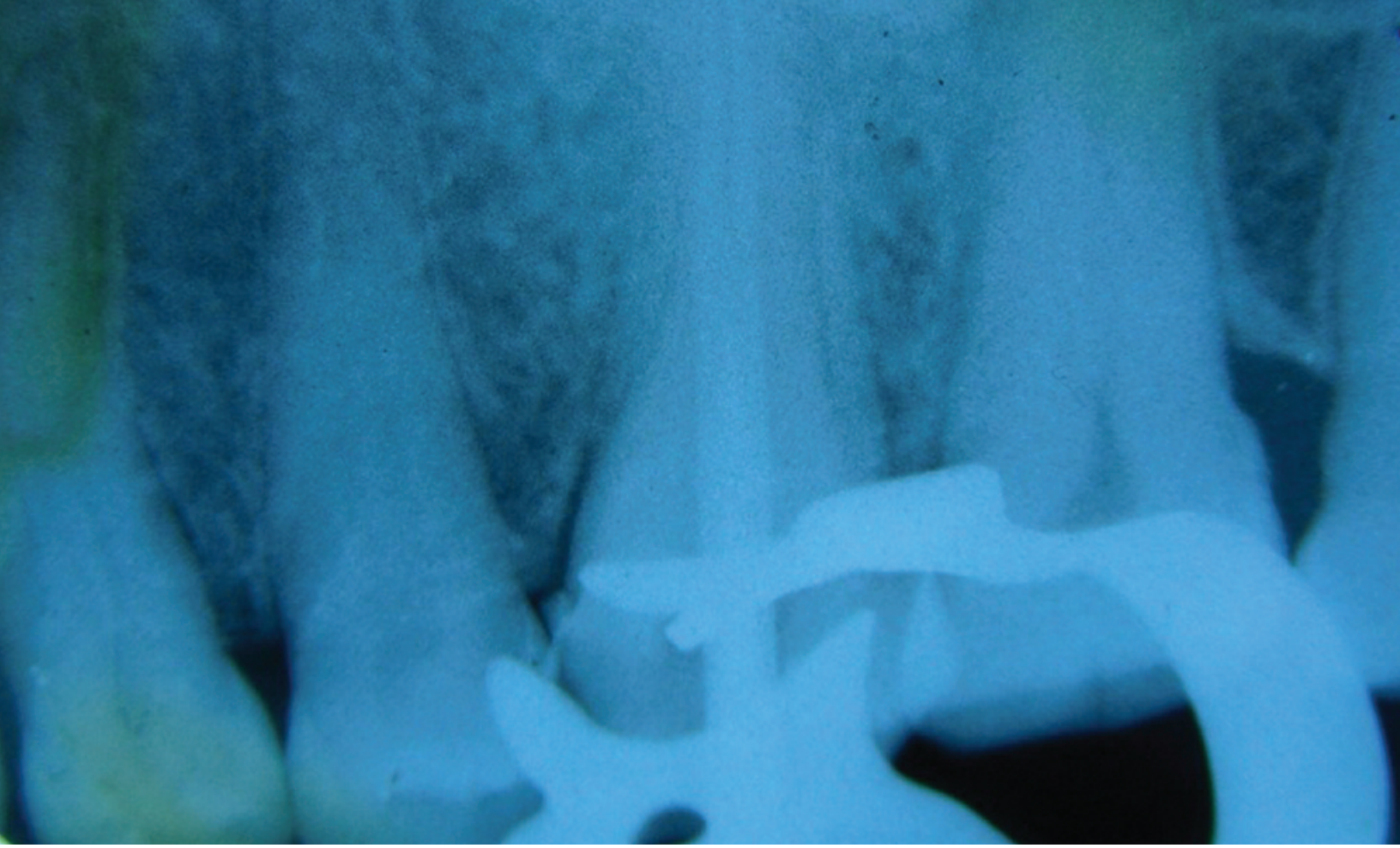
Follow manufacturer's instructions for biological monitoring, heat sterilization, and the maintenance of the unit (such as replacement of seals, cleaning the unit, etc.). The CDC Guidelines recommend weekly biological monitoring unless sterilizing an implantable device, which requires biological monitoring with every load. When removing the instruments from the sterilizer, make certain the trays or contents are not placed in the "dirty" area. This may be especially challenging for small, confined spaces. Allow the instrument packs to dry and cool before handling. If the sterilizer is at the farthest end of the flow, consider placing the pouches or wrapped cassettes in closed cabinets above the sterilizer.

Do not use sterilized packs if the indicators failed. Do not remove the packaging material until point of use to prevent contamination. Prior to using the packs, carefully inspect to assure that the pack is dry and the packaging not compromised. Keep in mind that damp packages are not considered sterile.

Analyze your sterilization flow and determine if improvements can be made to promote greater efficiency and eliminate cross-contamination. ■

Olivia Wann, RDA, JD, attended Tennessee Technology Center as an RDA and earned a bachelor of science degree in health-care administration from Saint Joseph's College. She graduated from the Nashville School of Law with a doctorate in jurisprudence and is licensed to practice law in Tennessee. In 2000, she founded Modern Practice Solutions, which is dedicated to the compliance issues of dental practices.

For more information visit www.modernpracticesol.com or send an email to Olivia@modernpracticesol.com.



Endodontic Management of a Rare Anatomical Variation in Maxillary First Permanent Molar with Two Roots and Two Root Canals: *A Case Report*

Abstract

Knowledge of both normal and abnormal anatomy of the root canal system dictates the parameters for execution of root canal therapy and can directly affect the outcome of the endodontic therapy. Success in root canal treatment is achieved after thorough cleaning and shaping followed by the complete obturation of the root canal system, this is possible only when the operator is aware of the anatomical variation of the root canal system. The present case report describes root canal treatment in a maxillary first permanent molar with two roots and two canals in which the diagnosis was confirmed with the help of spiral computed tomography.

Key Words

Internal anatomy, spiral computed tomography, anatomical variation, root canal treatment.

Introduction

Cleaning ,shaping and obturation of the entire root canal system " three dimensionally " is important and essential for the successful endodontic therapy[1], therefore a thorough knowledge of both the external and internal anatomy of teeth is important in everyday endodontic practice[2]. Extra roots or canals if not detected are a major reason for failure[3].

Various studies have demonstrated substantial variation in human maxillary molar anatomy regarding the number of roots and root canals[2]. The most common form of the permanent maxillary 1st molar has three roots and four canals.

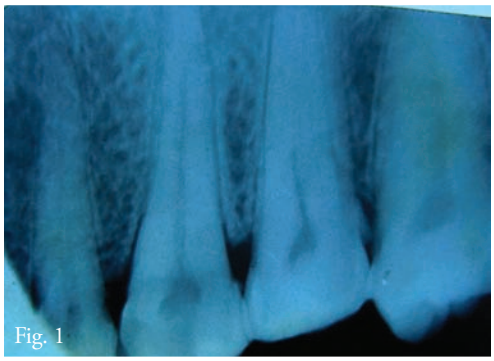
When a pre-operative radiograph reveals an atypical tooth shape and an unusual contour, further radiographs should be taken from different angulation to confirm any unusual anatomical features[4]. But due to problems like overlap between the roots and the superimpositioning of the anatomical structures on the tooth, the radiographs can sometimes prove inconclusive and do not provide detailed information concerning the three dimensional image, which would help the clinician in making a confirmatory diagnosis[5]. Newer techniques like spiral computed tomography are being used to study root canal morphology as a 3D image[6]. In vitro and in vivo studies have demonstrated substantial variation in human maxillary molar anatomy regarding the number of roots and root canals or the presence of a C-shaped root canal system[7&8].

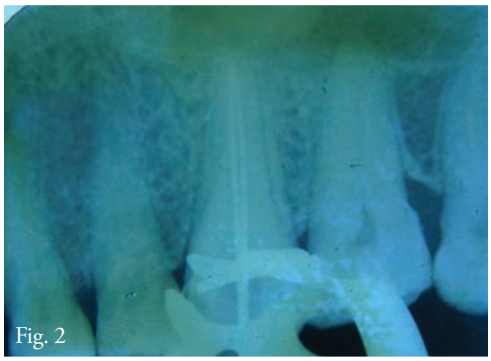
The purpose of this clinical case report is to describe the detection and management of a rare anatomical variation of two roots and two canals in a maxillary 1st permanent molar with the aid of spiral computed tomography.

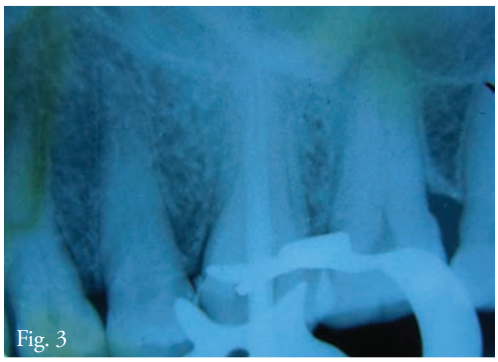
Case Report

A 42 years old female patient was referred for root canal treatment in her left maxillary first molar with a complaint of pain during mastication since 15 days. History of present illness revealed pain of continuous nature, localized and was tender to vertical percussion. Pulp testing (Diagnodent, Parkell) revealed that the tooth no. 26 was non-vital. The diagnostic radiograph disclosed the presence of two roots (Fig.1) and pulpal involvement. The medical history was non-contributory. Based upon the history, clinical examination, pulp testing and radiograph the condition was diagnosed as chronic apical periodontitis and root canal treatment was advised.

The tooth was isolated with rubber dam and access was gained to the pulp chamber using a high speed air turbine handpiece. The chamber was irrigated with 3% sodium hypochlorite solution. Only two root canal orifices were detected, one buccal and palatal. Both the canals were negotiated and the working length was determined using apex locator (Root ZX, Morita, Tokyo, Japan). The working length radiograph was also taken (Fig.2). Pulpal remnants and other organic debris were removed from the root canal space and thorough chemo-mechanical preparation was done with a nickel-titanium Pro-Taper (Dentsply Maillefer, Ballaigues, Switzerland) in both the canals. The canals were irrigated with 3% sodium hypochlorite solution, flushed with







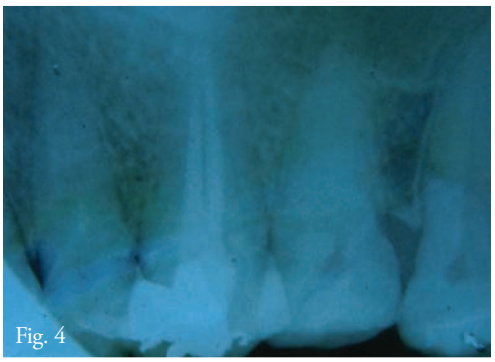


Figure 1: Pre-operative Radiograph

Figure 2: Working length Radiograph

Figure 3: Mastercone Radiograph

Figure 4: Post-obturation Radiograph

sterile saline solution and dried with absorbent paper points (Dentsply Maillefer). Intra canal medicament (Metapex) was placed in both the canals and closed dressing (Cavit, ESPE, Seefeld, Germany) was given. Patient was called after 15 days.

On the second appointment tooth was asymptomatic. Tooth was isolated with rubber dam and dressing was removed. Canals were irrigated with 3% sodium hypochlorite solution and master cone radiograph was taken (Fig.3). Canals were dried with absorbent paper points and obturated using AH-plus resin sealer (Dentsply Maillefer, Konstanz, Germany) and gutta-percha (Dentsply Maillefer) using cold lateral condensation technique. A sterilized cotton pellet was placed in the pulp chamber, the access cavity sealed with cavit. Post obturation radiograph was taken (Fig.4). The tooth was later on restored with permanent restoration. An informed consent was obtained from the patient and spiral CT scan was done with multi-detector CT scanner (Sensation 64, Siemens, Germany). Spiral CT scan confirms the presence of two roots and two canals (Fig.5). It also shows the presence of two roots and two canals even in tooth no. 16.

Discussion

This report highlights the important issue that this tooth has only two roots and two canals.

The morphology of the permanent maxillary first molar has been reviewed extensively because this tooth presents complex morphology. Most endodontic and dental anatomy texts describe the human maxillary first molar with three roots and three or four root canals[9-12]. Other variations include one[13], four[14] and five roots[15] and unusual morphology of root canal systems within individual roots. Case reports with five[16], six[17] and seven[18] root canals or with c-shaped canal configuration[19] have also been reported. The presence of two roots and two root canals in the maxillary first molar is as low as 0.31% to 0.5% [20-22].

Radiographic examination is an essential component of the management of endodontic problems. The amount of information gained from conventional radiographs and digitally captured radiographs is limited by the fact that the three-dimensional anatomy of the area being radiograph is compressed into a two-dimensional image[23]. Newer diagnostic methods such as computerized axial tomography (CT) scanning greatly facilitate access to the internal root canal morphology. One distinct advantage of CT scanning over the conventional radiograph is that it allows the operator to look at multiple slices of tooth roots and their root canal systems. Although conventional CT scans produce a high level of detail in the axial plane, it is essential that the radiation dose is kept low as reasonably achievable.

The use of spiral computerized tomography (SCT) scans

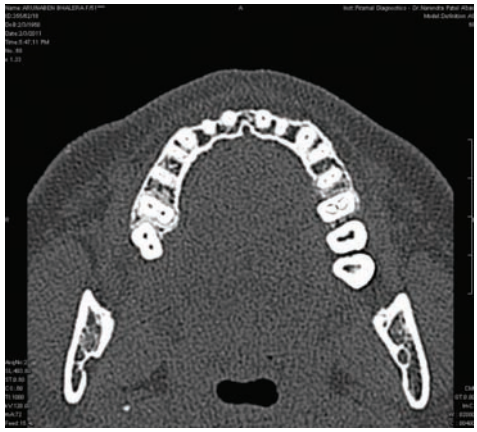


Figure 5: Spiral CT

in dentistry has increased dramatically in the past 2 decades[24]. SCT scans acquire raw projection data with a spiral-sampling locus in a relatively short period. Without additional scanning time, these data can be viewed as conventional trans axial images such as multi-planar reconstructions or as three-dimensional reconstructions. With SCT scans, it is possible to reconstruct overlapping structures at arbitrary intervals and thus, the ability to resolve small subjects is increased. They have drastically reduced scan time and effective dosages, but they still are not as accurate and do not limit the dosage as low as reasonably achievable.

From a clinical stand point, radiographic or other images provide clinicians with the most appropriate method to detect variations in both root and canal anatomy. Only by correct examination and interpretation of these images can the clinician detect such variations and be aware of them before and during endodontic procedures.

Conclusion

When root canal treatment is to be preformed the clinician should be well aware that both external and internal anatomy may be abnormal. The present case report discusses the endodontic management of an unusual case of a maxillary first molar with two roots and two canals and also highlights the role of SCT scanning as an objective analytic tool to ascertain root canal morphology.

References

1. European Society of Endodontology. Quality guidelines for endodontic treatment: Consensus report of the European society of Endodontology. Int. Endod J 2006; 39: 921-30.
2. Fava LRG. Root canal treatment in an unusual maxillary first molar: a case report. Int Endod J 2001; 34: 649-53.
3. Slowey RR. Radiographic aids in the detection of extra root canals. Oral Surgery, Oral Medicine and Oral Pathology. 1974; 37: 762-71.
4. Fava LRG, Dummer PMH. Periapical radiographic techniques during diagnosis and treatment. Int Endod J 1997; 30: 250-61.

BIOMET *3i*'s DIGITAL DAY	November 7th, 2014

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5. Reddy YP, Karpaga vinayagan K, Subbarao CV. Management of dens invegenatus diagnosed by Spiral computed tomography: a case report. J Endod 2008; 34: 1138-42.
6. Cimilli H, Cimilli T, Mumcu G, Kartal N, Wesselink P. Spiral computed tomographic demonstration of C-shaped canals in mandibular second molars. Dentomaxillofac Radiol 2005; 34: 164-67.
7. Cecic P, Hartwell G, Bellizzi R. the multiple root canal system in the maxillary first molar: a case report. Journal of Endodontics 1982; 8: 113-5.
8. Newton CW, Mc Donald S. A c-shaped canal configuration in a maxillary first molar. Journal of Endodontics 1984; 10: 397-9.
9. Serra OD, Ferreira FV. Anatomia Dental. 2nd edn. Sao Paulo, Sp, Brazil: Artes Medicas, 1976; 142.
10. Weine FS. Endodontic Therapy, 4th edn. St. Louis, Mo, USA: C.V. Mosby Co. 1989; 245-51.
11. Ingle JI, Backland LK, Peters DD, Buchanan S, Mullaney TP. Endodontic cavity preparations. In: Ingle JI, Backland LK, eds. Endodontics, 4th edn. Baltimore, MD, USA: Williams and Wilkins. 1994; 92-227.
12. Walker RT. Pulp space anatomy and access cavities. In: Pitt Ford TR, ed. Harty's Endodontics in Clinical Practice, 4th edn. Oxford, UK: Wright. 1998; 16-36.
13. Gopikrishna V, Bhargavi N, Kandaswamy D. Endodontic management of a maxillary first molar with a single root and a single canal diagnosed with the aid of spiral CT: a case report. J Endod 2006; 32: 687-91.
14. Christie WH, Peikoff MD, Fogal HM. Maxillary molars with two palatal roots: a retrospective clinical study. J Endod 1991; 17: 80-4.
15. Barbizam JV, Ribeiro RG, Tanomaru Filho M. Unusual anatomy of permanent maxillary molars. J Endod 2004; 30: 668-71.
16. Ferguson DB, Kjar KS, Hartwell GR. Three canals in the mesiobuccal root of a maxillary first molar: a case report. J Endod 2005; 31: 400-2.
17. De Almeida-Gomes F, Maniglia-Ferreira C, Carvalho de Sousa B, et al. six root canals in maxillary first molar. Oral Surg Oral Med Oral Pathol Oral Radiol. Endod 2009; 108: 157-9.
18. Jojo Kottoor, Natana sabapathy Velmurugan, Rajmohan Sudha, et al. Maxillary first molar with seven root canals diagnosed with cone-beam computed tomography scanning: a case report. Journal of Endod. 2010; 36: 915-21.
19. Dankner E, Friedman S, Stabholz A. Bilateral C-shape configuration in maxillary first molars. J Endod. 1990; 16: 601-3.
20. Qing-hua Zheng, et al. A cone-beam computed tomography study of maxillary first permanent molar root and canal morphology in a Chinese population. Journal of Endod. 2010; 36: 1480-84.
21. Hartwell G, Bellizzi R. Clinical investigation of in-vivo endodontically treated mandibular and maxillary molars. Journal of Endodontics. 1982; 8: 555-7.
22. Cleghorn BM, Christie WH, Dong CC. Root and canal morphology of the human permanent maxillary first molar: a literature review. J Endod. 2006; 32(9): 813-21.
23. Patel S, Dawood A, Whaites E, et al. New dimensions in endodontic imaging: Part 1. Conventional and alternative radiographic systems. Int. Endod J. 2009; 42: 447-62.
24. Reuben J, Velmurusan N, Kandaswamy D. The evaluation of root canal morphology of the mandibular first molar in an Indian population using spiral computed tomography scan: an in-vitro study. J Endod. 2008; 34: 212-5.

Dr. Kekin K. Parikh, B.D.S. was born in India in 1969. In 1992, he received his B.D.S. (Dental Surgeon) from Gujarat University. For twelve years he served as a tutor gaining teaching experience in Conservative Dentistry and Endodontia at the Government and at the Ahmedabah Dental Colleges and Hospitals.
Dr. Parikh has been in a private practice for the past 17 years and he is presently associated with the Ahmedabad Municipal Corporation serving as a Technical Consultant for the development of their new Dental College.
Dr. Parikh's articles have been published both nationally and internationally.

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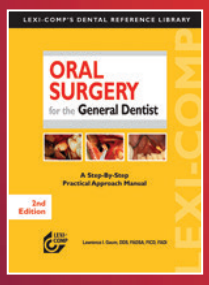

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Endodontic *Tests*

In the second half of his feature on endodontic diagnosis, specialist endodontist Sanjeev Bhanderi looks at a variety of tests which can reveal dental problems successfully

Special tests tend to be associated with confirming an endodontic diagnosis, but in fact should be inclusive for identifying other dental diseases. The following are special tests that collectively can often reveal a reasonably accurate diagnosis.

Periodontal

Record pocket depth at 6-8 points around a tooth. If there are multiple pockets over 3mm around a tooth then a full-mouth periodontal assessment should be performed in order to ascertain whether there is a general periodontal issue. Isolated pockets around a tooth may indicate an endodontic problem, eg vertical fracture, perforation, or simply a draining sinus tract.

Percussion

This reveals the health of the periodontal supporting structure and not the health of a suspect pulp. Simple causes for percussive tenderness may be hyperocclusion due to a recent high restoration, excessive orthodontic forces, recent trauma, acute gingival/periodontal disease, or an apical periodontitis/abscess of endodontic origin.

Mobility

Mobility gives an indication of the condition of the periodontal support, which may be affected by hyperocclusion or excursive interferences (fremitus), or an acute expansive inflammation and destruction due to an periodontal or endodontic abscess.

Transillumination

Alongside a fibre-optic light source under magnification, transillumination can reveal hairline fractures within the crown of a tooth or around restorations that may be a source of both pulpal and periodontal symptoms.

Pulp vitality tests

Helps to discern the health of the pulp and commonly thermal and electric tests are used. It must be remembered that these tests only give an indication on the condition of the pulp, but not of the supporting periodontium or the presence of an apical abscess.

Vitality tests need to be used with care to obtain reliable responses. False negative responses can be due to large restorations with little or no exposed tooth tissue to apply the test, or aged dentitions that have reduced pulp spaces due to physiological (tertiary) dentine.

Conversely, false positive responses can arise in very anxious patients that interpret the pressure sensation of applying the testing device rather than the actual pulpal response, or contacting the gingival tissues (electric current or cold leakage when testing close to the gingival margin), or indeed overexposure of the test on a tooth that can in itself give an exaggerated response.

Figure 1: Roeko's Endo-Frost is an example of a proprietary cold vitality test material

Heat testing can involve either application via hot water in a syringe onto individual teeth that are isolated by rubber dam, or via a heated gutta percha stick or 'greenstick' composite, but must be used with caution. If the patient's response is similar to their complaint then this is a good sign of a degenerating pulp.

Cold testing is more common and there are many proprietary products available - such as Roeko Endo-Frost (Coltène) (Figure 1) - that are better than traditional ethyl chloride, which gives poor responses in heavily restored teeth or through modern indirect restorations of porcelain and composite. The method for reliable vitality testing is:

1. Pre-warn the patient that they may feel the stimulus using non-threatening terminology, eg they might feel a 'sudden tingle or sensation' rather than 'pain'. Also advise the patient to raise their hand as soon as they feel the sensation and reassure them that you will immediately remove the stimulus so they feel that they are in control
2. Baseline pulpal response of the patient should be obtained by testing the contralateral teeth, teeth adjacent to the suspect tooth, then finally the suspect tooth
3. Application to the thinnest part of the tooth enamel or restoration (usually the cervical margin or incisal edge) with a small applicator (Figure 2) to avoid false positive responses from the adjacent teeth or gingival tissues.
4. Note the character of the response, eg sharp, dull, throb; duration (lingering, immediately dissipates after test, returns after some delay); location (patient is able/unable to specify the tested tooth, radiates at a distance away).

