

today



C.E. in 3-D (arrive early to get your glasses)

Friday: Dr. Samson Ng has new 3-D imagery that will greatly enhance your knowledge of oral lesions.

»page 4



RCDC celebrates centennial

The Royal Canadian Dental Corps is here at the PDC with educational sessions and an Exhibit Hall booth.

»page 6



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»page 22

A Shore Thing



The white sails of Canada Place and the turf-roofed Vancouver Convention Centre next door, home of the Pacific Dental Conference. (Photo/Robert Selleck, today managing editor)

Guaranteed return: Next three days on Vancouver Harbour promise high-value dividends for all

With more than 150 presenters delivering 141 open sessions and hands-on courses on a wide variety of topics, the days ahead here at the Pacific Dental Conference are packed with big pay-off opportunities for every member of the dental team.

But the value doesn't end with the continuing education. There's also plenty to be gained exploring what meeting organizers describe as "the largest two-day dental trade show in Canada." The Vancouver Convention Centre Exhibit Hall provides the first opportunity of the year for many

*see RETURN, page 2

Five 'Live Dentistry' sessions scheduled

Two full days of sessions on the 'Live Dentistry Stage' in the Exhibit Hall

The Live Dentistry Stage is back on the Exhibit Hall floor, with demonstrations using real patients throughout the day on Thursday and Friday, March 5 and 6.

Today

At 11 a.m. today, Mark Kwon, DMD, FICOI, and Bernard Jin, DMD, will present "Immediate Anterior Implant Solution Using Total Digital Technology," cosponsored by Hiossen Implant Canada Inc. At 2:30 p.m., Shannon Pace Brinker, CDA, CDD, will present "Whitening Techniques."

Friday, March 6

At 8:30 a.m. on Friday, Peter Walford, DDS, will present "Multisurface Composite Restorations – A New Matrix and Other Key Success Determinants." At 11:30 a.m., Elliott Mechanic, DDS, will present "The Single Crown Simplified," cosponsored by the Canadian Academy for Esthetic Dentistry. At 2:30 p.m., Glenn van As, DMD, will present "Lasers and Dental Implants," cosponsored by Hiossen Implant Canada Inc.

Check for schedule updates

Pacific Dental Conference organizers

ask attendees to take note that demonstration times on the Live Dentistry Stage may be subject to change. Consult the PDC app or "Conference at a Glance" for the most up-to-date scheduling.

The Live Dentistry Stage is sponsored by A-dec and Sinclair Dental.

Two-day Exhibit Hall

The Exhibit Hall is at capacity, with more than 600 booths occupied by more than 300 companies. Hours are 8:30 a.m. to 5:30 p.m. both today and Friday.

*see EXHIBITORS, page 2

PDC mobile app
Scan the QR code to access the app, or search your app store for 'Pacific Dental Conference.'

RETURN *from page 1*

dental professionals in Canada to see the profession's latest equipment and advancements.

Perhaps nowhere is that better illustrated than on the Exhibit Hall's "Live Dentistry Stage," which features innovative tools, products and techniques demonstrated on real patients in real time, with expert clinicians narrating every step as they work.

Just as engaging, you will be able to examine countless products and services from more than 300 exhibiting companies who are represented here by their key principals and top experts — each ready to visit with attendees to discuss how their offerings might help you achieve your specific, individual goals for this year and beyond.

Exhibit Hall hours are from 8:30 a.m. - 5:30 p.m. today and tomorrow.

'So you think you can speak?'

The 'So You Think You Can Speak?' series is back for its sixth year. It features 14 50-minute presentations on Saturday by speakers who responded to the call for presentations and were accepted by the PDC scientific committee. A number of compelling dentistry topics will be covered.

Dental Specialists Society of British Columbia

The Dental Specialists Society of British Columbia (DSSBC) was founded in 1987 with a mandate to: improve public awareness of dental specialists and the services they provide; enhance oral health care for the public; promote high standards of excellence for specialists in the province; and provide fellow health professionals and the public with a directory of certified dental specialists.

PDC organizers welcome the following six specialists, who will be presenting at the PDC on behalf of



• The hands-on experience isn't limited to the classroom, as shown by these 'try-it-before-you-buy-it' attendees in the Exhibit Hall at the 2014 Pacific Dental Conference. (Photo/Provided by Pacific Dental Conference)

the DSSBC on Friday, March 6: Joel Fransen, "Modern Endodontics Saving More Teeth More Often"; Alec Cheng, "Prosthodontic Management of Implant Complications"; Richard Chau, "Growing Bone with rhBMP-2"; Todd Moore, "Removable Orthodontic Appliance Treatment in the Early Mixed Dentition"; Michelle Lee, "Periodontal Regeneration: Why Not Save Teeth?" and Reza Nouri, "Clinical Pearls in Pediatric Dentistry." Moderating the program will be Ray Grewal.

