Dental Tribune

The World's Dental Newspaper · India Edition

Published in India | www.dental-tribune.com | Vol. 2 No. 3

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Study: IPS e.max lithium disilicate material the most durable ceramic tested to date

NYU College of Dentistry

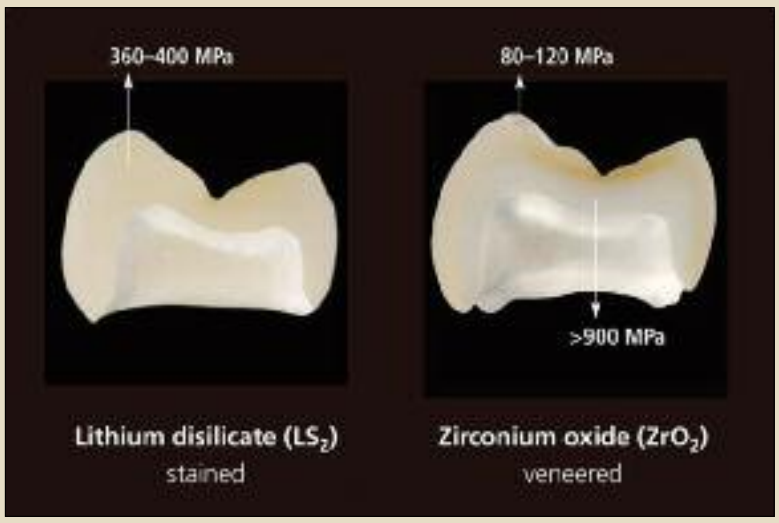
NEW YORK, NY, USA: Researchers in the Department of Biomaterials and Biomimetics at New York University College of Dentistry recently determined through mechanical mouth-motion simulator testing that IPS e.max CAD lithium disilicate ceramic is the most robust all-ceramic material tested to date. The study results were presented by P.C. Guess, R. Zavanelli, N. Silva, and V.P. Thompson.

The researchers used the mouth-motion-simulator test to compare the durability of IPS e.max CAD lithium disilicate full-coverage crowns to veneered zirconia crowns. By replicating actual forces exerted in the human mouth, this test provided a more realistic assessment of how ceramic materials hold up to the forces of chewing.

In particular, unlike previous laboratory tests that only assess a material's physical properties to meet minimal standards, the mechanical mouth simulator stressed the restorations using clinically relevant directed loads over thousands of cycles (similar to how people chew) until failure occurred.

Failure was considered to be chip-off fractures of the veneering ceramic in the case of the zirconia crowns or fracture/chip through the lithium disilicate crowns. The research found that none of the IPS e.max CAD lithium disilicate crowns failed below 1,000 N and 1 million cycles.

In comparison, the veneered zirconia crowns tested demonstrated limited reliability, with approximately 50 percent of the crowns tested failing from veneer chip-off fractures by 100 K cycles at 200 N, which



is similar to previous research findings. Also, 90 percent of the veneered zirconia crowns tested failed by 100 K cycles at 350 N.

Overall, in comparison to the veneered zirconia systems that were tested, the IPS e.max CAD lithium disilicate full-coverage crowns can be expected to demonstrate excellent clinical performance relative to chipping or fracture based on the findings of the NYU College of Dentistry mouth motion simulator testing. The failures reported in this study mimic those reported in clinical studies, suggesting that IPS e.max lithium disilicate is the most robust all-ceramic system tested to date.

(Edited by Fred Michmershuizen, DTA). DT

Union health ministry look into dental council decision

Isha Goel
DT India

The Union health ministry has set up a four-member technical committee — director general of health services Dr R K Srivastava, Dr Naseem Shah, Dr O P Kharbanda from the department of dentistry at AIIMS, and Dr Ashok Autreja from PGI Chandigarh — to investigate the decision taken by Dental Council of India (DCI), to decline the permission given to around 45 new dental colleges on ground of not having necessary faculty to run a dental college and enough clinical material to teach student, according to a report published in newspaper the Times of India. Besides, DCI has not renewed the registration of nearly 42 existing dental colleges as well.

Presently, the country has near about 290 dental colleges, producing roughly 15,000-20,000 dentists each year. According to the Council's senior members, dental education has become a productive business that is diluting quality dental schooling in India.

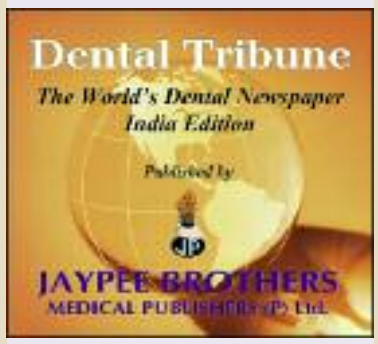
The DCI chief Dr Anil Kohli told in an interview to TOI, "India does not require new dental colleges". "There is hardly any employment opportunity for dentists in India. We must not open new dental colleges anymore but accredite the old ones under three categories — doing well, can improve, and bad. Colleges coming under the last category should be shut down."