Vitality tests are by no means definitive on their own at determining the health of the pulp but will give a reasonably good idea of its health.

Local anaesthesia

Selective local infiltration of individual teeth in the vicinity of the symptoms either by a periodontal or intraosseous technique may determine whether the pain is 'pulpitic' by anaesthetising the affected tooth. It may even identify symptoms that are of non-dental origin if, for instance, the local anaesthetic does not relieve the symptoms, eg persistent vague pain in the lower left quadrant or left mandible of a myocardial infarct after a successful ID block.

Radiology

Film and, more recently, digital imaging is often the defining diagnostic tool that can reveal pathological changes in the supporting structures. The image created must be methodically assessed in a 'crown-down' approach to pick up clues on the overall condition of the tooth:

1. **Crown level:** Extent of caries and cavitation, fractures, size of the pulp chamber, and extent of mineralisation that can indicate a degenerating pulp
2. **Cervical (radicular) level:** Periodontal architecture; furcation dentine in multi-rooted teeth; assess size of the pulp space and canal spaces

Figure 2: Roeko sponge pellet (Coltène) soaked in Endo-Frost solution ready for application onto a tooth

Figure 3: Discussing the diagnosis with the patient with visual aid of a radiograph (or clinical photos) and explanation of treatment options

3. **Mid- and apical root:** Follow the periodontal ligament space down the root and examine for deviations from the norm; assess the size of pulp space
4. **Apical tissues:** Pathological changes may be quite subtle and may only be discernible as deviations from the normal health after the disease process has extended out of the pulp space for some time. Examine for:
   - Widening of the periodontal ligament
   - Breakdown of the lamina dura (ie the cortical bone that lines the alveolar socket)
   - Loss of trabeculated bone (rarefaction).

Radiographs do have their limitations as the image created can be affected by numerous factors such as incorrect exposure technique, angulation, processing errors, performance of the radiosensitive device (film or CCD), and 'noise' from surrounding anatomy. Magnification or digital enhancement of images is very helpful for closer examination of the images.

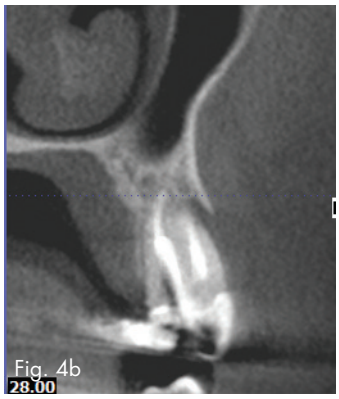
Digital imaging brings other benefits such as lower X-ray doses for the patient, instant image presentation, ability to communicate images to colleagues, easy record keeping and archiving. An additional and valuable benefit for the patient is that the clinician can display the radiograph in front of the patient to discuss and educate them on the cause of their symptoms, the disease process, and then the treatment options that would appropriate for them (Figure 3). This will relieve much of their anxiety and improve acceptability of treatment.

However, conventional radiographs do not always show all pathosis on an affected or suspect tooth. For example, occasionally one can come across a previously root-filled tooth that presents with persistent pain but without any obvious signs on a radiograph. In such cases, adopting cone-beam computer tomography (CBCT) with a small volume of exposure can be very useful at revealing intraosseous lesions in the periradicular tissues that are 'invisible' to conventional radiography (Figures 4a-c).

However, it is worth noting that although a small-volume CBCT scan may give a lower exposure dose compared to a conventional CBCT scan, the overall dose is still significantly higher than for conventional radiography[1]. This facility should therefore not be used routinely for every suspect endodontic case but only to elucidate other diagnostic tests that have been inconclusive[2].

By this stage, all the necessary information will have been collated and a provisional diagnosis can be made. Table 1 shows a classification for endodontic conditions.

Figure 4a: Conventional digital periapical radiograph of an endodontically involved root-filled UL5. No obvious periradicular pathosis



Figures 4b and 4c: Two cross-sectional views of a small volume CBCT scan of the same UL5 revealing extensive osseous pathosis

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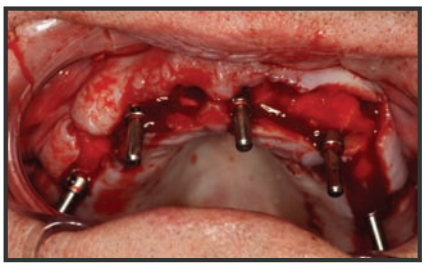

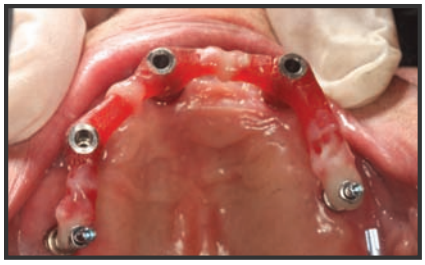

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Table 1. Endodontic Conditions		
Diagnosis	Symptoms/signs	Radiographic feature
Reversible pulpitis	Short, sharp sensitivity to cold Localised to the affected tooth (Suspect restoration, coronal fracture?)	Normal apical tissues
Irreversible pulpitis	Heat sensitivity, lingering, sporadic, vague specificity to a tooth Can radiate away from the source Pain may refer to adjacent teeth, face, jaw, auricular, temporal regions	Normal apical tissues
Pulp necrosis	None, or vague history of intermittent symptoms which completely settle	Normal apical tissues, but may show early signs of apical involvement if longstanding, eg widening of the pdl space, loss of lamina dura
Occlusal trauma	Percussive tenderness of the affected tooth Similar to a reversible pulpitis: thermal hypersensitivity of short duration	Intact lamina dura Widening of the pdl space around the root in response to excessive occlusal forces or interference
Symptomatic apical periodontitis (formerly 'acute')	Percussive tenderness Tenderness upon palpation of periapical soft/hard tissues of the affect ed tooth Sporadic pain	Widening of the pdl space Loss of lamina dura
Asymptomatic apical periodontitis (formerly 'chronic')	Little or symptoms Sometimes small firm (bony) swelling over periapex of affected tooth	Rarefaction of apical bone architecture around roots (radiolucency)
Chronic apical abscess (formerly 'chronic suppurative')	Little or no symptoms Discharging suppurating sinus	Rarefaction of apical bone architecture around roots (radiolucency)
Acute apical abscess	Severe pain and swelling Intraoral: often fluctuant Extraoral: more diffuse and prequel to a cellulitis	Typically little or no obvious radiographic changes (unless the condition is an acute exacerbation of an existing asymptomatic apical periodontitis)

Summary

In summary, it is important to understand that an endodontic diagnosis is developed from the accumulation of facts collected from the initial presentation of the patient until the final clinical test. At each stage clues are gathered that build up an overall picture of the situation and helps the clinician decipher the most likely diagnosis, and never relying on a single piece of evidence. ■

Sanjeev Bhanderi BDS MSc is a specialist endodontist and principal of Endo61 Ltd. He gained his masters in endodontics in 1997 and has been a registered specialist since 2001. In 2009, he established his own purpose-built specialist practice and clinical teaching facility in South Manchester. Endo61 won the Best Endodontic Practice at the 2011 Private Dentistry awards. Sanjeev lectures internationally and is an honorary postgraduate lecturer at the University of Manchester Dental School.
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Loupes and Light *a Dentist's View*

We speak to dentist Barry Hunt about his experiences searching for the perfect pair of loupes and lights.

Tell us about yourself and when you first realized you needed loupes?

Patient care is important to me and I aim to make the whole dental experience as comfortable as possible.

I have been wearing loupes in practice for over 12 years now. My own expectations were increasing - and so were those of my patients. Techniques and treatments were becoming more demanding technically and the requirement for precise diagnosis was rising. Patients were doing their own research and were more knowledgeable about what was achievable. I realized that, for my own comfort and satisfaction, I required the best possible vision available and it became necessary to invest in hi-tech products and equipment to ensure complete personal and patient satisfaction.

Choosing the right pair of loupes can be a challenge as there are many factors to consider. What were the primary factors for you?

Whilst I agree that working distance, depth of field and field of view are all essential when considering loupes and lights, for me there were four distinct influences when choosing my loupes and the people behind the product.

Comfort: For a product that I was to be using day in and day out I wanted to find a pair of loupes that were comfortable to wear. I was aware of the benefits of improving posture with loupes and so it was important that they were lightweight and fitted perfectly for complete comfort and enhanced visual accuracy.

Good visibility: One of the most vital aspects to consider when choosing loupes is visual acuity. I required a high-resolution loupe with high quality optics that enabled me to see small detail with ease.

Helpful sales team: Finding the ideal provider can be difficult and time-consuming. There's not a 'one size fits all' solution when it comes to loupes and I made the conscious effort to find a provider who not only had a high level of knowledge and experience, but had my best interests at heart and was able to find a solution that met my individual needs. The customer service and advice provided by the loupes and light supplier I selected was, and has always been, exceptional.

Confidence in the supplier: A helpful and supportive

sales team often results in gaining confidence in the supplier. I wanted the best provider with the best quality loupes, who offered the best customer service at the best price. In fact, price wasn't even a primary concern once I had 100% confidence in the supplier!

What loupes are you wearing now?

I started with 2.5x loupes over 12 years ago, before progressing to 4.8x a few years later. I've now moved on to 5.0x magnification loupes. The difference is excellent as the high magnification provides an accurate level of clarity and detail, making working life easier and more satisfying.

I have always been encouraged by the team at my loupe supplier to 'get used to new loupes gradually', ('gradually' being the key word), but I must admit that with the latest new loupes I have disobeyed this advice and used them all the time straight away. Obviously having used other loupes before helped me, but these felt right from day one. The transition took a few days with my first loupes, but even so, it was a relatively easy process.

Do you wear glasses and if yes, how did this affect the loupe match process?

Yes I do, and it did rather complicate things. At work I wear contact lenses and varifocal spectacles designed for nearer vision, computer work etc. Fortunately, this was all taken into account when I purchased my loupes.

The team was magnificent and so patient, spending a good two hours with me to consider all of the options available and determine the best way to achieve what was required for me. I was able to take advice from their qualified representative and feel assured that I was receiving professional and reliable advice. They had a real determination to make sure that my own individual needs were met with attention to detail.

Do you have an accompanying light?

I purchased a light with my first loupes and it made a considerable difference to my overall performance right from the beginning. The difference to your work and ability to see is far greater as the illumination is supreme and ensures you achieve better focus and view of the clinical field. My new light is wonderful; compared to previous lights, it's even and gives a better colour beam. Plus, it's so lightweight and easy to use, with no unwieldy box on the surgery worktop, so you are free to move within the surgery and even from room to room if necessary.

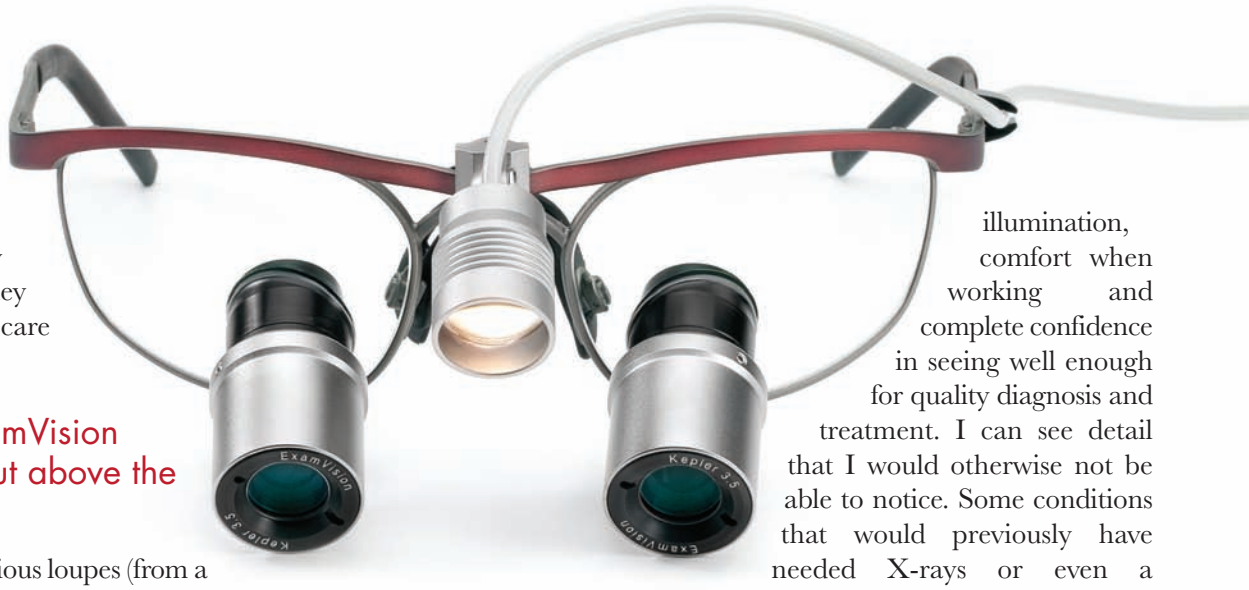
Which procedures do you wear loupes and a light for?

I wear my loupes for all procedures, except denture work. The amount of detail you see with them is exceptional, increasing quality of diagnosis, treatment and patient care. You really start to appreciate every little detail. I would never dream of working without them.

You've mentioned your concern for the overall patient experience, how do your patients react to loupes?

I am very aware that there are some very nervous patients out there and so initially, I felt a bit self-conscious wearing loupes and my staff found them a source of amusement! Now, with patients, I don't tend to mention them except perhaps to explain why I'm putting on these 'funny looking glasses', especially if I think a child might wonder what they are for. However, I've not had anyone query them for a long time and this may be because they are so used to seeing me with them on, and new

patients just accept them as part of our policy for providing excellent care. It seems to instil a level of confidence and trust with my patients, ensuring they receive the level of care they deserve.



What makes ExamVision loupes stand a cut above the rest?

Compared to my previous loupes (from a competitor brand), they are far more lightweight, and when accompanied with the light they give me a brighter image.

I must admit that I have ventured to competing brands' stands at exhibitions on occasion, but it was obvious that not only was the other product inferior but the service and advice I was getting was nothing like as knowledgeable, professional or engaged.

What are the overall benefits of wearing loupes and lights and what would your advice be to someone considering making a purchase?

Life with loupes and lights means excellent vision, constant illumination, comfort when working and complete confidence in seeing well enough for quality diagnosis and treatment. I can see detail that I would otherwise not be able to notice. Some conditions that would previously have needed X-rays or even a microscope to investigate, I can now see well enough to diagnose. The light is an added bonus — giving me a good, bright field of view without anything, or anyone, getting in the way.

My advice — see for yourself! ■

Barry Hunt, LDS qualified in 1977 through the University of Sheffield at the Charles Clifford Dental Hospital, Sheffield,UK. Since then has worked as a GDP in private practice and opened his own practice.

Periodontics for the GP: A Practical Approach

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Protecting Your Practice Data: *What Is at Stake?*

Dr. Mauricio Diaz

If the security of your Practice data isn't important to you, there are other parties that take this very seriously: your patients, government authorities, dental colleges… and the hackers that are looking for access to it.

By protecting your patient data you are also protecting your financial information and your reputation.

This data represents, not only the lifeblood of a Practice, but also a very valuable and expensive asset that the Dentist transfers when selling his/her Practice. The preservation of the integrity of these files is no longer a "choice": it is an imperative.

According to the Symantec Internet Security Report 2014, the Healthcare industry is at the top of the list of the industries most impacted by data breaches. 44% of data breaches impact our sandbox.

First of all, what is a breach? A breach is defined as an event in which an individual name plus Social Insurance Number (SIN in Canada, SSN in the USA), driver's license number, medical record or a financial record/credit/debit card is exposed to a third party – either in electronic or paper format.

> "If you spend more on coffee than on IT security, you will be hacked. What's more, you deserve to be hacked."
>
> *White House Cyber Security Advisor, Richard Clarke*

Over half a BILLION identities were breached in 2013 (versus 92 million in 2012… a 493% increase) in the USA alone. These breaches have given hackers access to credit card information, days of birth, government ID data, residence addresses, medical records, insurance information, phone numbers, financial data, email addresses, login, passwords, etc. 37% of those disclosed data breaches in 2013 were in the Healthcare industry.

The Identity Theft Resource Center (ITRC), a non-profit organization collecting USA breach data since 2005, has established that the most common cause of breaches was external hacking (25.8% of incidents). Data-on-the-move created (insecure communications, lost flash drives or laptops, etc.) 12.9% of breaches, insider theft another 11.6% and employee error and negligence 9.2%.

Due to the array of personally identifiable information present in health records, this data becomes an ideal target for the hackers specializing in identity theft.

Hackers steal these health files to gather insurance information, personal details, and social security numbers. Then they use this information to file false claims on their victims' health insurance, or even to obtain prescriptions for narcotics.

The theft of Practice data can have a potential huge impact on the patients affected. Their financial losses could be in the thousands of dollars. Their health insurance coverage could be interrupted or terminated, and/or they could end up in legal problems in the aftermath of a breach.

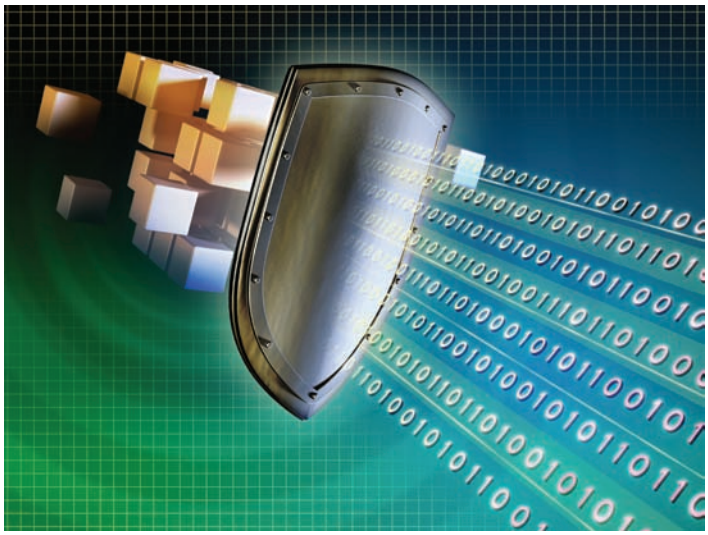
On the other hand, IBM recently stated that, 90% of the data in the world today was created in just the last two years. This kind of growth can be extrapolated to the one happening within the 21st century dental Practice.

Accordingly, the amount of data generated and stored by a modern dental Practice is also growing exponentially. The advent of digital x-rays, intraoral cameras and the increased used of e-health records and the Internet has created a diametrally different and complex new environment compared to the pre-digital age of dentistry.

According to the Canadian Dental Association (CDA Dental Health Services in Canada: Facts & Figures 2010), approximately 80% of Canadians have a dentist, and 41% of those patients have kept the same dentist for more than 10 years. Around 85% go to the dentist at least once every 2 years. 91% of all children 6-11 years, 84% of all teenagers

and 70% of all young adults aged 20-39 visits a dentist every year.

This flow of a younger patient base into the average Practice has prompted many to adopt strategies to meet their expectations. Setting up a practice website, email accounts, social media presence and even making Wi-Fi Internet access available in the waiting rooms are some of them.



These are the new Practice "windows and doors" that can become the source of major headaches if they're not properly secured.

This surge in the use and dependence on electronic data demands that Dentists pay close attention to the generation, access, use, storage, administration and protection of this information. Why? Because similar exponential growth has been also taking place in the world of data breaches.

Hackers access private information usually by means of vulnerabilities (weaknesses in software that allow them to compromise the integrity, availability, or confidentiality of the software or the data that it processes) or exploits (malicious code that takes advantage of software vulnerabilities to infect, disrupt, or take control of a computer without the user's consent and/or knowledge). Since Microsoft suspended generating security updates for their XP operating software as of April of 2014, Windows XP users running older, more vulnerable web browsers and plug-ins, can become the Achilles heel of security.

For all the reasons outlined above, it becomes crucial to secure this data to prevent both intentional and/or accidental loss.

Data must be protected against both internal and external factors that can compromise it.

There is also the aspect of compliance, obviously.

As with most areas of your practice, there are many Federal, Provincial and collegial regulations that govern your activities. These are laws, guidelines and best practices with which you, as a healthcare professional, must comply.

As an example, due to the lack of security upgradability from Microsoft, all systems running XP are also now non-compliant with the privacy legislation.

In the case of Canada, there are two national privacy laws: the *Privacy Act*, which mostly applies to federal government agencies and their use of personal data, and the *Personal Information Protection and Electronic Documents Act (PIPEDA)*, which outlines how private businesses can collect, use and disclose personal information within commercial activities. This legislation applies to the customer information that is collected, stored and transmitted by these private companies.

The governments of Ontario (*the Personal Health*

Information Protection Act), New Brunswick (*the Personal Health Information Privacy and Access Act*), as well as Newfoundland and Labrador (*the Personal Health Information Act*), have also created privacy legislation to protect personal health information.

Collegial bodies, such as the Royal College of Dental Surgeons of Ontario (RCDSO) have also clearly expressed the importance of compliance to their members.

On page 19 of the May/June 2012 issue of the RCDSO "Dispatch", their Professional Liability Program (PLP) mentioned: "*As custodians of personal health information, dentists are held to a very strict standard of confidentiality. Unfortunately, it is all too easy to forget that even the fact that someone is a patient is private. Many dentists casually share treatment information about one person with other family members without consent. Ignoring the risk of theft or loss, some dentists still transport computers, smart phones, and other electronic devices containing unencrypted patient information. Some dentists engage in e-mail exchanges about treatment or even send patient records electronically, which, while convenient, are dangerous without proper safeguards. The time to change such practices is now, before the reputational and financial consequences escalate.*"

What You Can Do

So, what exactly can you do to secure your data and comply with legislation?

There is no quick answer to this, but the most important thing that you need to do is take this risk seriously and escalate whatever steps you were previously taking (or not) in this matter.