Wine, comedy and a gala affair

The fun side of the meeting begins tonight with the popular "Life is Too Short to Drink Bad Wine" tasting event. Attendees will feel like they're on a European journey with a "Tribute to France," which will provide a whirlwind introduction to the many styles and types of wine the viniferous country has to offer.

New for the 2015 conference is the "Friday Comedy Night," featuring Dave

Hemstad. The evening features pizza and a beverage followed by an hour of comedy presented by one of Canada's finest stand-up comedians.

On Saturday, the conference wraps up with the "15th Annual Toothfairy Gala and BC Dental Association Awards," which is described by meeting organizers as "the dental event of the year." During the night of fun and whimsy, ticket-holders can hobnob with the Toothfairy herself, while supporting the BCDA's distinguished list of award recipients and the region's "Save a Smile" program.

Explore Vancouver

After the conference, be sure to enjoy a day or two to relax and revitalize by exploring some of Vancouver's tourist attractions. The ocean is just steps from the Vancouver Convention Centre, providing the opportunity to take a brisk walk or cycle of the seawall around Stanley Park, which has great views of the majestic mountains.

EXHIBITORS *from page 1***Lunch, receptions in Exhibit Hall**

A complimentary lunch is served in the Exhibit Hall. Just follow the directions from convention center staff and find the lunch-area signs leading to one of the three lounge areas. The complimentary lunch, from 11 a.m. to 12:30 p.m., is not available to those with an "exhibits-only" registration.

Exhibit Hall receptions on both days that the Exhibit Hall is open (today and Friday) will feature beer and wine refreshments at stations located throughout the exhibit floor. Your badge entitles you to two free drinks.

The receptions will be from 4 to 5:15 p.m. Like the lunch, the late-afternoon receptions' complimentary components are not available to those with an "exhibits-only" registration.

Conference centre and beyond

This year, the conference venues include Vancouver Convention Centre — West Building and East Building and the Fairmont Pacific Rim Hotel.

(Source: Pacific Dental Conference)



• The Live Dentistry Stage is back on the Exhibit Hall floor's west side, with demonstrations using real patients at 11 a.m. and 2 p.m. today and at 8:30 a.m., 11 a.m. and 2:30 p.m. Friday. (Photo/Provided by the Pacific Dental Conference)

today About the Publisher

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*Brinker, S. (2015, January). HIPAA compliance and digital photography with personal mobile devices. *Dental Products Report*, 76-80.



SHOFU 2015

Clinician monitors oral lesions in 3-D

By Robert Selleck *today* staff

■ Samson Ng, DMD, brings his stunning 3-D photography back to the Pacific Dental Conference this year after sharing some of the images from his extensive collection for the first time at last year's conference.

Dental Tribune Canada checked in with Ng for an update on his use of 3-D photography to monitor patients' oral lesions and help fellow practitioners become more skilled at recognizing lesions that need immediate attention or close monitoring.

Last year's sessions filled quickly, and this year's sessions are expected to generate even more interest. The presentation is divided into two parts: Dr. Charles Shuler, dean and professor at the UBC Faculty of Dentistry, will open with an overview on how to approach clinical differential diagnosis of oral lesions. Then, in part two, Ng will project large-screen 3-D images of some of his clinical cases to demonstrate the application of differential diagnosis.

The 3-D portion of the session can run only so long — just like 3-D Hollywood films — to ensure attendees don't experience motion sickness.

Should people who attended last year step aside and let others attend, or are there good reasons to return?

Eighty percent of the 3-D slides are brand new. They capture the cases that I came across over the past year. I've also added cases using 3-D imaging with cone-beam CT scans to enhance radiographic interpretation skills. It was quite amazing that even the CBCT company didn't realize we could do 3-D projection of CBCT images. I also have included 3-D images from intraoral scanning.

Has your photography technique continued to evolve?

The core concept remains the same, as the principles behind 3-D image capturing haven't really changed. Because the digital cone-beam CT scan is becoming more utilized in dentistry, I expand on this topic in the presentation.

Have you been able to make 3-D presentations at other meetings or incorporate 3-D presentations into the university classroom settings?

