

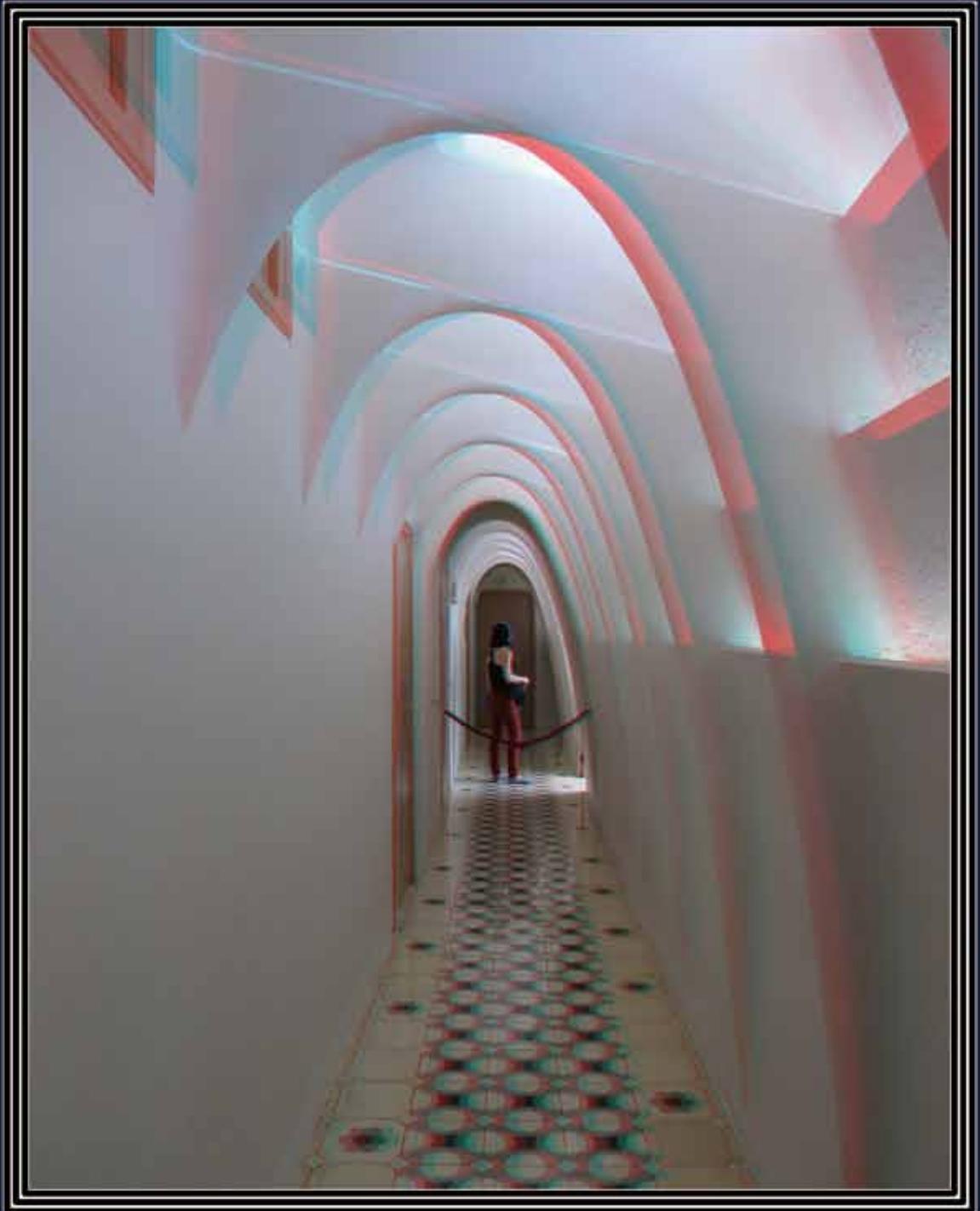


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THE HONG KONG 香港醫訊 MEDICAL DIARY

VOL.21 NO.6 June 2016

Dentistry





THE FEDERATION OF MEDICAL SOCIETIES OF HONG KONG

香港醫學組織聯會

Annual Scientific Meeting 2016

Holistic Care in the Era of Specialty Based Medicine

Date: 3 July 2016 (Sunday) Time: 9:30am – 4:25pm

Venue: Ballroom, 3/F, Sheraton Hong Kong Hotel & Towers, 20 Nathan Road, Tsim Sha Tui, Kowloon

Opening Ceremony

Session I – Cardiovascular Disease and Metabolic Syndrome

Chairpersons: Dr Ludwig CH TSOI & Dr Li Shu-kin

- ▶ **Cardiovascular Personalised Medicine**
Prof Brian TOMLINSON
(Professor, Department of Medicine and Therapeutics, The Chinese University of Hong Kong)
- ▶ **Gout and Its Comorbidities to the Elderly**
Dr YIP Wai-man
(Specialist in Geriatric Medicine)

Session II – Diabetes Mellitus * Sponsor: AstraZeneca

Chairpersons: Prof Bernard MY CHEUNG & Ms Ellen WY KU

- ▶ **Diabetes Complicated by Obesity : What Can We Do About "Diabesity" in Clinical Practice?**
Prof Alice KONG
(Associate Professor, Department of Medicine and Therapeutics, Chinese University of Hong Kong)
- ▶ **Advance Treatment for T2DM – Role of SGLT2 & GLP1**
Dr TSANG Man-wo
(Consultant of Department of Medicine & Geriatrics, United Christian Hospital)

Lunch Symposium – Allergy Prevention

Chairperson: Dr Jane CK CHAN

- ▶ **Emerging Trends in Allergy Diagnosis, Treatment & Prevention**
Prof LEUNG Ting-fan
(Professor, Department of Paediatrics, Faculty of Medicine, The Chinese University of Hong Kong)

Session III – Paediatric Epilepsy

Chairpersons: Dr LEE Tsz-leung & Mr Frankie PL SIU

- ▶ **Tertiary Level Surgical and Dietary Treatment of Paediatric Refractory Epilepsy: Challenges and Opportunities**
Dr Mario WK CHAK
(President, The Federation of Medical Societies of Hong Kong)
- Ms Carmen KM YEUNG
(Dietician, Hong Kong Children's Hospital)

Registration Fee

HK\$100 Members of member societies of FMSHK

HK\$400 Non-members

Free lunch available for early bird registration

Registration

Application form can be downloaded from website <http://www.fmshk.org>

CME/CPD/CNE Accreditation is pending

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Session IVa – Allergy and Autistic Spectrum Disorder

Chairpersons: Dr LEE Tak-hong & Dr HUNG Se-fong

- ▶ **How to Face the Allergy Epidemics?**
- Highlights of the Guidelines for Allergy Prevention in Hong Kong
Dr Alson WM CHAN
(Specialist in Paediatric Immunology & Infectious Diseases)
- ▶ **Holistic Care for Autism Spectrum Disorder : Building Castles in the Air?**
Dr LAM Siu-man
(Chief of Service, Department of Child & Adolescent Psychiatry, Castle Peak Hospital)

Session IVb – Geriatrics

Chairpersons: Dr Raymond SK LO & Dr Andrew CHAN

- ▶ **Medical Diagnosis and Management of Dementia in Older People**
Prof Timothy KWOK
(Professor, Department of Medicine and Therapeutics, Prince of Wales Hospital, The Chinese University of Hong Kong)
- ▶ **The Mouth and the Body – How Are They Connected in Older People?**
Dr Frankie HC SO
(Specialist in Community Dentistry)

Session Va – HIV Infection and Mental Health

Chairpersons: Dr NG Yin-kiwok & Dr Desmond NGUYEN

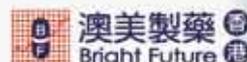
- ▶ **People Living with HIV Infection**
Dr Thomas MK SO
(Specialist in Infectious Disease, Private practice)
- ▶ **Psychosis – Neurodevelopmental Disorder with Neuroprogression, Critical Period for Early Intervention, Relapse Prevention and Neuroprotection of Antipsychotic Treatment.**
Dr LEE Wing-king
(Clinical Associate Professor (Honorary), Department of Psychiatry, The Chinese University of Hong Kong)

Session Vb – Oncology

Chairpersons: Dr MAN Chi-wai & Dr NG Chun-kong

- ▶ **Personalized Management of Lung Cancer**
Dr David CL LAM
(Clinical Assistant Professor, Department of Medicine, University of Hong Kong)
- ▶ **Colorectal Cancer Screening**
Dr William CS MENG
(Specialist in General Surgery)

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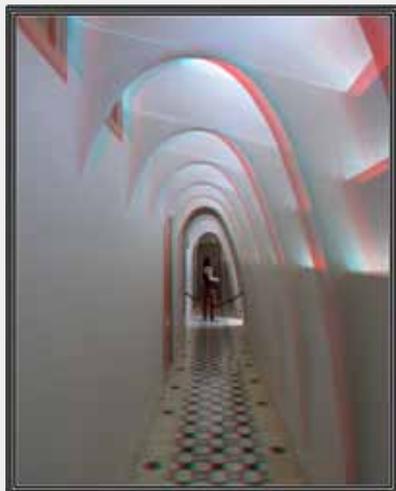
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The Cover Shot



A corridor on the top floor of the famous Casa Batlló in Barcelona, Spain. The perfectly synchronised shot captured depth and the brief emergence of a random tourist added a point of interest to the picture. Canon Powershot S100 rig in portrait orientation.



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A-PRO MULTIMEDIA LTD www.apro.com.hk

Evidence-based Orthodontics

Dr Albert MP LEE

BDS, MSc, FRACDS, FCDShK (Paed Dent)
FHKAM (Dental Surgery)



Dr Albert MP LEE

Editor

In providing dental treatment for patients, dental practitioners are faced with the dilemma of making the best clinical decision for patients with less uncertainties. This is usually based on the dentists' background training, knowledge and experience. However in dealing with uncertainties, the best clinical evidence is based on research in ascending importance including case reports, case series, case control studies, prospective cohort studies, randomised clinical trial studies and systemic review of treatment results.

Uncertainties present in all clinical decisions and are best reduced by research. In contrast, uncertainties will increase by claims based on low evidence. In a recent presentation at the 23rd Convocation of the Royal Australasian College of Dental Surgeons by Professor Kevin O'Brien, Professor of Orthodontics at the University of Manchester, he illustrated examples in orthodontics to discuss areas of dentistry with uncertainties in decision making by clinicians.

One of the best examples is the effect of early orthodontic treatment for Class II malocclusions in young children with large overjets versus delayed treatment in adolescents. Claims for the benefit of early treatment include shorter treatment time, skeletal change, reduction in trauma, no extraction required and to a certain extent to improve breathing in young children.

However clinical research and evidence based on randomised clinical trials illustrate that there are no significant differences in early treatment in young children as compared to delayed treatment in adolescents. The only benefit of early orthodontic treatment for Class II malocclusions in young children with large overjets is to reduce the incidence of incisal trauma. There is a 9% reduction of dental trauma with early treatment as compared to delayed treatment in adolescents. However from the public health point of view, in order to prevent one child from experiencing incisal trauma, ten children need to be treated earlier. Therefore, except for the reason of preventing dental trauma, claims for the benefit of early treatment in dental and skeletal factors are low from the evidence-based data.

Nowadays there are many claims by commercial products for faster orthodontic treatment time and different treatment methods with low evidence-based information on the market. Further researches are required to assist dental practitioners and specialists to make clinical decisions in many aspects of dentistry especially in dealing with treatment outcomes and uncertainties.

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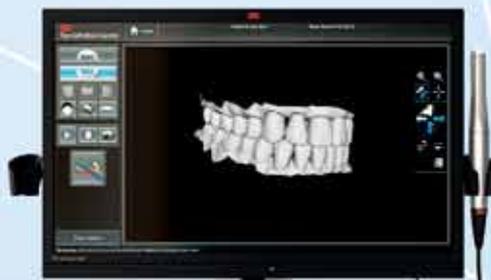
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Intra-Oral Scanning: State of the Art in Dentistry?

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This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 30 June 2016.

Introduction

We live in a digital world. Technological changes have been making an impact in various aspects of our daily lives (van der Zande et al., 2013). These changes have also gained ground in the development of dentistry (Bauer, 2001; Eaton, 2008). Clinic records and file keeping in practice management, photography and radiology in diagnosis, navigation implant surgery and CAD-CAM restorations in treatment provision, digitalisation has gained popularity.

One such digital innovation has made significant inroads to daily dental practice ---- intra-oral scanning. Francois Duret introduced the first intra-oral digital scanner for restorative dentistry (Duret et al., 1971). The past 30 years have seen rapid advancement of the digital intraoral impression technique (Ender et al., 2003; Reich, 2007; Christensen, 2008; Beuer, 2008; Birnbaum, 2008; Christensen, 2009)

There are 4Ps to the intra-oral scanning technology:
Potential: What does it do?
Process: How does it work?
Probabilities: How accurate is it?
Problems: What are the challenges?