1. Lock" the electronic "windows and doors" of your Practice. Your IT services provider needs to detect "holes" that would allow intruders to access your Practice data.
2. Ensure ALL operating system security updates and virus definitions for your anti-virus software are installed ALWAYS. But also remember: anti-virus software is NOT enough.
3. Scan for and eliminate from your network any possible "Trojans" and/or other malware that could unknowingly be installed in your computers.
4. Develop and implement a proper Privacy Policy for your Practice. This includes getting training for yourself and your staffs, appointing a Privacy Officer, ensuring you have signed Privacy agreements with your IT providers, establishing breach protocols, etc.
5. Establish redundant (triple) backup that should be both local and remote (cloud). Cloud-based backup provides priceless protection against server theft and disasters such as fire or floods, and allow for 3rd party certification of the backup, which is of the highest importance when transferring records during the sale of your Practice.
6. Lock up your hardware. The server should be located in a secure "caged" area that prevents theft.
7. Establish access restrictions for your staff.
   a. No monitor screens should be in clear view of other patients and they should "timeout" after a few seconds requiring re-entering a password to access.
   b. No passwords should be shared.
   c. Passwords should be changed periodically.
   d. No staff member should access webmail services (Hotmail, Gmail, Yahoo Mail, etc), social media outlets (Facebook, Instagram, Pinterest, etc) or logging to unauthorized websites through the Practice computers.
   e. No external media (USB keys, iPods, and phones) should be connected to any of the computers in the office.

Whether we like it or not, e-crime will continue to grow and move towards a new, more professional "business" model.

Data privacy will continue to be something that should always be first in mind in your Practice.

By ignoring the subject, you put at risk the two most valuable assets you own: your Practice data and the trust your patients have deposited on you. ■

Dr. Mauricio Diaz graduated from the University of Nuevo Leon in Mexico in 1983. He then specialized in Endodontics and graduated from the aforementioned institution in 1985. He was also a clinical instructor and professor for the Graduate Program in Endodontics at this institution. Dr. Diaz held a practice dedicated exclusively to endodontic care until 2000.

In 2001, upon arriving to Canada, Dr. Diaz switched his focus to managing the local anesthesia division of a Canadian dental-pharmaceutical company. He was also part of the company's Quality Assurance team that handled the compliance of their pharmaceuticals with the guidelines and requirements from Health Canada.

At the end of 2013 he became the Director of Professional Services & Marketing for SAMMsecure, a company that focuses on data privacy and compliance for healthcare.

Dr. Diaz has lectured in both Canada and Mexico, and has published a number of articles in dental trade magazines. Dr. Diaz is also a member of the Advisory Board for Dental Teamwork magazine. His passion in furthering Dentists' knowledge on regulatory issues and various aspects of Dentistry has earned him the respect and recognition of many of his peers across North America.

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Management

Decentralized Practice *Management*

Nadean Burkett

A decentralized practice management model will be well-known to most solo practitioners as it is how dental practices have operated historically. This model has the benefit of allowing dentists to maintain their autonomy, clinically and managerially with the help of one's accountant and a few other mentors. More sophisticated management systems and promotional strategies have been introduced and turned our healthcare business into the business of healthcare. This is not semantics. From my observation and research, there has been a global paradigm shift in how dental practices and the public perceive the profession of dentistry. For those of us who believe that dentistry is a healthcare profession first and business second, the practice of dentistry must be the priority. However, I invite you to consider the suggestion that dentists who ignore the business side do so at their peril. Many who dislike practice management intensely, or are simply tired of it, have joined a centralized management group; DMSO or formed their own DSO, as a means to off-load this responsibility. That is certainly one option. There are multiple impacts to any decision or action. What dentists may not realize is what they may be compromising in making that choice. In my article this month in Spectrum dialogue, I discuss the centralized management model.

Recently, I have come to know an inspiring leader, Dr. Kianor Shah, who has courageously been inspired by his unfortunate personal experience rather than allowing it to defeat him. His story has been told in interviews with Dr Bicuspid, the Huffington Post and New York Post. To quote Dr. Kianor Shah, he founded Dental Equities LLC to offer an alternative to centralized management that preserves a clinician's autonomy in a Peer To Peer (P2P) platform that can best be described as "decentralized collectivism". The P2P platform has been designed to preserve the integrity of the dental profession by balancing professional ethics; the rights of patients to make informed choices about their own dental health with empowerment through education and administrative support for dentists. I agree with Dr. Shah that there is no better time to unite with other practitioners who share your core values and vision and shift the power away from DMSOs. This is an opportunity for dentists to participate in the Peer-to-Peer (P2P) platform who share the patient-centered practice (healthcare first) philosophy and commitment to maintaining ethical standards of behavior by healthcare providers without limiting their ability to enjoy a profitable business. P2P is a three-pronged approach - academic, administrative and financial. To learn more visit www.dentalequities.com .

But there is much more to do if we want to overcome the influence of DMSOs. This is a global challenge that requires an international solution. As a Canadian or American dentist or para-professional, administrator or manager, practicing or retired you should consider the rapidly changing environment in ownership and management of dental practices, and all of the challenges facing you and your colleagues. Who do you want to control dentistry in the future?

This is a call to action and it may mean that there are more questions than answers in the beginning. That is what happens in a major shift in thinking and behavior. Solutions to challenges of this magnitude require what I refer to as disruptive innovation. And it may mean that all of us have to accept and acknowledge that the status quo has changed to something that is unfamiliar. We will succeed in the same way that the profit-driven models have grown – with economy of scale and business savvy. The difference is that the new decentralized practice management model will be patient-centered and will utilize the unified collective of all of us who are willing, ready and able to support one another and educate the public. Are you part of the problem or part of the solution? ■

Nadean Burkett is a career and business transition coach with more than 30 years experience in the dental profession – now assisting accountants and other professionals in private practice by referral. Trusted practice evaluator, business planner and respected coach and advisor for the past 10 years – Nadean facilitates The Empowerment Program series, Career & Practice Management for Dentists both online and from NBAI's head office situated in beautiful Vancouver, British Columbia. Visit www.mypracticematters.com, e-mail nadean@mypracticematters.com for listings, job postings, and more resources with your practice transition coach.

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TRI HAWK

FOR THE BUR CONNOISSEUR

TriHawk Celebrates 45th Anniversary

Dental Bur Innovator Rewards Employees for Valued Efforts

Tri Hawk Corporation recently celebrated its 45th anniversary at a combination anniversary party with its employees and customers.

A world leader in the manufacturing of single use dental burs, Tri Hawk has been rated by the University of California as the best burs on the market in terms of performance versus price. A product manufacturer review from the ADA in the summer of 2006 also rated Tri Hawk as the "top manufacturer of single use dental burs for cutting efficiency." The Tri Hawk team works together to help support and expand their customers' practices and businesses.

Tri Hawk's singular focus has always been—and will always be—designing, manufacturing and marketing the most effective dental burs possible, which the company believes gives it a significant edge over its diversified competitors. "We have an intense passion for burs, because we feel they are the most important instruments used by the dental practice," says Mr. Fischer.

To some dental professionals, "a bur is a bur" – A drill that facilitates basic procedures. Tri Hawk loyal users, however, have gone the distance to inform us that TriHawk's designs deliver a combination of cutting speed, strength, and safety that they have never experienced with any other bur and in particular, Tri Hawk's Talon® metal- and crown-cutting burs feature an exclusive over-the-top blade design that allows the burs to cut not only horizontally but vertically as well. As a result, Talon burs are able to cut through even the most challenging materials in a fraction of the time of other leading burs. According to Mr. Fischer, customer feedback and independent studies indicate that TriHawk burs provide a combination of cutting speed, strength and safety that is unmatched in the industry. A few testimonials indicate the branding power of TriHawk.

- "I received your trial pack a few days ago. Your #330 bur performed just as advertised! It cuts through cast metal crowns like a "hot knife through butter." Truth in advertising is so refreshing."- ***Robert D. Thomas, DDS***

- "It's fun to get something in your practice that actually works as well as they say it does! The Talon burs cut through metal and porcelain better than any specialty bur or diamond I've used in almost 40 years of practicing dentistry. They cut through crowns three to four times faster than any other burs, yet they don't chatter and so I can control them easily. When I'm cutting through dentin, they make my standard low-power hand-piece cut as if I'm using a high-power air-bearing hand-piece."- ***Edward W. Usko, DDS, Toledo, OH***

- "Trihawk not only makes the best burs for money – they make the best burs! The sharpest, fastest cutting, most comfortable, and "easy on the eyes" for the clinician. Plus the big bonus – they are economical!- ***Dr. Mark L. Cannon, Long Grove, IL***

- "For the past few years, I have been a loyal purchaser of the TriHawk burs. Why? From a clinical perspective, TriHawk burs are my #1 go-to bur for crown sectioning, or cutting burs for restorative and initial preparations for prosthodontic pro cedures. I love its efficiency and I am always on the hunt to find a product that delivers fast, reliable, and superior results. So far, these burs are my daily favorite. I also love the fact that they are extremely affordable, so much that I use them as a single use bur."- ***Dr. Natalie Archer, D.D.S, Rosedale Family Dental Care and Runnymede Dental Care***

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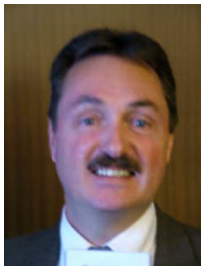

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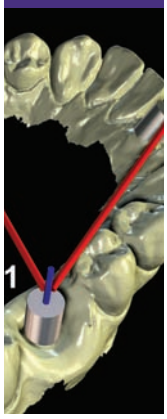

Application of Intra-Oral Dental Scanners in the Digital Workflow of Implantology

Wicher J. van der Meer[1], Frank S. Andriessen[2], Daniel Wismeijer[3], Yijin Ren[4]*

Application des scanners dentaires intra-oraux dans le déroulement du travail numérique d'implantologie.

Abstract

Intra-oral scanners will play a central role in digital dentistry in the near future. In this study the accuracy of three intra-oral scanners was compared. Materials and methods: A master model made of stone was fitted with three high precision manufactured PEEK cylinders and scanned with three intra-oral scanners: the CEREC (Sirona), the iTero (Cadent) and the Lava COS (3M). In software the digital files were imported and the distance between the centres of the cylinders and the angulation between the cylinders was assessed. These values were compared to the measurements made on a high accuracy 3D scan of the master model. Results: The distance errors were the smallest and most consistent for the Lava COS. The distance errors for the Cerec were the largest and least consistent. All the angulation errors were small. Conclusions: The Lava COS in combination with a high accuracy scanning protocol resulted in the smallest and most consistent errors of all three scanners tested when considering mean distance errors in full arch impressions both in absolute values and in consistency for both measured distances. For the mean angulation errors, the Lava COS had the smallest errors between cylinders 1–2 and the largest errors between cylinders 1–3, although the absolute difference with the smallest mean value (iTero) was very small (0,0529u). An expected increase in distance and/or angular errors over the length of the arch due to an accumulation of registration errors of the patched 3D surfaces could be observed in this study design, but the effects were statistically not significant.

Clinical relevance: For making impressions of implant cases for digital workflows, the most accurate scanner with the scanning protocol that will ensure the most accurate digital impression should be used. In our study model that was the Lava COS with the high accuracy scanning protocol.

Introduction

The basis for prosthetic work in dentistry has traditionally been an intra-oral impression that was subsequently poured in dental stone. The stone model forms the basis for the dental lab to manufacture crowns, fixed partial dentures and frames attached to natural teeth. Stone models are also used for producing frameworks for implant cases. This traditional workflow has proven itself in clinical practice, even though impression materials are prone to dimensional changes due to on-going chemical reactions[1] and stone will show expansion due to secondary reactions whilst setting[2]. Aforementioned dimensional changes may very wellresult in a misfit of the cast restorations. The misfit of fixed partial dentures on natural teeth will result in forces on the underlying teeth. Natural teeth however can move 25–100 mmin axial direction and 56–108 mm in lateral direction [3], [4] and adapt to a slightly different position in the bone due to the periodontal ligament should there be a slight misfit of the prosthetic work. Implants on the other hand will only show a range of motion of 3–5 mm in axial direction and 10–50 mmin lateral direction after osseointegration due to compression of the bone [4]. Ill-fitting framework will generate stress on the implants which may have a biological effect on the bone-implant

Résumé

Les scanners intra-oraux sont appelés à jouer un rôle important en dentisterie numérique dans un avenir proche. Dans cette étude, on a comparé l'exactitude de trois scanners intra oraux. Matériaux et méthodes : Sur un modèle de référence en plâtre, trois cylindres de haute précision PEEK, y furent ajustés, et scannés par trois scanners intra-oraux : le CEREC (Sirona), le iTERO (Cadent), et le Lava COS (3M). Dans un logiciel, des fichiers numériques furent créés, et la distance entre les centres des cylindres et l'angulation entre les cylindres, furent étudiés. Ces valeurs furent comparées aux mesures faites par un scan en 3D, d'un haut niveau d'exactitude, du modèle de référence. Résultats : Pour l'erreur de distance la plus petite et la plus cohérente, le Lava COS. Pour l'erreur de distance la plus grande et la moins cohérente, le Cerec. Toute erreur d'angulation fut minime. Conclusions : Lava COS combiné avec un protocole de scanning haut de gamme, donne un résultat des moindres et des plus consistantes erreurs, pour les trois scanners testés, en prenant en considération les erreurs de moyennes distances pour des impressions d'arche complète, toutes les deux à valeurs égales, et de manière consistante pour les deux distances mesurées. Pour une erreur moyenne d'angulation, Lava COS a la plus petite erreur entre les cylindres 1-2, et la plus grande erreur entre les cylindres 1 -3, bien que la différence absolue avec la plus petite valeur moyenne (iTERO), soit minuscule (0,0529u). Une croissance envisagée pour la distance et/ou une erreur angulaire sur la longueur de l'arche, due à une accumulation d'erreur d'enregistrement des surfaces rapportées en 3D, pourrait être observée dans l'étude de cette maquette ; mais les effets n'en étaient pas statistiquement importants.

Rapport clinique : Pour pouvoir fabriquer des empreintes de cas d'implants dans le déroulement de travaux numériques, le plus fiable scanner, avec un protocole qui permettrait une empreinte digitale des plus remarquables, devra être utilisé. Dans cette étude ce sera le Lava COS qui possède le protocole le plus fiable comme scanner.

interface [5], [6]. Also prosthetic complications as screw loosening or fracture may be related to ill-fitting framework fit [7]. A finite element analysis (FEA) study has also shown that passive fit will distribute masticatory forces more evenly over the implants[8]. The aforementioned factors have resulted in the paradigm that passive fit of the framework is one of the key factors for long-term success in implant dentistry [9], [10] stressing the importance of a reliable and precise impression procedure. Several strategies have been developed to ascertain passive fit [3], [11]. Even though none of the techniques has proven to be a panacea, the application of industrial-based digital production workflows is a solution that seems to gain popularity. As the impression procedure is at the origin of the workflow, the data collected during this phase is important as errors introduced in this phase will reverberate in the rest of the workflow. An intra-oral scanner could overcome some of the errors associated with traditional impression taking [12] and cast production [13], as digital output data can be fed directly into a digital workflow. The assessment of the accuracy of traditional impression materials has primarily been performed using linear or 3D measurements. The accuracy deviations that were found in those studies have been expressed in mm or percentages [14], [15], [16].

When considering accuracy one is inclined to consider only what we can refer to as "local accuracy" where the scan of a small geometrical form is compared to the original form and the difference between the two forms can be considered as the accuracy of the scanner. This would hold true for accuracy needed for single crown units in dentistry. This accuracy has been determined for intra-oral scanners by several authors [17], [18], [19]. Another form of accuracy would be the accuracy over more units across the dental arch, which could be referred to as "general accuracy", resembling the accuracy necessary for the production of multi-unit fixed partial denture on natural teeth or implants. This form of accuracy is especially interesting if one considers full arch impressions for implant framework. In those cases the accuracy of the full-arch impression and the distance between the implants leaves less room for errors due to the rigidity of the bone-implant interface [11]. Although the dichotomy between "local" and "general" accuracy may seem immaterial at first, the rationale behind it is that all the intra-oral scanners build their 3D models by combining several 3D images made of the same section of the model but from different angles. The composition of the different 3D patches inevitably leads to registration errors that may vary in magnitude depending on the scanning technology and the registration algorithms used [20] [21], [22]. Even though other studies have tried to establish the accuracy of some of the intra-oral digitizers [17], [18], [19], no consensus exists on how to assess the accuracy of intra-oral scanners. Some have looked at single teeth[18], several teeth in a row [17] or at quadrants [18]. One study

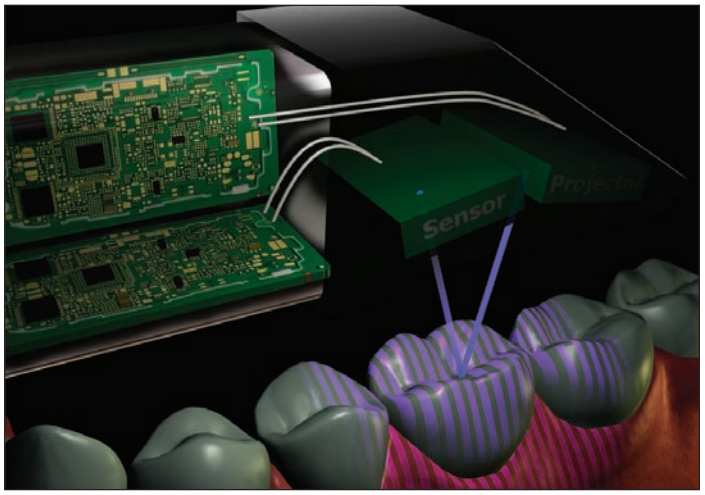

Figure 1. The technical principle of the CEREC scanner. The Cerec projects a light stripe pattern on the object. As each light ray is reflected back on the sensor, the distance between the projected ray and reflected ray is measured. Because the fixed angle between the projector and sensor is known, the distance to the object can be calculated through Pythagoras theorem, as one side and one angle (the fixed angle) of the triangle are now known. Hence the name "triangulation".

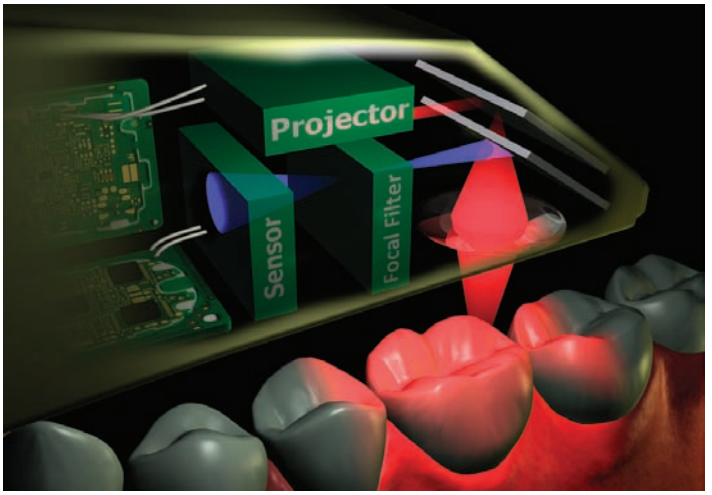

Figure 2. The technical principle of the iTero scanner. The iTero scanner uses confocal laser scanning in which a laser beam (red) is projected on an object. Via a beam splitter, the reflected beam (purple) is led through a focal filter so that only the image that lies in the focal point of the lens can project on the sensor. As the focal distance is known, the distance of the scanned part of the object to the lens is known (the focal distance). To scan the whole object, the lens is moved up and down, each time projecting a part of the object onto the sensor.

has looked at full arch scans [19]. In order to simplify the comparison, the dataset comparison was always reduced to a single number depicting the difference between the dataset of the scanner and the golden standard. In our study we wanted to consider the accuracy necessary for multi-unit framework on implants and a single number does not indicate possible error fluctuations over a longer span in those cases. We have therefore chosen to measure the distance and angular changes over a longer span between simulated implants generating multiple numbers that can be compared.

The objective of this study was to assess the "general accuracy" of three commercially available intra-oral scanners, that employ different scanning technologies to obtain the 3D images, for the application in the digital workflow in implant prosthetics.

Materials and Methods

The model

Three high precision PEEK (polyether ether ketone) cylinders were manufactured by Createch Medical (Createch Medical, Mendaro, Spain) with an accuracy of 2 mm. PEEK was chosen for its excellent mechanical and chemical properties and to avoid a reflective surface that a metal cylinder would provide, as all intra¬oral scanners have problems scanning reflective, shiny surfaces.

On a full arch stone model of a volunteer, the teeth 36, 46 and 41 were ground to gingival level. Subsequently a hole was drilled in the stone and implant analogues were placed in the prepared cavities and embedded in stone. The high precision cylinders were then screwed on the implant analogues.

The intra-oral scanners

The intra-oral scanners used in the study were the CEREC AC with the CEREC bluecam (Sirona Dental Systems Gmbh, Bensheim, Germany) with software version 3.85, the Cadent iTero (Cadent Inc, Carlstadt, USA) with software version 3.5.0 and the Lava COS (3M Espe, St. Paul, USA) with software version 2.1). All 3D scanners measure the distance from the scanner's sensor-tip to the object with different technologies to convert the optical data to a 3D model. The CEREC AC system employs light stripe projection and active triangulation (Figure 1) to generate 3D images [23]. The Cadent iTero scanner employs a parallel confocal imaging technique [24] for capturing 3D images (Figure 2). The Lava COS uses active wavefront sampling [25] to obtain a 3D model of the dentition (Figure 3). Both the CEREC AC and the Cadent iTero capture single 3D frames that are stitched with other frames to compose a complete 3D model in a short registration cycle. After each cycle the user can proceed to scan the next part of the model. After the scanning procedure the model can be uploaded to respectively CEREC or iTero for post processing. The Lava COS is a 3D video system that captures 20 3D frames per second, which are registered real-


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time. After the scanning procedure a post processing cycle is necessary to recalculate the registration and compensate for potential errors, resulting in a high resolution model that is uploaded to 3M.

Dusting or powdering

The iTero scanner does not need special preparation of teeth to be scanned. Before scanning with the Lava COS, teeth need to be dusted with Lava Powder (3M Espe, St. Paul, USA), a titanium-oxide powder. The latter has to do with the technology the scanner employs. The dust particles on the teeth are used for registration of the 3D patches obtained during scanning. When employing the CEREC AC, a matte finishing needs to be applied to the surface to be scanned to prevent reflections. For this purpose the surface is covered with a thin layer of Optispray (Sirona Dental Systems GmbH, Bensheim, Germany). To correctly mimic the clinical situation, the models were prepared according to the manufacturer's instructions with the appropriate powder before scanning the model. To avoid possible errors due to powder contamination, the order of scanning was decided to be

1. the iTero, as it required no powder
2. the Lava COS, as it required only light dusting
3. the CEREC, as it required the complete surface to be covered with a thin layer of Optispray.

3D scanning

The model was attached to a table and scanned 10 times with three different intra-oral scanners: the iTero (Cadent Inc, Carlstadt, USA), the Lava COS (3M Espe, St. Paul, USA) and the CEREC (Sirona Dental Systems GmbH, Bensheim, Ger¬many). The manufacturers were asked for the protocol for high accuracy scanning as would be used for scanning implant locators and for special considerations for this type of scanning, e.g. calibration of the scanning unit or modification of the scanning protocol. The iTero and the CEREC had only one scanning protocol for all cases and did not distinguish between normal scanning and high accuracy scanning. The Lava COS had a high accuracy scanning protocol and subsequent calibration protocol.