The DCI has now made it obligatory for professors teaching at the UG level to stay in the same college for at least one year, while those teaching in the PG level must do so for three years. It has also made continuing medical education mandatory for 20 hours a year and 100 hours for 5 years. DT

News in brief

DTI expands European portfolio

The Dental Tribune International Media Group has entered into a new partnership with International Faculty for Executives, a Portuguese subsidiary of the French multinational Edition Formation Enterprise (EFE). The agreement aims to extend DTI's media and online education portfolio to Portugal, a market with more than 5,500 dentists currently. The launch of the new Portuguese edition of Dental Tribune is scheduled for the 19th Annual Meeting of the Portuguese Dental Association, to be held in Porto from 11 to 13 November 2010. EFEprovides information for 25,000 executives, companies, and local authorities in the agriculture sector, and logistics and dentistry industries. DTI's combined portfolio includes more than 100 publications that reach over 650,000 dentists in more than 90 countries and 25 languages.



Dental pulp cell may be an easy source of pluripotent cells

K.Tezuka from the Gifu University Japan, published a study in the *Journal of Dental Research*, which suggests that pulp tissue from extracted teeth may be an easy source of induced pluripotent cells (iPS). The potential iPS can not be harvested easily in the human body with a minimally invasive procedure. Tezuka et al. evaluated the possibility to culture stem cells from dental pulp. They demonstrated that DPC has the promising potential of harvesting iPS. Further, test revealed that stem cells, harvested from DPC of extracted teeth of Japanese population, were genetically compatible with 20 percent of the population.

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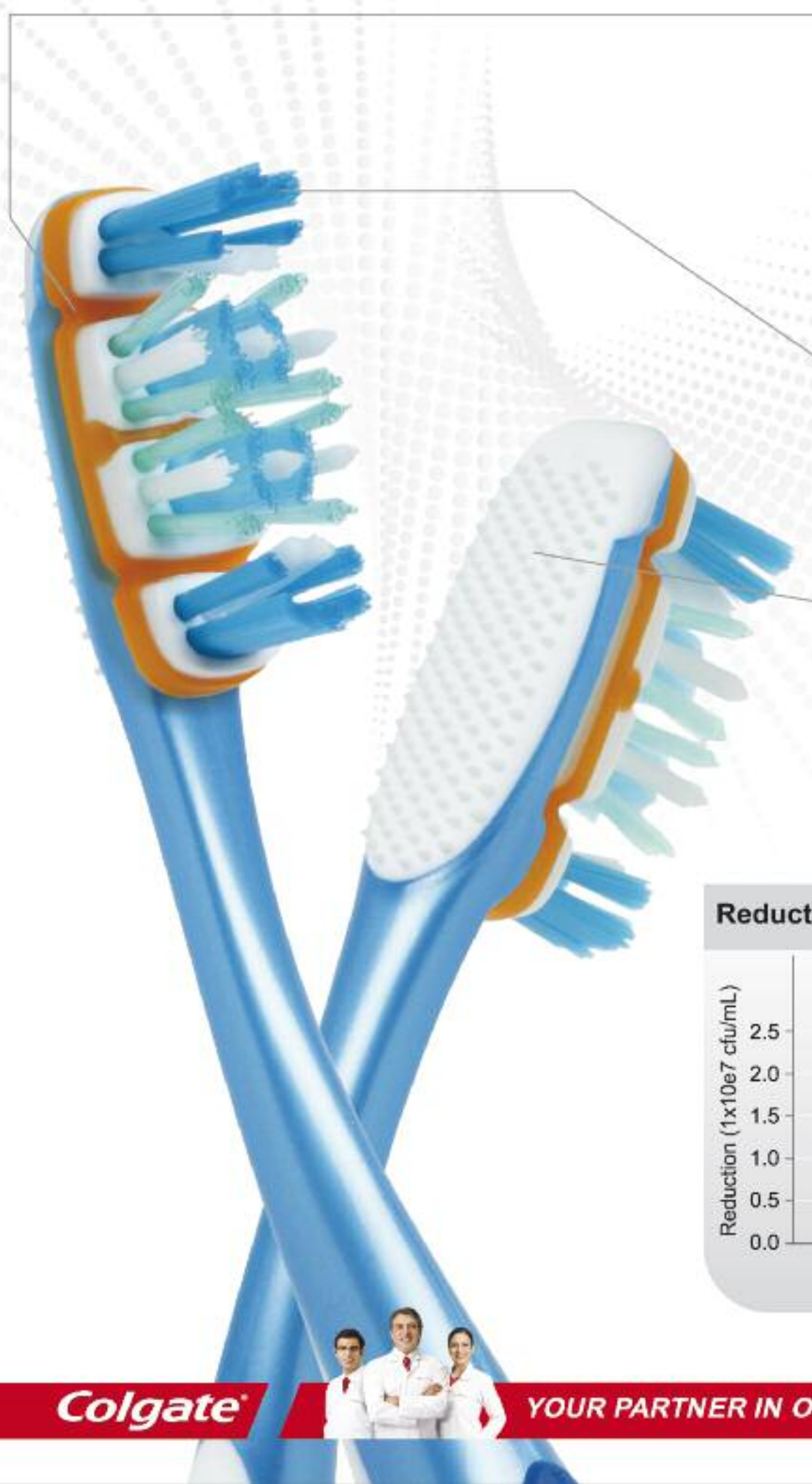