Potential: What does it do?

Analog impression procedures use an elastomeric impression material to generate an imprint of the oral situation. With the imprint, a stone cast is poured. Then an intracoronal (post-core, inlay, onlay) or extracoronal restoration (crown, bridge) is fabricated.

Intra-oral scanning technology uses a 3-dimensional camera to capture the data from the area of the tooth preparation, adjacent and opposing structures, and then convert them to virtual impressions in a digital format (Patzelt et al., 2014; Yuzbasioglu et al., 2014; Zandparsa, 2014; Sannino et al., 2015). The restoration can then be fabricated using computer-aided design software and computer numerical control milling machines (Ng et al., 2014; Pradies et al., 2015). Contrary to the conventional analog methods, a physical stone cast is not needed, but can be produced using 3D rapid prototyping technology (Bosch et al., 2014).

There are numerous potential benefits in incorporating intra-oral scanning in daily dental practice.

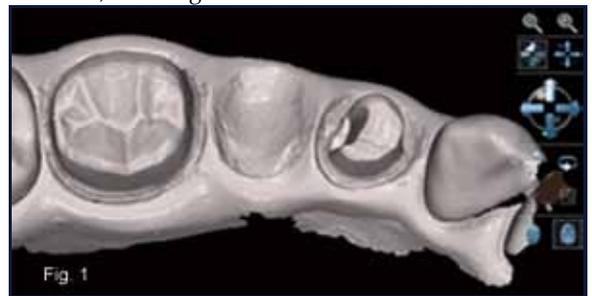
1. Better dentistry

Less remake

The use of magnification in operative dentistry has been proven to improve the accuracy and quality of work produced. Dental loupes magnify the object by two to three times, but with the reduction of field of view. Once the image is captured by the intra-oral scanner, the object can be evaluated in real time without any limitation in magnification.

Literally, you get what you see. (Fig. 1)

Errors in the tooth preparation (presence of undercut, inadequate clearance) can be identified and rectified at chairside, reducing the need for remake of the restoration.



Improved quality

For construction of a dental bridge, aligning the path of insertion of various abutments can be challenging. Once the prepared abutment teeth are scanned, the images can be viewed from different angles, and software available to ensure a single path of insertion (Fig. 2). Any undercut is also highlighted to assist in the modification in order to produce high quality dentistry (Figs. 3, 4).





2. Better patient care

Less discomfort

Silicone materials like Imprint (3M ESPE), Aquasil (Dentsply), polyether materials like Impregum F or Monophase S (3M ESPE) are not the best tasting impression material available, although they are very accurate. Typically, the handling time is 2'30" outside the mouth and 3'30" in the patient's mouth, not to mention the re-takes when there are unavoidable air voids or tears in the impression. What if our patients do not need to go through such an ordeal for the sake of recording an impression? Now, we can do this digitally. Studies showed significant differences in time consumption and patient preference in favour of the digital technique (Lee and Gallucci, 2013; Wismeijer et al., 2014; Schepke et al., 2015)

More tooth conservative

In tooth preparations, there is always a delicate balance between destruction of healthy tooth structure and the risk of undercut affecting the fit of the final restoration. Once scanned, the image of the preparation can be evaluated in real time to assess the degree of taper (Figs. 5, 6). Any corrections can be made with maximal conservation of tooth structure.



3. Streamline practice management

Model storage

According to the local regulations, a dentist has the duty to keep patients' records for a period of seven years. In a place like Hong Kong where office space is a premium, the idea of storing patients' study casts and working models without occupying any physical space would be very welcoming. We can scan and store them digitally.

Communication with technician

The intra-oral scanner is an excellent tool for communication with the dental technician. Scanned images of the tooth preparation can be shared, so that the design of the restoration with regard to placement of the finish margin, position of the contact points,

profile of the restoration can be discussed with clarity (Fig. 7).

Process: How does it work?

Currently there are two types of intra-oral scanners: single image camera and video camera.

Single image camera records individual images of the tooth preparation, adjacent and opposing teeth. Common systems available in Hong Kong are: CEREC Bluecam (Sirona), iTero (Align Technology), Trios (3Shape), CS 3500 (Carestream Dental). The camera records around three teeth in a single image. For the full arch, a series of overlapping images are taken, and the software would stitch these images to form a 3D virtual model. The camera is required to be positioned at different angles to record the variations in height of the object. Those areas not captured by the overlapping images would be extrapolated by the software to augment the missing data in the virtual mode (Alghazzawi, 2016).

Video camera type captures continuous streams of high-resolution video images, usually at 20 frames per second, as the patient is being scanned. The images are then converted by the software to 3D data sets and displayed in real time. Current systems available in Hong Kong are: True Definition Scanner (3M ESPE), CEREC Omnicam (Sirona), Apollo DI (Sirona), PlanScan (Planmeca).

Once the tooth has been prepared clinically to receive either an intracoronal or extracoronal restoration, the operator manoeuvres the image acquisition device (scanner wand) over the preparation in multiple directions according to the manufacturer sequential protocol for image capture. The scanner wand consists of the lens, mirrors and a light source using either LED (blue LED True Definition scanner, blue LED Trios, white LED CS 3500, white light CEREC Omnicam) or laser (blue laser PlanScan, red laser iTero). Some intra-oral scanner systems require light powdering with titanium dioxide over the preparation for improvement in accuracy of data acquisition [True Definition scanner, CEREC Apollo DI] (Zimmermann et al., 2015; Ting-Shu and Jian, 2015; Abdel-Azim et al., 2015).

The opposing dentition is then scanned using the same protocol, and the interocclusal record attained through a buccal scan when the patient is asked to close at centric occlusion (maximal intercuspal position). For implant restorations, a scan body is connected directly over the implant fixture to capture its 3D orientation in relation to the adjacent dentition. A scan body is usually a non-reflective plastic, precision milled from polyether ether ketone [PEEK] (Lin et al., 2013; Rauscher, 2014).

The images are electronically transmitted using an STL file to the laboratory CAD system either in-house or outsource production centre where the final restoration is made. The entire construction can be processed model-free digitally. Alternately, polyurethane working





casts are fabricated either by milling or 3D rapid additive manufacturing (Schmitter & Seydler, 2012; Kurbad & Kurbad, 2013; da Cunha et al., 2015)

Probabilities: How accurate is it?



Traditional workflow

From the time of tooth preparation to the delivery of an intracoronary or extracoronary restoration, there are a number of stages involved: analog intraoral impression, chairside construction of provisional restoration, pouring and sectioning of dental cast, wax-up and casting of metal framework, repeated firing of ceramic over framework, delivery of glazed restoration to the dental office (Fig. 8). Not only the whole process is time-consuming, any error introduced in any of the stages would potentially lead to misfit of the final restoration.

With the use of the intra-oral scanner, the procedure of construction is simplified. The intracoronary or extracoronary restoration can be manufactured at an outsource facility or in-house.

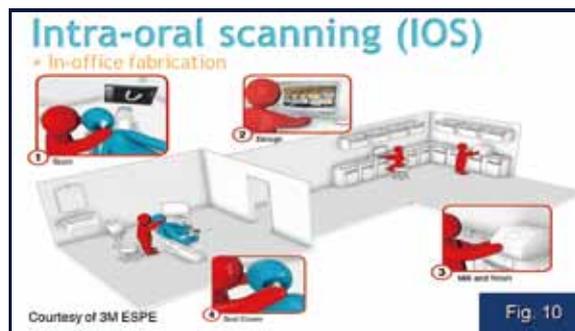


Intra-oral scanning with lab fabrication

After tooth preparation, the impression is captured digitally with the intra-oral scanner. The information is then sent to the laboratory in STL format, where the restoration is designed and milled (Fig. 9). There are less steps involved, less chance for error to be introduced.

Intra-oral scanning with in-office fabrication

Instead of sending the STL file of the scanned image to an outsource facility, the restoration is designed and milled within the dental office (Fig. 10). Same day delivery of the final restoration is possible.



The accuracy of an impression is exceptionally critical for construction of well-fitting restorations (Wostmann et al., 2009). There are two factors that affect accuracy: trueness and precision. Trueness describes the deviation of the impression geometry from the original, while precision describes the deviation between repeated impressions (Chandran et al., 2010; Ender & Mehl, 2014).

Several studies have evaluated the trueness and precision of intraoral impressions, focusing on single or short span bridge preparations. Digital impressions are highly accurate, comparable and some researchers showed even better than conventional analog impression methods (Ceyhan et al., 2003; Rudolph et al., 2007; Beuer et al., 2008; Chandran et al., 2010; Hoyos et al., 2011; Akyalcin et al., 2013; Anadioti et al., 2014; Vennerstrom et al., 2014; Ahrberg et al., 2015).

Boeddinghaus evaluated the in vivo trueness of three digital impression systems: CEREC Omnicam (Sirona Dental Systems), True Definition Scanner (3M ESPE), 3Shape Trios (3Shape), as compared with control using conventional elastomeric impression and model digitised with an extra-oral contact scanner 3Shape D700 (3Shape). In 24 patients, 49 teeth were prepared and Zirconia copings milled. The mean marginal gaps of the copings were evaluated: control 113 μ m (81 - 157 μ m), 3M LAVA True Definition 88 μ m (68 - 136 μ m), 3Shape TRIOS 112 μ m (94 - 149 μ m), CEREC Omnicam 149 μ m (114 - 218 μ m). The authors concluded that digital intraoral impressions could be considered as an alternative to conventional impression consecutive to digital workflow (Boeddinghaus et al., 2015).

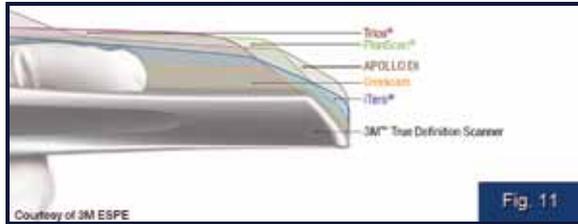
For full arch impressions, Ender compared in vivo precision of conventional and digital impressions, and found that the precision across the complete arch scans did not differ significantly among the seven digital impression systems studied. All of the digital systems, however, showed a larger standard deviation compared with the high precision conventional impression materials (Ender et al., 2016).

Problems: What are the challenges?

Patient factor -- Comfort

As the mandible opens in an arc, scanning at the posterior aspect of the jaw may pose certain degree of discomfort to the patient. Many systems attempt to address this with a tapering design of the scanner wand tip (Fig. 11). The size of the wand tip is related to the method of image acquisition. Scanners using laser

triangulation require the projector and sensor at the wand tip, accounts for its large size. Scanners using confocal photometry have the projector and sensor in parallel, and utilizes a series of mirrors. This can further reduce the size of the wand tip. The newer generation scanners adopt continuous waveform streaming, whereby the projector and sensor are positioned towards the base of the wand. This allows the size of the wand tip to be constructed with minimal discomfort to the patient.



Dentist factor -- Barriers to change

A study on barriers to adoption in dentistry indicated costs, lack of comfort with technology and legislation issues to be the main obstacles (Flores-Mir et al., 2006). van der Zande found that fear of lack of sustained benefits, dentist's age, the number of working years left and lack of skills in using digital applications were the main barriers to adoption (van der Zande et al., 2013).

Equipment factor -- Line of sight

The intra-oral optical scanner can only record images visible to the camera. When the tooth preparation is partially obscured by soft tissue, saliva or blood, the images would not be captured accurately (Logozzo et al., 2014). Future development in ultrasonic impressions may be able to address this drawback. Ultrasonic waves have the potential to penetrate the gingiva non-invasively without the use of retraction cord, and are unaffected by moisture over the tooth preparation (Vollborn et al., 2014; Chuembou et al., 2015).

Conclusion

For providing better care to patients, for further improving the quality and scope of restorative work, for streamlining practice management, it is prudent for the aspiring dentist to explore more about this innovation, and hopefully in due course embrace this technology. Intraoral scanning is the future of dentistry, and the future is here today.

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "Intra-Oral Scanning: State of the Art in Dentistry?" by Dr Daniel TS FANG and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 30 June 2016. Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. Dr Francois Duret is the first dentist to introduce the intra-oral digital scanner to dentistry.
2. Intra-oral scanner (IOS) reduces the need for remake of restoration by offering real time evaluation of tooth preparation.
3. Intra-oral scanning technology uses a 3D camera to capture the data from the area of tooth preparation, and converts it to a virtual model.
4. Images generated from IOS are a good communication tool to discuss the design of restoration with the technician.
5. IOS can serve as a means to store patients' records and study casts in a digital format.
6. Studies show that digital impressions are highly accurate, comparable to conventional analog impression methods.
7. The size of the intra-oral scanner wand tip is related to the method of image acquisition.
8. Lack of skills in using digital applications is one the main barriers for dentists to adopt intra-oral digital scanner.
9. Intra-oral scanner can penetrate soft tissue and fluid to record the image of the tooth reparation.
10. Intra-oral scanning offers better patient care by negating the need to place a rubber impression material in the patients' mouth for over 3 minutes.