Figure 4. The hi-res scanning protocol for the Lava COS scans. The scanning protocol for the scans for the Lava COS is the normal scanning protocol, except that the scan-path is a slow zigzag scan and that at the end of the scan a second calibration is performed.

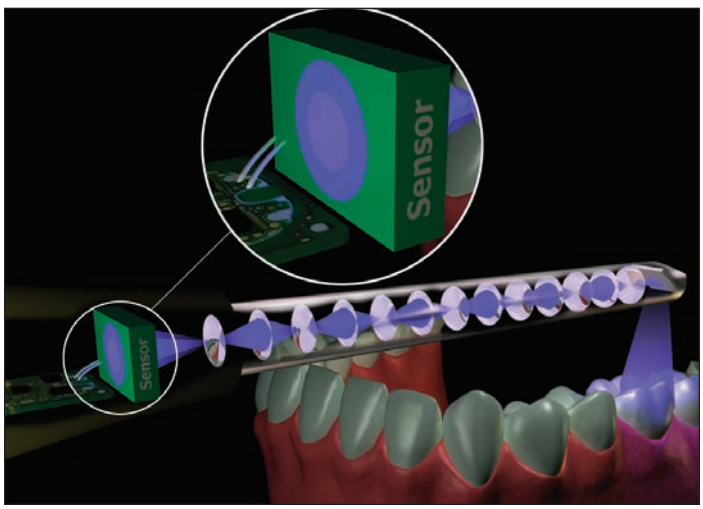

Figure 3. The technical principle of the Lava COS scanner. The Lava COS uses "active wavefront sampling" to calculate the 3D model of the teeth. For this the image reflected from the teeth is led through a lens system and eventually projected onto a sensor. If the image is in focus, the distance of the object coincides with the focal length of the lens. If the image is out of focus, the distance from the lens to the object can be calculated from the size of the blurred image through a simple mathematical formula.

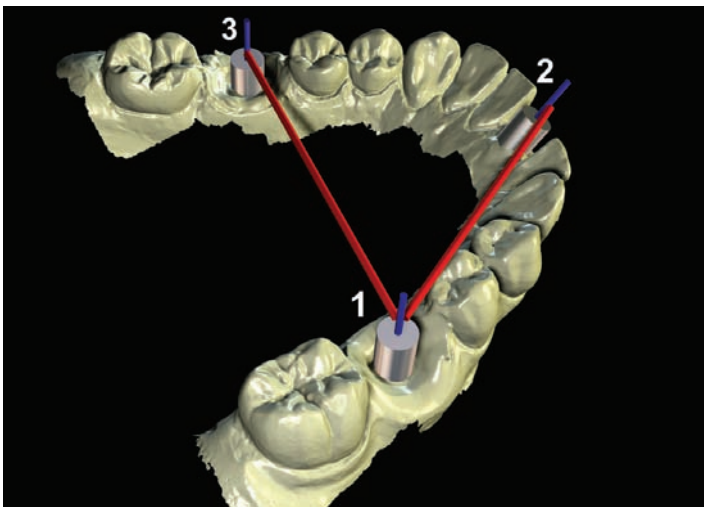

Figure 5. The measurements were made between the centers of the high-precision cylinders. Three 3D CAD models of the cylinders in the model were imported and registered with each of the scanned equivalents. The distance between the centre-lines was measured in the software using a linear measurement tool. The angular deflection of the cylinders was measured with an angular measurement tool, using the cylinder at the location of the lower right molar as the baseline.

The normal Lava scanning protocol consists of a calibration with small calibration block before the intra-oral scan starts followed by scanning of the teeth according to a non-prescribed scan path. The high accuracy scanning protocol for scanning implant abutments consists of a calibration with the aforementioned calibration block followed by a slow zig-zag scanning of the dentition. After the scan the calibration with the calibration block is performed for a second time (Figure 4). The calibration measurements are used to calculate and compensate for errors that have occurred during scanning.

All the scans were performed according to the instructions of the manufacturer by a dentist proficient with the specific intra-oral scanner. As only the iTero scanner does not require dusting or powdering of the model, the iTero scanner was used first to scan the model 10 times with a 10 minute interval between the scans. After this the model was dusted according to the instructions for the Lava COS with Lava Powder (3M Espe, St. Paul, USA) and the model was scanned 10 times with this scanner with a 10 minute interval between the scans. After the model was cleaned with a soft brush, the model was sprayed with Optispray (Sirona Dental Systems GmbH, Bensheim, Germany) according to the instructions of the manufacturer and 10 consecutive scans were performed with a 10 minute interval. All the scans of the different scanners were uploaded to the respective companies and returned after post-processing.

The physical model was cleaned with a soft brush and sent to Createch Medical (Mendaro, Spain) where it was scanned under strictly controlled conditions (temperature, humidity and vibra¬tions) with a ultra-precision contact scanner with a precision of 0.1 mm (Leitz PMM 12106). The latter digital model formed the reference data set.

3D measurements

The distance and the angle between the centres of the high precision cylinders were used to assess the accuracy of the different scanners (Figure 5). For this each of the scans was imported in industrial reverse engineering software Rapidform (Rapidform, INUS Technology Inc, Seoul, Korea), where each of the cylinders was isolated as a separate object. Three 3D CAD models of the cylinders were subsequently imported and registered with each of the scanned equivalents. This was done to enable the proper construction of the centre-line of each cylinder.

To validate the precision of the registration algorithm a CAD cylinder, like the one used in the study, was imported in the Rapidform software. There it was duplicated and the second cylinder was subsequently moved to another location in the 3D space. The two cylinders were then registered and the difference between surfaces of the two cylinders was calculated by the software. As the cylinders are perfectly identical, the surfaces of the cylinders should ideally match perfectly. The experiment was repeated ten times and the mean of the registration error was calculated. The mean error of the registration procedure was 1.4 nm (+/20.9 nm).

The distance between the centre-lines was measured in the software using a linear measurement tool. The angular deflection of the cylinders was measured with an angular measurement tool, using the cylinder at the location of the lower right molar as the baseline. The measurements were not broken down in x-, y-and z-components as the objects coordinate system could not properly be matched with a world coordinate system. As there is no true common coordinate system, the different models could only be registered in a virtual common coordinate system.

As the registration is based on the surface of the models and as these will show minor errors, the positions of the models will differ slightly. This will introduce an error in their relative positions and makes it unreliable to compare measurements broken down in x-, y-and z-components. The measurements were noted in a table and compared to the same measurements

	CEREC		iTero		Lava COS	
	ABS Error 1–2	ABS Error 1–3	ABS Error 1–2	ABS Error 1–3	ABS Error 1–2	ABS Error 1–3
MEAN	79,6	81,6	70,5	61,1	14,6	23,5
SD	77,1	52,5	56,3	53,9	12,7	14,2
CI (95%)	31,8–127,4	49,1–114,2	35,5–105,4	27,7–94,5	6,7–22,4	14,7–32,3

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Table 1. Absolute errors in the distance between the cylinders in micrometers.

	CEREC		iTero		Lava COS	
	ABS Error 1–2	ABS Error 1–3	ABS Error 1–2	ABS Error 1–3	ABS Error 1–2	ABS Error 1–3
MEAN	0,6303	0,4378	0,3451	0,4192	0,2049	0,4722
SD	0,5499	0,3211	0,3382	0,1667	0,0440	0,1436
CI (95%)	0,2894–0,9711	0,2388–0,6367	0,1355–0,5547	0,3159–0,5226	0,1776–0,2322	0,3831–0,5612

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Table 2: Absolute errors in the angle between the cylinders in degrees.

made on the reference data set. A one-way ANOVA was performed to compare the differences between the 3 systems (P,0.05).

Results

The results are summarized in Table 1 and Table 2. The absolute distance errors ranged from 2,2 mm (Lava COS) to 287,5 mm (CEREC) (Figures 6 and 7). The mean of the distance errors of both the measured distances of the Lava COS, respectively 14,6 mm (95% confidence interval: 6,7 mm–22,4 mm) for the distance 1–2 and 23,5 mm (95% confidence interval: 14,7 mm–32,3 mm) for the distance 1–3. These values were the smallest compared to the CEREC and the iTero scanner. The confidence interval for the Lava COS was the smallest demonstrating that the variations were the smallest. The distance errors of the CEREC were the largest, respectively 79,6 mm (95% confidence interval: 31,8 mm–127,4 mm) for the 1–2 distance and 81,6 mm (95% confidence interval: 49,1 mm–114,2 mm) for the 1– 3 distance. All of the scanners had errors both in the positive and the negative range.

The angulation errors are shown in the figures 8 and 9. The mean of the absolute angulation errors ranged from 0,0061u (CEREC) to 1,8585u (CEREC). The mean absolute angulation errors for the cylinders 1–2 was the smallest for the Lava COS: 0,2049u (95% confidence interval: 0,1776u–0,2322u) and the largest for the CEREC: 0,6303u (95% confidence interval: 0,2894u–0,9711u). For the cylinders 1–3 the smallest mean absolute angulation error was provided by the iTero : 0,4192u (95% confidence interval: 0,3159u–0,5226u) and the largest by the Lava COS: 0,4722u (95% confidence interval: 0,3831u–0,5612u). The confidence interval for both the angulation errors 1–2 and 1– 3 was the smallest for the Lava COS, indicating that the Lava COS had the smallest variations in its angulation errors. The CEREC had angulation errors in both the positive and negative range between the cylinders 1–2 and 1–3. The iTero showed a similar distribution for the angulation errors 1–2, but showed only negative values for the 1–3 measurements. The Lava COS was the only scanner that showed errors in the positive range for all measurements.

Discussion

To our knowledge, this is the first study that compares three different intra-oral scanning technologies. The present study analysed the accuracy of three intra-oral scanners by determining the distance and angulation errors in vitro. The results show that the Lava COS has the smallest mean distance errors and the least variations in the measurements. In the angulation errors, the Lava COS showed the smallest mean error between cylinder 1–2 and the CEREC the largest mean error. The difference between the smallest and largest error was very small (0,4254u). Between cylinders 1–3 the iTero showed the smallest mean error and the Lava COS the largest mean error. The difference between the smallest and the largest error was even smaller: 0,053u. The Lava COS had the smallest confidence interval in angular and linear measurements, indicating that this scanner has the lowest variation in its measurements. The Lava COS was also consistent in the angular errors as their range was small and all the values were positive. Only one other study has compared different intra-oral scanners. Ender and Mehl[19] have compared the Lava COS and the Cerec to determine which scanner is more accurate compared to the cast of an Impregum impression. In their study, the accuracy was defined by the terms “trueness”: the deviation of the model with respect to the true size of the object, and “precision”: the fluctuation of the different measurements. The “trueness” of the Lava COS was better than that of the CEREC and both were better than an Impregum impression. The “precision” of the CEREC was better than the Lava COS which was comparable to the Impregum impression. The high accuracy scanning protocol was not used in that study. Special software was used to superimpose datasets and the difference between the two models based on measuring points was calculated. This resulted in one value for the accuracy of the scanner.

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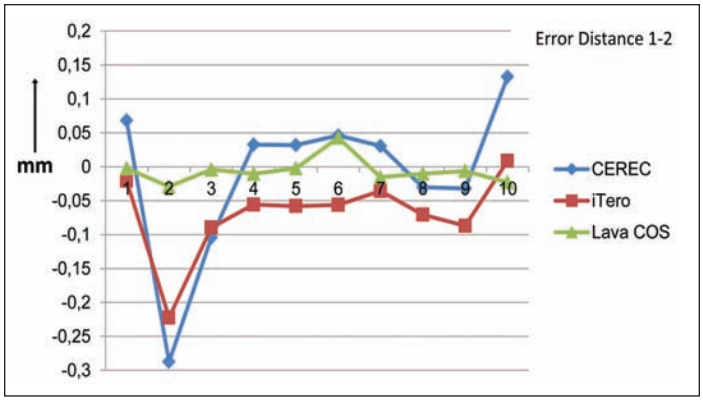

Figure 6: The distance errors between the cylinders 1 and 2 in millimeters for the three intra-oral scanners. The smallest distance error between cylinders 1 and 2 was 222,0 mm (Lava COS), while the largest error was 2287,5 mm (CEREC). The Lava COS scanner showed the smallest mean distance error and also showed the smallest variations.

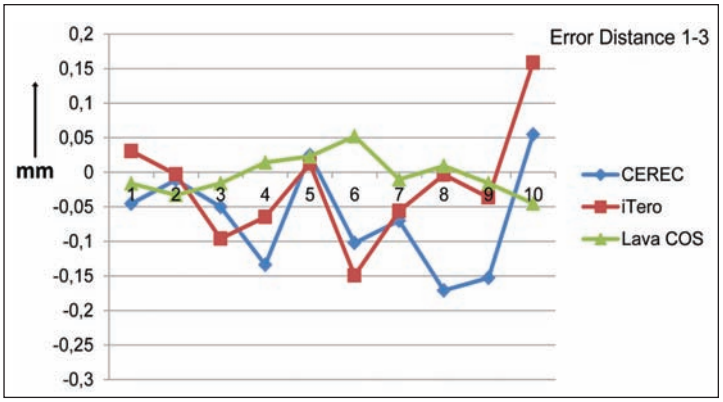

Figure 7. The distance errors between the cylinders 1 and 3 in millimeters for the three intra-oral scanners. The smallest distance error between cylinders 1 and 3 was 232,0 mm (iTero), while the largest error was 2171,1 mm (CEREC). The Lava COS scanner showed the smallest mean distance error and also showed the smallest variations.

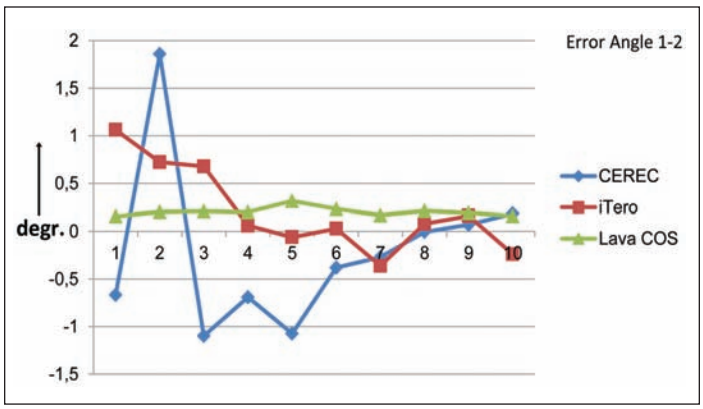

Figure 8. The angulation errors between the cylinders 1 and 2 in degrees for the three intra-oral scanners. The angulation errors were small and ranged from 20,0061u (CEREC) to 1,8585u (CEREC). The Lava COS showed the smallest mean angulation error and also the smallest variations. The Lava COS also showed only positive errors.

No statistical difference was found between the three groups.

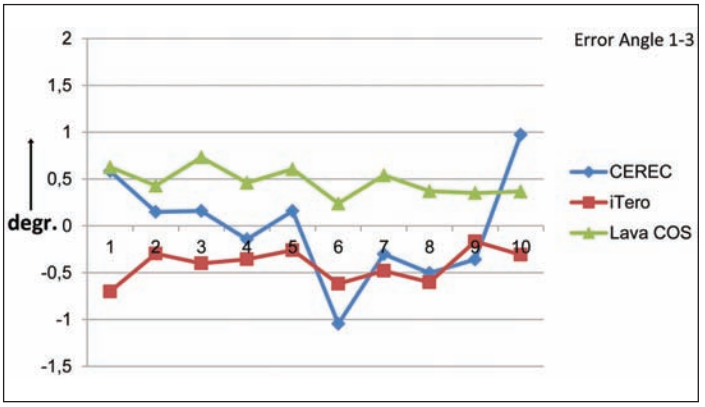

Figure 9. The angulation errors between the cylinders 1 and 3 in degrees for the three intra-oral scanners. The angulation errors were small and ranged from 20,1447u (CEREC) to 1,0456u (CEREC). The iTero showed the smallest mean angulation error. The Lava COS showed the smallest variations. The Lava COS showed only positive errors, while the iTero showed only negative errors. Only the Lava COS showed consistent positive errors in all cases, this could be regarded as an offset which may be compensated.

The various scanners used in our study use different technol¬ogies to determine the spatial coordinates of the scanned object. Differences found between the three scanners may be related to measurement errors inherent to the technology employed. To improve the resolution of the 3D scan, CEREC has switched from white to blue light which has a shorter wavelength leading to a higher accuracy [18]. Apart from the differences in the technology of data acquisition, the CEREC and iTero scanners are point-and¬click systems, while the Lava COS is a video system. This may explain both the similarities between the CEREC and iTero measurements and the differences with the results of the Lava COS. In the point-and-click systems, the 3D surfaces should be scanned with at least a one-third overlap of the adjoining surface. The registration of the neighbouring surfaces will occur on the basis of this overlap. In the video system with a frame rate of 20 images per second, the overlap of the images will most likely be larger than the aforementioned one-third which could lead to a better surface registration. Differences in the results may also occur due to the registration of the 3D images and in the rest of the post¬processing procedure. The Lava COS uses powder particles as markers as an extra toolfor the computer to join the different pieces of the 3D model. How the registration takes place and what algorithms are used in the different scanners is not shared knowledge. But algorithms that involve registration based on surface overlap are most likely. As registration errors, however

minute, will always occur in registration procedures[26], one expects an additive effect of these errors over the length of the arch. When comparing intra-oral scanners in full arch impression procedures, it would be interesting to involve the influence of the length of the span to assess the expected additive effect of the registration errors that may occur. The aforementioned effect could be observed in our experiments for the CEREC and the Lava COS when considering the distance accuracy and for the iTero and the Lava COS when considering the angular accuracy. The differences however were very small and statistically not significant. Mehl et al found a decreasing accuracy when comparing single tooth images to quadrant images for the CEREC Bluecam intra-oral scanner [18] which could be explained by an accumulation of registration errors. In the study of Ender and Mehl [19] an increase in the deviations between the models in certain areas were noted, but these can be explained by the registration procedure. The algorithm most likely tried to register the surfaces in such a way that the overall mean deviation between the surfaces is the smallest and this may conceal an increase in deviations between the surfaces and makes interpre¬tation of deviations difficult. A best fit algorithm on basis only of the area where the scanning was started may have shown a possible increase in deviations in their study.

In the study of Ender and Mehl[19] a mean "trueness" of 49614.2 mm was found for the CEREC and 40.3614.1 mm for the Lava COS. The difference from our data is most likely resulting from a different research model in their study and a high accuracy scanning protocol for the Lava COS in our study. In their study a 3D comparison was made between the models, where the computer calculates the difference between the surface points of the models.

These measurements are usually expressed in a mean value for the error between the surfaces. In our study the linear and angular measurements were made as the accuracy of the distance and the angulation between implants can show the error that will be introduced at the inlet of a digital workflow. Other methods, like the aforementioned 3D comparison of digital models, will also generate a number that will generally reflect the accuracy of a model. However this number will not express the exact error between implant positions nor will it show errors in angulation that may occur or a possible increase in the distance and angular errors over distance.

In future studies other video-scanners should be involved as we have compared two point-and-click systems (CEREC and iTero) with

one video system (Lava COS) in the present study. Differences in outcome could be explained with differences between the technologies as explained above. The amount of cylinders on the model should be increase to gain a better insight in possible increase in deviations over the length of the span. The number scans may be increased to increase the reliability of the study. Also a comparison with a traditional impression material, like Impregum, should be added to enable a comparison with the traditional workflow. A comparison between the normal scanning protocol and the high accuracy scanning protocol should also be included.

Conclusions

1. The Lava COS in combination with a high accuracy scanning protocol resulted in the smallest and most consistent errors of all three scanners tested when considering mean distance errors in full arch impressions for both measured distances.
2. For the mean angulation errors of the three scanners tested, the Lava COS had smallest errors between cylinder 1–2 and the largest errors between cylinder 1–3, although the absolute difference with the best mean value (iTero) was very small (0,0529u).
3. In the Lava COS the angulation errors were very consistent with a small confidence interval value.
4. An expected increase in distance and/or angular errors over the length of the arch due to an accumulation of registration errors of the patched 3D surfaces could be observed in this study design, but the effects were statistically not significant.

Clinical relevance

For making impressions of implant cases for digital workflows, the most accurate scanner with the scanning protocol that will ensure the most accurate digital impression should be used. In our study model that was the Lava COS with the high accuracy scanning protocol.

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The authors thank Createch Medical for producing the scanning abutments and making the ultra-precision scanner and software available for us to collect the data used in this study.

Author Contributions

Conceived and designed the experiments: WJM YR DW. Performed the experiments: WJM FA. Analyzed the data: WJM YR. Contributed reagents/materials/analysis tools: WJM YR DW. Wrote the paper: WJM YR DW FA.