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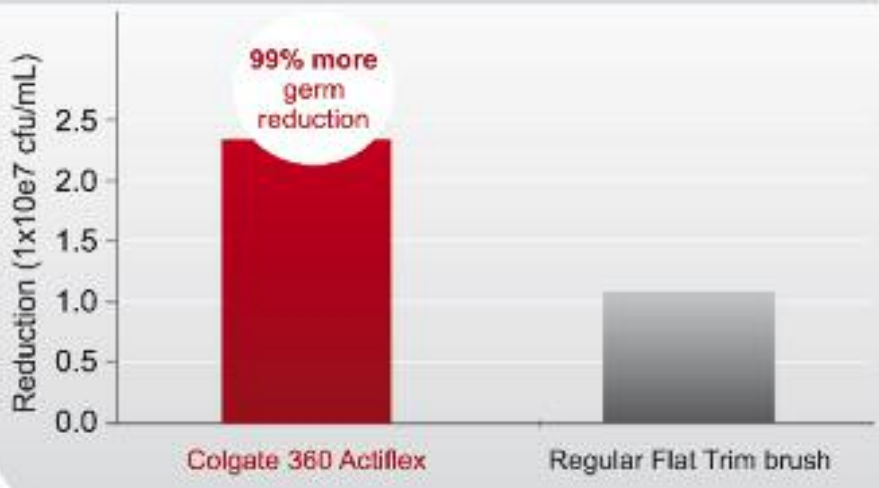

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"HC reform legislation … does not include provisions to meaningfully improve access to dental care"

An interview with Dr Ronald L. Tankersley, President of the ADA

Dr Ronald L. Tankersley

The health-care reform bill recently approved by the US Congress aims to improve access to health care for over 30 million Americans. However, dental groups say that the legislation significantly neglects oral health. Dental Tribune Group Editor Daniel Zimmermann spoke with Dr Ronald L. Tankersley, President of the American Dental Association, about the historic decision and its effect on dentistry in the US.

Daniel Zimmermann: *The American Dental Association did not support the health-care reform bill recently approved by Congress. Could you explain the rationale for your decision?*

Dr Ronald L. Tankersley: As America's leading advocate for oral health, our decision was primarily based on the oral-health provisions of the bill. We could not support the health-care reform legislation because it does not include provisions to meaningfully improve access to dental care for millions of American children, adults and elderly by properly funding Medicaid dental services.

You say that the reform does not do enough to assure that low-income families receive adequate oral health care. On the other hand, millions of people will finally be able to buy health insurance regardless of their social status or pre-existing medical conditions.

While countless other groups can weigh in on the health-care reform's overall merits & flaws, people look to the ADA for a determination of its effect on oral health care. And when the government is willing to spend close to a trillion dollars over the next ten years, but not spend a dime on improving access to Medicaid dental services for those most in need, somebody has to raise an objection. If we didn't do that now, how could we expect lawmakers to take our concerns seriously in the future? That was the basis of our decision.

You have also rejected the idea of workforce pilot programmes. Could you tell us the reason for this?

The ADA's opposition to the alternative dental models pilot programme was limited and based upon our long-held belief that certain surgical procedures must be performed only by licensed dentists.

The big losers of this reform are going to be the insurance companies. What effect do you think the reform will have on the dental profession itself?

Although the ADA could not support the final legislation, we did recognise that it contained many worthwhile provisions pertaining to oral health. These included increased funding for public-health infrastructure (including Centers for Disease Control and Prevention programmes), additional funding for school-based health-centre facilities and Federally Qualified Health Centers. We also recognised increased Title VII grant programme opportunities for general, paediatric or public-health dentists and funding for the National Health Services Corps loan repayment programmes. These provisions, which the ADA supported and lobbied for, will have a measurable, beneficial effect on dentistry and dental patients.

In your opinion, what should be changed in the reform bill to make it feasible for dentists and advance patient care?

When it comes to improving access to oral health care, our message remains: fund Medicaid, the Children's Health Insurance Program and other dental public health programs sufficiently.

These programmes are only capable of fulfilling their roles if they receive adequate funding. Many states spend less than 0.5 per cent of their Medicaid dollars on dental care—an astonishingly low rate, considering the importance of oral health to overall health. Further, poor dental reimbursement rates paid to dentists mean that many of them can't participate in Medicaid, which is one of the reasons that many states fail to provide oral health care for even half of their eligible children.

The federal government can and must do more to ensure states are able to come up with their share of these benefits.

Republicans and other interest groups have announced that they will oppose the reform bill. Where will you position yourself once the law has come into effect?

The ADA will continue to lobby for improvements to Medicaid dental benefits and will be watching closely as federal agencies implement provisions of the law. We want to ensure that the provisions we support are carried out correctly, and will work to change the provisions we oppose.

Thank you very much for the interview. DT

Beyond endodontics: Roots Summit 2010

Claudia Salwiczek
DTI

BARCELONA, Spain: What do Barcelona and endodontics have in common? For me, the answer was nothing, until last week's Roots Summit. From now onwards, I will forever connect Gaudí, Paella and La Sagrada Família with root canals.

It is certainly not an exaggeration to say that Roots Summit 2010 had all of those lucky enough to attend falling in love with endo all over again. Organised by Drs Noemí Pascual and Nuria Campo and their team, the meeting was a grand success. Long hours in the dark, yet always crowded lecture hall, despite the perfect weather, were followed by a wonderful social programme with a distinct Spanish touch.