ANSWER SHEET FOR JUNE 2016

Please return the completed answer sheet to the Federation Secretariat on or before 30 June 2016 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Intra-Oral Scanning: State of the Art in Dentistry?

Dr Daniel TS FANG

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Updates in the Management of Localized Prostate Cancer

1. F 2. F 3. T 4. F 5. T 6. F 7. T 8. T 9. F 10. F



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Considerations on Oral Health in the Management of General Health Conditions

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Specialist in Community Dentistry



Dr Frankie Hon-ching SO

Many health conditions and their medical treatments may negatively impact on the oral and dental health of the concerned patients. If preventive dental care can be included as part of the management of these patients at a very early stage, deterioration of oral health can be avoided. Poor oral health, dental caries and periodontal diseases may cause discomfort, pain and additional distress to patients already suffering from other diseases. Good oral health will in turn ensure the general health and well-being of the patients which will enhance the effects of medical care provided by medical practitioners.

It is impractical to develop an exhaustive list of medical conditions and medical treatments that may negatively impact on oral and dental health. The following principles are recommended to medical practitioners in both general and specialised practices for identification of cases that preventive dental care should be initiated as early as possible.

Some diseases or treatments may increase the risks in developing new dental diseases among patients, if they may

- reduce salivary production;
- affect dietary habit;
- affect hand movement; or
- affect general mobility.

Some diseases or treatments may put the patients at high risks or even contraindicated to receive invasive dental treatments such as dental extractions. The avoidance of invasive dental treatments is an important part of management for patients with diseases or treatments that may

- affect haemostasis; or
- affect healing capacity, immune functions and body defence capacity.

Diseases / medications reducing salivary production

Reduced salivary production and the resulting dry mouth (sometimes referred to as xerostomia) may put the affected patients at very high risks of developing dental caries, sometimes progressing at a very rapid rate.

Diseases of the salivary glands such as Sjogren's syndrome in itself may cause dry mouth. The irradiation of salivary glands associated with the radiotherapy for

naso-pharyngeal carcinomas is also a major reason of dry mouth in Hong Kong.

A number of medications, including those prescribed for common chronic diseases such as hypertension and diabetes may also produce the side-effect of dry mouth^{1,2}.

Diseases / medications affecting dietary habit

The frequency and quantity of sugar intake is directly related to the risk of developing dental caries. Sometimes, patients may be advised to take more frequent meals with less quantity each time (少食多餐) because of their specific medical conditions. Patients suffering from diseases of the spleen or had splenectomies may frequently experience hypoglycaemia and require the intake of sugar at a high frequency. These may all increase the risks of developing new dental caries

Diseases / medications affecting hand movement

One of the main strategies in preventing dental diseases is plaque control by daily tooth brushing and interdental cleaning by flossing or interdental brushing. These oral hygiene measures require a fair degree of dexterity in hand movements. Conditions such as stroke, rheumatoid arthritis, Parkinson's disease and medications that may cause hand tremors will affect the patients' ability in performing daily oral hygiene. Cognitive impairment arising from dementia or intellectual disabilities can also affect the patients' ability in self-care.

Diseases / medication affecting general mobility

Conditions that render patients home-bound or bed-bound may not only affect their ability in performing daily oral hygiene, but also hinder them from going to the dental clinics to receive professional dental care.

Diseases / medications affecting haemostasis

Nowadays, anticoagulants are increasingly prescribed due to the common occurrence of coronary heart diseases and transient ischaemic attacks. Difficulties in



stopping bleeding definitely have implications if surgical procedures such as dental extractions are necessary.

Diseases / medications affecting healing capacity, immune functions and body defence capacity

Patients who had bone marrow or solid organ transplantation, suffering from cancer or had received / receiving chemotherapy are at special risks if surgical procedures such as dental extractions are necessary. The irradiation of the jaws associated with radiotherapy for naso-pharyngeal carcinoma and bisphosphonate type of medications for treating osteoporosis also affect the ability of bone healing. Osteonecrosis is a possible complication in these patients if a dental extraction has to be performed.

The above description is short but the possible list of diseases and medical treatments that may affect oral and dental health can be very extensive. Hopefully the above principles may assist medical practitioners in identifying patients with high oral health risks and to refer these patients to dentists for early preventive dental care.

The two most common dental diseases in Hong Kong are dental caries and periodontal diseases. These are all preventable by adopting an appropriate life-style³. Prevention of dental diseases is more than just 'more

tooth brushing and less sweets and candies' (刷多啲牙, 食少啲糖). The prevention of dental diseases and tooth loss must start with prevention and early treatment of dental diseases. Dentists can be partners in prevention by providing individualised advices on daily tooth cleaning, dietary and other oral health-related habits at the regular checkup visits. This can be accomplished only if people in Hong Kong visit dentist regularly for checkup even though they believe that their oral health status is good³.

It is more common for people in Hong Kong to make a medical consultation than a dental one. Medical practitioners are in a good position to inform their patients about the need to prevent dental diseases and the need to avoid dental extractions, especially for patients with diseases or medical treatments as described above. Good oral health is not just limited to teeth and the mouth, but is also contributing to the overall well-being and positively impact on the diseases or health conditions under the care of medical practitioners.

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For Dental Professional Communication Only



Intra-oral scanners: A brief overview of the technology and considerations

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Dr Ronald Yik-Long CHAN

Introduction

Being able to accurately capture the anatomical details in the oral cavity has always been one of the most critical procedures for dental professionals. The concept of impression-taking was first recorded to be around the early 18th century when Philipp Pfaff described a technique of using sealing wax softened in hot water to capture an impression.¹ However, the details of the anatomy captured and distortion was a problem to many dentists.

The next big improvement in the concept of impression taking was the invention of elastic impression materials, which were developed by S.L. Pearson at the University of Liverpool in 1955.² Later, elastic impression materials included polyethers, polysulfides and also polyvinylsiloxanes. The problems of distortions were reduced but the setting time of the material was prolonged and patients frequently complained of an unpleasant smell or taste.

We have now reached the next major milestone in impression taking by utilising optical technology to digitally capture the anatomical tissues of the oral cavity. Many different brands in the market exist but what are their differences in terms of the technology behind them? Does this technology add value to a dental practice and has the accuracy reached a satisfactory level yet? This article will briefly address these questions.

The Technology

The digital workflow currently consists of three main steps. These include data acquisition, data manipulation and computer aided design/manufacturing. All intra-oral scanners (IOS) on the market today attempt to at least accurately perform the first step of this digital workflow. To digitally capture anatomical details, different IOS systems utilise different methods for recording the details in the oral cavity. These methods can be broadly classified into laser beam based systems or light beam based systems. Both methods incident a beam on the surface of the tissue and a camera-like device (charge-coupled device (CCD) or position sensitive detector) is used to record the location of the point at which the beam strikes the object. Most software of these IOS systems does the algorithms based on the known position and angulations of the camera and sensors of the scanner.³

Laser Beam based IOS systems

This method of image capturing relies on making still

images at different positions which are later rendered into a 3-dimensional object.⁴ Since lasers are employed and does not scatter as irregularly as light, it does not require a reflecting agent (Ex. Powder). Two main categories of utilising laser beam technologies are the parallel confocal imaging technique and laser triangulation imaging technique.

Parallel confocal imaging technique (Ex. iTero)

This technique emits 2 parallel laser beams at a specific focal length, which are bounced off the tissue and back through a laser sensor (Fig. 1). Before entering the laser sensor, a beam splitter is used to lead the reflected beam through a focal filter so that only the image that lies in the focal point of the lens reaches the filter.⁵ Since the focal distance is already set, the software is able to calculate the distance of the scanned object to the lens by moving the lens up and down in the oral cavity.

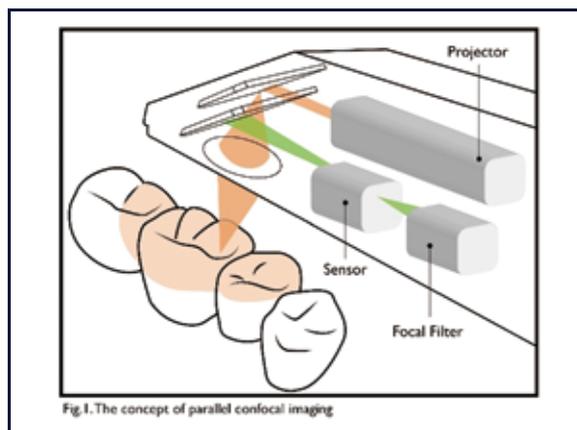


Fig.1. The concept of parallel confocal imaging

Laser triangulation imaging technique (Ex. E4D - PlanScan)

This technique utilises a red laser beam with micro mirrors oscillating at around 20000 cycles per second to capture a series of still images from multiple angles.⁴ The triangulation is done similar to the light based triangulation method described below.

Light beam based IOS systems

This technology of image capturing uses visible light beams instead of lasers. Since light reflects irregularly on different surface characteristics, a titanium dioxide reflecting agent is sometimes required to create a uniform light dispersion surface. Three main methods utilise this light beam based technology to capture images.

Active Triangulation technique (Ex. CEREC)

Three linear light sources from the IOS are arranged to locate a given point (Fig. 2). The most known user of this technology is the CEREC scanner. Each striped light pattern represents a capturing point. Since the angle and distance between the projector and sensor are known, the distance of the tissue is able to be calculated based on the Pythagoras Theorem.

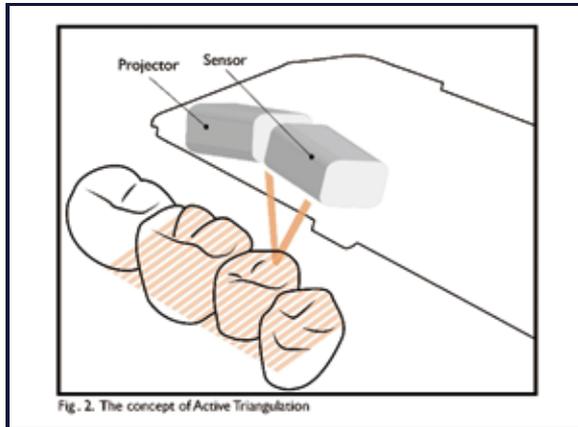


Fig. 2. The concept of Active Triangulation

Active wavefront sampling technique (Ex. Lava / 3M TrueDep)

This method, sometimes known as the 3D-in-motion technique, has the ability to capture the 3D data in a video sequence and therefore is a true real time capturing of the anatomy. The light reflected from the tissue is led through a lens system with a specific focal length (Fig. 3). If the image is clear and in focus, then it matches the set focal length of the lens, from which the software is able to calculate the position of the tissue. Titanium dioxide powder is required to set reference points and also to remove any glossy surfaces on the teeth. The software is able to compute the distance based on the amount of blurriness in the image. Therefore, this method utilises the defocusing of the primary optical system to obtain an accurate measurement.⁶

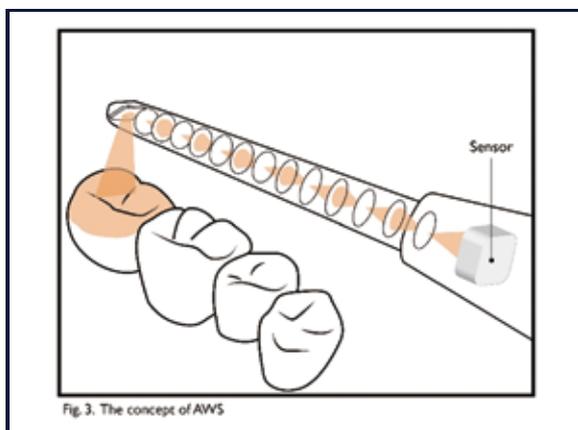


Fig. 3. The concept of AWS

Ultrafast optical sectioning technique (Ex. TRIOS - 3Shape)

This method allows the IOS to capture more than 3000 2-dimensional images per second, which are compiled to form a 3D digital image. However, rather than

artificially forming interpolated surfaces, it utilises large volumes of 3D images to create a true geometry based on real data.⁴ According to one manufacturer which employs this technology (3Shape), the speed of capture is approximately 100 times faster than the conventional video camera. Approximately 130 images are collected into a set that constitutes a voxel volume, which is computed and defines the interface between air and tissue material.⁷ An advantage of this scanner is its speed without the need for powder coating.

Added Value and Accuracy

Some factors to consider when purchasing an intra-oral scanner include the price, added value gained and also accuracy. Pricing is variable depending on different regional markets. Added value gained includes increased time efficiency and accuracy.