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References

1. *Johnson GH, Craig RG (1985) Accuracy of four types of rubber impression materials compared with time of pour and a repeat pour of models. J Prosthet Dent 53: 484–490.*
2. *Millstein PL (1992) Determining the accuracy of gypsum casts made from type IV dental stone. J Oral Rehabil 19: 239–243.*
3. *Sahin S, C¸ ehreli MC (2001) The significance of passive framework fit in implant prosthodontics: current status. Implant Dent 10: 85–92.*
4. *Kim Y, Oh TJ, Misch CE, Wang HL (2005) Occlusal considerations in implant therapy: clinical guidelines with biomechanical rationale. Clin Oral Implants Res 16: 26–35.*
5. *Sahin S, Cehreli M, Yalcin E (2002) The influence of functional forces on the biomechanics of implant-supported prostheses– A review J Dent 30: 271–282.*
6. *Wang T, Leu L, Wang J, Lin L (2002) Effects of prosthesis materials and prosthesis splinting on peri-implant bone stress around implants in poor-quality bone: A numeric analysis. Int J Oral Maxillofac Implants 17: 231–237.*
7. *Sones AD (1989) Complications with osseointegrated implants. J Prosthet Dent 62: 581–585.*
8. *Kunavisarut C, Lang L, Stoner B, Felton D (2002) Finite element analysis on dental-implant supported prostheses without passive fit. J Prosthodont 11: 30– 40.*
9. *Bra˚nemark P (1983) Osseointegration and its experimental background. J Prosthet Dent 50: 399–410.*
10. *Ongu¨l D, Go¨kc¸en-Ro¨hlig B, Sermet B, Keskin H (2012). A comparative analysis of the accuracy of different direct impression techniques for multiple implants. Aust Dent J 57: 184–189.*
11. *Abduo J, Bennani V, Waddell N, Lyons K, Swain M(2010) Assessing the fit of implant fixed prostheses: a critical review. Int J Oral Maxillofac Implants 25: 506–515.*
12. *Karl M, Rosch S, Graef F, Taylor T, Heckman S (2005) Strain situation after fixation of 3-unit ceramic veneered implant superstructures. Implant Dent 14:157–165.*
13. *Del'Acqua M, Arioli-Filho J, Compagnoni M, Mollo F (2008) Accuracy of impression and pouring techniques for an implantsupported prosthesis. Int J Oral Maxillofac Implants 23: 226–236.*
14. *Caputi S, Varvara G (2008) Dimensional accuracy of resultant casts made by a monophase, one-step and two-step, and a novel two-step putty/light-body impression technique: an in vitro study. J Prosthet Dent 99: 274–281.*
15. *Franco EB, da Cunha LF, Herrera FS, Benetti AR (2011) Accuracy of Single-Step versus 2-Step Double-Mix Impression Technique. ISRN Dent 2011 : 341546. Epub 2011 Jul 25.*
16. *Kang AH, Johnson GH, Lepe X, Wataha JC (2009) Accuracy of a reformulated fast-set vinyl polysiloxane impression material using dual-arch trays. J Prosthet Dent 101: 332–341.*
17. *Luthardt RG, Loos R, Quaas S (2005) Accuracy of intraoral data acquisition in comparison to the conventional impression. Int J Comput Dent 8: 283–294.*
18. *Mehl A, Ender A, Mormann W, Attin T (2009) Accuracy testing of a new intraoral 3D camera. Int J Comput Dent 12: 11–28.*
19. *Ender A, Mehl A (2011) Full arch scans: conventional versus digital impressions-an in vitro study. Int J Comput Dent 14: 11–21.*
20. *Besl PJ, McKay ND (1992) A method for registration of 3-D shapes. IEEE Transactions on Pattern Analysis and Machine Intelligence, 14:239–256.*
21. *Chen Y, Medioni G (1992). Object modeling by registration of multiple range images. Image and Vision Computing, 14(2):145–155.*
22. *Park J, DeSouza GN (2005) 3-D Modeling of Real-World Objects Using Range and Intensity Images. In: Apolloni B, Ghosh A, Alpaslan F, Jain LC, Patnaik S, editors. Machine Learning and Robot Perception. Heidelberg: Springer Berlin. pp. 203–264.*
23. *Schenk O (2009) The new acquisition unit Cerec AC. Int J Comput Dent 12: 41–46.*
24. *Kachalia PR, Geissberger MJ (2010) Dentistry a la carte: in-office CAD/CAM technology. J Calif Dent Assoc 38: 323–330.*
25. *Syrek A, Reich G, Ranftl D, Klein C, Cerny B, et al (2010) Clinical evaluation of all-ceramic crowns fabricated from intraoral digital impressions based on the principle of active wavefront sampling. J Dent 38: 553–559.*
26. *Maintz JB, Viergever MA (1998) A survey of medical image registration. Med Image Anal 2:1–36.*

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The Evolution of Articulators using Fixed Average Posterior Determinants

Dr. Michael Racich

L'Évolution des articulateurs utilisant la moyenne des déterminants postérieurs fixes

Abstract

Dental articulators are routinely utilized in everyday practice to facilitate the efficient and precise analysis and management of clinical patient care. This article describes the rationale and advantages of a fixed average value semi-adjustable articulator, the Denar FOCUS.

The word articulate implies clarity as in speech or communication. A dental articulator is thus a means of representing or communicating a patient's oral condition with clarity on the bench top. The more accurate the patient state is represented on the bench top the more accurately it can be assessed, planned, or treated. Articulators come in various sizes, shapes, and colours but essentially there are three styles: fully adjustable, semi-adjustable, and simple hinge. The major difference between these styles is the condylar elements or posterior determinants of occlusion. As it turns out there are more similarities between people then there are not, hence semi-adjustable articulators with average posterior determinants of occlusion can be readily employed.[1-6]

The posterior determinants of occlusion have classically been defined as that interplay of form and function between the temporomandibular joints (TMJs) and the dentition with the influence of the TMJs being more pronounced the closer the teeth are to it (Figure 1).

A shallow glenoid fossa in any dimension brings the teeth in closer approximation and thus increases the chance for collisions if the teeth are too prominent or steep in anatomical form (Figures 2 & 3). Therefore, when restoring posterior teeth we generally make the posterior tooth cuspal inclines less steep than that of the glenoid fossa. The determination of posterior tooth cuspal inclines is done either by guesswork or trial and error (i.e. grinding the restoration in at chairside) or by employing the use of instrumentation. Classically, pantographic instrumentation and recordings are taken and the information transferred to a fully adjustable articulator. Posterior restorations and prosthetics can then closely follow the programmed settings and result in posterior dentitions with superb anatomic form. It is important to remember that as we progress anteriorly the influence of the anterior determinants of occlusion take over and the significance of the posterior determinants disappear. If we have immediate anterior disclusion when the teeth immediately separate after being together in maximum intercuspation, for example, no matter how much play or slop there is in the glenoid fossa (or the steepness of anatomic form) the influence from the posterior determinants of occlusion are minimized. The relative minimal influence from the posterior determinants of occlusion is a major consideration clinically for when we build our mutually protective occlusions we are thereby relegating the posterior determinants of occlusion to a minor role. Our diagnostic work-up and technical procedures therefore become greatly simplified.

If the influences of the posterior determinants of occlusion in a mutually protective occlusal scheme are minimal then what, if any, values should be used when we are fabricating restorations or prosthetics? The work of Lee, Lundeen and

Table 1.

1	Protrusive: 45 degrees (80%: between 30 & 60 degrees)
2	ISS: 0.75mm (80%: between 0 & 1.5mm)
3	PSS: 7.5 degrees
4	Vertical Axis: 110 mm
5	Superior Wall: ½ inch radius
6	Posterior Wall: 25 degrees back

Résumé

Les articulateurs sont constamment utilisés dans la pratique de tous les jours pour permettre une analyse efficace et précise, ainsi que la gestion de soins cliniques pour le patient. Cet article décrit la raison et les avantages d'un articulateur fixe semi-ajustable, utilisant des valeurs moyennes, le Denar FOCUS.

others answered the question a number of years ago.[2-6] They discovered that there were anatomic averages for the posterior determinants of occlusion, namely:

Knowledge of anatomic averages for the posterior determinants of occlusion ushered in the era of the semi-adjustable articulator and its routine use in dentistry. With semi-adjustable articulators the posterior determinants can be fixed averages, adjustable values, or a combination of fixed and adjustable. Generally speaking, semi-adjustable articulators usually are manufactured with fixed values for the posterior wall, superior wall and vertical axis as these values not only differ little between individuals but their influence on tooth anatomy is minimal with slight changes in their values. On the other hand, Immediate Side Shift (ISS), Progressive Side Shift (PSS) and the protrusive angle can influence the posterior anatomy to a greater degree; arbitrarily setting a semi-adjustable mechanical articulator such as the Denar 330 with an ISS of 1.5 mm, PSS 7.5 degrees and protrusive 25 degrees would cover most clinical situations.[7] Coupled with the utilization of a facebow taken with respect to the horizon and mounting of the maxillary cast to reflect this for occlusal plane analysis, semi-adjustable articulators such as the Denar 330 can be used for almost all restorative and prosthetic situations (Figures 4 and 5).

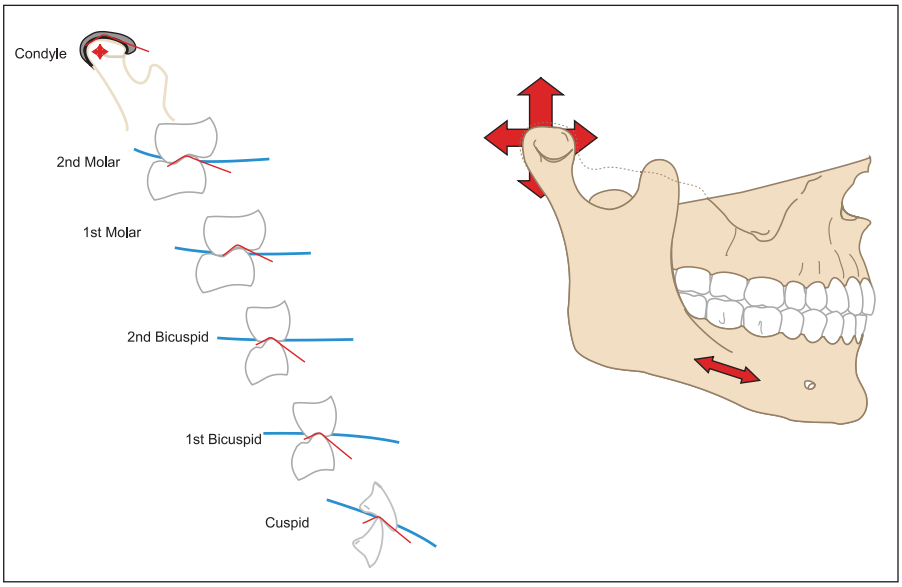


Figure 1: posterior determinants of occlusion and their potential influence on the posterior occlusal anatomy. Note their lack of significance as we proceed anteriorly especially in the presence of pronounced anterior guidance.

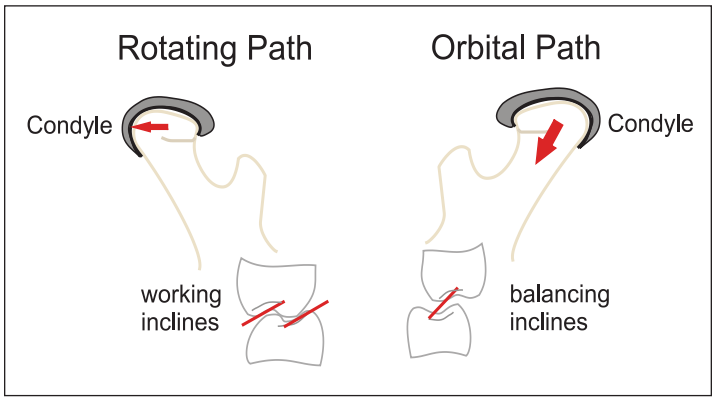


Figure 2: rotating and orbiting condylar pathways and their effect on tooth anatomy.

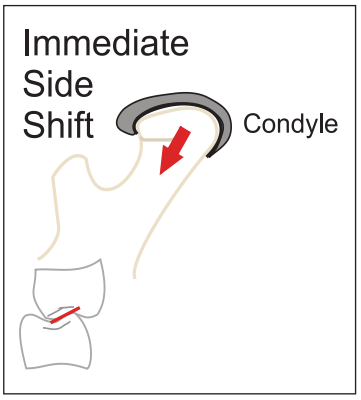
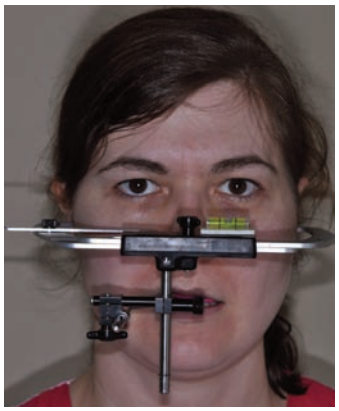
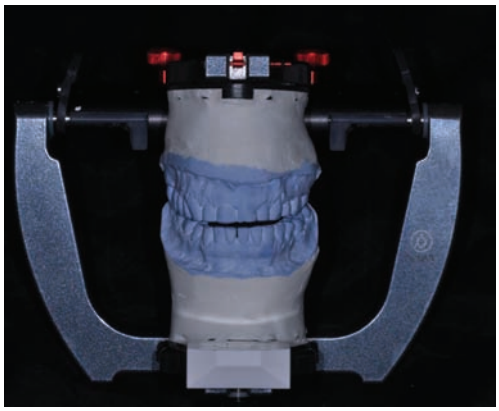


Figure 3: immediate side shift and its influence on tooth anatomy.





Figures 4 and 5: facebow recording to reflect accurately the clinical situation.

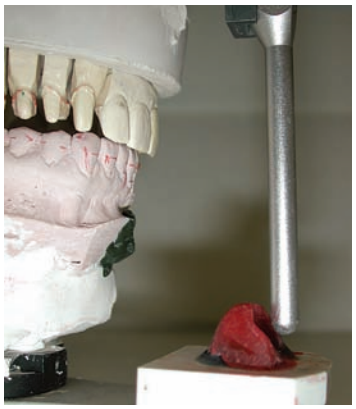


Figure 6: cast mounting verification

Figure 7: custom anterior guide table usage

Figures 6 and 7: semi-adjustable articulators can be used with a high degree of accuracy to aide in the fabrication of precise restorations and prosthodontics.

Furthermore, semi-adjustable articulators allow us to fabricate custom anterior guide tables that secure valuable information about the anterior determinants of occlusion as well as allow us to verify the accuracy the mounting of our maxillary and mandibular casts (Figures 6 and 7).

The Whip Mix Corporation has recently modified their popular Denar 330 semi-adjustable articulator and created the Denar FOCUS articulator which embellishes the concept of average posterior determinants of occlusion with fixed condylar elements.[7] Moreover, the fixed average settings of the Denar FOCUS articulator are inclusive of the majority of our patient population. The Denar FOCUS articulator has posterior determinates of occlusion fixed at ISS 1.5 mm, PSS 7.5 degrees, with protrusive and rear wall 25 degrees (Figure 8). The ergonomic design of the Denar 330 articulator coupled with evidenced-based fixed average posterior determinants of a occlusion makes for an articulator that practically, efficiently, and effectively communicates clinical situations accurately for both routine and advanced case analysis, treatment planning and laboratory applications; the Denar FOCUS articulator (Figures 8 and 9).

The posterior determinants of occlusion must be respected in restorative and prosthodontic procedures but they do not

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Mark 330

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- **Smaller** size for easy handling

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Rick Peebles
Peebles Prosthetics, Inc.

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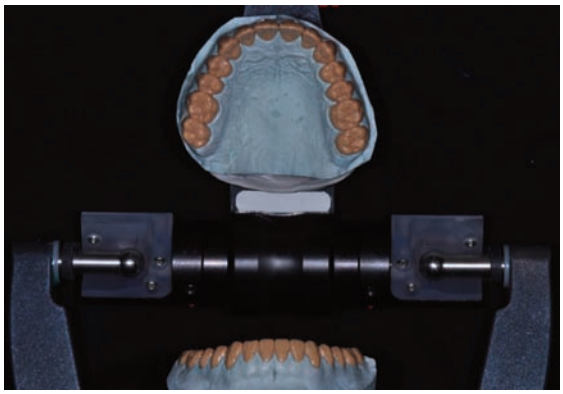

Figure 8: Denar FOCUS articulator fixed average evidence-based based posterior condylar elements.

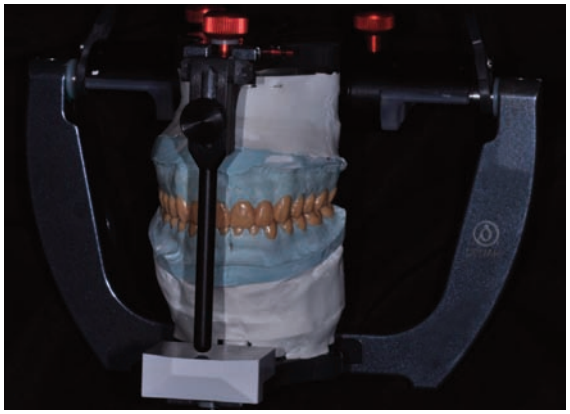

Figure 9: Denar FOCUS articulator

dominant the playing field as they once did decades ago. We understand now that we can treat the posterior determinants of occlusion with average values or with minimal values to create posterior dentitions that have great form and are functional. In the overall scheme of a mutually protected occlusion the posterior determinants of occlusion have a valuable, albeit, "average" role in our restorative and prosthodontic creations.

Further Suggested Reading and References:

1. *Copley RR. The animal in the genome: Comparative genomics and evolution. Philos Trans R Soc Lond B Biol Sci 2008;363:1453-61.*
2. *Lee RL. Jaw movements engraved in solid plastic for articulator controls: Part 1. Recording apparatus. J Prosthet Dent 1969;22:209.*
3. *Lee RL. Jaw movements engraved in solid plastic for articulator controls: Part 2. Transfer apparatus. J Prosthet Dent 1969;22:513.*
4. *Lundeen HC, Shryock RF, Gibbs CH. An evaluation of mandibular border movements: Their character and significance. J Prosthet Dent 1978;40:442.*
5. *Lundeen HC. Mandibular movement recording and articulator adjustments simplified. Dent Clin N Amer 1979;23:231.*
6. *Ecker GA, Goodacre CJ, Dykema RW. A comparison of condylar control settings obtained from wax interocclusal records and simplified mandibular motion analyzers. J Prosthet Dent 1984;51:404.*
7. *Whip Mix Corporation. www.whipmix.com*

About the Author

Dr. Michael Racich has a general dental practice emphasizing comprehensive Restorative Dentistry, Prosthodontics and TMD/orofacial pain. He has both extensively lectured, nationally and internationally, and published in peer-reviewed scientific journals. He is Past President and a Fellow of CARDP. E-Mail: mike@drracich.ca

CARDP
ACDRP

2014 Annual Scientific Meeting
September 18th-20th - Montreal, QC

Congrès annuel 2014
18 au 20 Septembre, Montréal, QC

Tomorrow's Dentistry Today - Atteindre la Dentisterie du futur

Dr. Jay McMullan

Invitation from the Persident of CARDP/ Invitation du Président de l'ACDRP

On behalf of the Executive and Organizing Committee it is my pleasure to invite you to join us for our 22nd Annual Scientific Meeting, being held in Montréal this September 18- 20. The Canadian Academy of Restorative Dentistry and Prosthodontics is comprised of dental specialists, general practitioners and academicians who share a passion for excellence. Through its Annual Scientific Meeting, our Academy is committed to promoting the highest standard of professional ethics, as well as superior teaching of Restorative Dentistry and Prosthodontics in our Canadian universities and leading-edge continuing education for both our members and the dental community at large.

Each September, in one of the major cities across Canada, our Annual Scientific Meeting offers a robust three-day learning event through the exchange of information, camaraderie and a first class social program.

We hope to see you this year in Montréal for another outstanding Meeting.

Sincerely,

Dr. Jay McMullan
CARDP President

Au nom de la Direction et du comité organisateur, il me fait plaisir de vous convoquer à notre 22ième Congrès annuel qui se tiendra à Montréal du 18 - 20 septembre prochain. L'Académie canadienne de dentisterie restauratrice et de prosthodontie est composée de dentistes spécialistes, d'omnipraticiens et d'académiciens qui partagent la même passion pour l'excellence. Par le biais de ce Congrès, notre Académie s'engage à promouvoir à nos membres et à la communauté dentaire entière, le plus haut standard d'éthique professionnelle, en plus d'un enseignement universitaire de haut calibre et d'une formation continue de pointe.

Chaque mois de septembre, dans l'une de nos grandes villes canadiennes, notre Congrès offre trois jours bien étoffés d'échanges d'information, de camaraderie et d'un programme social incomparable.

Nous souhaitons vous accueillir à Montréal pour partager ensemble cette expérience mémorable.

Chaleureusement,

Dr. Jay McMullan
Président ACDRP

CARDP Annual Meeting – Montréal 2014 - Congrès annuel de l'ACDRP

TOMORROW'S DENTISTRY TODAY / ATTEINDRE LA DENTISTERIE DU FUTUR
SCIENTIFIC PROGRAM / PROGRAMME SCIENTIFIQUE
Thursday/Jeudi, 18 September & Friday/Vendredi 19 September

TIME/HEURE	WEDNESDAY/MERCREDI SEPTEMBER 17, 2014	LOCATION/LIEU
18H30-23H00	CARDP Executive Dinner / Dîner Comité exécutif	St-Sulpice - 3rd Floor/3iéme étage
	THURSDAY/JEUDI SEPTEMBER 18	
09H00-17H00	Full Day Hands-On Course Cours pratique – pleine journée	St-Jacques- 3rd Floor/3iéme étage
08H30-13H30 12H00-17H00	Half Day Hands-On Courses Cours pratiques demi-journée	TBA/À venir
09H15-15H30	Social Activity – Flavours of Montréal Saveurs de Montréal	Meet in Lobby Le Westin Rassemblement foyer de l'hôtel
23H59-11H59	Scientific Set-up Installations scientifiques	Fortifications Ballroom 9th Floor/9iéme étage Salle de bal Fortifications
08H00 -18H00	Exhibits Set-up Installations exposants	Ville-Marie - St-Antoine 9th Floor/9iéme étage
11H00-20H00	Registration/Inscription	Foyer Fortifications - 9th Floor/9iéme étage
16H00-Finish/Fin	Journal Meeting Réunion du Journal	TBA/À venir
18H00-22H00	Welcome Buffet w. Sponsors Buffet avec commanditaires	Ville-Marie - St-Antoine - 9th Floor/9iéme étage

	FRIDAY/VENDREDI SEPTEMBER 19	LOCATION/LIEU
07H00-17H00	Registration / Inscription	Foyer Fortifications - 9th Floor/9ième étage
07H00-08H30	Breakfast with Sponsors / Petit-déjeuner	Ville-Marie - St-Antoine - 9th Floor/9ième étage
08H15-17H00	Scientific Sessions / Sessions scientifiques	Fortifications Ballroom 9thFloor/9ième étage Salle de bal Fortifications
09H15-14H30	Partners Program Shopping in Montréal Lèche-vitrines Montréal	Meet in Le Westin Lobby/Rassemblement foyer de l'hôtel
10H30-11H00	Break with Sponsors / Pause avec commanditaires	Ville-Marie - St-Antoine - 9th Floor/9ième étage
12H00-13H30	Lunch with Sponsors / Repas du midi avec commanditaires	Ville-Marie - St-Antoine - 9th Floor/9ième étage
15H30-16H00	Break with Sponsors / Pause avec commanditaires	Ville-Marie - St-Antoine - 9th Floor/9ième étage
18H15	Dinner at Beatrice/Bice Dîner au Restaurant Beatrice	TBC/À venir Meet in Le Westin Lobby Rassemblement au foyer

CARDP Annual Meeting – Montréal 2014 - Congrès annuel de l'ACDRP

TOMORROW'S DENTISTRY TODAY / ATTEINDRE LA DENTISTERIE DU FUTUR
SCIENTIFIC PROGRAM / PROGRAMME SCIENTIFIQUE
SATURDAY/SAMEDI SEPTEMBER 20 & SUNDAY/DIMANCHE SEPTEMBER 21

