

EDSA

Magazine



*Spring 2019
Kazan, Russia*

e-Health

*What you told us about
digital dentistry*



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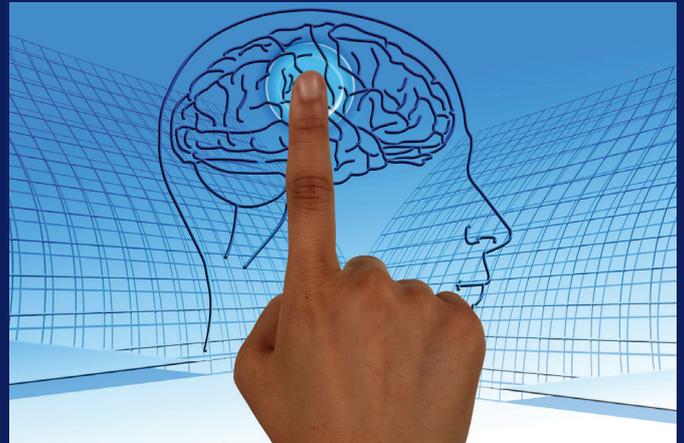
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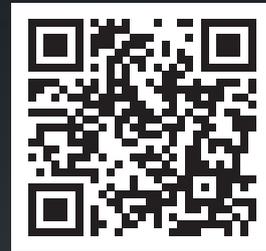
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Messages From The Team

Dear EDSA family,

Welcome to the first magazine of 2019! It is a real honour for me to take over the role of Editor-in-Chief of EDSA Magazine after an amazing two years from Linnea Borglin - these are certainly big shoes to fill. This edition sees a huge breadth of articles, with some really interesting pieces ranging from clinical, such as the article discussing reduced mouth opening, through to subjects as diverse as Brexit and Behavioural Economics, and their interplay with oral health. Dentistry is such a diverse profession, and looking at it from different perspectives is essential in finding solutions to help our patients and the population at large.

I would like to thank the contributors for all their hard work in producing these articles and invite any interested students to contribute to this great magazine! Finally I would like to thank Ivana, the Magazine Co-Editor for her great work and ideas, as well as our sponsors for helping us to produce such a beautiful magazine.

James Coughlan, *Editor-in-Chief*



Dear EDSA family,

Welcome to those of you in Kazan and to everyone reading this in their own countries. I hope that through the exciting and very informative reading of this magazine you will appreciate as much as I do the great quality of work of our Editor-in-Chief, James Coughlan, and that of our co-editor Ivana Ligusova. On behalf of the entire executive team, I would like to thank them for this remarkable first magazine of the year 2019, a great testament to their many hours of work.

I would also like to thank the entire team with whom I had the pleasure of starting this mandate: we have had an excellent and productive start to the year and I am sure we will keep this energy and motivation until the next magazine! I would like to invite all students to get involved in EDSA - there are now more opportunities than ever!

Alyette Greiveldinger
President 2018/19



Dear EDSA family,

The World Economic Forum recently published an article about the most important skills every student needs in the 21st century. The top three were: critical thinking, problem solving and creativity. The gap between the skills people learn and the skills people need is becoming more obvious - the traditional learning often fails to equip us with these skills, which are increasingly important in today's world. That is my answer when someone asks me why am I still active in our national association or in EDSA - it has taught me many of these important skills.

Helping with this project also gave me the courage to restart the dental magazine in my country, and we finally have the printed version with many doctors and students writing for us. It would never have happened without learning from James who answered all of my questions about design.

Ivana Ligusová
Magazine Co-Editor



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European Elections 2019



Daniela Timuş, EDSA Research Officer, Romania

The next elections of the European Parliament are expected to be held between 23 and 26 May 2019. A total of 751 Members of the European Parliament (MEPs) currently represent more than 512 million people from 28 member states. In February 2018, the European Parliament voted to decrease the number of MEPs from 751 to 705 provided that the United Kingdom withdrew from the European Union on the current schedule.

To help you get your head around before this spring's European elections, we've put together this handy explainer, adding a commentary towards the voting

importance, from the healthcare point of view, with an emphasis on the dental profession.

What is happening?

Voters across the European Union (EU) will go to the polls to select the 705 MEPs to serve in the European Parliament for the next five years.

When is it happening?

European elections are a mixture of different electoral systems, with a distinctly disjointed approach. Therefore, most of the voters will go to the polls on Sunday, May 26; others, on the 23rd, 24th

or 25th.

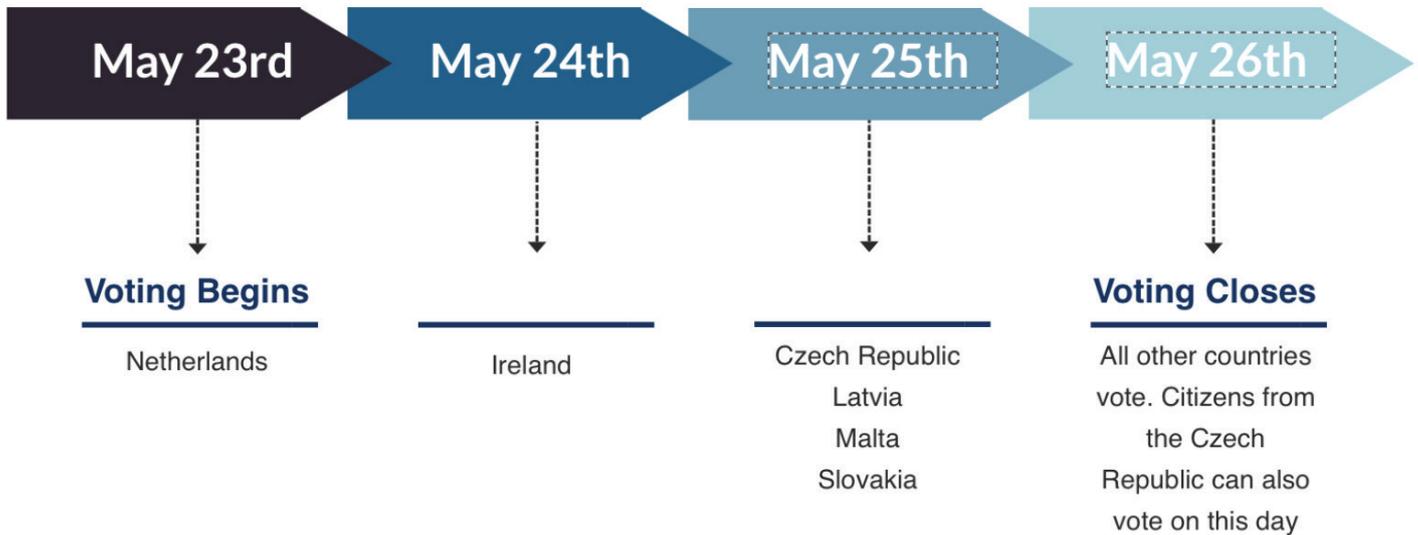
How are MEPs elected?

There are different voting systems across the EU. But all are mostly related to proportional representation, which is where parties gain seats in relation to the number of votes they get. Some countries have closed lists, other more open lists and there is also the single transferable vote.

What do MEPs do?

MEPs are elected to represent regions in some member states countries, like Italy, while in others, such as Germany,

2019 EUROPEAN ELECTION DATES



they have the whole country as their constituency. The number of MEPs for each country is proportional to EU Member States population.

MEPs pass EU laws and approve its budget, along with the European Council, which represents the heads of state of each country. MEPs also help nominate the President of the European Commission, and subsequently the EU's administration.

What are the greatest challenges of the next term?

While several challenges related to environment, security, migration, economy, and the future of the EU are debates known for years since the EU founding, the spotlight of the next term will be on democracy representation and the establishment of a genuine health care system across the Union by 2024.

When it comes to health in the EU, power and responsibility chiefly lies within national governments. But that doesn't mean that there aren't areas where Brussels can make a difference. The EU's health policymakers rank health care as one of the core priorities to address at the

horizon 2024. With the 2019 European Parliament elections looming large, EU citizens will have a chance to voice their expectations to set into motion a genuine EU health strategy.

Why Vote

Politicians want to get elected, and so target their policies towards the groups who are most likely to turn up to vote. Whichever party you vote for, the more young people that go out to vote, the more policies will be implemented that benefit young people.