Added value to the practice

Will an intra-oral scanner save the dentists' chair-side time? To understand how time efficiency might be affected by an IOS system, one must first understand the difference between the conventional and digital workflows (Fig. 4). Overall, the number of procedures that must be performed for both conventional and digital methods are the same. However, the durations for each procedure may vary depending on the system of the IOS used and also the treatment performed.

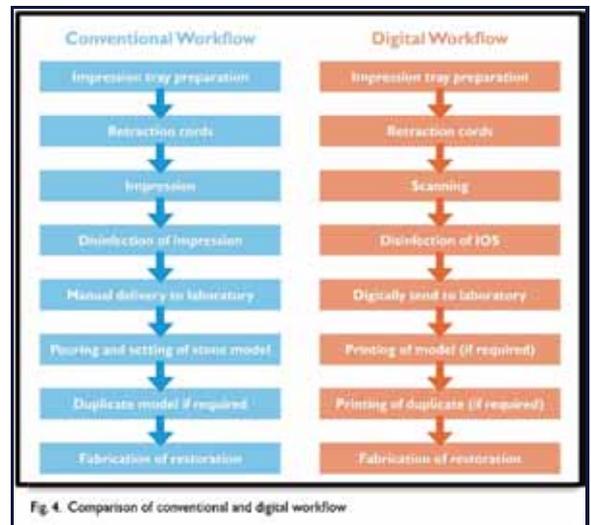


Fig. 4. Comparison of conventional and digital workflow.

For a full treatment from impression tray preparation to disinfection of the impression, intra-oral scanners were up to 23 minutes faster for single abutments, up to 22 minutes faster for single-span FDP preparations and up to 13 minutes faster for full-arch preparations (14 abutments) when one considers the total procedure duration.⁸ One should also consider the time saved by IOS systems post-treatment, which should shorten the turn-around time of the final prosthesis from the dental laboratory. The time that the clinic has to wait for the laboratory to pick up the impression is eliminated, especially for rural clinics. Furthermore, model-less production of fixed prostheses are possible with some monolithic crown materials such as zirconia, therefore, eliminating the setting time of the stone after pouring



Overview of Intra-oral scanners				
Products	Wand Weight (oz.)	Full Cart / Desktop version	Powder (Coating) required	Invisalign integration
3Shape TRIOS 3	12.3	Both available	×	✓
3M True Definition	8.2	Cart only	✓	✓
Tero Element**	17.6	Both available	×	✓
Planmeca PlanScan	19.2	Desktop only	×	×
Cerec Omnicam	11.0	Cart only	×	✓
CS3500	10.4	Desktop only	×	×

* Invisalign direct integration available in 4th quarter of 2016 according to manufacturer
 ** Not available in the Hong Kong Market (As of April, 2016)

Fig. 5. Overview of Intra-oral scanners on the market

the impression. The disadvantages of mould instability, transport, plaster solidification and delamination will largely be overcome with an IOS system.⁹

Another value added is the patients' perception of digital versus conventional impressions. Multiple studies have shown that patients significantly prefer the use of intra-oral scanners over conventional impression techniques.^{10,11} Lastly, due to the limited space and increasing popularity of Invisalign treatment in Hong Kong, the physical characteristics and Invisalign integration of each IOS system should be considered respectively (Fig. 5).

Accuracy

Accuracy of the current IOS system is a frequently discussed topic. Various studies have attempted to measure the accuracy and reliability of the IOS systems for different treatments compared with traditional impression techniques. By measuring certain elements (ex. marginal gap between the abutment and crown), Cardelli *et al*¹² demonstrated that the use of the IOS system utilising active wavefront sampling produced zirconia-ceramic single crowns with satisfactory accuracy which can be an alternative to conventional impression techniques. Akyalcin *et al*¹³ used an IOS system to scan dry skulls and compared linear measurements of the resulting digital files to manual caliper measurements of the actual skull. The conclusion was that both measurements were interchangeable and did not show significant deviations. For longer span prostheses, a study in 2015, using confocal scanning technology, concluded that for bridges of up to 7-units, less than 40 – 60µm error was measured over the restoration, neighbouring teeth and pontic areas.¹⁴

However, IOS systems might still not be suitable for more complex treatments as Ertl *et al*¹⁴ showed that the mean error for a full jaw when using an IOS system was 100 – 140µm. Furthermore, Andriessen *et al*¹⁵ used an IOS system to scan 25 different edentulous patients with 2 existing mandibular implants and compared the inter-implant distance and angulation to the digital file generated with an extra-oral scanner on the definitive master cast. The conclusion reached was that the IOS system used in the study lacked sufficient overlapping and stable reference points for fabricating implant frameworks. In general, digital scanning seems accurate enough for the fabrication of fixed crowns and long span bridges, but for multiple implant treatments or full arch reconstructions, conventional impression-taking should still be employed to achieve optimal results. Of course, different IOS systems may produce different results in terms of accuracy, which should be considered and discussed in a separate article.

Conclusion

We are just beginning to experience the next big game changer in dentistry due to the explosion in digital imaging technology and techniques. An increasing number of commercial imaging companies are developing and cross implementing existing optical technology into the dental field. Therefore, in the next few years, it will not be surprising if we witness many more IOS systems being brought to the market. Currently, this technology has not been widely adopted by dental clinics in Hong Kong. However, as these intra-oral scanners become increasingly popular, we should expect to see a shift of a patient-driven demand for their clinicians to incorporate this technology into their clinics. The integration of these intra-oral scanners into dental clinics will be a certain eventuality in the next decade.

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A Sharing of Experiences in Outreach Dental Service in Hong Kong

Dr Jerry Kwong-shing LIU

BSc BDS MDS MFGDP(UK)



Dr Jerry Kwong-shing LIU

I am a private dental practitioner, also working as a part time lecturer in the Dental Public Health, Faculty of Dentistry of The University of Hong Kong. After gaining years of experience in providing outreach services for the elderly, I started an NGO in 2005 to provide voluntary outreach dental services for the elders in residential homes.

What is outreach dental service?

The scope of outreach dental service in different areas of the world is different. It can be understood as dental treatments restricted to primary prevention and dental health education in some countries. It can also be developed into full dental services including radiography, dental fillings, extractions and dentures making in the other parts of the world. The way to provide services can also be very different. Some outreach teams provide dental treatments in a fully renovated vehicle as a mobile dental clinic. Other teams may carry all their portable equipment to the site for set up, and they provide dental treatments in the activity venue, e.g. elderly homes.

Advantages of outreach dental service

Modern dentistry relies on sophisticated equipment to provide dedicated and precise dental treatments to patients, so as to obtain the optimal results. This approach of service delivery will lead to two undesired consequences. First, dental service will only be delivered in a well-equipped venue such as a dental clinic or hospital. It creates impact in accessing dental services for some groups of the population with travelling difficulties or difficulties in adapting to new environments. Second, the depreciation of the expensive equipment, no matter you have used it or not in a dental practice, will increase the cost of services. Therefore, the better equipped the clinic, the higher the cost of service (often calculated as cost of chairtime) will result. Hence, financial cost becomes another impact of service utilisation for low-income populations.

Outreach dental service is another approach for providing dental services. The principle is to provide dental services in a field environment. By using appropriate equipment and focusing on prevention, service providers work together with existing social services organisations such as NGOs, to provide dental treatments to the patients within the society. The advantages of this service approach are:

- 1) It improves the accessibility of dental services. Dental services are provided in the venues that people are routinely gathered, e.g. the elderly homes or activity halls.
- 2) It improves the acceptability of dental treatments, particularly for the groups of special needs that may have difficulties in adapting to new environments, e.g. elders of extreme age, ADHD and autism. Since dental treatments can be carried out in their familiar place in the companion of their caretakers, the psychological barriers to receive dental treatments can be greatly reduced.
- 3) It reduces the cost of service. Instead of cutting edge technology and advanced equipment, outreach dental service relies on appropriate technology for providing selected dental treatments that have been proven to be effective. Therefore, the cost of service can be greatly reduced. Furthermore, by minimising the need of special transportation to carry patients to the clinic, the tangible and intangible cost of transportation and escort manpower can be reduced.

Difficulties of providing outreach dental service

There are several issues that may be worth discussing, based on my experience in providing outreach dental services. The most important one is the goal of the service. Besides the principle of Primary Health Approach that was proposed by WHO, I also set the goal of my outreach team as improving the quality of life of the patients through effective treatments in the field environment. In fact, treatments with evidence in ideal clinical settings may not necessarily give the same result in the field settings. For example, many outreach services emphasise on primary care and therefore they put a lot of resources in providing scaling (dental cleaning) to their patients on site. However, it is well known that scaling can hardly help periodontal diseases in any sense without meticulous oral hygiene instruction. In other words, periodontal diseases can only be prevented by good toothbrushing and interdental cleaning technique, together with mechanical cleaning of plaque and calculus¹. However, it will never be easy and sometimes impossible to teach our elders to hold a conventional toothbrush with their shaking hands and ask them to brush along their gum line thoroughly with their stiff fingers and wrists. As a result, the resources spent on scaling may not be able to generate the desired outcome of disease prevention.

Furthermore, treating periodontal diseases through scaling requires routine reviews and services². With limited resources, outreach service can hardly revisit the patient frequently. As a result, the therapeutic effect of scaling is reduced tremendously and the resource cannot effectively treat periodontal diseases as well. There are some evidence showing that toothbrushing with electric toothbrushes by caretakers could improve the gingival health of the elders in residential homes³. The primary care of the periodontal conditions of the elders may be more effectively delivered by training the caretakers on the correct way of assisted toothbrushing, increasing the manpower of elderly homes for assisted toothbrushing, instead of purchasing dental manpower to do dental scaling and oral hygiene instruction alone.

The resources of outreach dental service are limited, not only in terms of the financial budget, but also manpower and facilities. Which treatment could be provided in the field environment under an acceptable risk control is therefore controversial, especially when the services are always designed for special needs groups. Dental manpower with adequate training should be able to provide many basic treatments to solve patients' problems with minimal risks. For example, caries are common in elders⁴, and dental fillings with Glass Ionomer Cement under atraumatic restorative technique^{5,6,7} or applying Silver Diamine Fluoride on lesions are both proven to be safe and effective treatments to caries in the field environment^{8,9,10,11}. From my experience, providing partial dentures or complete dentures in the elderly homes can also result in very high success rates with minimal risks as well. On the other hand, not all dental treatments are suitable to be carried out in outreach service, especially those treatments with a high demand on clinical facilities and equipment, like extraction of stable teeth, oral surgery and root canal treatment. The clinical risk and success rate should be considered seriously before they are carried out in the outreach approach.

Conclusion

Outreach dental service for special needs groups and elders of extreme age is a valuable service approach. It improves the accessibility and acceptability of dental services in the community. With careful planning of a treatment approach and manpower training, the treatment results of many common dental problems are promising¹². This valuable service approach is still waiting for the dental service providers in Hong Kong to explore and develop.

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Certificate Course on Practical Applications of Quality of Life Measures

Objectives:

This course equips participants the know-how of assessing quality of life (QoL) in both healthy and ill individuals. The development of health-related quality of life dates back to the sixties when a group psychophysicists and econometricians developed a group of generic indices for assessing the changes in the state of well-being of patients, some of which were later developed as Index of Health-related Quality of Life. Since then, the measurement of health-related quality of life has made a major impact on the evaluation of health care and medical interventions. Nowadays, numerous measures have been developed across a wide range of clinical areas, including but not limited to neurology, oncology, cardiology, and palliative care. The best use of these tools is hinged on a good understanding of their developmental framework, extent of evaluation, and use in practice. In the sequel, this course provides the necessities for healthcare professionals to conduct QoL assessment in practice.

Jointly organised by



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世界華人生活質素學會

World Association for
Chinese Quality of Life

Date	Topics	Speakers
8 Jul	Principles and Concepts of Quality of Life (QoL) Assessment – Implication to the Integrative Medicine	Dr Wendy Wong Assistant Professor, Hong Kong Institute of Integrative Medicine, School of Chinese Medicine, The Chinese University of Hong Kong
15 Jul	QoL Assessment: A Chinese Medicinal Approach	Dr Zhao Li Chief of Chinese Medicine Service The Hong Kong Tuberculosis Association Chinese Medicine Clinic cum Training Centre of the University of Hong Kong
22 Jul	Assessments of sleep and related dimensions in clinical practice	Dr Wing Fai Yeung Assistant Professor, School of Nursing, Hong Kong Polytechnic University
29 Jul	Challenges of patients reported outcome for cardiovascular diseases patients	Prof Vivian Lee Assistant Dean (Student Development), Faculty of Medicine Associate Professor, School of Pharmacy
5 Aug	Best Practice in Selecting a QoL Measure: measurement of the quality of life in cancer patients	Dr Winnie So Associate Professor, The Nethersole School of Nursing, The Chinese University of Hong Kong
12 Aug	Best Practice of using QoL in health economic evaluation	Dr. Carlos Wong Research Assistant Professor, Department of Family Medicine and Primary Care, the University of Hong Kong

Dates : 8, 15, 22, 29 July 2016 and 5, 12 August 2016 (Every Friday)

Time : 7:00 pm – 8:30 pm

Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong

Language Media : Cantonese (Supplemented with English)

Course Fee : HK\$750 (6 sessions)

Certificate : Awarded to participants with a minimum attendance of 70%

Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong

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I. For adult patients who are intolerant of CPAP therapy or prefer alternate therapy.