Dr Fred Barnett, who lectured on Trauma injuries: Long-term treatment planning based on Dx and Pulpar regenerative technique, commented: "Congratulations to Nuria and Noemí for organising a fantastic Roots Summit. The venue was awesome and the lectures top notch. Roots should be proud of their efforts." The impressive list of international speakers included Dr Giusseppe Cantatore from Italy, Drs José María Malfaz and Enrique Martínez Merino from Spain, and Drs Hans-Willi Herrmann and Jörg Schröder from Germany, to name a few.

Dr Sashi Nallapati from Jamaica held two very interesting lectures on rare and challenging cases: Dens invaginatus: Treatment options and Three canal premolars: An endodontic challenge. Many in the audience had never encountered such cases and, thus, were absorbed in these presentations.

In fact, many of the lectures were very entertaining and of extremely high quality with regard to the content as well as presentation. "It was great to see presentations that staggered me with the quality of the material and the multimedia that were shown," commented Dr Glen van Ass, who lectured on Microscope centred practice: Ergonomics and documentation. "Video through the operating microscope and still photos from some of the experts was incredible. It is impressive to see the quality of the work that these teachers and talented clinicians can provide in a humble yet confident manner."


(DTI/Photo Claudia Salwiczek)

The meeting was sponsored by major industry players, like VDW, Zeiss, Dentsply Maillefer, SybronEndo Europe and Kodak. Dr John Schoeffel from the US, who introduced EndoVac—an endodontic irrigation technology system—in his lecture, also presented the product to interested attendees at the Discus booth. EndoVac enables safe irrigation to apical termination with an abundant supply of fresh irrigant. Unlike positive pressure systems that use cannulas to deliver irrigants into the canal, the EndoVac is a true apical negative pressure system that draws fluid apically by way of evacuation.

"It's not often that meetings inspire and rejuvenate people and make them look forward to future meetings," commented Dr Nallapati. "To me, certainly, this Roots Summit has done all that. And that is a testimony to the wonderful effort of Nuria, Noemí and their team." Attendee Dr Mahalaxmi Sekar agreed, saying that he pitied all those who had missed this event in Barcelona.

A majority of the lectures, for which continuing education credits can be obtained, were recorded live and will be made available for review on www.dt-studyclub.com. For more information on how to register and how to obtain credits, please contact Ms Julia Wehkamp at julia.wehkamp@dtstudyclub.com.

The date and venue for next year's meeting are yet to be decided. But one thing is for sure: this year's attendees are counting down the days. DT

Scientists link dental X-rays to cancer

Lisa Townshend
DT UK

LONDON, UK/LEIPZIG, Germany: A dental X-rays and increased numbers of thyroid cancer. After factoring X-rays taken of 300 patients in a hospital in Kuwait, they found that men and women who had had up to four dental X-rays were more than twice as likely to have developed the disease than those who had never had any dental X-rays. For those patients who had had between five and nine X-rays, their risk rose more than fourfold.

Although thyroid cancer is one of the least deadliest cancers, incident rates have almost doubled in countries like Australia in recent years.

The findings are consistent with previous reports of inreased risk of thyroid cancer in dentists, dental assistants, technicians and X-ray workers, suggesting that sensitivity of the thyroid to radiation is not necessarily related to direct irradiation of that organ but to any exposure to ionizing radiation. Besides thyroid cancer, significant risks have been also observed for leukaemia and cancers of the breast.

The researchers warned that the results of their study "should be treated with caution" because the data was based on self-reporting by the participants and the fact that other factors could be contributing to the increase in thyroid cancer cases. Further research is required to confirm the exact effect of dental X-rays, they added.

"It is important that our study is repeated with information from dental records, including frequency of X-rays, age & dose at exposure," Dr Anjum Memon, Senior Lecturer and consultant in Public Health Medicine at Brighton and Sussex Medical School, who led the study, said. "If the results are confirmed, then the use of X-rays as a necessary part of evaluation for new patients, and routine periodic dental radiography, particularly for children and adolescents, will need to be reconsidered, as will a greater use of lead collar protection." DT

(Edited by Daniel Zimmermann, DTI)


A dental assistant looking at an X-ray. New research is questioning current guidelines that state low-dose radiation exposure through dental radiography is safe. (DTI/Photo Dmitriy Shironosov)