EDSA Oral Health Manifesto

We call for the European Parliament to prioritise the:

1. Improvement of the access to oral care, of the quality of care provided, and of the financial and material resources devoted to health
2. Reduction of inequities across or within Member States
3. Integration of oral health into broader healthcare agendas and public programmes, with appropriate provision of oral health care resources
4. Recognition of oral health as an integral part of general health and wellbeing
5. Contribution to the establishment of a community system for health surveillance by developing community health indicators within a system of critical review of existing data and indicators
6. Definition of the necessary methods and instruments for analysis of activities and the production of reports
7. Development of effective preventive services as the mainstay of a sustainable oral healthcare system
8. Raise the awareness of the social, economic, and political conditions that play an important role in the global oral healthcare community
9. Bridge the gap between clinical medicine and population health, integrating oral health in general health promotion and focusing on common risk factors
10. Provision of high standards of dental education, by implementing the provisions on basic training of the Professional Qualifications Directive and updating its annex to have a required set of competencies for every graduating dentist

EDSA Survey: How does eHealth affect patient care in Dentistry across Europe? A student perspective.

In an ever-advancing technological society, how is dentistry adapting? eHealth plays a large role in healthcare, but what effect is it having on patient care? This study was created to investigate the successes and downfalls of eHealth within dentistry across Europe, from a student perspective.



Elen Rowlands, EDSA Vice President External Affairs, UK

The term eHealth is widely used by many individuals, professional bodies, funding organisations and academic institutions [1].

eHealth, defined simply, is any technology within healthcare. It ranges from electronic patient records and digital radiography, to more complex components such as the use of apps, scanning and CAD-CAM. [1, 2] However, it is not only the use of technology, but a mind-set that must be adopted where individuals are willing to constantly improve, adapt and evolve [2].

The term was barely in use before 1999, however there is now widespread use of it, suggesting that it is an important concept which is growing exponentially, and there is now a tacit understanding of its meaning [1, 2].

Patients are becoming ever more empowered technologically and computer-literate. They wish to become more involved in their own health and take advantage of technology to do so [3].

Many hospitals and practices are now completely paperless, and use electronic patient notes, digital radiography, apps, health portals and e-Prescriptions. This study aimed to see what effect this is having on patient management and care, in student's opinions, and whether this differs across Europe.

Objectives

This study aimed to discover student's opinions of technology within healthcare, how reliant they are on it and how experiences and opinions of eHealth differ across countries. Do students in all countries experience the same difficulties,

or can better systems be found in certain countries to tackle issues? It was also intended to see student's opinions of the future of eHealth within patient care.

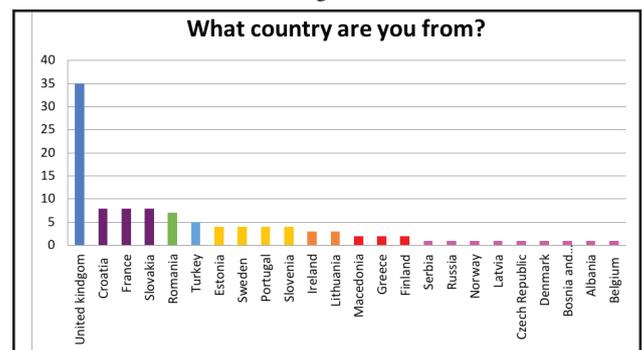
Methods

A protocol and literature review were first carried out. Following this a working group within the European Dental Students Association (EDSA) was held to discuss with students their feelings and fears about the growing dependence on technology. A draft questionnaire was then written. This was shown to and discussed with students to see whether it was in line with their interests in the topic, and addressed their concerns. A special interest group with the Association of Dental Educators of Europe was then held in order to gain different perspectives on the topic, and to see whether students' views matched their academic counterparts. The questionnaire was released to students across Europe, using the EDSA platform as a means to disperse the survey via email. Students were given a notice at the beginning of the questionnaire that by selecting 'yes' to the statement, they were agreeing to their answers being anonymously collected and used in research, which may be presented and/or published. The data was then collected and analysed.

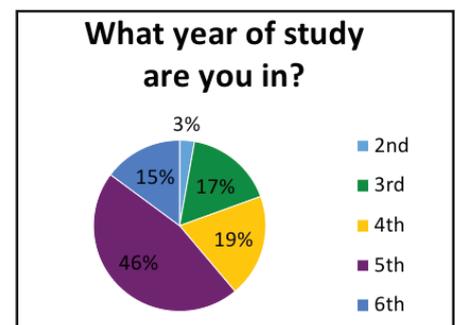
Results

The study included 28 questions, including a mix of qualitative and quantitative data. The questions ranged

from yes/no/maybe closed questions to open, long answer questions. A total of 108 students answered the questionnaire, from 24 different countries. This is shown below in figure 1.



The most represented country was the United Kingdom, with 35 people answering. The percentage of year groups represented are shown in figure 2:

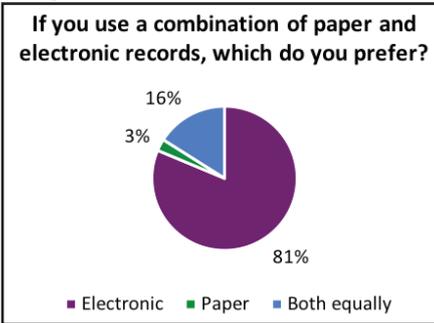


Of all the respondents, 92 (86%) knew what eHealth was, related to the definition given in the questionnaire description.

As you can see in Figure 3, majority of respondents (56%) use solely electronic notes in their practice, however still a large proportion (29%) of the cohort are using a combination of electronic and paper, and 16% still only use paper. Of those that used electronic notes, 96.2%

said yes.

The next question targeted students that used a combination of electronic and paper patient notes, asking them which they preferred. The answers can be seen in figure 3 below:



When asked why, students gave reasons seen figure 5 An astounding 46.3% said they had had trouble with electronic patient records.

Easier x 18
Faster x 11
Clearer as not having to read other's handwriting x 4
More accessible and accurate x 4
Takes up less space x 3
Less paper = better for environment
Can't lose electronic notes unlike paper
More efficient
Possibility of nationwide records
Easier to pinpoint/find specific data – search function x 3
Can be accessed from multiple locations
Possibility to adapt electronic notes throughout session to make them clearer and more logical
More eco-friendly

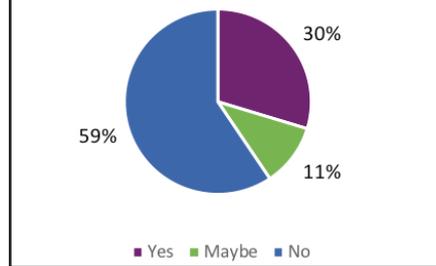
The next question was of an open nature, asking the students who had had problems whether they were aware of any procedures put in place to use as a fall back. 19 out of 32 students answered this with 'no/unsure', demonstrating that over half of the students felt there was no other solutions available if there were issues. Examples of answers are listed in figure 6:

Answers
No x 13
Unsure x 6
A good IT team to tackle potential issues x 3
Electronic problems--> work on another computer
central server shut down --> no solutions
lake of training to use the software --> ask a senior
The university is still looking into getting the right software available to students (It's accessible by dentists and strictly mandatory for them)
Using backups
Using paper records and having these scanned in

90.7% of students who answered the questionnaire used digital imaging, with 100% of them stating that they find it useful. When asked if they still get training in wet film photography, surprising amounts of students had had no training/no recollection of training in it. See figure 7 below:

A large proportion of students have also found that they have had difficulties in

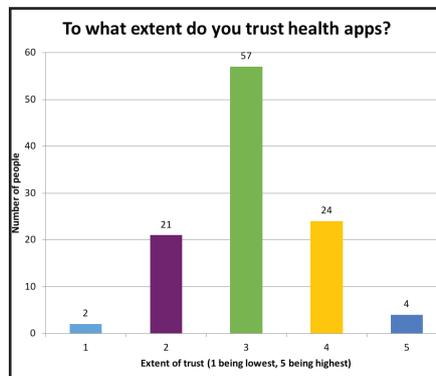
Have you been trained in wet film radiography?



digital radiography, with 43% stating that they either had had problems or might have done. Examples given are shown in figure 8:

Images getting lost in the system x 4
Software not working/crashing x 5
Slow program
Processing issues x 4
Training problems x 3
Saving problems x 5

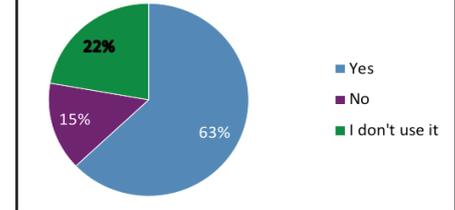
The next series of questions concerned health apps. Firstly students were asked whether they used Apps with patients (examples given to students included tooth-brushing apps, diet apps and smoking cessation apps) to which only 16.7% said they used them. Further to this they were asked to what extent they trusted apps, the answers are shown below in figure 9.