TIME/HEURE	SATURDAY/SAMEDI SEPTEMBER 20	LOCATION/LIEU
07H00-12H00	Registration / Inscription	Foyer Fortifications - 9th Floor/9ième étage
07H00-08H30	Breakfast with Sponsors/ Petit-déjeuner	Ville-Marie - St-Antoine - 9th Floor/9ième étage
07H00-08H30	CARDP Member Breakfast / Petit-déjeuner pour membres	Grande place - 8th Floor/8ième étage
08H10-12H30	Scientific Sessions / Sessions scientifiques	Fortifications Ballroom - 9th Floor/9ième étage Salle de bal Fortifications
10H30-11H00	Break with Sponsors / Pause avec commanditaires	Ville-Marie - St-Antoine - 9th Floor/9ième étage
12H30-14H00	CARDP Members/Guests Lunch / Repas du midi membres/invités	Grande place - 8th Floor/8ième étage
14H15-16H30	Partners Program 'High Tea' Queen Elizabeth Hotel	Meet in Le Westin lobby Rassemblement au foyer
14H00-17H00	Table Clinics Démonstrations cliniques	Grande place 8th Floor/8ième étage
18H30-19H30	President's Reception Réception du Président	Fortifications Ballroom 9th Floor/9ième étage
19H30	President's Gala Gala du Président	Fortifications Ballroom 9th Floor/9ième étage
	SUNDAY/DIMANCHE SEPTEMBER 21	
09H00-12H00	Clinic and Essay Meeting Réunion comités organisateurs	St-Sulpice 3rd Floor/3ième étage

ADA C·E·R·P
Continuing Education Recognition Program

CARDP Annual Meeting – Montréal 2014 - Congrès annuel de l'ACDRP

TOMORROW'S DENTISTRY TODAY / ATTEINDRE LA DENTISTERIE DU FUTUR

SCIENTIFIC PROGRAM / PROGRAMME SCIENTIFIQUE

TIME/HEURE	Thursday/Jeudi 18 September
09H00 – 17H00	Dr. Howard Golan - FULL DAY HANDS-ON COURSE Versatility of Waterlase: applications in oral and periodontal surgery, endondontics and restorative dentistry La versatilité du Waterlase: applications en chirurgie buccale et parodontale, endodontie et dentisterie restauratrice
08H00 – 12H00 13H30 – 17H0	Dr. Stewart Shapiro - HALF DAY HANDS-ON COURSES Forward Endodontics / La fine pointe de l'Endodontie
TIME/HEURE	**Friday/Vendredi 19 September**
08H15	Dr. Jay McMullan - CARDP President/Président, Dr. Douglas Hamilton - Scientific Program Chair/Président du programme
08H30	Dr. Robert Vogel - Blending art, science and technology in Implant Dentistry for ideal patient care Fusion de l'art, de la science et de la technologie en Dentisterie implantaire
09H30	Dr Gilles Lavigne - Sleep apnea, bruxism and facial pain/L'apnée du sommeil, le bruxisme et les douleurs faciales
10H30 – 11H00	Refreshment Break with Sponsors - Exhibit Hall / Pause avec commanditaires – Salle des exposants
11H00	Dr. Izchak Barzilay - Digital reconstructive dentistry: how we maximize use of digital technology to restore complex cases Dentisterie de reconstruction numérique
12H00 – 13H30	Lunch with Sponsors - Exhibit Hall / Repas du midi avec commanditaires – Salle des exposants
13H30	Mr. Hiam Keren CDT - Treatment planning and prosthesis fabrication using digital technology prototypes Planification des traitements et fabrication de prothèses à l'aide de prototypes numériques
14H30	Dr. Mamaly Reshad - Resection vs augmentation: esthetic implant supported maxillary prostheses Résection vs augmentation: prothèses implanto-portées esthétiques au maxillaire
15H30 – 16H00	Refreshment Break with Sponsors - Exhibit Hall / Pause avec commanditaires – Salle des exposants
16H00 – 17H00	Dr. Yvan Fortin - Restoration of the edentulous maxilla: choosing prosthetic options Restauration du maxillaire édenté: choix des options prothétiques
TIME/HEURE	**Saturday/Samedi 20 September / Short Format Presentations / Présentations abrégées**
08H10 – 08H30	Dr. Mark Spatzner - Can implants go bad? Prevention: better than a cure! Les implants peuvent-ils se détériorer? Mieux vaut prévenir que guérir
08H30 – 08H50	Mr. Michael Schreck, CDT - Myths and reality of contemporary all ceramic materials Les mythes et la réalité des matériaux contemporains tout céramique
08H50 – 09H50	Dr Pierre Boudrias – Managing the esthetic region in Implantology La gestion de la zone esthétique en Implantologie
09H50 – 10H10	Dr. Michael Kaiser - The Canadian Military Dental Corps: how our military dentists serve you at home and abroad Le corps dentaire militaire canadien: comment les dentistes vous servent au pays et à l'étranger
10H10 – 10H30	Dr. Stewart Shapiro - Endo vs implants: revisiting the criteria for success with Endodontics L'Endodontie vs les implants: revue des critères de succès en Endodontie
10H30 – 11H00	Refreshment Break with Sponsors - Exhibit Hall / Pause avec les commanditaires – Salle des exposants
11H00 – 11H20	Dr. Marc Shenouda - 3D imaging in dentistry and computer assisted implant planning L'imagerie 3D en dentisterie et la planification numérique des implants
11H20 – 11H40	Dr Louis Drouin – Periodontitis / La Péri-Implantite
11H40 – 12H00	Dr Alexandre Taché - Saving periodontally risky teeth with Laser Assisted New Attachment Procedure (LANAP) Conserver les dents à risques parodontaux avec la procédure LANAP
12H00 – 12H20	Dr. Dennis Nimchuk - Precision with ceramics: the new paradigm / La précision avec les céramiques: le nouveau paradigme
12H20 – 12H30	Dr. Jay McMullan - Meeting conclusion/Clôture du congrès Dr. Ian Tester - Toronto 2015 Annual Meeting Announcement and Video/Présentation vidéo du congrès 2015 à Toronto
12H30 – 14H00	CARDP Members and Guest Luncheon Repas du midi des membres de l'ACDRP et des invités
14H00 – 17H00	Table Clinics / Démonstrations cliniques

Scientific Meeting Speakers /Programme Scientifique

Tomorrow's Dentistry Today/Atteindre La Dentisterie Du Futur

Thursday, September 18th Program/Programme du Jeudi 18 September

Dr. Howard Golan, New York

Versatility of Waterlase: applications in Oral and Periodontal Surgery, Endondontics and Restorative Dentistry

9:00 am – 17:00 pm

Location: St-Jacques Room, 3rd Floor

Fee: $395 pp: Includes full day course, breaks and lunch

CE Credits: 7

Synopsis:

The physics and biology behind laser dentistry will be introduced and the participant will gain significant knowledge in the applications of hard and soft tissue lasers in the restorative and prosthetic realm. Attendees will get the chance to "play" with lasers on extracted teeth and animal jaws in both the soft-tissue and hard-tissue areas. Finally, the economics and management of lasers in the dental practice will be discussed.

Learning objectives:

1. Identify the various wavelengths of dental lasers on the market
2. Explain how lasers interact with dental tissue
3. Experiment with laser wavelengths

Biography:

Dr. Golan graduated from the U of Michigan School of Dentistry and completed a two-year Implant Surgery and Advanced Prosthetic Fellowship at NSUH. He holds numerous other diplomas among which a Mastership certification in the World Clinical Laser Institute and he lectures internationally on the subject. Dr. Golan also maintains a private practice and is passionate about conserving teeth, soft tissue and bone.

Dr Howard Golan, New York

La versatilité du Waterlase: applications en chirurgie buccale et parodontale, endodontie et dentisterie restauratrice

09H00 – 17H00

Lieu: Salle Saint-Jacques, 3ième étage

Coût: 395$ pp: Inclut le cours d'une journée, les pauses et le repas du midi

Crédits: 7

Synopsis:

Le participant sera introduit à la physique et la biologie du laser en dentisterie et ses applications sur les tissus durs et mous dans les domaines restaurateurs et prothétiques. L'occasion sera offerte d'expérimenter avec le laser sur des dents extraites et des mâchoires d'animaux. Finalement, la rentabilité et la gestion des lasers en pratique dentaire seront discutés.

Objectifs:

1. Identifier les longueurs d'ondes des divers lasers dentaires sur le marché
2. Expliquer l'interaction entre le laser et le tissu dentaire
3. Expérimenter avec différentes longeurs d'ondes

Biographie:

Dr. Golan est promu en médecine dentaire de U of Michigan et a complété un Fellowship de deux ans en chirurgie implantaire et prothétique de NSUH. Il détient plusieurs autres diplômes dont un certificat de maîtrise du World Clinical Laser Institute et il présente des conférences sur ces sujets à travers le monde. Dr. Golan maintient aussi une pratique privée dédiée à la préservation des dents, du tissu mou et de l'os.

Dr. Stewart Shapiro, Montréal

Topic: Forward Endodontics

8:30 am – Noon or 13:30 pm – 17:00 pm

Location: TBA

Fee: $275 pp: Includes half-day course and break

CE Credits: 3

Synopsis:

This presentation is designed for general dentists who wish to provide excellent endodontic care for their patients through advanced rotary instrumentation, effective irrigation and masterful obturation. The program covers solutions on how to treat straightforward and complex endodontic cases as well as a hands-on workshop designed to enhance the clinician's practical skills.

* Participants are encouraged to bring radiographs of their prior endodontic cases for review with Dr. Shapiro

** Suggested materials to bring are extracted and accessed teeth and magnification loupes

*** Buchanan 3D blocks will be made available for use

Learning Objectives:

1. Diagnose and treat emergencies
2. Access cavities
3. Negotiate, shape and clean the canal
4. Perform a warm vertical obturation in 3D

Biography:

Dr. Shapiro received his dental degree from McGill U and a post-graduate degree in Endodontics at State University of New York. He currently teaches Endodontics at McGill and lectures nationally and internationally. Dr. Shapiro also maintains a private group practice in Montréal.

Dr Stewart Shapiro, Montréal

Titre: La fine pointe de l'Endodontie

8:30 am – Noon or 13:30 pm – 17:00 pm

Lieu: à venir

Coût: 275$ pp: Inclut cours d'une demi-journée plus la pause

Crédits: 3

Synopsis:

Cette présentation s'adresse aux dentistes généralistes qui désirent administrer d'excellents soins endodontiques à leurs patients par l'usage d'une instrumentation rotative, d'une irrigation efficace et d'une obturation expérimentée. Le programme suggère des solutions pour traiter les cas endodontiques simples et complexes et offre un atelier pratique afin de mettre en valeur les compétences du clinicien.

* Les participants sont incités à apporter leurs radiographies de cas d'endodontie pour examen par Dr. Shapiro

** Les matériaux suggérés sont des dents extraites et préparées ainsi que des loupes

*** Des blocs Buchanan 3D seront disponibles pour les exercices

Learning Objectives:

1. Diagnostiquer et traiter les urgences
2. Préparer les cavités
3. Négocier, façonner et nettoyer le canal
4. Effectuer une obturation 3D verticale à chaud

Biographie:

Dr. Shapiro a obtenu son diplôme en dentisterie de McGill U ainsi qu'un diplôme d'études supérieures en Endodontie de State University de New York. Présentement, il enseigne l'Endodontie à McGill et donne des conférences à l'échelle nationale et internationale. Dr. Shapiro maintient aussi une pratique privée de groupe à Montréal.

Scientific Meeting Speakers / Conférenciers Programme Scientifique

Tomorrow's Dentistry Today / Atteindre La Dentisterie Du Futur

Friday, September 19th Program / Programme du vendredi 19 septembre

Dr. Robert Vogel, Florida

Topic: Blending art, science and technology in Implant Dentistry for ideal patient care

Synopsis:

The emergence of cutting edge biologic principles and biomaterials has allowed us to offer patients treatment options with greater precision, productivity and long-term stable results. This fast moving presentation, designed for private practice, will cover state of the art topics, tips, tricks and techniques in Implant Prosthetics, emphasizing current technologies, reduced chair time and increased predictability.

Learning Objectives:

1. Acquaint oneself with state of the art implant materials and techniques
2. Choose the best techniques for greater precision, productivity and profitability in Implant Prosthetics
3. Simplify decision making in the selection of materials and procedures for each patient

Biography:

Dr. Vogel graduated from the Columbia U Dental School in N.Y. City. He then completed a residency program at Jackson Memorial Hospital in Miami. He maintains a full time private practice in Palm Beach Gardens in Implant Prosthetics and Reconstructive Dentistry. He also conducts clinical trials and provides clinical advice on dental attachments and implants. Dr. Vogel has contributed to the development of several prosthetic components and techniques, is widely published and lectures internationally.

Dr Robert Vogel, Floride

Sujet: Fusion de l'art, de la science et de la technologie en Dentisterie implantaire

Synopsis:

De nouveaux principes biologiques et les biomatériaux nous permettent aujourd'hui d'offrir à nos patients des options de traitements plus précis, productifs et stables qu'auparavant. Cette présentation fera un survol des trucs, astuces et techniques en prothèses implantaires, en soulignant les dernières technologies, la réduction du temps opératoire ainsi qu'une fiabilité accrue.

Objectifs:

1. Connaître les plus récentes techniques et matériaux en implantologie
2. Choisir judicieusement les techniques qui assurent une plus grande précision, productivité et profitabilité
3. Simplifier la prise de décision quant au choix de matériaux et procédures pour chaque patient

Biographie:

Promu de Columbia U. Dental School à New York, Dr. Vogel a ensuite complété sa résidence au Jackson Memorial Hospital à Miami. Il poursuit une pratique privée plein temps à Palm Beach Gardens en Prothèses implantaires et Dentisterie de reconstruction. Il mène aussi des essais cliniques et est consultant sur les attachements et implants. Dr. Vogel a aussi participé au développement de plusieurs composantes et techniques prothétiques. Il a contribué à de nombresues publications et présente des conférences à travers le monde.

Dr. Gilles Lavigne, Montréal

Topic: Sleep apnea, bruxism and facial pain

Synopsis:

Sleep bruxism is reported by 8% of the adult population and it can be a source of headaches, facial pains, acid reflux down to tooth erosion. Other problems involve insomnia, breathing irregularities and different neurological manifestations. Its causes, symptoms, diagnosis, management and treatment options (medical, mechanical and behavioral) will be discussed in detail.

Learning Objectives:

1. Identify the causes and mechanisms of bruxism during sleep
2. Establish a differential diagnosis
3. Choose an appropriate treatment for *each case*

Biography:

Dr Lavigne holds a DMD from U de Montréal where he is currently Dean of Dental Medicine, as well as a PhD from U of Toronto and FRCD in Oral Medicine (Georgetown U). He has presided over several research societies and networks and is internationally recognized for his research projects on bruxism and the interactions between sleep, pain, and breathing disorders. He has edited and written numerous articles and chapters and is co-author of Sleep Medicine for Dentists.

Dr Gilles Lavigne, Montréal

Sujet: L'apnée du sommeil, le bruxisme et les douleurs faciales

Synopsis:

Le bruxisme du sommeil est rapporté par 8% de la population adulte et implique parfois des douleurs faciales et des céphalées, le reflux gastrique en plus de l'attrition des dents. D'autres troubles incluent l'insomnie, les perturbations respiratoires jusqu'aux manifestations neurologiques. Ses causes et symptômes, son diagnostic et sa gestion, ainsi que ses options thérapeutiques (médicale, mécanique, comportementale) seront vus en détails.

Objectifs:

1. Identifier les causes et mécanismes du bruxisme du sommeil
2. Établir un diagnostic différentiel
3. Choisir une thérapie appropriée pour chaque patient

Biographie:

Dr Lavigne est diplômé de l'U de Montréal où il est présentement doyen de la Faculté de Médecine dentaire, et détient un PhD de U of Toronto ainsi qu'un FRCD en médecine buccale de Georgetown U. Il a présidé plusieurs sociétés et réseaux de recherche et est reconnu internationalement pour ses recherches sur le bruxisme et l'interaction entre le sommeil, la douleur et les troubles respiratoires. Il a édité de nombreux textes et écrit un grand nombre d'articles et chapitres sur le sujet et a récemment cosigné Sleep Medicine for Dentists.

Scientific Meeting Speakers / Conférenciers Programme Scientifique

Tomorrow's Dentistry Today / Atteindre La Dentisterie Du Futur

Friday, September 19th Program / Programme du vendredi 19 septembre

Dr. Izchak Barzilay, Toronto

Topic: Digital Reconstructive Dentistry: how we maximize the use of digital technology to restore complex cases

Synopsis:

From single units to full arch restorations, we will review digital scanning and prosthesis fabrication technologies in the Prosthodontic practice. Technologies will be presented that guide us in our decision making process and allow us to fabricate well-fitting restorations that are both esthetic and functional.

Learning Objectives:

1. Identify the various digital technologies and their uses
2. Recognize the clinical conditions leading to more effective technologies
3. Choose materials that enhance the qualities of restorations

Biography:

Dr. Barzilay received his DDS from U of Toronto in 1983, and a Certificate in Prosthodontics as well as a MS from the Eastman Dental Center in Rochester, N.Y. He is currently Head of Prosthodontics and Restorative Dentistry, Mt. Sinai Hospital in Toronto, and teaches in several other institutions. He has published on various topics and holds multiple Fellowships.

Dr Izchak Barzilay, Toronto

Sujet: La dentisterie de reconstruction numérique: maximiser la technologie numérique pour la restauration de cas complexes

Synopsis:

Qu'il s'agisse d'une restauration unitaire ou de l'arcade entière, les technologies de balayage et de fabrication de prothèses dans une pratique de Prosthodontie seront discutées. Quelles sont ces technologies qui influencent nos choix de fabrication de restaurations bien ajustées, qui sont à la fois esthétiques et fonctionnelles?

Objectifs:

1. Identifier les différentes technologies numériques ainsi que leurs usages
2. Reconnaître les conditions cliniques menant aux technologies plus efficaces
3. Choisir les matériaux qui rehaussent la qualité des restaurations

Biographie:

Dr. Barzilay a reçu son DDS de U of Toronto en 1983, ainsi qu'un certificat en Prosthodontie et un MS de Eastman Dental Center à Rochester, N.Y. Il dirige présentement le Département de Prosthodontie et de Dentisterie restauratrice à Mt. Sinai Hospital à Toronto, et enseigne dans quelques autres institutions. Il a publié sur plusieurs sujets et détient de nombreux Fellows.

Mr. Hiam Keren CDT – MDT, Montréal

Topic: Treatment planning and prosthesis fabrication using digital technology prototypes

Synopsis:

This presentation will demonstrate prototypes for various restorative cases from single unit to long span bridges and discuss the advantages of prosthetic planning with prototypes in hand. The latter help the clinician to communicate to the lab in a most precise way, as well as establish the final function and esthetics of the restoration, then verify these with the patient.

Learning Objectives:

1. Test and work with a prototype
2. Plan a treatment and communicate it to the laboratory
3. Observe digital processes as they relate to the production of prototype and final restoration

Biography:

Haim Keren is co-owner of a dental laboratory in Montréal. He worked in the family laboratory in Haifa for 14 years and trained in Germany toward his Master certificate. In 1999, Mr. Keren relocated to Montréal and established his laboratory devoted to all-ceramic technologies. He has developed special techniques and procedures for the use of monolithic and minimally veneered Zirconia restorations. He also lectures, teaches, and has published several articles.

Mr. Hiam Keren CDT – MDT, Montréal

Sujet: Planification des traitements et fabrication de prothèses à l'aide de prototypes numériques

Synopsis:

Cette présentation démontrera les prototypes de restauration, qu'il s'agisse de cas unitaires ou multiples et discutera des avantages de la planification avec les prototypes en main. Ceux-ci aident le clinicien à mieux communiquer au laboratoire la fonction et l'esthétique souhaitées et de les vérifier auprès du patient.

Objectifs:

1. Faire une mise à l'essai d'un prototype
2. Planifier un traitement et le communiquer au laboratoire
3. Observer le processus numérique de la production du prototype et de la restauration finale

Biographie:

Haim Keren est co-propriétaire d'un laboratoire dentaire à Montréal. Il a oeuvré dans le laboratoire familial à Haifa pendant 14 ans et a reçu son certificat de Maîtrise en Allemagne. En 1999, M. Keren s'est installé à Montréal et ouvert son laboratoire dédié aux technologies tout-céramiques. Il a développé des techniques spéciales pour les restaurations monolithiques et de zirconium laminé. Il donne des conférences, des cours et a publié de nombreux articles.

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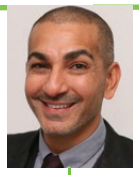
Tomorrow's Dentistry Today / Atteindre La Dentisterie Du Futur

Friday, September 19th Program / Programme du vendredi 19 septembre



Dr. Mamaly Reshad, California

Topic: Resection vs augmentation: esthetic implant supported maxillary prostheses

Synopsis:

This presentation will introduce an alternative strategy for the treatment of patients that require restoration of the edentulous maxilla with implant-supported prostheses. A critical analysis of unhealthy, non-physiologic and unesthetic situations will be discussed, with particular attention to the sagittal plane. Based on proper diagnostic principles, a classification system, followed by guidelines, will be provided.

Learning Objectives:

1. Choose the classification system that identifies when maxillary resection is necessary
2. Match restorative material to individual patient situations
3. Maintain the maxillary anterior ridge in the long term

Biography:

Dr. Reshad is a Prosthodontist whose area of research expertise is in Dental Materials, Esthetics and Implant Dentistry. He has published in, and is on, the editorial boards for numerous peer-reviewed Journals. He also maintains private practices limited to Prosthodontics in both Los Angeles and London, England.

Dr Mamaly Reshad, California

Sujet: Résection vs augmentation: prothèses implanto-portées esthétiques au maxillaire

Synopsis:

Cette présentation suggère une stratégie nouvelle de traitement des patients qui nécessitent une restauration du maxillaire édenté à l'aide de prothèses implanto-portées. Nous analyserons les situations malsaines, non-physiologiques et non-esthétiques, en y apportant une attention particulière au plan sagittal. Un système de classification basé sur les principes de diagnostic, suivi de directives, seront fournis.

Objectifs:

1. Choisir le système de classification qui identifie la nécessité d'une résection au maxillaire
2. Faire correspondre le matériau restaurateur approprié au patient
3. Maintenir à long terme la crête antérieure au maxillaire

Biographie:

Dr. Reshad est un Prosthodontiste avec une expertise de recherche en Matériaux dentaires, Esthétique et Dentisterie implantaire. Il a publié et s'est impliqué dans plusieurs journaux dentaires revus par des pairs. Il mène aussi une pratique privée limitée à la Prosthodontie à Los Angeles ainsi qu'à Londres en Angleterre.

Dr. Yvan Fortin, Québec

Topic: Restoration of the edentulous maxilla: choosing prosthetic options

Synopsis:

We need to address different stages of analysis before making decisions on the best options for treatment. These include: analysis of the residual supporting tissues and foundation for the prosthesis, interpretation of patient expectations and selecting from the many surgical and prosthetic options on the market.

Learning Objectives:

1. Identify different patterns of tissue support
2. Enumerate alternative surgical approaches
3. Differentiate between assorted prosthetic options to satisfy patient expectations

Biography:

Doctor of Dental Medicine, Diplomate of the American Board of Oral Implantology and Dentistry, Fellow of the Academy of Prosthodontics, **the Canadian Academy of Restorative Dentistry and Prosthodontics** and of the American Academy of implant Dentistry. Dr. Fortin is an international lecturer and also a member of several foreign academies. He limits his practice to Implantology.