So far, PDC remains the only venue where I use 3-D. But in May this year,

I will use this learning style when I present at the California Dental Association meeting in Anaheim (but not at a 3-D venue in Disneyland!). 3-D presentations are quiet challenging in a

university classroom setting because of the steep equipment costs. Additionally, preparing 3-D presentation is

*see 3-D, page 6

Here at the PDC

"How Much Do I Know About Lumps and Bumps in the Mouth?" is Friday from 8:30 to 11 a.m., repeating from 1:30-4 p.m., both in Ballroom B in the Vancouver Convention Centre East Building (not West). Seating is limited. You get 3-D glasses at the door.



• Dr. Samson Ng

Samson Ng, BSc, DMD, MSc, FRCD(C), FDSRCSEd, Dip. ABOM, Dip. ABOMP, is a certified specialist in oral medicine and pathology. He is a clinical assistant professor at the University of British Columbia Faculty of Dentistry and the regional practice leader in the program of oral oncology/dentistry at the British Columbia Cancer Agency. He has private practices in Vancouver and Abbotsford.



• Dr. Charles Shuler

Charles Shuler, DMD, PhD, is dean and professor at the UBC Faculty of Dentistry. His BS is from the University of Wisconsin, DMD from Harvard School of Dental Medicine, PhD from the University of Chicago, and his Oral Pathology is from the University of Minnesota and Royal Dental College Copenhagen. His research interests include craniofacial development, oral carcinogenesis, oral medicine and gene therapy.

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Royal Canadian Dental Corps celebrates centennial

RCDC represented at PDC with educational sessions, Exhibit Hall booth

■ In recognition of this year's 100th anniversary of the Royal Canadian Dental Corps (RCDC), the 2015 Pacific Dental Conference includes two presentations by military dental personnel. Both topics should be of interest to a diverse civilian audience of dental professionals.

Lt. Col. Genevieve Bussière will speak on "Military Forensic Identification Operations," and Maj. Sandeep Dhesi will speak on "Operational Oral and Maxillofacial Trauma Care."

Additionally, the RCDC will have a booth (No. 1351) in the Exhibit Hall, where visitors can view a multimedia presentation highlighting various aspects of the RCDC's 100 years of service.



WWI Canadian dentist and patients. (Photo/ Provided by the George Metcalf Archival Collection, © Canadian War Museum)

Canada's military dental services have served in both world wars and peace-keeping, humanitarian and forensic operations while looking after the oral health needs of all of Canada's troops.

Here at the PDC

Learn about the Royal Canadian Dental Corps in booth No. 1351 in the Exhibit Hall.

Attend today's session

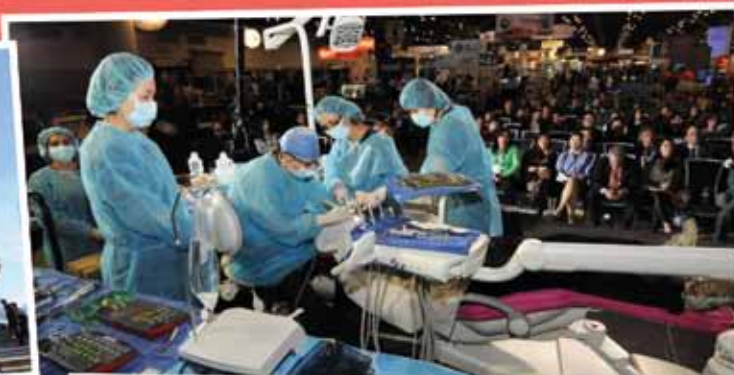
Lt. Col. Genevieve Bussière presents "Military Forensic Identification Operations" today from 1:30-2:45 p.m. in VCC West, Room 212-214. The session repeats on Friday from 1:30-2:45 p.m. in VCC West, Room 205-207.

Maj. Sandeep Dhesi presents "Operational Oral and Maxillofacial Trauma Care" today from 2:45-4 p.m. in VCC West, Room 212-214. The session repeats on Friday from 2:45-4 p.m. in VCC West, Room 205-207.

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3-D ^{from page 4}

time consuming. Each 3-D slide takes on average of 10 minutes to create in the "dark-room" digital processing and rendering. I actually spend much of the winter holidays preparing the slides.

Will you be using the same projection system as you used at PDC last year?

The system should be the same. We choose to use movie-theatre grade equipment, which means we essentially bring the "Cineplex" to the conference center. The projection is high resolution (but not 4K yet). I hope the size of room is such that we can enable even more people to attend.

Have you had the opportunity to view your images through virtual reality glasses, such as the Zeiss Cinemizer OLED 3D glasses?

As a matter of fact, this is my next projection project. I am already using VR (virtual reality) glasses to test out the images. I think such glasses would be a good alternative for small-group learning.