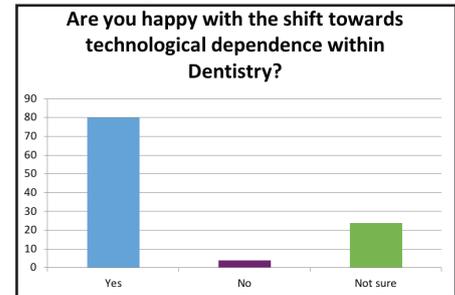
When asked if they felt that training was necessary for the types of technology mentioned above, 75.9% of students answered with yes, 13.9% answered with not sure, and 10.2% answered with no. A question then followed, asking whether the students felt confident in using this technology, to which 63% said yes, 22.2% said they don't use it and 14.8% said they didn't feel confident using it. This is demonstrated in figure 10 below.

Despite the large amount of people stating that they were not confident with using the technology, when asked whether they were happy with the shift towards technological dependence

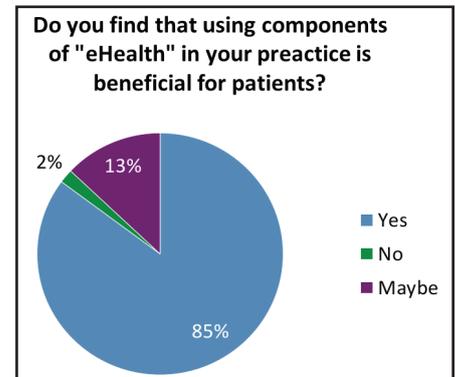
Do you feel confident in using this technology?



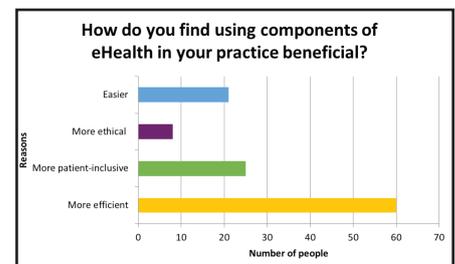
within Dentistry, the results were as follows in figure 11:



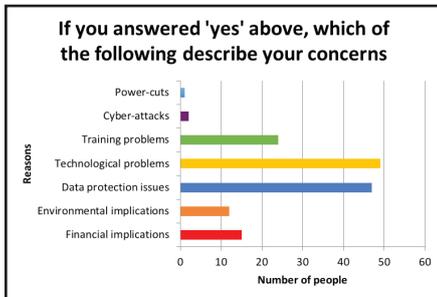
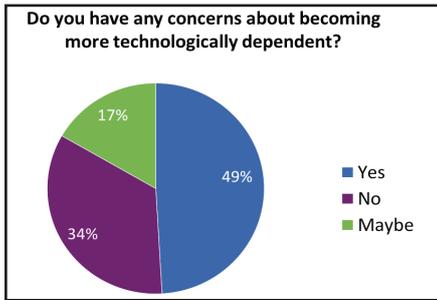
74.1% of respondents, despite previous concerns were happy about their professions progression towards more technology, and in another question it was discovered that they find using components of eHealth in their practice beneficial. This is demonstrated below in figure 12.



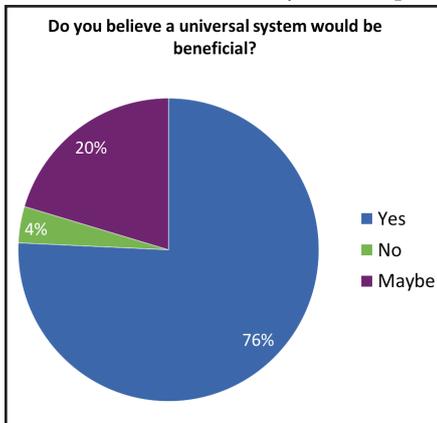
In figure 13 below, we can see people's reasoning for their choice:



However, despite students clearly feeling positive about the advance in technology within dentistry and dentists' dependence to it, 67% still have concerns/might have concerns as shown in figure 14. The reasons for this are shown in figure 15.



The final topic discussed was regarding universal systems within practice such as shared patient data, radiographs and medical details amongst different establishments and healthcare professions. For this, 41.7% of people answered that they did have universal systems put in place, 29.6% said they did not, and 28.7% said they were unsure. However, despite less than half of the cohort using this type of system, 76% would find a universal system helpful.



This is demonstrated in figure 16:

Discussion

Due to 24 countries answering from all over Europe; including Scandinavia, West and Eastern Europe, it was possible to gain a wide variety of opinions and experiences from the questionnaire. Five different year groups answered the questionnaire, however, majority of the answers were from students in their 4th, 5th and 6th years of study, which resulted in more informed answers due to increased clinical experience. Despite there being slightly more females than males answering the questionnaire, the answers were well represented by both

sexes.

A large proportion (86%) already knew about eHealth, demonstrating that majority of the students had had some experience or training.

Just over half of the students depended fully on electronic patient records, a third used a combination of electronic and paper, and 16% used paper only. Of those that used a combination of both, 81.3% felt that electronic notes were superior and only 2.7% said they preferred paper. Many reasons were given for this as shown in figure 5. Despite overall positive views, almost half of the students had experienced problems with electronic records, including system failure and lack of training, with many stating that they either were not aware of or there were not any procedures to fall-back on if problems had arisen. This could be of great concern and many patients could be negatively impacted as a result.

The questionnaire then moved on to digital imaging, where 90.7% said they used it and all found it useful. Only 29.7% of these students had been trained in wet film radiography meaning that students could potentially be losing skills and training, which they may require in practice when treating patients. A third of the students also said that they had experienced problems with digital images, as shown in figure 8.

Apps were not as commonplace in their practice as electronic records and digital imaging, and most students felt uncertain/neutral about them and they questioned their benefits to patients.

Most students believed training was necessary for the aforementioned types of eHealth, and only 63% felt confident in using it. It is important to remember that this is the younger generation stating its difficulties in understanding the technology; it is not unreasonable to assume that the older generation would have greater problems.

41.7% of students used a universal system for patient data, a surprising finding as these systems are only now emerging.

Students generally felt that this model of system leads to better patient care due to improved access and efficiency, not only making appointments easier for both patients and practitioners, but also better for patients health. One example of this could be reduced exposure to radiographs, if images are shared between hospitals and practices. However, concerns over data protection

were commonplace within the answers as well as user-friendliness of systems, speed problems, the issue of choosing a single program/company, increased prices and slow improvements due to lack of competition.

Conclusion

Despite the problems, majority of the students feel happy with the shift towards technological dependence, and seem ready for future advancements. 85% feel eHealth is beneficial for their patients, despite concerns highlighted in figure 15.

A large proportion of the students use components of eHealth to some degree in their daily practice, with very few students relying solely on paper/wet film Europe-wide.

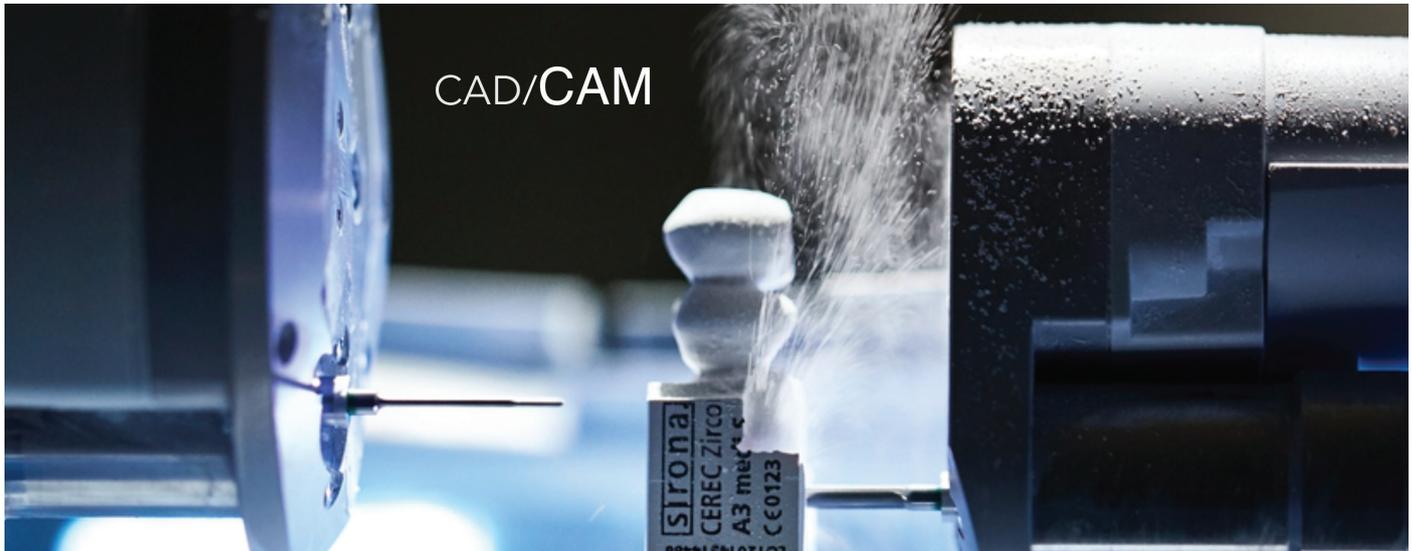
It is clear that there are still problems to overcome and improvements that need to be made before technology within Dentistry can be wholly relied on. Despite there being some evidence of best practices, it seems as though these problems are experienced Europe-wide. This paper demonstrates that until these issues are resolved, robust and straightforward fall-back procedures should be put in place, with the necessary training accompanied alongside.