International Imprint

DENTAL TRIBUNE
The World's Dental Newspaper · India Edition

Published by Jaypee Brothers Medical Publishers (P) Ltd., India

Publisher
Torsten Oemus
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Published by: Jaypee Brothers Medical Publishers (P) Ltd.
4838/24, Ansari Road, Daryaganj, New Delhi 110002, India
Phone: +91 11 43574357
e-mail:jaypee@jaypeebrothers.com
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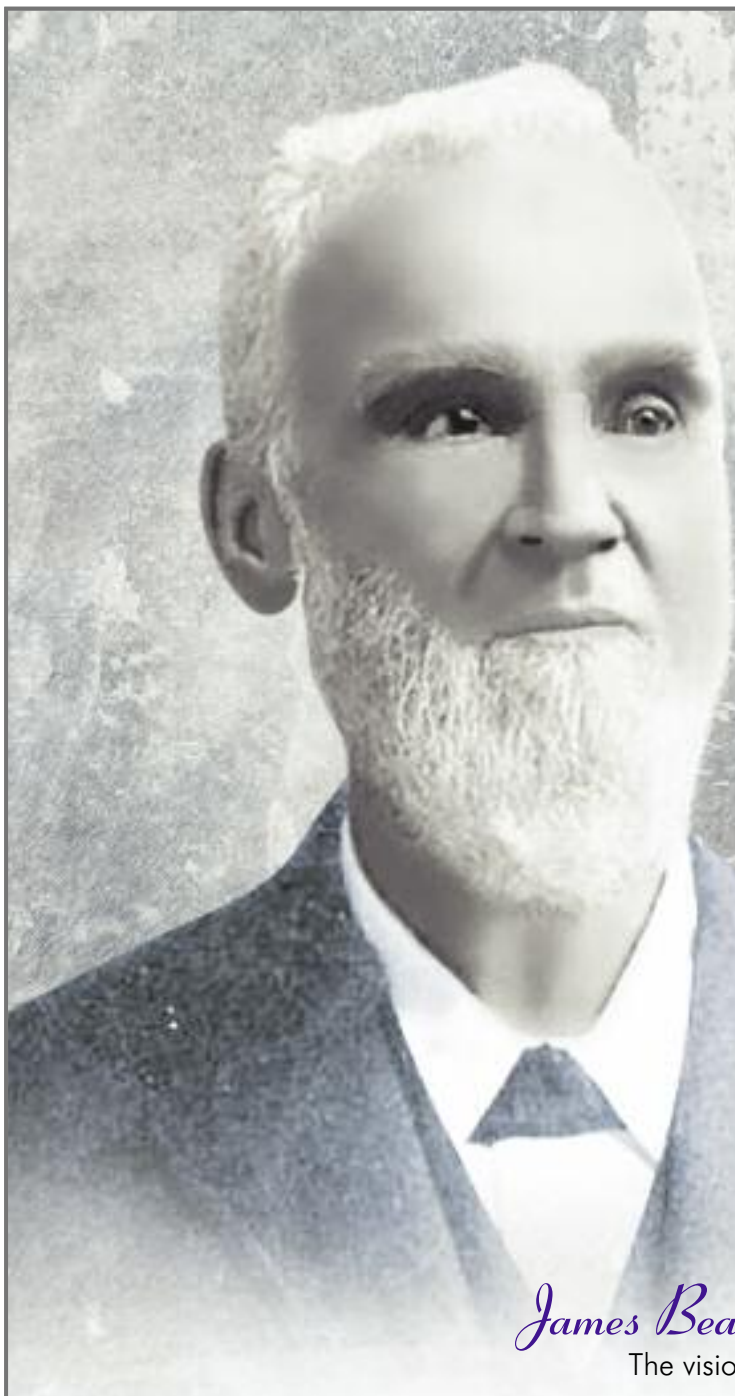

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Three essential lessons for every new dentist

By Sally McKenzie, CEO

After years of schooling, thousands of dollars in tuition, hours upon hours of clinics and exams, and tests and on and on, finally you entered the working world as a dentist. Just you and the patients.

Wouldn't it be great if it could really be that simple?

It's likely that it didn't take you long to realize that once your tour in dental school was over, the learning process had only just begun.

Moreover, there are at least three key lessons that were probably barely touched upon in the dental school curriculum.

Lesson No. 1: How to deal with people

I'm not talking about the patients. You've been trained to manage them. I'm talking about the people you see every day, the ones you work with elbow to elbow, those you depend on to represent you, to make sure you have enough money to pay your bills, to keep your schedule on track, etc.

Obviously, I'm talking about your team. Your success as a dentist is directly dependent upon your employees' success. Unfortunately, one bad hiring decision can cost you a small fortune — estimates range between 1.5 to 5 times annual compensation — it can also damage patient relations, staff morale and overall effectiveness of the practice.

Given what's at stake, pay close attention to Lesson No. 1: Do your best to hire the best and never hire under pressure. Follow these steps and take a clear and measured approach to ensure that every employee you hire is the best fit for your growing practice.

Assess the systems before you bring in a new employee. If you're hiring an office manager, look at business operations first. Are the business systems, sche-duling, collections, recall, etc., working efficiently? If not, this is your chance to fix them, to integrate new protocols and establish up front how you want these handled in your practice.

Take 15 minutes. Set aside 15 minutes to think about what you want the person in this position to do. Make a list. Consider what you are looking for in this individual.

Write a job description. Once you've given some thought to the position, update or write a job description for the job tailored to attract the employee you need. Include the job title, job summary and specific duties. This clarifies what skills the applicant must possess and explains what duties she/he would perform.

Cast a wide net. Develop an ad and place it on multiple websites & in different publications. Promote those aspects of the job that will have the greatest appeal, including money. Sell the position.

"Give ongoing direction, guidance and feedback to your team so they know where they stand."

Keep the copy simple but answer the reader's questions — job title, job scope, duties, responsibilities, benefits, application procedures, financial incentives and location. Direct prospects to your website to learn more about your practice and the position.

Read the resumes; don't just scan them. Highlight those qualities that match the position's requirements. Look for longevity in employment. Be careful of those applicants that only note years, such as 2008–2009. Chances are this person was hired in December of '08 and fired in January of 2009.

Watch for sloppy cover letter. The applicant may have poor attention to detail. Flag resumes with "yes," "no," or "maybe." The "yes" candidates are the first to be considered.