Are you still experimenting with 3-D photography with tissue-fluorescence technology? Any advancements there in clinical-setting technique?

No success yet for 3-D. But I have been working closely with tissue-fluorescence group to work on a picture capture device and workflow so that any clinician should be able to take pictures with one hand. I suspect once I twist such a system even more, I will be able to take 3-D tissue-fluorescence images with one hand as well (so patients do not have to experience any sort of extra set-up time).

Are you being approached by fellow clinicians interested in duplicating your use of 3-D photography to monitor patients' lesions?

There are indeed a few clinicians out there who are interested, but once they find out how much time and effort is needed – as well as how much equipment, computer hardware and software is needed – they tend to bail out.

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PIPS with laser-activated irrigation

Photoacoustic shockwave with irrigant debrides areas of root canal files can't reach

By Enrico Divito, DDS

Successful endodontic treatment depends upon maximal debridement and disinfection of the entire root canal system. The root canal system must be shaped to a convenience form that permits adequate cleaning and disinfection by elimination of microbes.¹

The literature is clear that as much as 35 percent or more of the root canal system remains untouched by any instrumentation technique. Essentially no filing technique allows instruments to sculpt all canal walls and remove infected dentin.² To decrease the bacterial load and achieve better debridement, irrigation protocols are used prior to obturation.

The efficacy of the irrigants to decontaminate canal walls has seen significant improvements recently. Both negative and positive apical pressure irrigation techniques have been surpassed by ultrasonically activated irrigants, photo-activated disinfection and laser-activated irrigants in their ability to improve cleanliness of the canal system.^{3,4}

In particular, the Er:YAG (Lightwalker Er:YAG& Nd:YAG dental laser, National Dental Inc., Barrie, Ontario) has shown to be effective at removing debris and the smear layer from canal walls.^{3,4} A final application of the Er:YAG laser to the sodium hypochlorite already present within the canal, after standardized instrumentation, can result in improved cleaning of the canal walls with a higher quantity of open tubules (Fig. 1) in comparison to results without the use of the laser.^{3,4}

A new application of Laser-Activated Irrigation (LAI) has been recently introduced. Photon Induced Photoacoustic Streaming (PIPS™) uses an Erbium 2,940 laser to pulse extremely low energy levels of laser light to generate a photoacoustic shockwave, which streams irrigants throughout the entire root canal system.⁵

Using extremely short bursts of peak power, laser energy is directed down into the canal and the action actively pumps the tissue debris out of the canals while cleaning, disinfecting and sterilizing each main canal, lateral canals, dentinal tubules and canal anastomoses to the apex. This movement of irrigant is achieved without the need to place the radial and stripped laser tip (PIPS tip, Fig. 2) into the canal itself, as with other conventional hand and ultrasonic systems.

The tip is held stationary in the coronal aspect of the access preparation only. With the irrigant occupying the entire root canal system, the shock wave created by PIPS travels in all directions during activation and effectively debrides and removes organic tissue remnants. Through this laser-activated turbulent flow phenomenon, clinicians following the PIPS protocol are not required to place the tip into each canal, thus eliminating the need to enlarge and remove

Here at the PDC

Learn more about the Lightwalker Er:YAG& Nd:YAG dental laser in the National Dental Inc. (SharperPractice) booth, No. 1229.

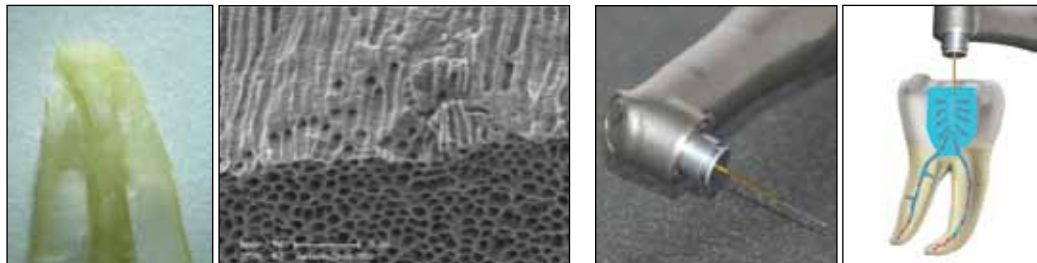


Fig. 1: Left, apical third of root treated with PIPS. Note clean surfaces without any thermal damage. Right, SEM of apical third showing extremely clean dentin tubules post PIPS with no sign of thermal damage. (Photos/Provided by Enrico Divito, DDS)

more tooth structure to deliver standard needle irrigation to the smaller and more delicate apical anatomy, commonly seen in the apical one third. The results are canal convenience forms that are more conservative, minimally invasive and biomimetic (Fig. 3), preventing the unnecessary removal of tooth structure.