Reference : Ramar K, Dort L, Katz S, et al. Clinical Practice Guideline for the Treatment of Obstructive Sleep Apnea and Snoring with Oral Appliance Therapy. *Journal of Clinical Sleep Medicine* 2015;11(7).



Stereo Photography and Videography in the Digital Age

Dr Siu-fai LEUNG

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Specialist in Endodontics, private practice.



Dr Siu-fai LEUNG

The beauty of stereo or 3D photography lies not only in the objects it captures but more in the spaces between the objects. Revealing spatial relationship on a 2D medium always carries that wow factor and can make an otherwise mundane image interesting. Two eyes and a brain are all we need to interpret the stereo effect and we are doing it every day. Our brains extrapolate the combined images so even low-resolution photographs become very life-like. This article aims to provide a nutshell of the progress of 3D imaging in both leisure and clinical applications in the digital age.

Stereo photography was first invented in 1841 by two Britons, Charles Wheatstone and Fox Talbot, two years after photography was formally introduced. The interest in 3D photography comes and goes, matched every time by breakthroughs in 2D photography. It went into obscurity in 1900 due to the launch of the highly portable **Kodak Brownie** camera. 3D mania struck again in the 1950s with the introduction of the **Sawyer's Viewmaster** from Portland, Oregon, USA. Stereo cards and viewers became very popular. The interest waned again in the 1960 with the invention of the **Polaroid** camera, which was more portable, did not require a viewer, and gave instant results.

1952 saw the publication of "A stereoscopic atlas of human anatomy" by Dr David L. Bassett of the Stanford Medical School¹, which was viewed using the Sawyer's Viewmaster. The material took more than 10 years to produce and the quality of both the specimens and images were amazing. The archives have been totally updated and digitised². There are relevant sections on the head and neck, (and tooth anatomy is also available elsewhere³). This is still a very good learning tool for both students and practitioners alike, and a big feast in visual art.

With the advent of digital photography, **Fujifilm** released the FinePix 3D camera and viewer series in 2009, bringing compact 3D cameras into the modern age. The system allowed naked eye 3D viewing without any accessory. There were even custom-built aftermarket accessories available⁴. Albeit expensive, these adjuncts expanded the capability, if not the image quality (IQ), of what is otherwise a low-resolution camera. **Panasonic** offered a similar camera (Lumix DMC 3D1) with superior IQ but could not reveal 3D on board. As these cameras are now discontinued, keen amateur 3D photographers with computer programming know-hows are hacking the **Canon Powershot** compact cameras (reversibly) to pair them up for synchronised stereo photography and videography⁵. Digital Single Lens Reflex cameras (DSLRs) can also be wired in a

similar manner but are less desirable due to the weight and shallow depth of field. Also synchronised zooming is more cumbersome. They are limited to professional applications. An alternative for DSLR is to attach a **Loreo** 3D lens cap in front of the lens. It eliminates the synchronisation problem but the image is limited to portrait format.

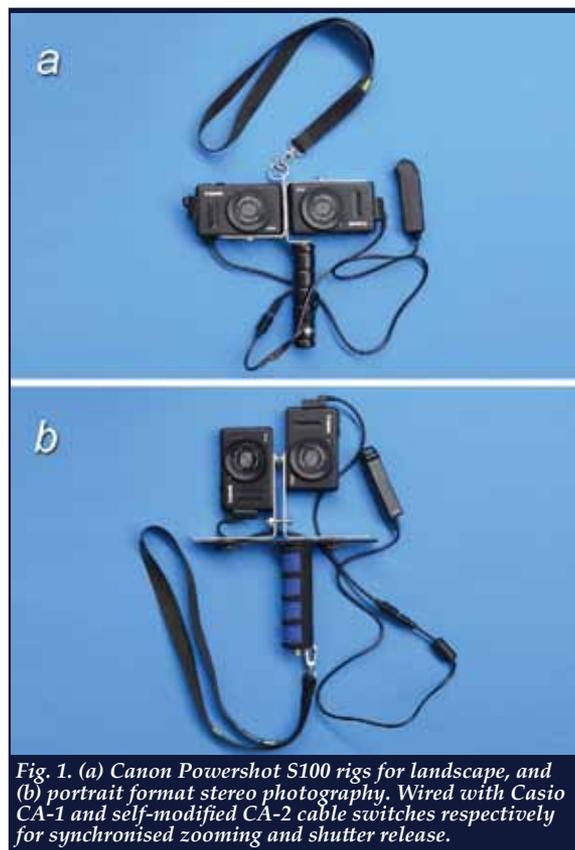


Fig. 1. (a) Canon Powershot S100 rigs for landscape, and (b) portrait format stereo photography. Wired with Casio CA-1 and self-modified CA-2 cable switches respectively for synchronised zooming and shutter release.

The two hacked compact cameras are wired and mounted side-by-side (Fig. 1). The inter-camera separation should correspond to the separation of our eyes for normal range objects to give a natural look. The further away the object, the more the separation is required to gain stereoscopic effects⁶. Shoot at high ISO using as small an aperture as possible to maximise the depth of field; and set a shutter speed to keep everything sharp. Out of focus and motion blur must be avoided in stereo photography. There are still problems when using flashlights as the two cameras are not

perfectly synchronised. When flash photography is required I usually fall back to either the Fujifilm or the Lumix. The images are then processed by a custom 3D editing software. I picked up a kit from 中南圖書公司 a few years back but I found StereoPhotoMaker and StereoMovieMaker⁵ the preferred choices. It is a very versatile package and is free. The viewing part is what prevents stereo photography from becoming popular. As not many people can casually register stereoscopic effects by viewing left and right images unassisted, special viewers or effects are required, which prevent the wide spread of stereo photography.

Besides the now discontinued Fujifilm viewers, the three common ways of viewing stereo still images include **cross-eye viewing**; the L/R images are transposed so the eyes are viewing the images diagonally. Sounding odd initially, this is in fact the easier viewing setup for most people. In **parallel-eye viewing** the images are aligned with the corresponding eyes. This is more difficult to acclimatise and a magnifying viewer is usually required. The simple **Google Cardboard** is designed for parallel-eye viewing on smartphones. **Anaglyph** involves adding blue and red tones to the images. A pair of blue and red spectacles (available from 黃金電腦商場) is required to visualise the 3D effect. This is arguably the easiest way to view 3D and most popular for printed media. However the altered colours limit this method best suited for less colourful images.



Fig. 2. 3D pictures need to be sharp throughout without motion blur to look natural. Take it under good lighting, high shutter speed and small aperture. Fujifilm FinePix REAL 3D W3

The 21st century also saw the return of interest in 3D movies and TVs. There are many well-known 3D sci-fi movies with great box office success, and more are coming. There are also 3D TV series like the reboot wildlife series by David Attenborough. Together with 'on screen' polarised stereo photographs, these are viewed using passive, or less desirably, active spectacles. The working principle is to alternate the polarised L/R images on the screen fast enough (144Hz) to cheat

the brain into believing it is seeing continuous images. The spectacles allow only that particular polarised L or R images to come through to the corresponding eyes so the brain develops a stereo image. There are some laptops with 3D screens from like Acer. Currently only LG produces an extensive range of 3D TV sets.

Virtual reality (VR) headsets deliver impressive 3D visual and audio experience conveniently from smartphone outputs. There are brand name products like the **Oculus Rift** or the **Zeiss VR One**, and even more without available from **Taobao** (look for 3D 眼鏡). Together with **Augmented Reality (AR)** there are numerous applications in videogames, TV & home movie, simulation training in driving, aviation, medical operation, interior decoration design and even cyber tours. Taobao has just announced its VR Mall **Buy+**. **The New York Times** delivers the aforementioned Google Cardboard to subscribers; in combination with their smartphone apps readers could view 3D and VR (with audio) news footages and advertisements like happenings in real life. Clinically **Moravision** is a dental surgical microscope with a 3D video camera installed. The operator or trainees can see real time videos on a 3D TV with passive spectacles (previous version utilises anaglyphic images). It improves the operator posture; provides illumination, magnification (16X), and recording at the same time. Patients could also view the scene through a VR headset for education and be involved in the treatment planning, or even the operation, if they dare, at the same time.

With the advent of digital technology, 3D still and motion pictures are making a big come back with better fidelity and viewing convenience. In time, we shall take 3D imaging for granted. The development is exciting and we all look forward to a wider application of 3D imaging technology and improvement in image quality both in our practice and in entertainment.



Fig. 3. 2D just won't do justice to this London Taxi framework at London Heathrow T3. Fujifilm FinePix REAL 3D W3

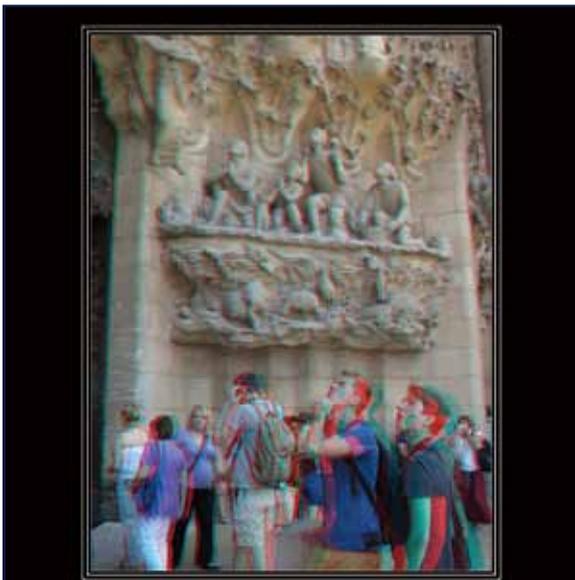


Fig. 4. These two visitors, echoing the sculptures on the wall of La Sagrada Familia behind them, stand out from the chaotic background vividly. Canon Powershot S100 rig

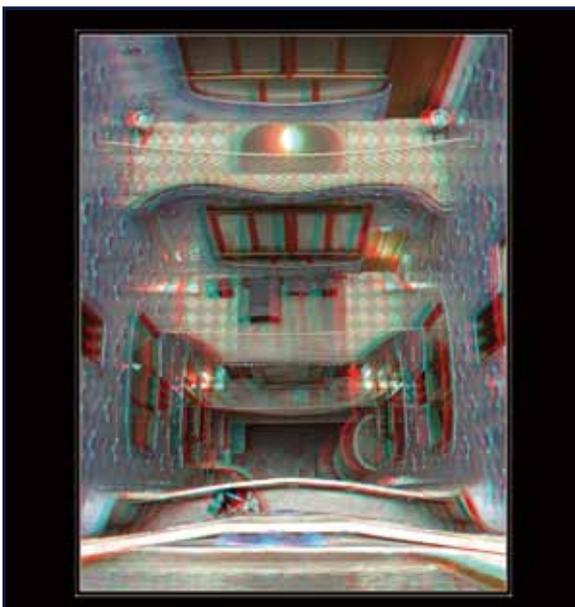


Fig. 5. Looking down the atrium of Casa Batlló in Barcelona, Spain. Canon Powershot S100 rig

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6. <http://www.photographers-resource.co.uk/photography/3D/index.htm> (see 'Stereo Base Look Up Table')