Dr Yvan Fortin, Québec

Sujet: Restauration du maxillaire édenté: choix des options prothétiques

Synopsis:

Nous devons tenir compte des différentes étapes d'analyse avant même de choisir le meilleur traitement. Ces étapes incluent: analyser les tissus résiduels supportant la prothèse, interpréter les attentes du patient, et choisir parmi toutes les options chirurgicales et prothétiques sur le marché.

Objectifs:

1. Identifier divers types de support des tissus
2. Énumérer des approches chirurgicales alternatives
3. Distinguer les options prothétiques pour satisfaire les attentes du patient

Biographie:

Docteur en Médecine dentaire, Diplomate de American Board of Oral Implantology and Dentistry, Fellow de Academy of Prosthodontics, **l'Académie canadienne de dentisterie restauratrice et de prosthodontie** et de American Academy of implant Dentistry. Dr Fortin est conférencier sur le plan international et membre de plusieurs académies étrangères. Il limite sa pratique à l'Implantologie.

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Dr. Mark Spatzner, Montréal

Topic: Can implants go bad? Prevention is better than a cure!

Synopsis:

Implant treatment is not invulnerable. There are an alarming number of implant cases that are showing advanced bone loss and serious survival issues. This presentation will describe and define the term peri-implantitis and discuss risk factors for patients as well as commonly seen etiology of the failing implant. Finally, the possible treatment options for the ailing implant will be presented.

Learning Objectives:

1. Diagnose possible risk factors among candidates for implant therapy
2. Get up-to-date on improvements in implant fixture technology and regenerative techniques
3. Recognize commonly seen errors in implant therapy
4. Use state of the art implant design and technology to deliver predictable treatment

Biography:

Dr. Spatzner completed his undergraduate dental training at U de Montréal with a DMD then received a diploma in Periodontology from U of Toronto. He has published and has given numerous scientific presentations worldwide in the field of Periodontology, Regenerative and Implant Dentistry. Currently he has a private practice in the Montréal area that is limited to Periodontal and Implant therapy.

Dr Mark Spatzner, Montréal

Sujet: Les implants peuvent-ils se détériorer? Mieux vaut prévenir que guérir

Synopsis:

Les implants ne sont pas invincibles puisqu'un nombre croissant de cas présentent une perte osseuse avancée. Nous définirons la péri-implantite et discuterons des risques pour le patient en rapport avec l'étiologie du rejet de l'implant. Enfin, nous regarderons les options de traitement d'un implant mal en point.

Objectifs:

1. Diagnostiquer les risques associés à la thérapie implantaire
2. Se mettre à jour sur les technologies implantaires et regénératrices
3. Constater les erreurs courantes en Implantologie
4. Faire appel aux dernières technologies pour atteindre des résultats fiables

Biographie:

Dr. Spatzner a obtenu son DMD de l'U de Montréal pour ensuite recevoir un diplôme en Parodontie de U of Toronto. Il a publié et donné de nombreuses présentations à travers le monde dans les domaines de la Parodontie ainsi que la Dentisterie regénératrice et implantaire et limite sa pratique privée à ces spécialisations.

Mr. Michael Schreck CDT/MDT, Montréal

Topic: Myths and reality of contemporary all ceramic materials

Synopsis:

We will explore how opacity and strength influence the use of lithium disilicate, lucite crystals or zirconia. Discussion will focus on why one would choose a monolithic or a hybrid all ceramic restoration and how this will influence prep design. We will compare the use of different materials to achieve both patient and clinician expectations.

Learning Objectives:

1. Choose restorative materials according to the crystalline structure of dental ceramics
2. Identify the advantages and disadvantages of different materials in blocking out discoloured preparations
3. Improve communication with the lab to achieve desired colour, esthetics and clinical results

Biography:

Mr. Schreck graduated in dental technology from Edouard Montpetit College in 1983. He has since owned and operated his laboratory specializing in fixed prosthetics utilizing the latest in CAD applications. Mr. Schreck has studied photography and esthetic build-up on zirconia restorations and trained with a master technician in Germany on multi-layer restorations.

Mr. Michael Schreck CDT/MDT, Montréal

Sujet: Les mythes et la réalité des matériaux contemporains tout céramique

Synopsis:

Nous explorerons l'influence de l'opacité et des forces dans l'usage du disilicate de lithium, des crystaux de lucite ou de zirconium. La discussion portera sur le choix entre une restauration céramique monolithique ou hybride et son influence sur la taille. Nous ferons une comparaison des divers matériaux dans le but de rencontrer les attentes des patients et des cliniciens.

Objectifs:

1. Sélectionner les matériaux de restauration selon la structure crystalline des céramiques dentaires
2. Identifier les avantages et inconvénients de différents matériaux qui masquent les préparations décolorées
3. Améliorer la communication avec le laboratoire afin d'atteindre la couleur, l'esthétique et les résultats cliniques souhaités

Biographie:

M. Shreck fut promu en technique dentaire du Collège Edouard Montpetit en 1983. Depuis, il mène son propre laboratoire spécialisé en prothèses fixes en utilisant une technologie CAO de pointe. Il a étudié la photographie et le montage esthétique des restaurations de zirconium et a fait un apprentissage auprès d'un maître technicien en Allemagne en restaurations laminées.

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Dr. Pierre Boudrias, Montréal
Topic: Managing the esthetic zone in Implantology

Synopsis:
We will review certain basic rules and important steps in the fabrication of single and partial implant supported restorations in the anterior region. Special attention will be given to the initial evaluation and clinical sequence, types of restorations and occlusion.

Learning Objectives:
1. Pinpoint the risks involved in the planning of implant supported restorations in the anterior zone
2. Enumerate the indications for the fabrication of a temporary restoration
3. Identify the different materials used for anterior implant supported restorations

Biography:
Dr Boudrias is a graduate of the dental faculty at U de Montréal and holds a Certificate and Master of Prosthodontics from U of Washington, as well as a Fellow from the RCDC (Royal College of Dentists of Canada). He is professor at the U de Montréal dental faculty, teaching Fixed Prosthodontics and Implantology. He currently heads the Department of Restorative Dentistry and also has a private practice at U de Montréal.

Dr Pierre Boudrias, Montréal
Sujet: La gestion de la zone esthétique en Implantologie

Synopsis:
Cette conférence à caractère clinique revoit les règles de base et les étapes importantes dans la confection d'une restauration implanto-portée unitaire et partielle dans la région antérieure. Une attention particulière sera portée à l'évaluation initiale et à la séquence des étapes cliniques, des types de restaurations et de l'occlusion.

Objectifs:
1. Reconnaître les risques lors de l'élaboration d'un plan de traitement en Implantologie dans la zone antérieure
2. Énumérer les indications reliées à la fabrication d'une restauration temporaire
3. Identifier les différents matériaux pour restaurations implanto-portées antérieures

Biographie:
Dr Boudrias est diplômé de la Faculté de Médecine dentaire de l'Université de Montréal et détient un certificat et une maîtrise en Prosthodontie de U of Washington, ainsi qu'un Fellow du CRCDC (Collège royal des chirurgiens dentistes du Canada). Professeur titulaire à l'U de Montréal, Dr Boudrias prend part à l'enseignement en Prothèse partielle fixe et en Implantologie. Il est présentement Directeur du Département de Dentisterie de restauration et maintient une pratique privée à l'U de Montréal.

Dr. Michael Kaiser, Québec
Topic: The Canadian Military Dental Corps: how our military dentists serve you at home and abroad

Synopsis:
What started out almost 100 years ago as principally dental support to military land operations has evolved to a comprehensive dental capability support to CAF (Canadian Armed Forces) sea, land and air operations. The RCDC (Royal Canadian Dental Corps) has a dental care program that allows its patients to leave without worry of suffering from acute dental disease while deployed. We also deploy alongside them so that patients suffering trauma in the line of duty are afforded the latest in rehabilitative care.

Learning Objectives:
1. Ascertain that the RCDC provides modern dental care to Canadian Armed Forces members
2. Outline the history of RCDC support to the Canadian Armed Forces operations
3. Describe the scope of dental care the RCDC provides to eligible patients while on exercise or deployment

Biography:
Lieutenant Colonel Michael Kaiser enrolled in the CAF under the Dental Officer Training Plan in 1992. He has a DDS (96) from Dalhousie U as well as a MSc in Microbiology and Immunology, and a MA in Leadership from Royal Roads U. He has worked in, and commanded, medium and large, multi-specialty RCDC dental clinics. He is currently the CO of 5 Field Ambulance at Canadian Forces Base Valcartier, north of Québec City and maintains a part-time general practice.

Dr Michael Kaiser, Québec
Sujet: Le corps dentaire militaire canadien: comment les dentistes vous servent au pays et à l'étranger

Synopsis:
Ce qui avait débuté il y a presque 100 ans comme un soutien aux opérations militaires terrestres, a évolué en un service dentaire compréhensif auprès des opérations maritimes, terrestres et aériennes. Le CDRC (Corps dentaire royal canadien) mène un programme de soins dentaires qui permet à ses patients d'être déployés sans inquiétudes quant à leur santé buccale. Nous les accompagnons aussi, pour réhabiliter ceux qui subissent des traumatismes dans l'exercice de leurs fonctions.

Objectifs:
1. Constater les soins dentaires modernes qu'offre le CDRC aux membres des forces armées
2. Avoir une vue d'ensemble du soutien historique du CDRC dans les opérations des forces armées
3. Décrire l'étendue des soins dentaires offerts par le CDRC aux patients éligibles durant leurs fonctions ou déploiements

Biographie:
Lieutenant Colonel Michael Kaiser s'est enrôlé dans les forces armées en 1992 et a reçu son DDS quatre ans plus tard de Dalhousie U ainsi qu'un MSc en Microbiologie et Immunologie, suivis d'une Maîtrise en Leadership de Royal Roads U. Il a oeuvré avec, et commandé, des cliniques dentaires multi-disciplinaires, moyennes et grandes. Il est présentement commandant de la 5ième Ambulance à la base de Valcartier au nord de la ville de Québec et conserve une pratique générale à temps partiel.

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Dr. Stewart Shapiro, Montréal

Topic: Endo vs implants: revisiting the criteria for success with Endodontics

Synopsis:

A critical stage in treatment planning consists in evaluating a tooth's prognosis. If it is compromised, has a failing root canal, or requires a heroic effort to restore, then consideration must be given to an implant. Open and clear communication between patient and dentist when discussing treatment selection should include the dentist's own ability to tackle the options or refer the patient to a specialist. Financial consideration must also be taken into account.

Learning Objectives:

1. Dealing with cracked teeth
2. Knowing when to retreat
3. Where endodontic apical surgery relates to the implant question
4. When a temporary solution is the best solution

Biography:

Dr. Shapiro received his dental degree from McGill U and a post-graduate degree in Endodontics at State University of New York. He currently teaches Endodontics at McGill and lectures nationally and internationally. Dr. Shapiro also maintains a private group practice in Montréal.

Dr Stewart Shapiro, Montréal

Sujet: L'Endodontie vs les implants: revue des critères de succès en Endodontie

Synopsis:

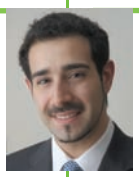
Une étape névralgique d'un plan de traitement se situe dans le pronostic de la dent. Si celle-ci est à risque, ou bien qu'elle a subi un traitement de canal qui l'aurait hypothéquée, ou qui nécessiterait des mesures restauratrices inhabituelles, alors il faut tenir compte de la possibilité d'un implant. Une communication franche entre patient et dentiste devrait inclure les capacités réelles de ce dernier pour bien mener l'intervention, ou alors référer le patient à un spécialiste. Les contraintes financières doivent aussi être envisagées.

Objectifs:

1. Venir à bout des dents fendues
2. Savoir quand ne pas intervenir
3. Lorsque la chirurgie apicale endodontique se rapporte à la question implantaire
4. Une solution temporaire est parfois la meilleure solution

Biographie:

Dr. Shapiro a obtenu son diplôme en dentisterie de McGill U ainsi qu'un diplôme d'études supérieures en Endodontie de State University de New York. Présentement, il enseigne l'Endodontie à McGill et donne des conférences à l'échelle nationale et internationale. Dr. Shapiro maintient aussi une pratique privée de groupe à Montréal.



Dr. Marc Shenouda, Montréal

Topic: 3D Imaging in dentistry and computer assisted implant planning

Synopsis:

We will review the principles of cone beam imaging technology and its indication in clinical practice, then demonstrate the applications of 3D imaging in virtual prosthetic and surgical treatment planning using guided implant surgery. Radiologic guide preparation as well as the different options for surgical navigation will be reviewed. We will outline the advantages and indications of computer assisted surgery and will also touch on integrating this powerful tool in a clinical setting.

Learning Objectives:

1. Recapitulate the principles of cone beam imaging techniques
2. Integrate virtual treatment planning software in complex Prosthodontics
3. Implement the use of computer guided implant surgery in a clinical context

Biography:

Dr. Shenouda received his DMD from U de Montréal in 2004 followed by a multidisciplinary residency. He continued with his graduate training in Oral and Maxillofacial Surgery at McGill U, graduating in 2009. As well as his private practice, Dr. Shenouda is Associate Director of the Oral and Maxillofacial Surgery department at the McGill U Health Centre. He is also assistant Professor in his specialty at the Faculty and has an active role in clinical teaching, as well as administrative responsibilities in the graduate Oral Surgery training program.

Dr Marc Shenouda, Montréal

Sujet: L'imagerie 3D en dentisterie et la planification numérique des implants

Synopsis:

Nous reverrons les principes de l'imagerie par faisceau conique et son rôle en clinique, puis démontrerons les applications de l'imagerie 3D dans les plans de traitements prothétiques et chirurgicaux virtuels à l'aide de la chirurgie implantaire guidée. La préparation du guide radiologique ainsi que les options de navigation chirurgicale seront discutées. Nous soulignerons les avantages et indications de la chirurgie assistée par ordinateur et son intégration dans un milieu clinique.

Objectifs:

1. Récapituler les principes de l'imagerie par faisceau conique
2. Intégrer un logiciel de plan de traitement virtuel pour les cas complexes en Prosthodontie
3. Incorporer la chirurgie implantaire assistée par ordinateur dans un contexte clinique

Biographie:

Dr Shenouda a reçu son DMD de l'U de Montréal en 2004 après quoi il poursuivit une résidence multidisciplinaire. Il a fait sa spécialité en Chirurgie orale et maxillofaciale à McGill qu'il termina en 2009. En plus de sa pratique privée, Dr Shenouda dirige le Département de Chirurgie buccale et maxillofaciale du centre universitaire de santé McGill. Il est aussi assistant professeur de sa spécialité à la Faculté et demeure actif en enseignement et au sein de l'administration du programme de deuxième cycle en Chirurgie buccale.

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Dr. Louis Drouin, Montréal
Topic: Periodontitis

Synopsis:
Peri-implant mucositis and peri-implantitis are common sights in our daily practices. Every clinician involved in Implantology should better understand their causes and when and how to prevent their occurrence. Most cases can be avoided and this presentation will show you how. Certain available treatment modalities will also be discussed.

Learning Objectives:
1. Compare peri-implant mucositis and peri-implantitis
2. Identify the risk factors associated with peri-implantitis
3. Analyse certain treatment modalities

Biography:
Dr Drouin received his DMD from McGill U followed by a multidisciplinary residency at Royal Victoria Hospital (RVH). In 1988, he earned his diploma in Periodontology from U of Toronto. He currently heads the Periodontology residency program at RVH. A Fellow of the International College of dentists and the American College of Dentists, he also has a private practice.

Dr Louis Drouin, Montréal
Sujet: La péri-implantite

Synopsis:
La mucosite péri-implantaire et la péri-implantite sont présentes dans nos pratiques quotidiennes. Bien comprendre, identifier les causes, mieux prévenir et savoir quand intervenir sont des connaissances de base que tout clinicien impliqué dans l'Implantologie doit maîtriser. La majorité des cas peuvent être prévenus et nous verrons les façons d'y parvenir en plus de certaines modalités de traitements disponibles.

Objectifs:
1. Comparer la mucosite péri-implantaire et la péri-implantite
2. Identifier les facteurs de risques associés à la péri-implantite
3. Analyser certaines modalités de traitement

Biographie:
Dr Drouin reçoit son DMD de McGill U pour ensuite faire une résidence multidisciplinaire à l'Hôpital Royal Victoria (RVH). En 1988, il obtient un diplôme en Parodontie de U of Toronto. Il est actuellement responsable de la Parodontie dans le programme de résidence multidisciplinaire à RVH. Il est Fellow de International College of Dentists et de American College of Dentists. Il mène aussi une pratique privée.

Dr. Alexandre Taché, Montréal
Topic: Saving periodontally risky teeth with Laser Assisted New Attachment Procedure (LANAP)

Synopsis:
The treatment of periodontitis using a laser is still controversial, but one must distinguish between the various lasers offered, the different application protocols as well as the desired results. This presentation on the nd:Yag laser and LANAP protocol will show its use in treating periodontitis.

Learning Objectives:
1. List the scientific proofs that lasers can treat periodontitis
2. Acquaint oneself with the nd : Yag laser
3. Explain de LANAP treatment protocol and the results of its use in the last four years

Biography:
Dr. Taché received his diploma in Dental Medicine from U de Montréal in 1998 followed by a multidisciplinary residency at Royal Victoria Hospital. He went on to obtain a Master in Periodontology at U of Toronto and was named Fellow of the Royal College of Dentists of Canada (RCDC) in 2003. Besides practicing Periodontics and Implantology, Dr Taché is also examiner for the RCDC.

Dr Alexandre Taché, Montréal
Sujet: Conserver les dents à risques parodontaux à l'aide de LANAP

Synopsis:
Le traitement de la parodontite à l'aide d'un laser reste à ce jour controversé, mais il faut distinguer entre les divers lasers disponibles, les différents protocoles d'utilisation et les résultats cliniques anticipés. Cette présentation sur le laser nd:Yag et le protocole LANAP vous permettra de comprendre son utilisation dans le traitement de la parodontite.

Objectifs:
1. Répertorier les évidences scientifiques nous permettant de croire au traitement de la parodontite à l'aide d'un laser
2. Se familiariser avec le laser nd:Yag
3. Expliquer le protocole de traitement LANAP et les résultats cliniques obtenus au cours des quatre dernières années

Biographie:
Dr Taché a obtenu son diplôme en médecine dentaire à l'U de Montréal en 1998 et a fait une résidence multidisciplinaire à l'Hôpital Royal Victoria en 1999. Il a ensuite fait une maîtrise en Parodontie à U of Toronto et est devenu Fellow du Collège royal des chirurgiens dentistes du Canada (CRCDC) en 2003. En plus d'exercer la Parodontie et l'Implantologie, il agit comme examinateur pour le CRCDC.

Scientific Meeting Speakers – Short Format Presentations
Conférenciers Programme Scientifique – Présentations abrégées
Saturday, September 20th – Samedi le 20 septembre

Dr. Dennis Nimchuk, Vancouver
Topic: Precision with ceramics: the new paradigm

Synopsis:
Porcelain fused to metal (PFM) restorations have reliably served the dental profession for over half a century, providing both strength and esthetics. However, the PFM systems have never been able to achieve the same occlusal precision as cast gold. Contemporary ceramic systems have finally evolved to deliver all three elements of an optimum restoration: strength, esthetics and precision.

Learning Objectives:
1. Recognize the desirability of occlusal precision
2. Determine why past ceramic systems failed
3. Ascertain the rationale for utilizing new ceramic systems for achieving occlusal precision

Biography:
Dr. Nimchuk is a Prosthodontist, an author and teaching clinician and has given over seven hundred presentations around the world. He has been an honorary sessional lecturer for the Faculty of Dentistry at UBC for over fifteen years. Dr. Nimchuk holds many titles and Fellows, including a position as Associate Editor of the Canadian Journal of Restorative Dentistry and Prosthodontics.

Dr Dennis Nimchuk, Vancouver
Sujet: La précision avec les céramiques: le nouveau paradigme

Synopsis:
Les restaurations de porcelaine fusionnée au métal ont bien servi notre profession pendant plus d'un demi siècle, offrant à la fois robustesse et esthétique. Or ces systèmes n'ont jamais pu atteindre la même précision occlusale que les restaurations coulées. Les nouveaux systèmes céramiques cependant offrent aujourd'hui les trois éléments essentiels pour une restauration optimisée: solidité, esthétique, précision.

Objectifs:
1. Reconnaître les avantages de la précision occlusale
2. Constater les raisons d'échecs des anciens systèmes de céramique
3. Rationaliser l'utilisation de nouveaux systèmes de céramique pour une meilleure précision occlusale

Biographie:
Dr. Nimchuk est un Prosthodontiste, un auteur et un clinicien enseignant et a donné plus de sept cents présentations à travers le monde. Depuis une quinzaine d'années, il est conférencier honoraire à la Faculté dentaire de UBC. Dr. Nimchuk est détenteur de nombreux titres et Fellows, incluant un poste comme rédacteur associé pour le Journal canadien de dentisterie restauratrice et de prosthodontie.

14 CE Credits will be issued for Friday and Saturday Scientific Meeting Attendance 3 CE Credits for Table Clinics

14 crédits d'ÉC seront donnés pour votre présence aux sessions scientifiques de vendredi et samedi 3 crédits pour les démonstrations cliniques

Traduction simultanée – Simultaneous Translation

POUR PLUS D'INFORMATION ET POUR S'INSCRIRE/FOR MORE INFORMATION AND REGISTRATION: WWW.CARDP.CA

Table Clinics / Démonstrations Cliniques

Saturday, September 20th, 2014 – 2:00 PM – 5:00 PM (3 CE Credits Issued) / Samedi le 20 septembre 2014, 14h00 – 17h00 (3 crédits EC)

ADA C·E·R·P® Continuing Education Recognition Program

Mr. Michael Schreck, CDT

Use of photography in obtaining optimal lab communication when matching discoloured anterior teeth

Synopsis:

The aim of this talk is to de-mystify dental ceramics in a clinical environment. How do opacity and strength influence the use of lithium disilicate, lucite crystals or zirconia? Why use a monolithic or hybrid all ceramic restoration and how will this influence prep design? We will focus on how one can use two different materials in order to achieve both patient and clinician expectations.

Learning Objectives:

1. Acquire notions of colour in the ceramic restoration
2. Grasp the role of preparation colour and depth in its effect on colour of the ceramic restoration
3. Use photography to communicate colour effectively

L'utilisation de la photographie afin d'optimiser la communication avec le laboratoire pour assortir la couleur des dents antérieures décolorées

Synopsis:

Cette présentation a pour but de démystifier la céramique dentaire en milieu clinique. Comment l'opacité et la force influencent-elles l'usage du dissilicate de lithium, des crystaux de lucite ou de zirconium? Pourquoi choisir entre une restauration céramique monolithique ou hybride et comment ce choix agit-il sur la taille?Nous verrons comment utiliser deux matériaux dans le but de rencontrer à la fois les attentes du patient et du clinicien.