Finally, students highlighted that eHealth is an essential aspect of their careers and is very beneficial in aiding them, but should never replace aspects of their care.

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CAD CAM Made Simple

As dentistry goes digital, CAD CAM will play an ever more prominent role in the way that prosthetic dentistry is carried out. But how does it work? What does it stand for? Two spanish students give you an introduction to this innovative technology.



Eduard Cristofari & Rooxana Rutgers, Spain

In the past few years, the barriers of communication and success have been pushed with the help of technology. The field of dentistry is no exception. New technologies and methods have been developed to replace the analogue work flow. According to Van Noort in November 2011, computers are making artisanal task easier, faster, cheaper and more predictable. The final restoration made through the analogue sequence: impression – plaster pouring – trimming – lost wax technique – layering, includes a high risk of errors in each step. A fully digital workflow can overcome difficulties associated with conventional techniques through 3 steps:

1. Digital Scanner
2. Software to treat prosthesis data: CAD
3. Computer data -> final prosthesis : CAM

Intraoral Scanner

The first step in the process of fabricating a restoration is the replication of the hard and soft intraoral tissues. A traditional impression is usually made with an

alginate tray placed and maintained in the mouth of the patient during the setting time of the material (5-8 minutes). After disinfection, the impression is sent to the laboratory. This process typically involves discomfort of the patient and gag reflex. Dimensional variation due to setting expansion and contraction of the cast and die result in poor accuracy, often leading to the retake of the impression. In spite of their cost and learning curve, intraoral scanners are important tool in the digital workflow. After scanning, we obtain a computerized image with the details of the patient's mouth. Some scanners can even also automatically detect the colour. Therefore, storage of plaster models and communication with the laboratory technician is improved. Digital impressions do not involve any materials and poor details areas can be rescanned specifically. The comfort of the patient is ensured by pausing the sequence of image capture (3-5 minutes per quadrant). However, the sum of images can lead to errors. Further studies are needed to assess IOS accuracy in full mouth rehabilitation. Depending on the brand, successful scan may require a coating of the teeth or soft tissue. Powder

spray enhances the quality of the image. A proper scanning would not be possible with saliva contamination. A cheek retractor and a tongue guard can be used in small patient or in children. More studies are also needed on children.

Extra-oral

Extraoral scanning can be used in a wide variety of dental applications. In the laboratory, the extra oral scanner reads the information on a cast. Two types of extra oral scanners exist : optical scanners, which scans with light, and contact scanners, touching the cast with a pin. Most of the laboratories have an optical one, as it is easier and quicker to use than the contact one, which is used for specific tasks such as implant reading.

In the dental clinic, static and dynamic occlusion can be analysed with facial extraoral scanners.

Facial scanning allow the virtual replication of realistic mandibular movement to diagnose temporomandibular joint diseases

CAD : Computer Aided Design

After the replication of the patient's mouth, the next step is to design the

future prosthetic. In the conventional technique, the design of the future prosthesis was dependant on the dental technician. With the loss wax technique, wax sprouts and metal framework sometimes did not match. In the digital workflow, a computer system is used to assist in the creation, modification, and analysis of a design. The dentist can simulate different treatment options and discuss it with the patient as the CAD technology allow to display the tissues in a 3D image system on screen. It is a more convenient experience for the patient, who can visualize their future restoration. With the computer aided design, the dentist or the technician design adjust the prosthesis parameters with the computer. The marginal line is highlighted digitally and can be modified if the software chooses it incorrectly. The thickness of the restoration is also managed digitally. Some programmes analyse and offer an objective support in shade match selection. The choice of the material is made during this step. To ensure fonctionnal occlusion, articulation in static and dynamic movement is assessed. Hua et al, evaluated the digital articulator as being as accurate as the analogue one.

CAM : Computer Aided Manufacture

Once the design of the restoration is complete, the manufacturing process can start. With CAM, the manufacturing process can be done through a milling, a subtractive process ; milling, or laser sintering, an additive process.

With the laser sintering additive technique, cobalt chromium layers are added from scratch. It is a less expensive technique as there is no waste. The

surface of the material is rough and allows more retention but tends to retain bacteria. With the milling process, material is subtracted from a block of ceramic to obtain the final restoration. Results are precise and allow an accurate connection tooth-prosthesis. The lost of the material cannot be reused, contrary to the laser sintering. Its use is indicated in cases with restoration made of zirconia or lithium disilicate ceramic.

3D printing

Intraoral scanning takes the physical information of the mouth and transforms it into numerical data. This data can be then translated into physical information thanks to the 3D printer. This allows the cast to be printed by the technician, avoiding the physical transfer by the use of digital file or by the dentist. This cast can then be further analysed or be a base for wax ups or restorative purposes.

There are multiple uses of stereolithography. An application can carry out the printing of temporary complete denture for try in purpose and send to the laboratory as additional useful information. In implant placement surgery, the success requires detailed planning. Stereolithography allows to print 3D drill guide that help to place the implant with precise direction. According to Coachman, ideal gingival curve can be designed digitally and used during crown lengthening procedures. Incision of the soft tissue curve is made through the previously digitally designed gingival guide.

Conclusion

A digital workflow in dentistry have

become increasingly popular in order to operate more efficiently. CAD/CAM increases the patient's satisfaction and can be an ergonomic tool for the dentist. Reduced chair time and fewer number of visits contributes to improve patient satisfaction. Clinical outcomes are satisfactory both for the patient and dentist. Digital work flow can be used in restorative dentistry, implantology and orthodontics.

By using CAD/CAM, the fabrication of inlays, onlays, veneers, crowns, dentures, implant abutments and orthodontics appliances can be easier, quicker and more accurately carried out. In orthodontics, the possibility to obtain a following of the impression with a digital storage and the possibility to print them with 3D printers is of great interest. The transfer of the data offers a faster aligner treatment plan. Intra-oral scanned images can be integrated in a multidisciplinary open system, incorporating CBCT, facial scanner, and digital jaw motion record.

The concept of fully digital restorations open new horizons like the possibility of using scanned natural teeth from a donator instead of handmade shape to offer more natural smile to patients. Natural shapes can then be adjusted to the patient's face. Extraoral facial scanner datas and digital smile donor datas can be integrated on a programme to show the patients the final results. None of this would be possible in the analogue world. The future of dentistry is definitely a combination of the analogue and digital workflow, but it will be the digital technology driving it forward.

Head & Neck Cancer – Still a Killer

The deadliest cancer that patients have never heard of. Dentists are on the first line of defence against head and neck cancer, but spotting it early is essential. Antonija Taskera tells us more.



Antonija Taskera, Croatia

Head and neck cancer is one of the seven most common types of cancer in Europe with approximately 150,000 new patients diagnosed every year. The term refers to any cancer that is found in the head and neck area and it usually begins

in the squamous cells that line the mucosal surfaces inside the area of head and neck. It is half as common as lung cancer but twice as common as cervical cancer.

There are more than 30 areas within the head and neck where

cancer can develop. Despite its increasing prevalence within modern western society (especially in people older than 70 years), there is little awareness about it and outcomes are very poor. Even though it may be visible and a diagnosis can be made during the extraoral and intraoral examination of the patient, it is often not picked up until the later stages where there is a poorer prognosis. When diagnosed, 60% of the people with head and neck cancer have locally advanced disease and 60% of diagnosed patients will die within 5 years. On the other hand, for patients who are diagnosed in the early stages of the disease there is an 80-90% survival rate. Therefore, an early screening and prompt referral are of the utmost importance in the case of head and neck cancer.



Risk factors and common symptoms

Data show that there is lack of awareness in patients when it comes to head and neck cancer and its risk factors. Alcohol and tobacco are the main risk factors for head and neck cancer. Smokers have a 5-7 times higher, compared to non-smokers, and as many as 40% of the patients with head and neck cancer are regular consumers of alcohol. Men who consume more than three units and women who consume more than two units of alcohol per day are at a significantly higher risk of developing head and neck cancer. Even more, alcohol and tobacco work synergistically; alcohol increases cell permeability for cancerous components of tobacco smoke. The Human Papillomavirus (HPV) is also associated with causing a number of head and neck cancers; it can cause cancers of the throat, tongue and tonsils, otherwise known as oropharyngeal cancers (OPSCC). There is an increasing connection between HPV and oral and neck cancer in younger demographics. Other risk factors are poor nutrition, precancerous conditions which present in the oral cavity and precancerous lesions in the oral cavity, various endogenous factors, viral infections, immunodeficient conditions and the state of teeth.