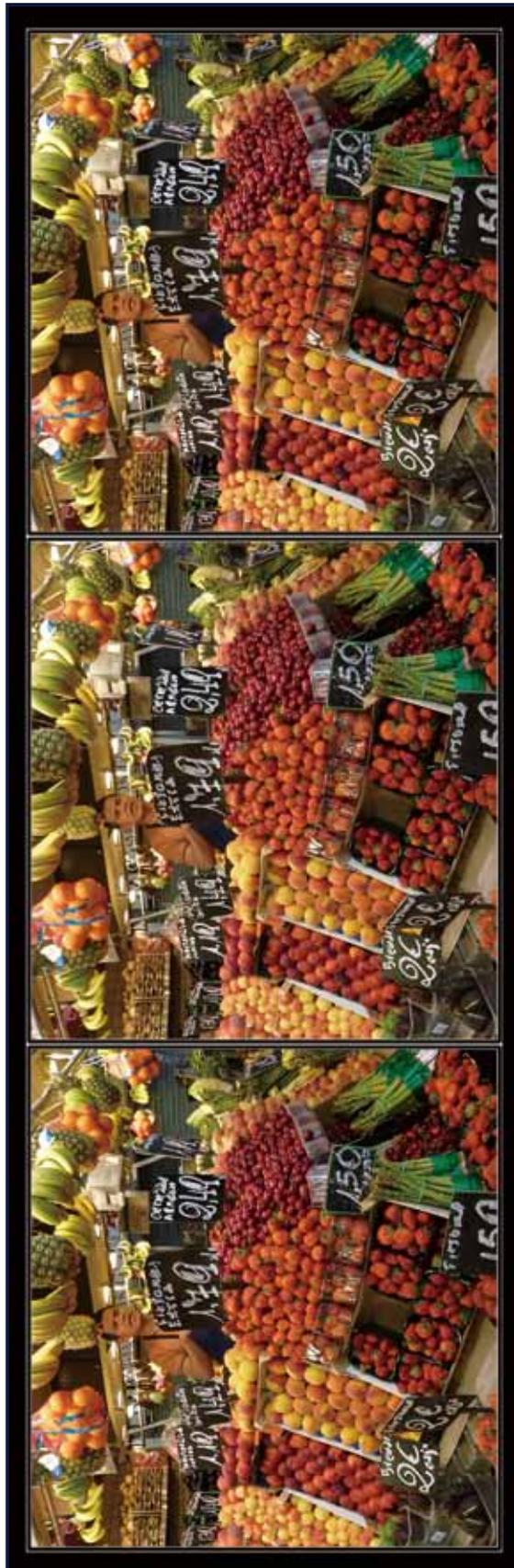


Fig. 6. Even with low resolution, the produces in this stall look so life-like you think you can taste them. Anaglyph is not suitable for viewing colours (picture arranged in L-R-L to accommodate parallel-eye and cross-eye viewing). Panasonic Lumix DMC 3DI

Certificate Course on Application of Mindfulness in Clinical Settings and Everyday Life

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Hong Kong Clinical
Psychologists Association



Objectives:

- To introduce the principles, scientific evidences, and development of mindfulness
- To illustrate the applications of mindfulness techniques in clinical settings and to different clinical populations
- To introduce some of the mindfulness exercises

Date	Topics	Speakers
16 Jun	History of Mindfulness and Development of MBSR & MBCT	Ms. Doris Woo Clinical Psychologist
23 Jun	Mindfulness for Children	Ms. Doris Woo Clinical Psychologist
30 Jun	The Root of Mindfulness Training	Prof. Freedom Leung Clinical Psychologist
7 Jul	The Neuroscience of Mindfulness Training	Prof. Freedom Leung Clinical Psychologist
14 Jul	Mindfulness and Emotion Regulation	Dr. Maggie Poon Clinical Psychologist
21 Jul	Mindfulness and Hypnosis	Dr. Maggie Poon Clinical Psychologist

Date : 16, 23, 30 June and 7, 14, 21 July, 2016 (Every Thursday)

Time : 7:00 p.m. – 8:30 p.m.

Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong

Language Media : Cantonese (Supplemented with English)

Course Fee : HK\$750 (6 sessions)

Certificate : Awarded to participants with a minimum attendance of 70%

Enquiry : The Secretariat of The Federation of Medical Societies of Hong Kong

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Dental Quiz

Dr Shiu-yin CHO

Senior Dental Officer, School Dental Care Service, Department of Health.



Dr Shiu-yin CHO



A nine-year-old boy attended the author's clinic for routine check-up. There was a history of luxation injury to the upper front teeth at the age of seven. Extra-oral and intra-oral findings were unremarkable. Sensibility tests on the maxillary incisors revealed a lowered response from tooth 11. A periapical radiograph was taken and showed that tooth 11 had short root with reduced pulp volume. What is the diagnosis of this condition?

(See P.37 for answers)


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End-of-Life Care Workshops
 Department of Medicine & Therapeutics
 Faculty of Medicine
 The Chinese University of Hong Kong



Date:
 22nd September 2016 to 20th October 2016, every Thursday evening (7:00 p.m. – 9:00 p.m.)

Venue:
 Seminar Room 1, 2/F Lui Che Woo Clinical Sciences Building, Prince of Wales Hospital, Shatin, N.T.

Target participants:
 Doctors, nurses, allied health professionals, social workers and all health care professional interested in end-of-life care

Maximum number of Participants: 80
Course Fees: \$1,400 (by crossed cheque)

Content:

Date	Topic	Speaker
22 Sept 16	01. Introduction: Principles and philosophy of palliative and end of life care	Dr Raymond Lo
	02. What is a good death? Patients' perspectives: dignity, autonomy, their expectations of health care professionals	Prof T Kwok
29 Sept 16	03. Breaking bad news: a Chinese perspective	Dr CY Tse
	04. Ethical issues: decision-making, advance directives, assisted death	Dr CY Tse
6 Oct 16	05. Principles of pain control and use of opioids	Dr KY Chan
	06. Symptom control for advanced cancer and non-cancer patient	Dr Alice Mok
13 Oct 16	07. End-of-life care in non-cancer setting	Dr Raymond Lo
	08. End-of-life for older patients	Prof T Kwok
20 Oct 16	09. Professionals' reflections in facing death and dying	Dr Vincent Tse
	10. Grief and bereavement issues	Ms C Tsang

Registration/enquiries: **Accreditation in progress
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Website : <http://www.mect.cuhk.edu.hk/taught/postgraduate.html> (Deadline) : 15 Aug 2016

Certificate Course on Occupational Hygiene Practice 2016



Objectives:

This training course is intended to promote occupational hygiene among people working in healthcare sectors. The basic principles of occupational hygiene include recognition, identification, evaluation and control of health hazards in the workplace environment. In a series of six talks, some common health and safety issues will be discussed, including risk assessment and OSH management for health care facilities. Through simple languages with illustrative examples, measures are recommended to raise the awareness and to enhance the understanding on safe work practices in order to protect their own health and wellbeing at work.

Jointly organised by



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Hong Kong



Hong Kong Institute of
Occupational and
Environmental Hygiene

Date	Topics	Speakers
4 Jul	OSH management for health care facilities	Mr. Hok-kwan TSUI
11 Jul	Handling of medical and chemical waste in health care services	Mr. Siu-lun WONG
18 Jul	Night shift works and health effect	Prof. Shelly Lap-ah TSE
25 Jul	Radiation hazards and controls	Mr. Sung-tat YIP
1 Aug	Infection control and ventilation	Mr. Tai-wa TSIN
8 Aug	Exposure risk assessment and ventilation controls of chemicals in health care	Mr. Mo-tsun TO

Date : 4, 11, 18, 25 July and 1, 8 August, 2016 (Every Monday)

Time : 7:00 p.m. – 8:30 p.m.

Venue : Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong

Language Media : Cantonese (Supplemented with English)

Course Fee : HK\$750 (6 sessions)

Certificate : Awarded to participants with a minimum attendance of 70%

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Dr Anthony SF CHING

BDS (HKU)

Junior Hospital Dental Officer, Oral Diagnosis & Polyclinics
University of Hong Kong, Faculty of Dentistry



Dr Anthony SF CHING

Gone were the days when our daily lives were dictated by a world of tangibles, we now more than ever, live in an age where everything is going digital. The digitalisation of information and tools has brought the world closer with the wealth of knowledge and convenience at the touch of our fingers. It has in turn, revolutionised our lives, allowing feats once unfathomable only years earlier the daily norm (a sentiment that holds true in the preceding articles).

Having received my bachelor's degree less than a year ago, I can attest to the fact that my collection of books on dentistry currently fits with a paltry thirty-two physical copies. In comparison, my electronic agglomeration of e-books and e-journals occupies some twenty gigabytes of memory. It is undeniable that the quality of our lives has improved immeasurably with the advent of technology. In spite of this, there are still things in life that are made better with the human touch, a concept that is seemingly elusive and irreplaceable in even the most advanced artificial intelligences and software.

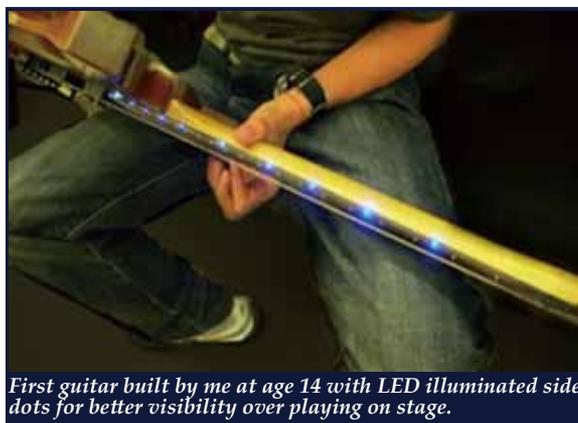
Charles Caleb Colton penned the saying that "imitation is the sincerest form of flattery"; a quote that holds most truth in our chosen profession. Dentistry, grows a diminishing breed of individuals that employ physical labour in restoring the beauty and functionality of those seeking our needs. Having existed for over two millennia, we are a guild of artisans and pioneers towards the betterment of the human well-being. Though our actions are noble, I doubt that many people are born into the profession (at least not from my experience). For me, my passion for dentistry sprung from my interest in working with my hands, specifically of that in guitar lutherie.

Remember a time when most things of desire seemed out of financial reach? That predicament seemed to occur quite often earlier in my life, the solution to that problem was to fabricate such items myself. At fourteen years of age, I went to an Eric Clapton concert, during which I had a spur of the moment thought; that life would not be complete without a guitar in my possession. Knowing my tendency to move on to novel desires my parents aptly dismissed my request...and they were correct. After two years of guitar lessons, I realised my passion was not in guitar playing, but rather in the materials and construction of the very guitars themselves, and in that summer as an excuse of a school project, I made my very first electric guitar.



Jimi Hendrix, Monterey Festival Pop 1967 (Courtesy of Bruce Fleming, AP Images)

A brief history on guitars. Most are familiar with the current iteration of guitars, the fretted instrument that creates sound via the plucking of strings. The precursor of such instruments can be dated as far back as three millennia to the Babylonians, though the current shape and form that we are familiar with, resembles most with that of the medieval lute. Even the great artisan Antonia Stradivari famed for making the world's most exquisite and expensive violins and cellos is known to have produced at least two guitars. The electric guitar, nonetheless, has a much more contemporary origin. Invented in the 1920-30s, it was first invented as a means to amplify the sound of the instrument to make it audible within the big band setting. With developments from both Leo Fender and Les Paul of the Fender and Gibson fame, the electric guitar has arguably been the most influential instrument of the recent decades. The electric guitar spawned the music heard from the Beatles, Jimi Hendrix and Led Zeppelin of the Rock and



First guitar built by me at age 14 with LED illuminated side dots for better visibility over playing on stage.

Roll era to that of the ear bleeding Guns N' Roses and soul searching sound of Santana. In the right hands, such instruments have helped shape and define the era bygone, and moreover, lead the wave of music of the future.

In its simplest form, guitar luthierie is simple, take wood, cut it into shape, and assemble. However, the hardest part, is making such creation sound good. Just as a good burger calls for quality meat, a good guitar requires good timber. The following will be a photographic series illustrating in brief the procedures required in fabricating an electric guitar.

For this current endeavour, three species of wood are required; Eastern maple, Honduran mahogany and Brazilian rosewood, all of which were harvested from old grown trees and have been air-dried over the course of 50 plus years. Those who know a little about guitars, will know that I'm trying to recreate a Les Paul model guitar, made famous by users such as Peter Green of Fleetwood Mac, and Billy Gibbons of ZZ Top.

Below is a photographic journal of the major steps required in creating a guitar from raw wood. I hope it inspires you the way it does with me.