Pre-screen applicants on the phone. Address your most pressing concerns up front. If there are gaps in employment history, now is the time to find out why. Ask the applicant what salary range she/he is expecting. Listen for tone, attitude and grammar on the phone, particularly if the position requires handling patient calls. Based on the applicant's phone demeanor, would this person represent your practice well?

Prepare for the interviews. Conduct interviews using a written set of standard questions for each applicant so you are able to compare responses to the same questions.

Avoid asking any personal questions. Ask follow-up question based on the applicant's responses. Jot down personal details to keep track of who's who. The candidate is likely to be on her/his best behavior in the interview. If the applicant doesn't impress you now, it will not get better after she/he is hired.

Test for the best. Take advantage of Internet testing tools that are available to dentists. Such testing has been used in the business sector for years to help companies identify the better candidates for specific positions.

Check 'em out. Once the interview and testing process has enabled you to narrow the selection down to a couple of candidates, check their references and work histories. This step can yield tremendously helpful information and will save you from multiple hiring horrors.

Budget for training. Give your new employee the tools and the knowledge to achieve her/his best, and you'll both benefit significantly. Above all else, when it comes to staff hiring, make your decisions based on real data, not a candidate's sunny disposition or your "gut feelings."

Lesson No. 2: Lead your team to excellence

If you're frustrated by what you perceive as average or below average team performance, determine if you've given them the foundation to achieve the standards you expect. First, avoid the most common pitfall in leading employees: Assuming that your staff knows what you want. Don't assume. Spell out your expectations & the employees' responsibilities in black and white, and do so for every member of your team from the beginning. Do not convince yourself that because they've worked in this dental practice for X number of years, they know how you want things done. They don't, and they will simply keep performing their responsibilities according to what they think you want unless they are directed otherwise.

Recognize the strengths and weaknesses among your team members. All employees bring both to their positions. The fact is that some people are much better suited for certain responsibilities and not others. Just because "Rebecca" has been handling insurance and collections for the practice doesn't mean she's effective in those areas. Look at results.

Rebecca may be much more successful at scheduling and recall & would be a much more valuable employee if she were assigned those duties. Don't be afraid to restructure responsibilities to make the most of team strengths. In addition, be open to maximizing those strengths through professional training.

Give ongoing direction, guidance & feedback to your team so that they know where they stand. Don't be stingy. Give praise often and appraise performance regularly. Verbal feedback can be given at any time, but it is most effective at the very moment the employee is engaging in the behavior that you either want to praise or correct.

Nip problems in the bud and you'll avoid numerous thorns in your side. If an employee is not fulfilling her/his responsibilities, address the issue privately and directly with her/him. Be prepared to discuss the key points of the problem as you see it as well as possible resolutions.

Use performance reviews to motivate and encourage your team to thrive in their positions. Base your performance measurements on individual jobs. Focus on specific job-related goals and how those relate to improving the total practice.

Used effectively, employee performance measurements and reviews offer critical information that is essential in your efforts to make major decisions regarding patients, financial concern, management systems, productivity and staff in your new practice.

Lesson No. 3: Keep your hands in the business

Certainly, it doesn't take long to recognize that there are many hats for the dentist to wear. The hat that says "The CEO" is just as important as the hat that says "The Dentist." It is critical that you completely understand the business side of your practice.

There are 22 practice system and you should be well-versed in each of them. If not, seek out training for new dentists. The effectiveness of the practice systems will directly, & profoundly, affect your own success today and throughout your entire career.

For starters, routinely monitor practice overhead. It should breakdown according to the following benchmarks to ensure that it is within the industry standard of 55 percent of collections:

- Dental supplies: 5 percent
- Office supplies: 2 percent
- Rent: 5 percent
- Laboratory: 10 percent
- Payroll: 20 percent
- Payroll tax & benefit: 3 percent
- Miscellaneous: 10 percent

Keep a particularly close eye on staff salaries. Payroll should be between 20 and 22 percent of gross income. Tack on an additional 3 to 5 percent for payroll taxes and benefits. If your pay roll costs are higher than that, they are hammering your profits. Here's what may be happening:

- You have too many employees.

- You are giving raises based on longevity rather than productivity/performance.
- The hygiene department is not meeting the industry standard for production, which is 33 percent of total practice production.
- The recall system, if there is one, is not structured to ensure that the hygiene schedule is full and appointments are kept.

Maximizing productivity. Hand-in-hand with practice overhead is production, and one area that directly affects your production is your schedule. Oftentime, new dentists simply want to be busy, but it's more important to be productive. Follow these steps to maximize productivity.

First, establish a goal. Let's say yours is to break $700,000 in clinical production. This calculates to $14,583 per week, not including four weeks for vacation. Working 40 hours per week means you'll need to produce about $364 per hour. If you want to work fewer hours, obviously per-hour production will need to be higher.

A crown charged out at $900, which takes two appointments for a total of two hours, exceeds the per hour production goal by $86. This excess can be applied to any shortfall caused by smaller ticket procedures. Use the steps below to determine the rate of hourly production in your practice. DT

The assistant logs the amount of time it takes to perform specific procedures. If the procedure takes the dentist three appointments, she should record the time needed for all three appointments.