According to a 2015 survey by Hertrampf et al., men are 2.5 more times more likely to be diagnosed with some form of head and neck cancer than women and 3 times more likely to die from this tumour; however, it has also been reported in this survey that the incidence of mortality in women increased during the last decade, while incidence and mortality in men remained stable at a high level.

In its early stages, head and neck cancer is generally without major symptoms; they are often expressed in its late stages. Patients usually report symptoms such as discomfort and tingling sensation in the mouth area; often, they present with dysphagia, aphasia, increased tooth mobility, bleeding in the mouth area and earache. Rarely, the first symptom can be the enlargement of the lymph nodes.

The role of dentists

The importance of early diagnosis of head and neck cancer and the role of dentists in it has been notably emphasised. During the intraoral examination, along with the teeth inspection, dentists should also pay attention to the oral mucosa, especially to the area where the incidence of head and neck cancer is the most common: edge of the tongue, the bottom of the mouth cavity, palatoglossal and palatopharyngeal arches, retromolar spaces and the gingiva of the lower jaw. If there are some abnormalities in those areas, biopsy and pathohistological finding should confirm if there is a malignant formation. The most important thing is the early discovery and to act on time. Cancer diagnosis can affect people in many ways. It is very important that people have the right information, can make quick decisions and effectively cope with it. There are many organisations and support groups which help patients to cope with their illness. Dentists should also be there for their patients in their hard times and be supportive during their therapy.

Collaboration and the future

EDSA, European Dental Students' Association and Make Sense campaign have recently formed a major collaboration. The Make Sense campaign is a unique initiative by the European Head and Neck Society (EHNS), led by Prof. Wojciech Golusinski and Prof. C. René Leemans. The EHNS itself is a multidisciplinary body that brings medical experts from many disciplines together - head and neck cancer specialists, oral and plastic surgeons, radiation therapists, medical oncologists, imaging specialists and pathologists. The society also brings together other stakeholders, including speech therapists, cancer nurses, psychologists, physiotherapists, dieticians, social workers, basic scientists and patient organisations involved in any aspect of head and neck cancer and in any aspect of the care of the patients. Through the Make Sense campaign, the EHNS aims to raise awareness of head and neck cancer symptoms and subsequently drive earlier presentation, diagnosis and referral.

EDSA supported the Fourth Annual Awareness Week by posting campaign materials and messages on their official Facebook page. Living in the recent years of social media, these posts generated many views which enabled campaign messages to engage with new audiences and be seen by many people. Collaborating with Make Sense, EDSA has designed a project to facilitate patient screenings and awareness events at university dental clinics.

In 2018, the EDSA supported the Fifth Annual Awareness Week and managed to reach more than 30,000 people on Facebook. As the voice for generations to come, EDSA has an important role in promoting health and the best possible practices to the European dental professionals. After all, our proper action and early diagnosis can save a patient's life!



MAKESENSECAMPAIGN



Dr. Camelia Roman, the youngest iTOP lecturer, in an interview on prevention. She is living in Cluj, Romania, and working as a professional dentist.

Prevention is *everything*

An interview with iTOP lecturer Dr. Camelia Roman

You are the youngest lecturer in the company, is that correct?

Yes, I will turn thirty this year. In comparison with my colleagues, I'm a kid, for sure. But myself, I don't feel like that. I admire the other lecturers for several matters and I feel comfortable with them.

What makes you feel comfortable with them?

They are much more experienced, but very young by spirit.

Do you see any advantages of your age?

I have no problems to reach the younger clients. I love working especially with children. I prefer doing the prevention programs with kids. It is always very refreshing and nice to see how they learn to brush their teeth in the correct way. To teach children is a contribution to a better future.

It is a pity: When you are successful with your work as a prevention specialist, you will never meet your client again.

I don't believe this is the case, I don't worry about that. It's about changing people's habits. If you want to change

them, someone will always try to resist. You have to convince them with good examples.

How do you break the ice?

I try to be a role model, to change my own habits. That is the first step. The second step is: I show my client all those clients, who feel better through the prevention program. But you are right, it is not always easy to find the right way and the right language to approach people.

“A clean tooth cannot be sick”

If someone resists, how do you convince him or her?

I believe in something special: When the person realizes that resistance is no solution, he or she starts to think about other ways? Basically, I wait for that moment and I need to be patient.

Is it always a question of time?

For sure. I have no doubts that, at a certain point, everyone wants to change something in his or her life. I just have to be ready and catch the moment.

How do you know that? You are 29 years young with lack of experience?

I love observing people around me, and I learn quickly.

What do you like the most in the iTOP program?

The fact that it makes me feel like a real doctor. I am not just someone selling some products or some services. I don't talk about fillings, implants or prostheses, I'm not stucking in a selling process. iTOP makes me feel accurate.

But you have to sell something, don't you?

I am not selling but promoting something that I believe in. A clean tooth cannot be sick.

How would you characterize yourself?

I am a helpful person. From the beginning on. When I was a young teenager, I was encouraged to study and

to be how I really am. I always wanted to act in the same style. I am a responsible person.

Why did you decide to become a dentist?

Actually, I never thought to become one. Today, I would say that dentistry chose me rather than the other way round. I used to like biology, when I was at high school. That's why I always wanted to do something related to biology. In that manner, medicine has always followed me. But the day before I had to specialize at the university, something happened: a few friends of my parents told me to think about dentistry. That time in Romania, it was almost impossible to become a dentist, if your parents weren't dentists by profession. But my parents' friends encouraged me, and I took dentistry as my first choice.

Meaning: Sometimes you have to listen carefully?

Exactly. I am the living proof.

When did you hear of iTOP the first time?

When I was a student. As a student I liked everything related to volunteering. I was searching in the internet – and I found iTOP. I learned about how to brush teeth properly. I flew to my first iTOP lesson for students in Prague, but I wasn't accepted.

You never give up?

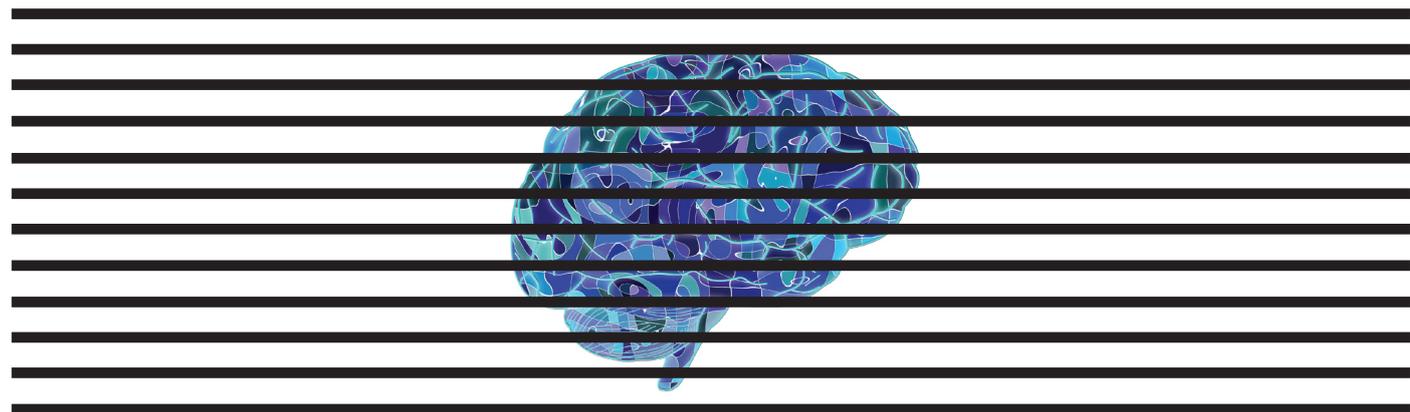
Right. I tried to enter the program in Portugal, and I made it. That was four years ago. And I have never regretted. In the meanwhile, I have been in Hungary, in India, in Switzerland. Beside working as a dentist in Cluj, Rumania, I'm travelling quite a lot.

If you had a wish, what would you do with iTOP?

I really wish that we could live in a world in which people are aware of how simple



things can be. Life is not complicated and mostly a matter of choice. I wish that everybody knows, that a clean tooth cannot be sick. When you brush properly, things are easy. Most of us don't know, how to do it. That's why we have to learn all about prevention. It is our duty as professionals to teach and to be honest. Selling solutions for problems is nothing, prevention is everything. That's iTOP.



Best Behaviour: Nudging people towards better oral health

The science behind making profit by predicting people's actions and (oral) health are not quite related. Or are they?