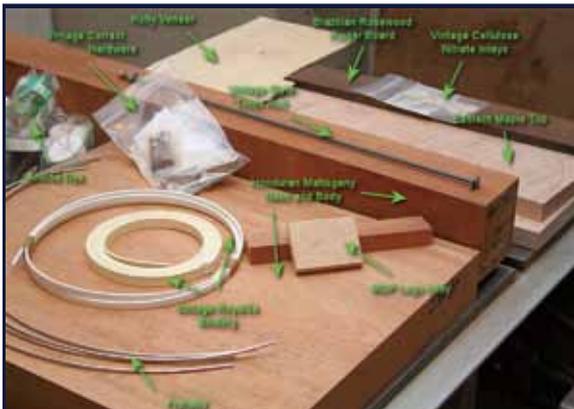


Fig. 1: Materials required



Fig. 2: Routing Templates



Fig. 3: Body blank is first trued with planer. Rough outline of guitar body is cut with band saw and sanded to size with spindle sander. Toggle switch canal routed



Fig. 4: Control cavity and toggle switch cavity preliminary routing done

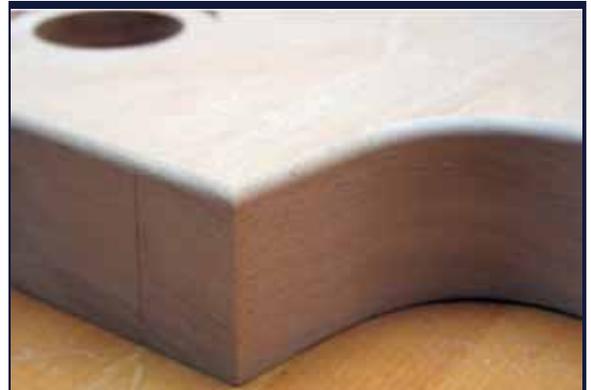


Fig. 5: Bottom edge route

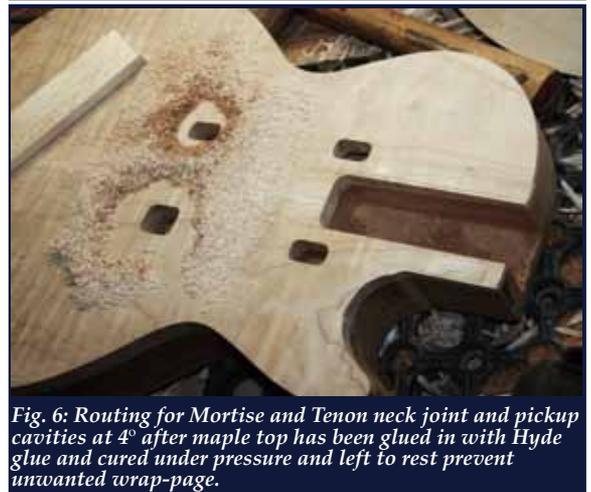


Fig. 6: Routing for Mortise and Tenon neck joint and pickup cavities at 4° after maple top has been glued in with Hyde glue and cured under pressure and left to rest prevent unwanted warp-page.



Fig. 7: Shaping of top curve with an assortment of chisels followed by violin planes and scrapers before finally finishing with successive finer grades of sandpaper



Fig. 8: Channel routed for binding to fit in later, made via a specialized routing bit



Fig. 9: ABS plastic binding is wrap around the binding channel with heat gun and glued in place with acetone-based glue. A long roll of cotton thread is then wound across to body to insure tight fit of binding while it sets into place.



Fig. 10: The binding is scraped with scalpel after which the pickup plane is routed flush to neck angle before final sanding



Fig. 11: Secondary Routing performed on control cavity to expose maple, mahogany transition



Fig. 12: Radiusing the Brazilian Rosewood fretboard with successive grits of sandpaper



Fig. 13: The fretboard is first trued with a bob plane and then radiused to specification with a sanding block. Fret locations are measured out via the Rule of 18.



Fig. 14: Inlays are routed from templates and glued with acetate-based glue mixed with saw dust



Fig. 15: Fret wire is pre-bent and hammered into the prepared slot; excess ends are nibbed off



Fig. 16: Royalite binding glued to fingerboard, excess binding scraped with No 15 scalpel, before filing to smoothness. Side dots added after binding glue sets.



Fig. 17: Tortoise patterned celluloid side dots added after binding glue sets



Fig. 18: Neck blank cut into rough shape, and left to rest to prevent wrappage



Fig. 19: Neck tenon cut with band saw before finishing with hand chisels. Trial fitting of premade truss rod after channel was routed.



Fig. 20: Sanding of neck joint to insure a flush snug fitting to body.



Fig. 21: Mahogany wings glued on. Holly veneer glued headstock with template for later cutting and reference.



Fig. 22: Fretboard temporary joined with neck via double-sided tape. Reference neck profile gauges made with rasps and hand planes following a template before sanding



Fig. 23: The rest of the neck is carved by creating a smooth contour between the two references



Fig. 24: Final sanding done with sandpaper and steel wool, to ensure smooth neck surface



Fig. 25: Body and neck glued together again with hyde glue, excess if wiped off with a damp cloth before letting joint solidify and rest.



Special thanks to, S. Wilkinson, A. Donvar, V. Vaschenko for providing help and guidance along the way in addition to their kind permission to use their content

The photographic log detailed above is a brief account of the complexities involved in creating a guitar. Building the guitar is only half the job. Painting, detailing, assembling and setting up the guitar has its own arena of challenges and difficulties, something that would take an equal amount of pictures to touch over.

The process of building a guitar like all hard work involves a lot of blood, sweat and tears. In spite of this, on that faithful day that you do pick up the instrument you built, all effort seems to have paid off. For me guitar lutherie is a way for me to relax from cacophony of Hong Kong and its surroundings, it allows me consolidate my thoughts and calms my nerves. I have also more than once now found that it and dentistry compliment each other nicely towards the betterment of my skills. It may be ephemeral and most definitely old-fashioned, but it is the tangible nature of the hobby that keeps me grounded. Besides, what's wrong with a little nostalgia?

醫療券

Health Care Voucher

香港特別行政區政府
The Government of
the Hong Kong Special Administrative Region

Elderly Health Care Voucher Scheme

The Elderly Health Care Voucher Scheme subsidises our elders to receive primary healthcare services that best suit their needs. Under the Scheme, elders aged 70 or above are each provided with an annual voucher amount of \$2,000 for spending on private healthcare services. Unspent vouchers can be carried forward and accumulated, subject to a financial cap of \$4,000.

Vouchers can be used for preventive, curative, and rehabilitative services provided by enrolled medical practitioners, Chinese medicine practitioners, dentists, chiropractors, nurses, physiotherapists, occupational therapists, radiographers, medical laboratory technologists and optometrists.



Electronic Platform – Simple Claim Process

- Elders do not need to collect vouchers and no pre-registration is required before the date when vouchers are used.
- Eligible elders can use the vouchers with his/her Hong Kong Identity Card simply by visiting an enrolled healthcare service provider's clinic and signing a consent form.
- Enrolled healthcare service providers can make claims through the electronic platform by inputting simple information.

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Department of Health



Rental Fees of Meeting Room and Facilities at The Federation of Medical Societies of Hong Kong

(Effective from October 2009)

Venue or Meeting Facilities	Member Society (Hourly Rate HK\$)			Non-Member Society (Hourly Rate HK\$)		
	Peak Hour	Non-Peak Hour	All day Sats, Suns & Public Holidays	Peak Hour	Non-Peak Hour	All day Sats, Suns & Public Holidays
Multifunction Room I (Max 15 persons)	150.00	105.00	225.00	250.00	175.00	375.00
Council Chamber (Max 20 persons)	240.00	168.00	360.00	400.00	280.00	600.00
Lecture Hall (Max 100 persons)	300.00	210.00	450.00	500.00	350.00	750.00
Non-Peak Hour: 9:30am - 5:30pm Peak Hour: 5:30pm - 10:30pm						
LCD Projector	500.00 per session					
Microphone System	50.00 per hour, minimum 2 hours					



Hong Kong Museum of Medical Sciences 20th Anniversary Community Fun Fair

The Hong Kong Museum of Medical Sciences hosted the 20th Anniversary Community Fun Fair on 16th to 17th April 2016 at the Hong Kong Museum of Medical Sciences. The two-day fun fair was planned to coincide with the opening of their newly revamped gallery. This would be followed by a series of medical talks to highlight our medical heritage and enhance awareness of difference health issues in Hong Kong. As one of the supporting organisations, the Federation set up at the fun fair two booths, comprising free eye tests and mini games for the visitors. Over 400 people visited our booths and had their eyes checked. We wish to express our sincere thanks to the Hong Kong Society of Professional Optometrists for the eye tests and Bausch & Lomb & Oral-B for their gifts.





Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<ul style="list-style-type: none"> ★ 6th IDKD Intensive Course in Hong Kong ★ HKMAPS 2nd Seasonal Photo Competition 2016 <p style="text-align: right;">5</p>		<ul style="list-style-type: none"> ★ HKMA Kowloon West Community Network - Certificate Course on Dermatology (Session 1): Diagnosis and Management of Acne and Rosacea in Clinical Practice ★ HKMA Yau Tsim Mong Community Network - SGLT2 Inhibitors - an All Rounded Antihyperglycemic Therapy beyond HbA1c ★ HKMA Council Meeting ★ FMSHK Officers' Meeting <p style="text-align: right;">6</p>	<p style="text-align: center;">1</p>	<ul style="list-style-type: none"> ★ HKMACF Charity Concert for SJS <p style="text-align: right;">2</p>	<ul style="list-style-type: none"> ★ HKMA Kowloon City Community Network - Seminar on Management of Common Breastfeeding Problems: What Primary Care Doctors Need to Know and Practice? ★ 6th IDKD Intensive Course in Hong Kong <p style="text-align: right;">3</p>	<ul style="list-style-type: none"> ★ 6th IDKD Intensive Course in Hong Kong <p style="text-align: right;">4</p>
<ul style="list-style-type: none"> ★ 17th Regional Osteoporosis Conference - A Conjoint Battle against Osteoporotic Fractures ★ HKMA Tempin Bowling Tournament 2016 ★ HKMA Table Tennis Tournament 2016 (Day 1) <p style="text-align: right;">12</p>			<ul style="list-style-type: none"> ★ HKMA Central, Western & Southern Community Network - Certificate Course on Diabetes Mellitus (Session 4): Management of DM Complications <p style="text-align: right;">15</p>	<ul style="list-style-type: none"> ★ HKMA Hong Kong East Community Network - The Management of Heart Failure - Current and New Medication Overview ★ HKMA Kowloon East Community Network - COPD ★ HKMA New Territories West Community Network - Certificate Course on Diabetes Mellitus (Session 3) - Strategies to Motivate the DM Patient ★ HKMA Shatin Doctors Network - Back Pain or Ankylosing Spondylitis: Referral Strategy for Early Recognition of Axial Spondyloarthritis ★ HKMA Structured CME Programme with Hong Kong University of Science and Technology 2016 - Axial Spondyloarthritis: A Multidisciplinary Approach <p style="text-align: right;">16</p>	<ul style="list-style-type: none"> ★ HKMA Yau Tsim Mong Community Network - Update on Antihyperglycemic Therapy beyond Diagnosis and Management ★ Acupressure for Symptomatic Relief <p style="text-align: right;">17</p>	<ul style="list-style-type: none"> ★ 17th Regional Osteoporosis Conference - A Conjoint Battle against Osteoporotic Fractures <p style="text-align: right;">11</p>
<ul style="list-style-type: none"> ★ RSCP Dragon Boat Race 2016 <p style="text-align: right;">19</p>		<ul style="list-style-type: none"> ★ HKMA Kowloon West Community Network - Certificate Course on Dermatology (Session 2): Common Pitfalls in Management of Skin Problems in General Practice <p style="text-align: right;">21</p>	<ul style="list-style-type: none"> ★ HKMA Central, Western & Southern Community Network - Patient Journey of Osteoporosis <p style="text-align: right;">22</p>	<ul style="list-style-type: none"> ★ HKMA Kowloon East Community Network - Refresher Training Course on Diabetes for Primary Care Doctors ★ FMSHK Executive Committee Meeting <p style="text-align: right;">23</p>	<ul style="list-style-type: none"> ★ HKMA Yau Tsim Mong Community Network - Maculopathy - Update on Antihyperglycemic Therapy beyond Diagnosis and Management ★ Acupressure for Symptomatic Relief <p style="text-align: right;">24</p>	<ul style="list-style-type: none"> ★ HKMA KECN, HKCPP & UCH - CME Course for Health Personnel 2016 (Session 2): Understanding Dementia and Dementia Services ★ HKMA Career Seminar 2016 <p style="text-align: right;">18</p>
<ul style="list-style-type: none"> ★ HKMA Table Tennis Tournament 2016 (Day 2) <p style="text-align: right;">26</p>				<ul style="list-style-type: none"> ★ HKMA Kowloon East Community Network - Practical Tips for GERD Management ★ HKMA Hong Kong East Community Network Annual Meeting cum CME Lecture on "How to Avoid being Brought to the PIC?" <p style="text-align: right;">30</p>		