Objectifs:

1. Acquérir les notions de couleurs dans les restaurations céramiques
2. Saisir l'importance de la couleur et de la profondeur de la préparation d'une restauration céramique
3. Recourir à la photographie pour communiquer les couleurs efficacement

Mr. Hiam Keren, CDT

Restoration through the use of prototypes: ensuring restorative predictability

Synopsis:

We will demonstrate prototypes for various restorative cases, from the single unit to long span bridges and discuss the advantages of prosthetic planning with a prototype in hand. The key to successful restorations is communication and collaboration between dentist and dental technician. Today's digital technologies and use of high performance ceramics allow for a very exact procedure, from prototype to the final, satisfactory restoration.

Learning Objectives:

1. Test a prototype and work with it
2. Use a prototype as a planning and communication tool
3. Relate digital processes to the production of a prototype and the final restoration

L'emploi de prototypes qui assurent la fiabilité des restaurations

Synopsis:

Nous démontrerons les prototypes de plusieurs cas de restaurations, qu'il s'agisse de cas unitaires ou multiples et discuterons des avantages de la planification avec les prototypes en main. Le succès d'une restauration dépend avant tout de la communication et de la collaboration entre dentiste et technicien dentaire. Les technologies numériques ainsi que les céramiques contemporaines permettent une très grande précision, du prototype jusqu'à la restauration finale.

Objectifs:

1. Mettre un prototype à l'essai
2. Utiliser un prototype comme outil de planification et de communication
3. Associer les processus numériques aux prototypes et restaurations finales

Table Clinics / Démonstrations Cliniques

Saturday, September 20th, 2014 – 2:00 PM – 5:00 PM (3 CE Credits Issued) / Samedi le 20 septembre 2014, 14h00 – 17h00 (3 crédits EC)

ADA C·E·R·P® Continuing Education Recognition Program

Dr. Geneviève Bonin

Computer-guided posterior maxillary and mandibular implant-supported reconstruction

Synopsis:

We will detail the steps, from surgical planning to the execution of a four-quadrant implant rehabilitation case and demonstrate how preoperative planning is as important as the surgical intervention itself. Marketing strategies based on virtual planning will also be presented in order to assist the dentist in gaining patient acceptance of the proposed implant rehabilitation.

Learning Objectives:

1. Determine when a CBCT-guided analysis can be of value in large reconstructive cases
2. Integrate information provided in CBCT into appropriate clinical decisions
3. Use CBCT imaging as a clear and concise discussion tool with your patients

La reconstruction implanto-portée numérique postérieure au maxillaire et à la mandibule

Synopsis:

Nous verrons en détails les étapes de planification jusqu'à son exécution, d'une réhabilitation implantaire des quatre quadrants et démontrerons ainsi que la planification est aussi importante que l'intervention même. Des stratégies de mise en marché basées sur la planification virtuelle seront aussi présentées afin d'assister le dentiste à faire accepter à un patient son plan de traitement.

Objectifs:

1. Évaluer le besoin d'une analyse guidée par CBCT dans les cas de réhabilitations importantes
2. Incorporer l'information fournie par CBCT dans la prise de décisions cliniques
3. Utiliser les images produites par CBCT comme outil de discussion avec le patient

Dr. Peter Walford

A new matrix for posterior resin restorations

Synopsis:

New resins and higher-output curing lights have raised the capability of materials in recent years. We will introduce the Bandbender system, a new circumferential custom-shaped matrix method, which opens the door to clinical success in a way that was not previously possible. Restorations of any size can be accomplished. A live demonstration will be performed.

Learning Objectives:

1. Observe the matrixing process with the Bandbender system
2. Identify three clinical problems that are overcome with this device
3. Enumerate three complementary clinical steps that ensure a long lifespan in resin restorations

Une nouvelle matrice pour les restaurations postérieures en résine

Synopsis:

Les nouvelles résines photopolymérisantes ont diversifié les applications des matériaux. Nous présenterons le système Bandbender, une matrice circonférencielle adaptable à la forme, qui permet des succès jadis impossibles puisque des restaurations de toutes tailles peuvent maintenant être réalisées. Une démonstration en temps réel sera exécutée.

Objectifs:

1. Observer la mise en forme de la matrice Bandbender
2. Identifier trois situations cliniques que ce système surmonte
3. Énumérer trois étapes cliniques complémentaires qui favorisent la survie à long terme des restaurations de résine

Traduction simultanée – Simultaneous Translation

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Table Clinics / Démonstrations Cliniques

Saturday, September 20th, 2014 – 2:00 PM – 5:00 PM (3 CE Credits Issued) / Samedi le 20 septembre 2014, 14h00 – 17h00 (3 crédits EC)

ADA C·E·R·P Continuing Education Recognition Program

Dr. Michael Kaiser

Royal Canadian Dental Corps: operational environment conditions

Synopsis:

The Royal Canadian Dental Corps (RCDC) provides dental service support to Canadian Armed Forces (CAF) operations around the world. The variety and severity of operational environments and their climatic extremes require robust equipment that can withstand the challenges. Moreover, RCDC personnel must undergo extensive pre-deployment training in general military skills as well as being clinically capable to deliver modern dental services in austere environments.

Learning Objectives:

1. Gain knowledge of the modern dental equipment the RCDC uses to support CAF operations
2. Acquaint oneself with the types of military and dental training that RCDC personnel undergo prior to deployment on CAF missions
3. Survey the numerous national and international CAF missions that have been supported by RCDC personnel

Corps dentaire royal canadien: les conditions environnementales d'opérations

Synopsis:

Le Corps dentaire royal canadien offre un service de support aux Forces armées canadiennes partout dans le monde. La diversité ainsi que l'inclémence extrême de certains environnements nécessitent des équipements robustes, capables d'affronter ces défis. De plus, notre personnel doit subir un entraînement pré déploiement de base et les aptitudes cliniques pour prodiguer des soins dentaires modernes dans des milieux austères.

Objectifs:

1. Connaître les équipements dentaires modernes utilisés dans les forces armées canadiennes
2. Se familiariser avec l'entraînement militaire et dentaire que le personnel du CDRC doit subir avant d'être déployé en mission
3. Faire un survol des missions nationales et internationales supportées par le personnel du CDRC

Dr. Patrick Girouard

May the Forces be with you, in your occlusion!

Synopsis:

Tekscan USA has developed the T-Scan, a revolutionary tool used to assess occlusal contacts like never before, revealing important information about time, sequence, relative forces and force vector. An overview of the system and a review of some clinical applications will introduce the dentist to this new perspective on dental occlusion.

Learning Objectives:

1. Become familiar with the T-Scan system
2. Perceive occlusion in terms of relative patterns, sequence, timing and force vector
3. Relate these concepts to clinical diagnosis and treatment. Protect teeth, implants and restorations from occlusal forces using T-Scan

Que les forces soient avec vous, et votre occlusion!

Synopsis:

Tekscan USA a développé le T-Scan, un outil révolutionnaire pour mesurer les contacts occlusaux, la séquence, les forces relatives et vectorales. Une vue d'ensemble du système et de quelques-unes de ses applications seront présentées.

Objectifs:

1. Se familiariser avec le système T-Scan
2. Percevoir l'occlusion en termes de distribution, séquences, synchronisation et vecteur de forces
3. Faire le lien entre ces concepts et le diagnostic et le traitement cliniques. Protéger les dents, les implants et les restaurations des forces occlusales avec le T-Scan

Dr. Mark McCullough

Advances in digital dentistry

Synopsis:

Intra-oral scanner data can be used to create a three-dimensional digital model of the coded abutment(s) in the patient's mouth. Abutment design can be optimized, and the interval between the impression making and delivery of the computer-milled titanium definitive restoration can be significantly compressed.

Learning Objectives:

1. Enumerate the benefits and limitations of intraoral scanning (IOS) with the Biomet 3I BellaTek® Encode® Impression System in terms of both patient management and economics
2. Compare the benefits and limitations of different IOS systems
3. Perform the clinical procedures associated with IOS

Les progrès en dentisterie numérique

Synopsis:

Les données fournies par balayage intra-oral peuvent être utilisées pour créer un modèle des piliers codifiés dans la bouche du patient. On peut optimiser le design et abréger l'écart entre la prise de l'impression et la restauration fabriquée par ordinateur en titane.

Objectifs:

1. Énumérer les avantages et limites du balayage intra-oral avec le système Biomet 3I BellaTek® Encode® Impression pour le patient et pour le coût
2. Comparer les avantages et limites de divers systèmes de balayage intra-oral
3. Exécuter les procédures associées au balayage

Pre-Meeting Social Activities / Activités pré-congrès et sociales

ADA C·E·R·P® Continuing Education Recognition Program

The Flavours of Montréal — For everyone

Thursday, September 18 (9:15 am - 3:30 pm)
Meet in Hotel lobby

Montréal's diversity in culture and food is second to none and this tour will allow you to discover our city's authentic sounds, smells and tastes. Starting in Old Montréal, going through Chinatown and ending in Little Italy, you will make several stops to enjoy some typical Montréal specialities among the smorgasbord of shops and eateries along lively Saint-Laurent Boulevard. We will also visit our open-air Jean-Talon Market, the biggest of its kind in North America and enjoy a delightful lunch in Little Italy before returning to our hotel.

$120 pp includes: Deluxe motorcoach transportation - Professional guide - Tastings and lunch - Taxes and gratuities

Dress: Warm Casual
Registrant_____ Guest_____

Welcome Dinner Buffet

Thursday, September 18 (6:00 pm - 10:00 pm)

To kick off our 22nd Scientific Meeting, join other registrants, guests and Meeting Sponsors for a dinner buffet serving a variety of regional dishes. This reception will be hosted in the Ville-Marie and Saint-Antoine rooms on the 9th floor of Le Westin Hotel.

Complimentary with registration

Dress Code – Business Casual

Exclusive Shopping in Montréal — For registrants and guests

Friday, September 19 (9:15 am – 2:30 pm)
Meet in the Lobby

From exclusive boutiques of haute couture to trendy, ready-to-wear shops, from eclectic notions to antique shops and elegant art galleries, from voluptuous furs to itsy-bitsy bikinis, Montréal has a huge concentration of stores. You will visit Harricana, owned by Mariouche Gagné, a Montréal designer who will show you how the fur business is thriving, followed by a look-see along jet-set Laurier Avenue that boasts some of the nicest shops. Finally, we will stop at Bonsecours Market where you will find original, top quality Québec creations in fashions, jewelry and design items.

Lunch will be served in a classic French restaurant before returning to the hotel.

$110 pp includes: Deluxe motorcoach transportation - Professional shopping guide - 3-course lunch - taxes and gratuities. Beverages are extra.

Dress: Warm casual
Registrant_____ Guest_____

Les saveurs de Montréal — Pour tous

JJeudi 18 septembre (09H15 – 15H30)
Rassemblement dans le foyer de l'hôtel

La diversité culturelle et gastronomique de Montréal est légendaire et cette tournée vous permettra de découvrir ses saveurs locales authentiques. Nous quitterons le Vieux Montréal pour traverser le Quartier chinois et terminer notre promenade dans la Petite Italie en faisant plusieurs arrêts en route. Vous pourrez alors apprécier la panoplie de boutiques et de restauration spécialisées du Boulevard Saint-Laurent pour ensuite visiter le Marché Jean-Talon, le plus grand marché extérieur de son genre en Amérique du nord. Un savoureux repas dans la Petite Italie agrémentera la fin de votre visite avant de rentrer à l'hôtel.

120$ pp inclut: Transport par autocar de luxe - Guide professionnel – Dégustations et repas du midi – Taxes et pourboires

Tenue: Décontractée et chaude
Participant inscrit_____ Invité_____

Buffet de bienvenue

JJeudi 18 septembre (18H00 – 22H00)

Pour démarrer ce 22ième congrès, venez rencontrer collègues, invités et commanditaires pour un délicieux buffet de plats régionaux. Cette réception aura lieu au 9ième étage du Westin dans les salles Ville-Marie et Saint-Antoine.

À titre gracieux pour participants inscrits et invités

Tenue: De ville

Lèche-vitrine à Montréal — Activité pour partenaires/ invités

Vendredi 19 septembre (09H15 – 14H30)
Rassemblement dans le foyer de l'hôtel

De la haute-couture au prêt-à-porter, des antiquaires au galleries d'art, de la pelleterie jusqu'au minuscule bikini, Montréal vous offre une vaste gamme de magasins. Nous visiterons Harricana, où la créatrice, Mariouche Gagné, démontrera le nouvel essor de l'industrie de la fourrure, pour ensuite déambuler sur l'Avenue Laurier, débordant de belles boutiques. Nous nous arrêterons aussi au Marché Bonsecours où vous pourrez dénicher des trouvailles québécoises originales en matière de modes, bijoux et objets inédits

Avant notre rentrée à l'hôtel, le déjeuner sera servi dans un restaurant français.

110$ pp inclut: Transport par autocar deluxe - Guide professionnel - Repas 3 services – Taxes et pourboires. Breuvages en sus.

Tenue: Décontractée et chaude
Participant inscrit_____ Invité_____

Pre-Meeting Social Activities / Activités pré-congrès et sociales

ADA C·E·R·P Continuing Education Recognition Program

Evening Group Dinner at Beatrice/Bice Restaurant

Friday, September 19 (6:15 pm - 9:30 pm)
Meet in Hotel lobby

For those who love to eat, laugh and indulge, come share the passion for life's greatest pleasure: food. Executive Chef Adele Forgione masterminds events, designing them with flair and, inspired by her vast experience, preparing uniquely appetizing dishes, while keeping to her traditional Italian roots. Food brings people together to celebrate life and love… and you can never have too much of that!

$150 pp includes: Deluxe transportation - 3-course dinner - Entertainment - Taxes and gratuities. Beverages are extra.

Dress Code – Business Casual

Dîner en groupe du vendredi soir Chez Beatrice/Bice

Vendredi 19 septembre (18H15)
Rassemblement dans le foyer de l'hôtel

Pour les becs fins, et en toute convivialité, venez partager cette grande passion qu'est la gastronomie. Forte de sa riche expérience, Chef Adele Forgione planifiera et concoctera pour nous des plats uniques et appétissants, tout en respectant ses souches italiennes traditionnelles. La bonne chère nous unit pour célébrer la vie et l'amour. Existe-t-il meilleur prétexte?

150$ pp inclut: Transport deluxe – Dîner 3 services – Divertissement – Taxes et pourboires. Breuvages en sus

Tenue: De ville

Some dining recommendations:

Montréal offers fantastic restaurants. Here are some you might like to try when in town. Reservations are a must, well in advance.

Moishes www.moishes.ca
One of the oldest and respected Steak Houses

Toqué! www.restaurant-toque.com
Fresh market cuisine

Restaurant l'Express www.restaurantlexpress.ca
Classic French Bistro

Milos www.milos.ca
Greek culinary tradition

Le Latini www.lelatini.ca
Italian

Joe Beef - Liverpool House www.joebeef.ca
Steak and Seafood

Restaurant Garde Manger www.crownsalts.com/gardemanger
French

Au Pied de Cochon www.restaurantaupieddecochon.ca
French Canadian. Fois gras to die for!

Ryu www.ryumtl.com
Japanese dining and Sushi bar

Restaurant Laloux www.laloux.com
French Bistro

Restaurant Nora Gray www.noragray.com
Italian

Restaurant Rumi www.restaurantrumi.com
Middle Eastern and Turkish

Quelques recommandations de restaurants

Montréal propose d'excellentes tables. Voici quelques établissements que vous aimeriez peut-être essayer. Les réservations sont nécessaires, bien à l'avance.

Moishes www.moishes.ca
Pour les steaks, une maison qui a fait ses preuves

Toqué! www.restaurant-toque.com
Cuisine du marché

Restaurant l'Express www.restaurantlexpress.ca
Bistro français typique

Milos www.milos.ca
Cuisine traditionnelle grèque

Le Latini www.lelatini.ca
Italien

Joe Beef - Liverpool House www.joebeef.ca
Steaks et fruits de mer

Restaurant Garde Manger www.crownsalts.com/gardemanger
Français

Au Pied de Cochon www.restaurantaupieddecochon.ca
Canadien français. Le meilleur fois gras!

Ryu www.ryumtl.com
Cuisine japonaise et bar à sushi

Restaurant Laloux www.laloux.com
Bistro français

Restaurant Nora Gray www.noragray.com
Italien

Restaurant Rumi www.restaurantrumi.com
Turquie et Moyen-Orient

Pre-Meeting Social Activities / Activités pré-congrès et sociales

ADA C·E·R·P® Continuing Education Recognition Program

High Tea at the Queen Elizabeth Hotel — Activity for partners/guests

900 René-Lévesque Blvd. W.

Saturday, September 20 (2:15 pm - 4:30 pm)
Meet in Hotel lobby

HISTORY OF HIGH TEA
The Duchess of Bedford (1783 – 1857) is credited for creating Afternoon Tea. Because she felt a "sinking feeling" each afternoon, she invited friends to join her for a bite to eat around five o'clock. The menu centered around small cakes, bread and butter sandwiches, assorted sweets, and, of course, tea. This practice was quickly picked up by other social hostesses.

English afternoon tea is best accompanied by a flute of Orpailleur Brut, including your choice of tea served in fine bone china, with scones, finger sandwiches and mini pastries displayed on a three-tiered stand.

$50 pp includes: Walking guide - Elaborate High Tea service with one glass of bubbly - taxes and gratuities. Other beverages are extra.

Dress: Smart Casual – Hats optional
Registrant_____ Guest_____

CARDP PRESIDENT'S GALA

Saturday, September 20 (6:30 pm – 12:30 am)

Le Westin Montréal - Fortifications Ballroom 9th Floor

Please join our CARDP President for this 22nd Gala champagne reception on the Deck of the Fortifications Ballroom for a breath of fresh air. Then we'll feast on a marvellous dinner, followed by tripping the light fantastic to La Gioventu, who perform music from the 50s onward. You will enjoy their varied, big-sound entertainment.

La Gioventu orchestra started in 1979 and its members are professional studio musicians with international experience. Their strong vocal qualities and elaborate musical talents have allowed them to work with top musicians around the world.

$195 pp includes: Taxes and gratuities

Dress: Black Tie Optional
Registrant_____ Guest_____

High Tea à l'hôtel Reine Élizabeth — Activité pour partenaires/invités

900, boul. René-Lévesque ouest

Samedi 20 septembre (14H15 – 16H30)
Rassemblement dans le foyer de l'hôtel

L'HISTOIRE DU HIGH TEA
La duchesse de Bedford (1783 – 1857) semble avoir créé la tradition du thé. Chaque après-midi, ayant envie d'une fringale, elle invita des amies à se joindre à elle pour un goûter vers 17 heures. Le menu consistait de petit- fours, de sandwichs délicats, de sucreries et, bien sûr, de thé. Cette pratique fut vite adoptée par les autres hôtesses de la haute société.

Dans le respect des grandes traditions anglaises, vous accompagnerez votre dégustation d'une flûte d'Orpailleur Brut, en plus du thé de votre choix, des scones, des petits sandwichs et pâtisseries, présentés dans des assiettes superposées

50$ pp inclut: Guide piétonnier - Service élaboré incluant une coupe de mousseux - Taxes et pourboires. Autres breuvages en sus

Tenue: De ville – Le port du chapeau est discrétionnaire
Partenaire/Invité_____

Gala du Président

Samedi 20 septembre (18H30 – 00H30)

Le Westin Montréal – Salle de bal Fortifications 9ième étage

Le Président de l'ACDRP vous invite à cette 22ième soirée gala où l'on prendra le champagne sur la terrasse extérieure de la salle de bal. Après un merveilleux repas, vous pourrez danser à la musique de La Gioventu, qui interprétera les airs populaires des années 50 jusqu'à aujourd'hui. La qualité de leur prestation vous enchantera.

La Gioventu a connu ses débuts en 1979 et tous les membres de l'orchestre sont des musiciens professionnels ayant une expérience internationale. Leurs talents, musical et vocal, leur ont permis de s'exécuter avec des artistes de renommée partout dans le monde.

195$ pp inclut: Taxes et pourboires

Tenue: De soirée
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Call for Papers

CARDP's Executive Board has concluded a publishing agreement with Palmeri Publishing Inc. The Academy's Journal (**CJRDP**/**JCDRP**) is published four times a year since 2008 with a circulation of 7,000. The 2014 Journal Production Schedule is accessible at http://www.cardp.ca/sitedocs/2014%20CJRDP%20Production%20Schedule.pdf
Scientific articles are Peer Reviewed. The Journal welcomes article contributions from its members, guest dentists and dental technologists as well as the dental Industry.

Editor-in-chief: Dr. Hubert Gaucher

Associate Editors: Drs. Maureen Andrea, Emo Rajczak and Dennis Nimchuk

Section Editors: Drs. Kim Parlett, Ian Tester, Ron Zokol, Yvan Fortin, Paresh Shah, Izchak Barzilay, Peter Walford, Allan Coopersmith and Mr. Paul Rotsaert

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I – Scientific Articles: (Original Research Studies, Reviews, Case Reports): Please refer to these "Instructions to Authors" for details. www.cardp.ca/sitedocs/CJRDP-Guidelines-PPI-PR1.pdf%2002-12.pdf

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IV – Dental Student Award Fund: Financial contributions to this fund will recognize a dental student in Canada, who will receive a $500 award for the best published article of the year.

V – Industry News and Product Profile Articles: New dental products, technologies and Industry services are presented to readers using articles that originate from the Industry and that are identified as such. This information is contained in the above "Instructions to Authors" and in the following Journal Media Kit: http://www.cardp.ca/sitedocs/MediaKit-2014-email.pdf

If you have comments or suggestions about submissions or would like to become more involved with the Journal, please contact the Editor-in-Chief:

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Demande de communications

L'ACDRP a conclu une entente de publication avec Palmeri Publishing Inc. Le journal de l'Académie (**CJRDP**/**JCDRP**) est publié depuis 2008 et a une circulation de 7 000 exemplaires. Il y a quatre parutions par année. La cédule de production 2014 du Journal est accessible à http://www.cardp.ca/sitedocs/2014%20CJRDP%20Production%20Schedule.pdf
Les articles scientifiques font l'objet d'une revue par des pairs. Le Journal accueille des articles de ses membres, de dentistes et prothésistes dentaires invités ainsi que de l'Industrie dentaire.

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Rédacteurs associés: Drs Maureen Andrea, Emo Rajczak et Dennis Nimchuk

Rédacteurs de sections: Drs Kim Parlett, Ron Zokol, Yvan Fortin, Paresh Shah, Izchak Barzilay, Peter Walford, Allan Coopersmith et M. Paul Rotsaert

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II – Nouvelles des membres: S.V.P. nous envoyer toute information pertinente à la profession.

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Si vous avez des commentaires ou des suggestions ou si vous désirez vous impliquer davantage dans notre Journal, veuillez communiquer avec le Rédacteur en chef:

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