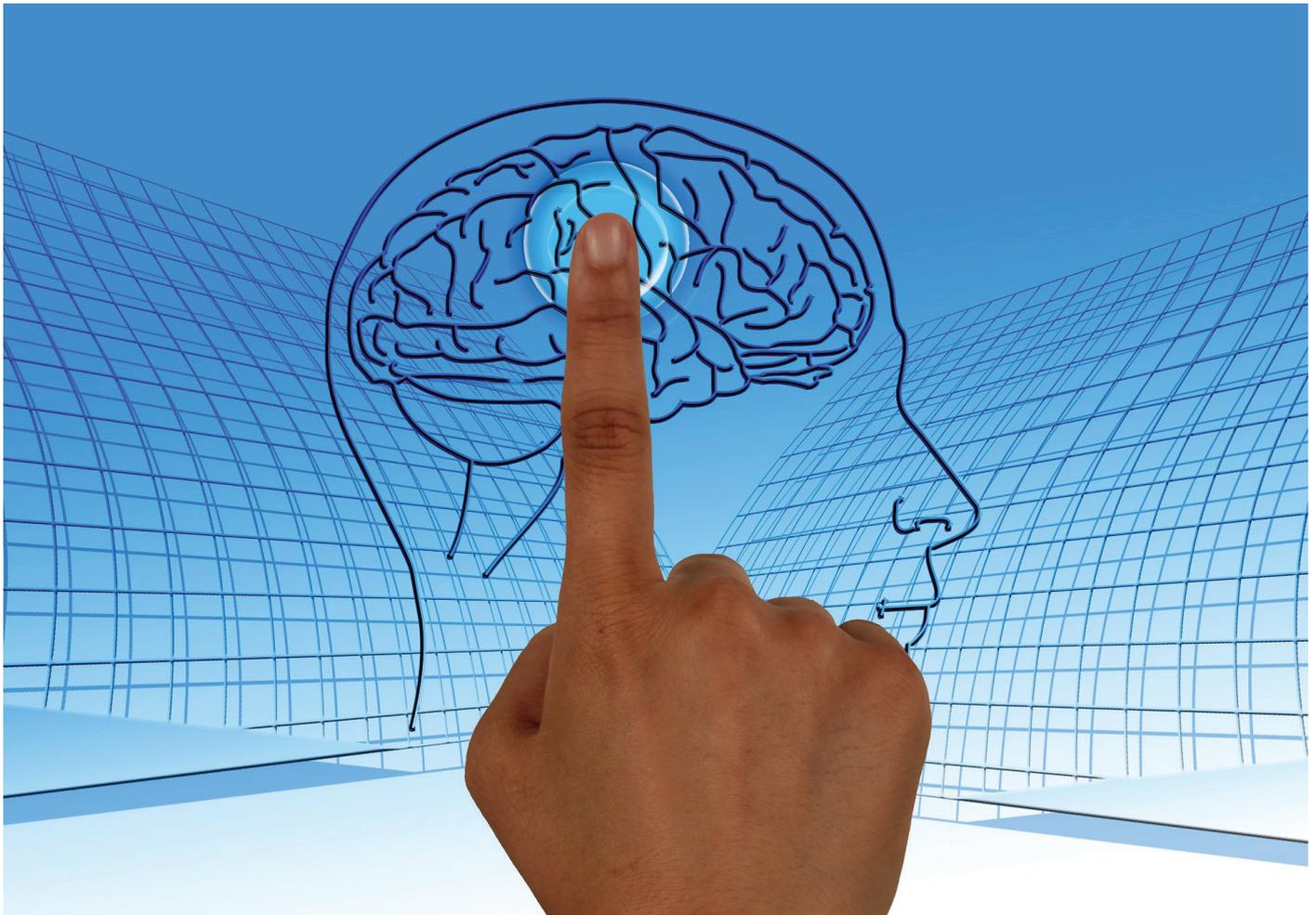


Amina Ibrahimpašić, Slovenia

In a world where everyone strives for success and large corporations fight for profit, analyzing people's choices and behavior can be of a great use.

Behavioral science, thus, nowadays plays an important part in economics, which is testified by two Nobel Prize winning theories.

First, the **Nudge theory**, described in 2008 by Thaler and Sunstein in an economics text – *Nudge: Improving Decisions about Health, Wealth, and*



Happiness – suggests that people's behavior can be altered in a predictable way (3). Take for instance grocery shopping. Everyone is likely to buy the items exposed, highlighted or reachable rather than the ones hidden across different parts of the market. People are, thus, **nudged** toward buying what we want them to, without being forced to.

Second, the **Prospect theory**, described in 1979 by Kahneman and Tversky in *The Prospect Theory: An Analysis of Decision under Risk*, suggests that decision making under **risk** can be viewed as a choice between **prospects** (i.e. chances or opportunities for success or wealth) and **gamblers** (i.e. risky actions undertaken hoping for success). Whilst making decisions people tend to avoid losses (2). For example, you would be more affected by the message saying irregular tooth brushing *increased* your chances for losing teeth rather than by the message saying regular teeth brushing *decreased* your chances of losing teeth. This is used in presenting a persuasive message in terms of expected gains or losses associated with an advocated behavior – **message framing**.

So, if predicting one's behavior can be

majorly used in economics and profit making, could it be used in directing people toward making better health choices? And if it could be used in improving public health, could it also be used in preventing oral disease and improving oral health?

Choice Architecture in Public Health

Given the promising results in the domains of money saving, pro-environmental behavior, charity donations, and loss aversion, it is essential to think outside the box and imagine what effects nudges and message framing could have as public health strategies.

Being the first step towards better health, healthy diet is among first and possibly the most common subject of studies conducted on applying the nudge and prospect theories in public health improvement. The best ways to promote healthy food are usually simple and inexpensive – making healthy food more visible and desirable. Thus, commonly used strategy is placing healthy food at eye level or at the cash register, which has an enormous impact on purchase choices (whose eye does not catch something else the minute you need to pay?!).

Others may include placing stickers of superheroes on fruit and vegetable containers and giving children tokens redeemable for small inexpensive toys, as it was done in a study of low-income elementary schools in Texas. The study found that this intervention increased the selection and consumption of fruits and vegetables (4), which is expected when you think of all the items you purchased just because they were, for instance, Frozen or Star Wars franchise, or had free gadget/toy in it. Given the nominal cost of the toys and stickers, and no cost for repositioning healthy food, these interventions could scaled up as cost-effective ways to improve nutrition of the whole population.

Message framing, on the other hand, may have stronger effects as it nudges people to think about the implications. But, what should the messages say? Should we create frightening, but scientifically correct messages and thus affect people's opinions (i.e. negative framing)? Or should we create optimistic, but still accurate messages (i.e. positive framing)? The truth is that we cannot contend anything for sure, since unstable effects are observed across different

studies. Although this is mainly the result of lack of knowledge about message framing, some suggest that risk-framing hypothesis has fundamental flaws, since its conceptualization of risk differs from the one of the prospect theory (6).

How About Oral Health?

Given the evidence based applications of the theories in public health, it is essential to investigate what effects, if any, they have in prevention of oral disease and/or oral health improvement.

In the case of oral health, investments in prevention generate potentially high returns through improved future health (e.g. less complicated, less painful and less costly treatments, social and professional benefits etc.). Therefore nudging people towards investing in preventive measures could be beneficial for both parties; patients and dentists. As described, manipulating people's perception by making oral health tools more visible and desirable can have tremendous effects. Who does not want a toothbrush with their favorite princess or superhero?! Next step could be reminding patients to make check-up appointments. A study conducted in Germany found that reminders significantly increased the likelihood of scheduling check-

up appointments and the frequency of actual check-ups. However, the nature of the reminder message (i.e. positive or negative framing) had no significant influence (1). In contrast, a study of the influence of gain- and loss-framed videos about oral health on flossing behavior and the roles of perceived susceptibility to oral health problems found that the likelihood of flossing at recommended levels significantly increased in groups in which the frame matched perceived susceptibility (5).

What Can We Conclude?

In conclusion, nudging significantly impacts one's behavior toward oral health. Behavioral strategies that helped technology and large corporations evolve could, thus, help in public oral health improvement.

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Bacterial Breath Freshener

How parococcus is providing a novel way to treat bad breath without disrupting the natural flora of the mouth. Could this be the next generation of treatments for oral malodour?



Plemmenos Grigorios, Greece

Inhaling the bad breath of the person you are talking to is an experience everyone has had at least once. While it often seems that the smell comes from the lungs or the gastrointestinal system, in the majority of cases it is in fact from the mouth. The oral cavity is host to a wide variety of microorganisms which are metabolically active. The products of their metabolism are responsible for many oral diseases (such as caries and periodontitis). One of these is “oral malodor” or “oral halitosis”. “Oral malodor” is sometimes mixed up with halitophobia (self “oral malodor”) and is considered to be a category of it. However, halitophobia is the condition where patients falsely believe they have bad breath, even if none of the guilty microorganisms are present. In these cases, treatment should focus

on psychological support and routine treatment should be avoided.