Date / Time	Function	Enquiry / Remarks
3 FRI 1:00 PM	HKMA Kowloon City Community Network - Seminar on Management of Common Breastfeeding Problems: What Primary Care Doctors Need to Know and Practice? Organiser: HKMA Kowloon City Community Network and Primary Care Office of the Department of Health; Chairman: Dr. CHIN Chu Wah; Speaker: Dr. FUNG Wai Han, Amy; Venue: Spotlight Recreation Club (博藝會), 4/F., Screen World, Site 8, Whampoa Garden, Hunghom, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
(3-5)	The 6th IDKD - International Diagnostic Course Davos Organisers: International Diagnostic Course Davos in collaboration with The University of Hong Kong & Hong Kong College of Radiologists; Speakers: Richard Baron, MD; Richard M. Gore, MD; Jay P. Heiken, MD; Riccardo Manfredi, MD; Andrea Rockall, MD; H. Alberto Var; Venue: Hong Kong Convention & Exhibition Centre, Level 2, 1 Expo Drive, Wanchai, Hong Kong	Tel: 2871 8788 19.5 (Cat. A) CME Point
5 SUN 2:00 PM	HKMAPS 2nd Seasonal Photo Competition 2016 Organiser: HKMA Kowloon City Organiser: The Hong Kong Medical Association; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong	Miss Heiman CHAN Tel: 2527 8285
7 TUE 1:00 PM	HKMA Kowloon West Community Network - Certificate Course on Dermatology (Session 1): Diagnosis and Management of Acne and Rosacea in Clinical Practice Organiser: HKMA Kowloon West Community Network; Chairman: Dr. CHAN Ching Pong; Speaker: Dr. HO Ka Keung; Venue: Crystal Room IV-V, 3/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:00 PM	HKMA Yau Tsim Mong Community Network - SGLT2 Inhibitors - an All Rounded Antihyperglycemic Therapy beyond HbA1c Organiser: HKMA Yau Tsim Mong Community Network; Chairman: Dr. LAM Siu Keung; Speaker: Dr. HO Chung Ping, MH, JP; Venue: Pearl Ballroom, Level 2, Eaton, Hong Kong, 380 Nathan Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
8:00 PM	HKMA Council Meeting Organiser: The Hong Kong Medical Association; Chairman: Dr. SHIH Tai Cho, Louis; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong	Ms. Christine WONG Tel: 2527 8285
8:00PM	FMSHK Officers' Meeting Organiser: The Federation of Medical Societies of Hong Kong; Venue: Gallop, 2/F, Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
9 THU 8:00 PM	HKMACF Charity Concert for SJS Organiser: The Hong Kong Medical Association Charitable Foundation; Chairman: Dr. CHOW Pak Chin, JP; Venue: Concert Hall, Hong Kong City Hall, 5 Edinburgh Place, Central, Hong Kong	Miss Ellie FU Tel: 2527 8285
10 FRI (11,12)	17th Regional Osteoporosis Conference - A Conjoint Battle against Osteoporotic Fractures Organiser: The Osteoporosis Society of Hong Kong; Venue: Hong Kong Convention and Exhibition Centre	ROC 2016 Conference Secretariat Tel: 2559 9973
11 SAT 2:15 PM	CME Lecture - Refresher Course for Health Care Providers 2015/2016 Organiser: The Hong Kong Medical Association; Speaker: Dr. Ng Siu Chun, Danny; Venue: Training Room II, 1/F, OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin, Kowloon	Ms. Clara TSANG Tel: 2354 2440 2 CME Point
12 SUN 2:00 PM	HKMA Tenpin Bowling Tournament 2016 Organiser: The Hong Kong Medical Association; Venue: SCAA, 61 Caroline Hill Rd, Caroline Hill, Hong Kong	Mr. Ian KWA Tel: 2527 8285
2:00 PM	HKMA Table Tennis Tournament 2016 (Day 1) Organiser: The Hong Kong Medical Association; Venue: Dr. Stephen Hui Sports Hall, LG, Lam Woo International Conference Centre, Hong Kong Baptist University, Renfrew Road, Kowloon	Mr. Ian KWA Tel: 2527 8285
15 WED 1:00 PM	HKMA Central, Western & Southern Community Network - Certificate Course on Diabetes Mellitus (Session 4): Management of DM Complications Organiser: HKMA Central, Western & Southern Community Network; Chairman: Dr. TSANG Chun Au; Speaker: Dr. MA Pui Shan; Venue: HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
16 THU 1:00 PM	HKMA Hong Kong East Community Network - The Management of Heart Failure - Current and New Medication Overview Organiser: HKMA Hong Kong East Community Network; Chairman: Dr. LAM See Yui, Joseph; Speaker: Dr. WONG Bun Lap, Bernard; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong	Ms. Candice TONG Tel: 2527 8285 1 CME Point
1:00 PM	HKMA Kowloon East Community Network - Latest COPD Management Organiser: HKMA Kowloon East Community Network; Chairman: Dr. AU Ka Kui, Gary; Speaker: Dr. Michael CHAN; Venue: Lei Garden Restaurant (利苑酒家), Shop no. L5-8, apm, Kwun Tong, No. 418 Kwun Tong Road, Kwun Tong, Kowloon	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:00 PM	HKMA New Territories West Community Network - Certificate Course on Diabetes Mellitus (Session 3) - Strategies to Motivate the DM Patients to Achieve the Treatment Targets Organiser: HKMA New Territories West Community Network; Chairman: Dr. CHUNG Siu Kwan, Ivan; Speaker: Dr. Norman CHAN; Venue: Plentiful Delight Banquet (元朗喜尚嘉喜酒家), 1/F., Ho Shun Tai Building, 10 Sai Ching Street, Yuen Lon	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:00 PM	HKMA Shatin Doctors Network - Back Pain or Ankylosing Spondylitis: Referral Strategy for Early Recognition of Axial Spondyloarthritis Organiser: HKMA Shatin Doctors Network; Chairman: Dr. MAK Wing Kin; Speaker: Dr. WONG Ching Han, Priscilla; Venue: Jasmine Room, Level 2, Royal Park Hotel, 8 Pak Hok Ting Street, Shatin, Hong Kong	Ms. Grace WONG Tel: 2235 3389 1 CME Point
2:00 PM	HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2016 - An Update on Nasopharyngeal Cancer Screening Organiser: The Hong Kong Medical Association & Hong Kong Sanatorium & Hospital; Speaker: Dr. HO Chung Wai, Ambrose; Venue: Function Room A, HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong	HKMA CME Dept. Tel: 2527 8452 1 CME Point



Date / Time	Function	Enquiry / Remarks
17 FRI 6:30 PM (24)	Acupressure for Symptomatic Relief Organisers: Hong Kong College of Chinese Medicinal Nursing & Continue Health Care Education Centre, Hong Kong Baptist Hospital; Chairman: Ms HUI Yin Hing; Speakers: Mr LAU Pak Sing; Ms PANG Wai Sum Nicki; Venue: Institute of Professional Education Continue Health Care Education Centre	Ms. Nicki PANG Tel: 9320 5076 5 CNE Point
18 SAT 1:30 PM	HKMA KECN, HKCFP & UCH – CME Course for Health Personnel 2016 (Session 2): Understanding Dementia and Dementia Services Organiser: HKMA Kowloon East Community Network & Hong Kong College of Family Physicians & United Christian Hospital; Chairman: Dr. MA Ping Kwan, Danny; Speaker: Dr. SHA Kwok Yiu, Edmund; Venue: 1. Lecture Theatre, G/F, Block K, United Christian Hospital (UCH), 130 Hip Wo Street, Kwun Tong, Kowloon 2. Conference Room, G/F, Block K, UCH (video conference)	Miss Hana YEUNG Tel: 2527 8285 1.5 CME Point
3:00 PM	HKMA Career Seminar 2016 Organiser: The Hong Kong Medical Association; Chairman: Dr. PONG Chiu Fai, Jeffrey; Venue: LKS Faculty of Medicine, HKU	Miss Kayin LEE Tel: 2527 8285
19 SUN 8:00 AM	RSCP Dragon Boat Race 2016 Organiser: The Hong Kong Institute of Architects; Chairman: Dr. YAM Chun Yin Venue: Stanley Main Beach	Miss Denise KWOK Tel: 2527 8285
21 TUE 1:00 PM	HKMA Kowloon West Community Network - Certificate Course on Dermatology (Session 2): Common Pitfalls in Management of Skin Problems in General Practice Organiser: HKMA Kowloon West Community Network; Chairman: Dr. WONG Wai Hong, Bruce; Speaker: Dr. LAM Wai Sun; Venue: Crystal Room IV-V, 3/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
23 THU 1:00 PM	HKMA Kowloon East Community Network - Refresher Training Course on Dementia for Primary Care Doctors Organiser: HKMA Kowloon East Community Network and Institute of Alzheimer's Education (IAE) of Hong Kong Alzheimer's Disease Association; Chairman: Dr. AU Ka Kui, Gary; Speaker: Dr. DAI Lok Kwan, David, JP; Venue: Gingko House, G/F, Cheerful Court, 55 Choi Ha Road, Ngau Tau Kok, Kowloon	Ms. Nancy CHAN Tel: 2527 8898
8:00 PM	FMSHK Executive Committee Meeting Organiser: The Federation of Medical Societies of Hong Kong; Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Nancy CHAN Tel: 2527 8898
24 FRI 1:00 PM	HKMA Yau Tsim Mong Community Network - Maculopathy - Update on Antihyperglycemic Therapy beyond Diagnosis and Management Organiser: HKMA Yau Tsim Mong Community Network; Chairman: Dr. CHAN Wai Keung, Ricky; Speaker: Dr. NG Sin Yee, Anita; Venue: Jade Ballroom, Level 2, Eaton, Hong Kong, 380 Nathan Road, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME Point
26 SUN 2:00 PM	HKMA Table Tennis Tournament 2016 (Day 2) Organiser: The Hong Kong Medical Association; Venue: Dr. Stephen Hui Sports Hall, LG, Lam Wo International Conference Centre, Hong Kong Baptist University, Renfrew Road, Kowloon	Mr. Ian KWA Tel: 2527 8285
29 WED 1:00 PM	HKMA Central, Western & Southern Community Network - Patient Journey of Osteoporosis Organiser: HKMA Central, Western & Southern Community Network; Chairman: Dr. LAM Ming Yuen; Speaker: Dr. TING Zhao Wei, Rose; Venue: HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road, Central, Hong Kong	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
30 THU 1:00 PM	HKMA Kowloon East Community Network - Practical Tips for GERD Management Organiser: HKMA Kowloon East Community Network; Chairman: Dr. MA Ping Kwan, Danny; Speaker: Dr. NG Ho, Paul; Venue: V Cuisine, 6/F., Holiday Inn Express Hong Kong Kowloon East, 3 Tong Tak Street, Tseung Kwan O	Miss Hana YEUNG Tel: 2527 8285 1 CME Point
1:00 PM	HKMA Hong Kong East Community Network - Annual Meeting cum CME Lecture on "How to Avoid being Brought to the PIC?" Organiser: HKMA Hong Kong East Community Network; Chairman: Dr. CHAN Nim Tak, Douglas; Speaker: Dr. CHOI Kin; Venue: HKMA Wanchai Premises, 5/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong	Ms. Candice TONG Tel: 2527 8285 1 CME Point

Upcoming Meeting

1-3/7/2016 8:00 AM	2016 AIRP Course in Hong Kong Organiser: American Institute for Radiologic Pathology (AIRP) and Hong Kong College of Radiologists (HKCR); Speakers: Dr Mark D. MURPHEY; Dr Marilyn J. SIEGAL, MD; Dr Kelly K KOELLER, MD; Venue: Hong Kong Academy of Medicine Jockey Club Building 99 Wong Chuk Hang Road, Aberdeen, Hong Kong SAR	Ms. Jana LAM Tel: 2871 8790 Fax: 2554 0739 7 CME Point
23/7/2016 12:00 PM	Hong Kong College of Health Service Executives Annual Conference 2016 - People, Technology, and innovation Organiser: HKCHSE; Venue: Shanghai room, Level 8, Cordis Hong Kong, 555 Shanghai Street, Mongkok	Ms. Eva TSANG Tel: 2821 3514 Fax: 2865 0345
8-9/10/2016	The 9th Hong Kong Allergy Convention - Novel Strategies for Prevention and Treatment of Allergic Disorders Organiser: Hong Kong Institute of Allergy; Venue: Hong Kong Convention and Exhibition Centre	HKAC 2016 Secretariat Tel: 2559 9973



Answers to Dental Quiz

Answer:

The condition is called pulpal healing by regular bone and cementum. The radiograph showed that the lamina dura had extended into the pulp canal walls and was continuous with that on the external root surfaces. Experimental studies have disclosed various distinct pulpo-dentinal responses after severe luxation and displacement dental injury, which included:

1. Regular tubular dentine
2. Irregular reparative dentine with diminished tubular structures
3. Irregular reparative dentine with encapsulated cells
4. Irregular immature bone
5. Regular mature bone and/or cementum
6. Internal resorption
7. Pulp necrosis

The last two categories were indications of failure to heal and active root canal treatment would be needed.

Reference: Andreasen JO, Andreasen FM and Andersson L. Textbook and colour atlas of traumatic injuries to the teeth. 4th Ed. Munksgaard:Copenhagen, 2007.

Dr Shiu-yin CHO

Senior Dental Officer, School Dental Care Service, Department of Health.



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植牙的9大好处

1

無須自費微笑



2

免卻蛀牙煩惱



3

咀嚼力與真牙無異



4

維持口腔健康



5

增強食物營養



6

保護周邊牙齒



7

經濟耐用



8

增強活動牙科穩定性



9

告別假牙



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