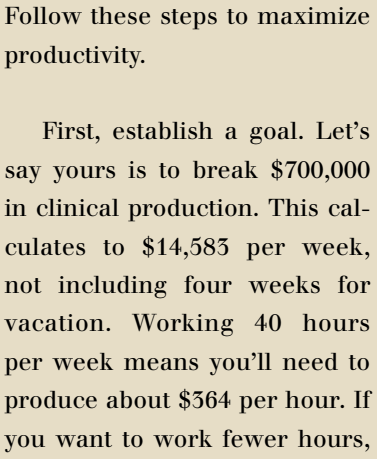
Record the total fee for the procedure.

Determine the procedure value per hourly goal. To do this, take the cost of the procedure (for example, $900) divide it by the total time to perform the procedure ($900 ÷ 120 minutes). That will give you your production per minute value (= $7.50). Multiply that by 60 minutes ($7. 50 x 70 = $450). Compare that amount to the dentist's hourly production goal. It must equal or exceed the identified goal.

Now you can identify tasks that can be delegated and opportunities for training that will maximize the assistant's functions. You also should be able to see more clearly how set up and tasks can be made more efficient.

A career in dentistry is one of the most personally and professionally fulfilling fields you can choose. With the right team, clear leadership and effective business systems, you can enjoy tremendous personal success and lifelong financial security for you and your family.

About the author



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Current concepts in gutta-percha removal for re-treatment

Second and final part by Dr Roheet Khatavkar & Dr Vivek Hegde

Fig. 3: ProTaper Universal retreatment files D1, D2 and D3 from Dentsply Maillefer.

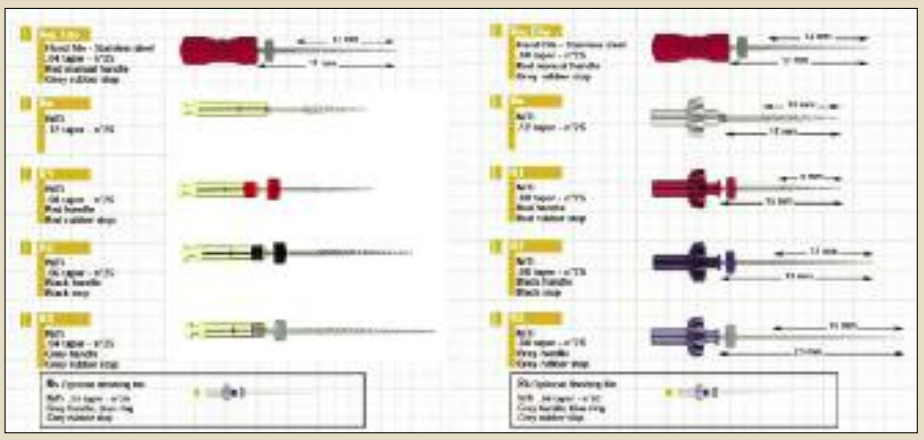

Fig. 4: R-Endo rotary and InGeT (Integrated Gear Technology) retreatment files from Micro-Mega.

5. Specialized Rotary Instruments Designed for Retreatment

At present, 3 manufacturers have introduced the specially designed instruments along with their set of NiTi rotary instruments as retreatment instruments.

A. ProTaper Universal Retreatment Kit (Dentsply Maillefer)

The ProTaper Universal retreatment kit consists of three instruments which are identified as:

D1 File: is a 30/0.09 NiTi file (marked with one white ring) of 16 mm in length used for removal of filling material from the coronal third of the root canal.

D2 File: is a 25/0.08 NiTi file (marked with two white rings) of 18 mm in length used for removal of filling material from the middle third of the root canal.

D3 File: is a 20/0.07 NiTi file (marked with three white rings) of 22 mm in length used for removal of filling material from the apical third of the root canal.

All instruments have a non-working round tip to follow canal path for effective removal of the obturating material without modifying the original curvature or shape of the root canal.

Fig. 5: Mtwo NITI retreatment files

B. R-Endo (Micro-Mega)

R-Endo instruments are made up from a round blank, and their cross-section is characterized by three equally spaced cutting edges. The instruments neither have radial lands nor active tip. These instruments are recommended to be used at a speed of 300-400 rpm along with gutta-percha solvent. The R-Endo retreatment kit, consists of a series of six files named as Rm, Re, R1, R2, R3 and Rs.

Rm File: is a stainless steel 25/.04 hand instrument with a 17 mm length and a 12 mm working tip. The file is used in a quarter-turn motion and to dig or break the hard layer of filling material. This instrument allows the centring and alignment of the next instrument.

Re File: is a 25/.12 NiTi file with a 15 mm working length and 10 mm cutting tip. It is used for eliminating the possible interference or dentine overhang, and flaring the access space in order to increase the solvent quantity. The short length of this instrument allows removal of only 2-3 mm of filling material from the orifice level of the root canal.

R1 File: is a 25/.08 NiTi file with a 15 mm working length and 8 mm cutting tip. This file is designed for removal of filling material from the coronal-third.

R2 File: is a 25/.06 NiTi file with a 19 mm working length and 12 mm cutting tip. This file is designed for removal of filling material from the middle-third of the root canal.

R3 File: is a 25/.04 NiTi file with a 23 mm working length and 16 mm cutting tip. This is to be used in the last for removal of filling material from the apical-third of the root canal.

Rs File: is a 30/.04 NiTi file with a 15 mm working length & 10mm cutting tip. This instrument is designed to be used in cases that require further enlargement of apical diameter of the root canal.