Causes

Macroscopic

Let's investigate some of the causes. Poor oral hygiene is the No1 reason that patients suffer from oral malodor. The logic is easy to understand; when your daily program lacks tooth brushing and use of dental floss or interdental brushes, your breath will not be so fresh. Another important factor is the diet. Recent consumption of garlic and onions could temporarily be responsible for the smell. Moreover, sweets and soft drinks, containing large quantities of glucose, remain the best “fuel”

for the bacterial cells, resulting in an unpleasant breath. Xerostomia provoked by taking therapeutic drugs, stress or other general diseases may lead to bad breath due to a reduced quantity of saliva, which plays a vital role in immune defense of oral cavity.

Microscopic

Getting deeper into the pathogenesis of oral malodor, it is important to mention the molecules responsible for bad breath. Studies have concluded that the main substances responsible for it are Volatile Sulphur Compounds (VSCs). The most common are methyl mercaptan, dimethyl sulphide and hydrogen sulphide. Other substances that are also detected in a bad breath are diamines (putrescine, cadaverine) and short chain fatty acids. The areas of oral cavity that these emerge from are in most cases the gingival crevices (space between enamel and free gingiva) and the posterior dorsal tongue.

Paracoccus

Until recently, the most common ways of counteracting oral malodor were the use of gums and mouthwashes. Both are aiming to the reduction of bacterial load in oral cavity. As well as these, the preservation of good oral hygiene was also suggested within preventive dentistry.

But today, a novel method has come up: the use of enzymes produced by bacterial cells that are metabolically active. According to Ramadhani et.al.,2017, the use of recombinant Sox enzymes from *Paracoccus Pantotrophus* GB17 degrades the amount of H₂S, a major compound of VSCs. *P. Pantotrophus* GB17 is characterized by an enzyme complex, the Sox system. This bacterium produces these enzymes in order to oxidate chemical compounds containing sulphate to free sulphate

without intermediates, in order to use them for energy. However, these compounds are also the same ones that cause bad breath.

The recombination of these Sox enzymes (rSoxA, rSoxB, rSoxCD, rSoxX, rSoxY, rSoxZ) leads to a significant reduction of H₂S in almost two hours and the levels of H₂S are stabilized from then on. This ensures that there is not only a temporary impact. Although this study was conducted in vitro and still needs a lot of work in order to come to a clinical stage, it is encouraging that the maximum efficiency of the enzyme complex happens at pH 7, which is close to the one of saliva in oral cavity. With this method of using rSox enzymes the aim is to find a natural way to deal with oral malodor while avoiding the negative effects of other traditional ways. For example, chlorhexidine rinses reduce, without specificity, attack the commensal bacteria that play a key role in the natural oral flora, without targeting the VSCs that are responsible for the smell. This is a key advantage of this novel therapy.

Conclusion

Taking into consideration all the above it is clear that the research on the treatment of oral malodor could be redirected to a different perspective avoiding chemicals that have detrimental side effects. Nature can offer solutions that are more biocompatible and less harmful. However, even if these data are promising, it would be premature to talk about the imminent use of these methods as they are still on experimental stage. Cost may be an obstacle to the implementation of these enzymes to everyday treatments or even to their shelf-life. In all cases, new roads could open to this research field so as to get fully rid of bad breathing.



Implantmed Plus: Smart ioDent® system saves time



Digital networking is changing the way we live. Products are becoming an increasingly intelligent part of our everyday life. Interconnected devices assume the function of little helpers, advisers and wizards. They show us how to get to places, coordinate our calendar and connect us to our friends. Ultimately, these tools give us back something that we can never have enough: time. The Internet of Things is no longer just a 'future vision' in dental practice. The new Implantmed Plus with its ioDent® system is the new smart assistant in implantology.

Efficient planning and configuration with the ioDent® online platform

Whether you're at home, on the way to work or about to begin a treatment: thanks to the new ioDent® system, with the Implantmed Plus, treatments can be planned quickly and easily online using a computer or mobile device. The ioDent® online platform's intuitive user interface enables the user to predefine all the treatment details. Implant positions and all the necessary program steps, customized for each patient, may be planned and configured prior to the treatment. The package is rounded off with an implant manufacturer database in ioDent®. The background implant data enables you to quickly select the appropriate implant system. The program steps recommended by implant manufacturers are implemented into ioDent® 1:1,

which eliminates the time-consuming need for program steps to be configured manually. The program details can also be customized in the ioDent® user interface really easily. The defined settings may simply be sent to the Implantmed Plus at the start of treatment.



Automated documentation process makes day-to-day work simpler

Transferring documentation data using a USB stick is history with ioDent®, which enables automated data management. Be it torque progression, threading curve, drill protocol or implant stability values, all the documentation data can be transferred from the Implantmed Plus surgical device to the online platform. The benefit is not only the time being saved each day, but also the safety of having access to an overview of all the data at all times. Implantologists can give their patients an insight into the insertion data as soon as the treatment is finished and provide details about the progress. If the patient needs to be referred, all treatment documentation can simply be exported and sent to whoever is due to perform the post-treatment.

More service with ioDent®

Are the devices working perfectly? Is a service due? Or is a device malfunctioning? With ioDent®, the user can easily obtain answers to all these questions and more. Using the ioDent® platform, users have a complete view of all their Implantmed Plus devices. ioDent® provides information not only on the device parameters, such as the first operation or the operating hours. The smart system from W&H informs the user about upcoming services and also warns users and W&H Service Support if malfunctions occur. W&H Service Support can therefore respond early, arrange any necessary repair measures and provide replacement devices even more quickly. This minimizes downtime and means resources are being used more efficiently.

Alongside the smart ioDent® solution package, Implantmed Plus features a range of tried-and-tested product features including state-of-the-art design, a maximum motor torque of 6.2 Ncm and a motor speed range of 200–40,000 rpm. There is also a variety of optional product features that can be selected individually and retrofitted on request, such as the W&H Osstell ISQ module – a unique system for measuring implant stability.



It's all political: Why oral health has yet to become a global health priority

EDSA VPPR James Coughlan discusses the issues in getting oral health recognised as a major global problem with Dr David Alexander, former FDI CEO and a world-renowned expert in global oral health.



James A. Coughlan, EDSA Vice President Public Relations, UK

Neglect is a strong word. It implies a wilful ignorance, an ability to look at something serious and turn the other way. Neglect of children is classified as child abuse, while medical neglect by a practitioner can result in the loss of their licence.

Big Issue, No Progress

Yet neglect is the exact right word to describe the inaction at a global level in managing oral diseases. 3.5 billion people, half of the world's population, suffer from untreated oral diseases and dental caries in permanent teeth is mankind's most prevalent disease. The Global Burden of Disease studies, funded by the Gate Foundation, found that overall the burden of oral diseases had not improved in the last 25 years – instead the burden has increased by over one billion people in that timeframe. The authors of the report tentatively mused that “maybe a different strategy is needed”. Maybe indeed.

On the surface of it, oral diseases have a perfect cocktail of traits favourable to successful advocacy, sharing many common risk factors (sugar, tobacco, hygiene, etc) with a number of other chronic and life-threatening diseases. The data above clearly demonstrate the scale of the health problem, while a large global study estimated the indirect costs of oral diseases to the global economy (for example through missed school and work) at \$187.6 billion, enough to make any economist sit a little straighter in their chair. By this number, the indirect costs of oral diseases rank among the indirect costs of the top 10 causes of death. Toothache is also a relatable pain that many have either suffered from themselves or have seen those close to them suffer.

Political Recognition of Oral Diseases

Despite this, oral diseases enjoy a small fraction of the

recognition on the political stage that other non-communicable diseases (NCDs), such as diabetes, cancer, cardiovascular disease, chronic respiratory diseases, and mental illnesses do. In the recent United Nations High Level Meeting 3 (HLM3) on NCDs lobbying from a number of dental organisations, such as the FDI and IADR, failed to get oral diseases included in the final declaration, or even mentioned in the presentations at the meeting attended by heads of state and ministers of health. This is significant because without the explicit and constant reminder at the international stage, national governments will continue to see oral health as an adjunct to general health, rather than the integral part it is. There were other disappointments too; after opposition earlier in the year from the Trump administration, the inclusion of a call to implement sugar sweetened beverage (SSB) tax was also omitted.