Unlike other laser-activated irrigant techniques, PIPS is not a thermal event, rather subablative. Properly executed, PIPS creates turbulent photoacoustic agitation of irrigants that move fluids three dimensionally throughout the root canal system even as far as the apical terminus, distant from the radial stripped tip location. By activating the tip in the access cavity and outside the root canal system, the extremely low energy needed to activate the unique PIPS tip (20 mJs or less) is below the threshold of ablation for dentin. Ledging and thermal effects that have plagued the widespread use of other laser systems is completely avoided at the energy levels used by the PIPS technique.^{5,6}

Recent testing, performed at the University of Tennessee by Dr. Adam Lloyd, chairman of the department for endodontics, objectively confirmed the improved cleaning and debridement of organic and inorganic tissue left by instrumentation. Microcomputed tomography scans were used to assess before and after volumetric change in the internal intaglio of lower first molars treated with PIPS protocol (Fig. 4). Sequential slicing beginning at 6 mm from the apex and moving down to the last 2 mm demonstrated that all slice images showed significant improvements after PIPS.

The importance of these findings is far reaching. PIPS now offers the dentist a less technique-sensitive, minimally invasive and time-reducing method for irrigating and preparing endodontic root canal systems. Because PIPS has demonstrated its ability to decontaminate and debride areas that files and instrumentation cannot reach, success rates rise and retreatment for past failures is possible.⁷

PIPS is also helpful in locating and helping negotiate calcified canals. PIPS is a valuable additional tool in the treatment of endodontics regardless of the shaping and obturation system used.

Laser technology used in endodontics during the past 20 years has undergone an important evolution. Research in recent years has been directed toward producing laser technologies (such as impulses of reduced length, radial-firing and stripped tips) and techniques (such as LAI and PIPS) that are able to simplify laser use in endodontics and minimize the undesir-

able thermal effects on the dentinal walls, using lower energies in the presence of chemical irrigants. EDTA has proved to be the best solution for the LAI technique that activates the liquid and enhances its cleaning of the smear layer. The use of a laser (PIPS) to activate sodium hypochlorite increases its antimicrobial activity.

Finally, using the correct protocol, the PIPS technique reduces the thermal effects and exerts both a stronger cleaning and bactericidal action, because of its streaming of fluids initiated by the photonic energy of the laser. Further studies are currently underway to validate LAI and PIPS technique as innovative technologies in modern endodontics.

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Editor's note: See related case study on page 10

Fig. 2: Left, close-up of tapered and stripped PIPS tip used for laser-activated irrigation. Right, position of the laser tip in the PIPS technique: steady in the pulp chamber and does not enter canal.



Fig. 3: Left, pre-treatment. Right, post-treatment obturation after PIPS. Tooth instrumented to a #25/06 taper. Note the conservative convenience form maintaining more original anatomy of root canal system and reducing the need to use larger file sizes conserving more dentin tooth structure.

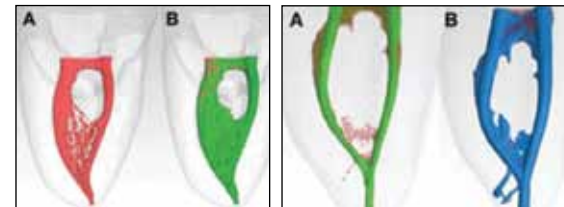


Fig. 4: Left, mandibular molar canal system showing isthmus before (A, red canal) PIPS laser-activated irrigation. Areas of organic tissue and debris from instrumentation have been completely eliminated, as highlighted by post-PIPS image (B, green canal). Right, mandibular molar with canal preparation to a size 30/.04 (A, green canal) obturated with nano-particle BC Sealer (Brasseler USA, Savannah, Ga.) and single cone obturation (B, blue).

About the author



Dr. Enrico Divito formed his dental practice in 1980 in Scottsdale, Ariz. In 2004, he formed the Arizona Center for Laser Dentistry. He is the founder and director of the state-accredited Arizona School of Dental Assisting (ASDA). In addition to teaching at ASDA, Divito is also a clinical professor at the Arizona School of Dentistry and Oral Health and is helping to create its department of laser dentistry. He earned his undergraduate degree from Arizona State University in 1980 and is a graduate of the University of the Pacific, Arthur A. Dugoni School of Dentistry with honors, receiving several clinical excellence awards. He can be reached at edivito@azcld.com.

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