Fig. 6a: Nd:YAG laser from Fotona with 200 µm fiber has also been tried for gutta-percha removal.

Fig. 6b: 200 µm fiber activated in the canal for gutta-percha removal (under 16X magnification).

C. Mtwo Retreatment Kit (Sweden and Martina)

The Mtwo instruments have an S-shaped cross-section, an increasing pitch length in the apical–coronal direction. The Mtwo retreatment kit consists of only two instruments with cutting tips, i.e., Mtwo R 15/.05 and Mtwo R 25/.05, designed to reach the apex. They also have the advantage of shaping the root canal in an under-prepared tooth, simultaneously.

During the use of all retreatment files, the file penetration is carried out by exerting very slight apical pressure. The instruments should be withdrawn frequently, to inspect & remove the debris from its flutes, before continuing. In case of resistance felt during rotation, hand files should be used to confirm canal permeability. These files remove gutta-percha effectively by thermosoftening the gutta-percha with frictional heat.

They can be used in the combination with gutta-percha, solvents to soften and remove the obturation material.

6. Heat Transfer Devices

A. Heat Carrier Tips

The number of heat transfer devices like the System B, Endotec, EndoTwinn, E&Q Master, Touch'N Heat, DownPak, etc. is available for the warm vertical technique of obturation. The heat generated on the tip can be used for softening of the gutta-percha mass, thereby, aiding in retrieval of the mass. These devices are more effective in well prepared canals.

Alternatively, the hand spreaders can also be used in the similar manner, however, the amount of heat transferred to these instruments is not consistent and they retain the heat for a longer period of time as well.

B. Ultrasonic Tips

Ultrasonic tips available for ultrasonic condensation of gutta-percha or specialized re-treatment tips can be used for gutta-percha removal. These tips work on the same principle as the heat carrier devices, by softening the gutta-percha and finer tips of these instruments may be used to work around the curvatures.

7. Soft Tissue Lasers

The studies, conducted on effectiveness of the Nd: YAG laser for removal of gutta-percha, have shown that it is capable of softening gutta-percha. The addition of solvents have not shown any improvement in their efficiency in terms of time required for removal of gutta-percha from the canal walls.7 The use of Nd: YAG laser at lower settings (100 mJ, 15 Hz, 1.5 W) produces fairly clean root canals, but an incomplete elimination of gutta-percha from dentinal walls occurs. At increased power levels (100 mJ, 20 Hz, 2 W), the laser seems to be more effective on the canal walls, cleaning them better.

Conclusion

The major factors associated with the endodontic failure are the persistent microbial infection in the root canal system and /or in the peri-radicular area. It is important to remove as much sealer and gutta-percha as possible during retreatment, to uncover remnants of necrotic tissue or bacteria that might set as the antigenic source.

The new technologies, such as loupes and surgical microscopes, enable the clinician to have better visual access while treating difficult cases. Nonetheless, complete removal of gutta-percha from the canal wall is still a difficult task. Also, the complexity of the root canal system further complicates the process of retreatment, requiring a different approach to tackle the problem in each case. Every retreatment case should be treated as a fresh case and should be deal with accordingly in order to provide a predictable degree of success for the endodontic therapy. DT

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Crown or same-day onlay?

Take a look at the advantages of indirect laboratory-processed composite resin posterior restorations

By Lorin Berland, FAACD

"The trend in dentistry today is clearly toward more esthetic and less invasive. Indirect resin and ceramic inlays and onlays are not only compatible with this trend, but fulfill very nicely the restorative void between fillings & crowns," wrote Ronald D. Jackson, DDS, FAGD, FAACD (Cosmetic Tribune, Dec. 2008).

Regarding durability, esthetic inlays & onlays are not new any more. They have a track record and it is good. With today's materials, longevity is mainly a matter of diagnosis, correct treatment planning and proper execution of technique.

The problem with replacing old amalgams with tooth-colored composites is they are difficult, inconsistent and unpredictable.

Yet, the warranty on these 30-, 40-, 50-year-old silver fillings is running out. We have to remember that amalgam technology is more than 150 years old. At that time, people lost their teeth a lot earlier and died a lot earlier, too. Now, however, we have a large segment of the population that is more older than 50 & growing & they want to keep their teeth feeling good and looking good.

Let's think like our patients. Our patients want to replace these old amalgams, but they want to do it conservatively, consistently, efficiently, predictably and economically — and they want to do it in one visit.

So, what are the advantages of indirect laboratory-processed composite resin posterior restorations?

Restorations fabricated in this manner look better, under go less shrinkage, help restore the strength of the tooth, have minimal porosity and excellent marginal integrity, and they have smoother surfaces that are kinder to the gums and result in less plaque accumulation. They are very durable and can be done in one visit.

Patients appreciate avoiding the inconvenient, uncomfortable and expensive second appointment. No second appointment means no temporaries, no emergency visits, & best of all, healthy tooth structure is preserved.

By contrast, replacing amalgam restorations with direct posterior composites, especially ones involving an interproximal surface, are difficult for the patient as well as the dentist.

For many reasons, these direct composite replacements frequently prove to be inadequate, especially over time.

The inherent problems of isolation, the large bulk of composite required and the layered curing of the composite, as well as the effects of shrinkage, all affect contacts, occlusion, margins & postoperative tooth sensitivity.

Gold will always be an excellent restoration for posterior