David Alexander, the UN representative of the Academy of Dentistry International, an NGO with Special Consultative Status to the UN, puts this failure to recognise oral disease down to two key aspects, the overwhelming efforts from of the “big five” NCDs, alongside ineffective advocacy. “The big five were so loud that a number of other chronic diseases, such as kidney and eye, were side-lined. Contributing factors for low-level of advocacy for oral diseases are inadequate financial resources and the lack of leaders highly-trained and experienced in advocacy at the global level. Advocacy efforts for oral diseases are out-witted, outsmarted and outspent by the other causes that take home the winnings while oral diseases pick over the crumbs left behind. A further example of this is the position of oral health at the WHO. In the 1980's there was an oral health division staffed by some 30 or more experts. Since then, the numbers have been allowed to dwindle into the low single digits. One should also note that the role of the WHO has also changed a lot since the 80's – they have moved towards reacting



to international crises such as infectious diseases, which they do remarkably effectively, rather than disease prevention and health promotion”.

No Idea

Successful political advocacy relies not only on statistics, but also on ideas. There is a reason that charity adverts have tragic images of death and poverty accompanied by sad music; emotion parts people with their money. Ministers of Health share the same propensity to be swayed by emotion, yet Dr. Alexander thinks that as dentists we avoid ‘going emotional’ and talk in terms of our own chairside language that no one else understands or cares about. He goes further, “We go into meetings with Ministers of Health or funding agencies with 2 or 3 dentists to the exclusion of anyone else... where is the angry parent of the child who had all their teeth extracted under general anaesthetic? Where is the angry granddaughter of the elderly patient who choked to death because they couldn’t chew their food properly? Too often in these meetings we talk in DMFT scores or mm of attachment loss – you can just see their glaze over as they recall the other competitive causes – diabetes, cardiovascular disease or cancer – who brought all stakeholders to the meeting, including patients, family and caregivers, funders, policy experts, and of course the health professionals. Other causes learned many years ago, health professionals alone never win anything – it’s the emotion around the suffering that wins it”.

A shift in the framing of oral diseases might help. “We too often use treatment need as a diagnosis, we talk about people needing fillings, not that they have a sugar-related disease; we’re straight in there with treatment plans. With gingivitis – you have an inflammatory disease but we talk about cleanings. We have as a profession talked more of procedures than diseases”. This would require a concerted shift across the profession, but a 2011 paper by Benzian et. al. found that there was

little cohesive external message portrayed by the oral health communities, with too many differing priorities and solutions. The presentation of oral diseases as a ‘neglected’ issue was also found to be inconsistent.

At what cost?

Part of the issue is that for most countries, the current model of dental care is financially unviable. Paying for treatment-based care carried out by a dentist is expensive and simply unaffordable for many countries, but there has been little impetus to move beyond this model of care towards a prevention first approach. Plenty of lip service is paid to prevention, while real investment in oral health prevention and promotion is stagnant or falling. Financial incentives are still largely based on paying for treatment rather than for health, as highlighted in a recent report by the Alliance for a Cavity Free Future (ACFF).

A growing number of voices have touted dental therapists (also known as mid-level providers) as part of the answer to this conundrum. Europe has seen a slow move towards partial access, whereby patients can see a dental therapist without prior seeing a dentist, with the Netherlands leading the way, and the UK and France not far behind. The idea is that the majority of routine work carried out by dentists could be done by hygienists or therapists for a much lower cost, potentially more appealing to less developed economies. “In advocacy, we go in saying we need more money, more dentists and more dental schools, it reeks of self-interest. We need to change the dialogue to childhood development and school absenteeism, the added costs of managing other diseases emerging in our understanding of the oral-general health bidirectional relationships. There is now good data showing significant medical savings due to dental interventions.” says Dr Alexander.

Not everyone agrees. In their 2020 Vision paper, the FDI emphatically underlined their assertion that responsibility for diagnosis, treatment planning and treatment should be the sole responsibility of dentists: “delegation - yes, substitution - no”. Such a fundamental clash only underlines the disunity in the oral health community – a disunity that seeps through in the global political arena.



The Oral-Systemic Link

What all agree on is the need to emphasise the link between oral health and general health. The bidirectional link between the two has seen an increase in attention and research, with improved oral health posited as improving diabetes, Alzheimer's disease, and cardiovascular disease. It is hoped that such findings will begin to "put the mouth back in the body" and reverse the historical split between dentistry and medicine. "When people from diabetes and heart disease are saying 'until we sort the oral health out, my programmes are never going to be as effective. We need a comprehensive package for diabetes that includes oral health' – then we'll have won in terms of advocacy. A good first step therefore is simply to think 'its not about us, its about them.'" says Dr Alexander.

Making the case in terms of country development is another avenue; "If we talk about a disease that is harming children's education, it becomes an interest of the minister of education, the finance minister and the minister of commerce" explains Dr Alexander. Poor attendance at school and work ultimately reduces the productivity of the workforce, therefore targeting advocacy efforts beyond the traditional health channels can present an opportunity to make inroads where previously there were none.

Change to Come

There are tentative signs that things are changing. The ACFE Health Economics Consortium has been set up to collect policy relevant health economics data, while large research projects such as the European wide ADVOCATE have involved a wide array of stakeholders (including patients) to look at health system planning in relation to oral health. At a European level there is generally good relations between dentists, academia, advocacy groups and government representatives. EDSA

collaborated with the European Pharmaceutical Students' Association for this year's World Oral Health Day, and our close relationship with other student healthcare organisations lays foundations for more interprofessional collaboration and respect in the future.

At a global scale, however, such collaboration remains elusive. There is still no single organisation that can unite all stakeholders and speak with a truly global voice, while attempts to permeate oral health throughout the NCD agenda are slow. As the UN HLM4 on Universal Health Coverage approaches, there is the strong likelihood that oral health will once again be overlooked. Furthermore, there is a risk that the buzz of activity in Europe and America, with many large, well-funded universities and research centres will distract attention from the higher burden elsewhere.

As student dental organisations, whether local, national, regional or global, we must ensure that we show and encourage leadership, using our connections with professional organisations to ensure that students' voices are heard through the clamour. But after our short terms are done and we graduate, we should also consider how we can continue advocating for the pressing issues that continue to plague oral health. Dr Alexander muses, "It's my generation who have screwed this all up, and it's you guys who are left to fix it. You should have that voice now. The UN has a big push to include youth (age < 32) in most of its business. Oral health needs that too!". As we progress from students to professionals we should take a concerted interest in the political landscape in which we will soon find ourselves.

Dr. Alexander can be found on Twitter at @DAGlobalHealth or on email at david@appoloniaglobalhealth.com



IN HU-FRIEDY WE BELIEVE THE UNIVERSITY WORLD REPRESENTS THE FUTURE OF THE DENTAL SECTOR

That's why we decided to make an important investment creating our dedicated Hu-Friedy University Program, developed to establish a direct connection between students, Universities, Institutions and our Company.

Our main goal is to promote a high level of support for students and faculties, providing them with innovative products and solutions throughout their careers. Furthermore, we really think that behind an important project and a study path there is always a **person** or a group of individuals who have the same mission but different experiences and backgrounds. What makes the Hu-Friedy University Program stand out from any other company program, is the importance we give to the strength of the relationship between individuals and our dedicated team. Each student, tutor or professor will have a direct contact with us as a member of Hu-Friedy University Program and can count on our support from the beginning till the end of his or her professional growth. Thanks to this tool, each member can share their personal and professional experiences with the Community. When developing the University Program we thought about how we can grow closer to students and guide them in their career path.



EASY ACCESS TO HU-FRIEDY WORLD

Initially, we want to provide students with an exclusive opportunity to experience Hu-Friedy instruments with special purchasing conditions, along with unparalleled support from our Technical Care Center when making decisions on what options work best for them.



PROFESSIONAL EDUCATION

No matter is a member is a student, tutor or a professor all participants of HFUP have access to benefits specifically designed for enhancing their learning experience.



The most important of these advantages is the opportunity to organize workshops, hands-on and trainings using Hu-Friedy loaner kits.

Our experience along with the precious commitment of our Key Opinion Leaders have enabled us to create 250 kits worth of training stock including different setups to help cover the needs of various practice types. We also offer expert support as speakers for non surgical instrumentation, sharpening, IMS, suture courses and much more.



NETWORKING AND COMMUNITY

This continues to be the heart of the Hu-Friedy University Program concept. A dedicated website with a private area that gives members the ability to easily reach Hu-Friedy product portfolio, exclusive educational content and webinars, our growing social media platforms and more.

We continue developing an online and offline community, based on content sharing event opportunities, professional meetings and entertainment activities that will be the bridge between the HFUP members and our team!



WHAT'S NEW?

From January 2019, **Giulia Gennaro**, an active member of the Hu-Friedy team for years, started her role of University Program Coordinator EMEA as 2019.

"I really believe that students are the future of our company and, besides sharing our experience, we can also learn a lot from them. My personal objective is to guarantee the same level of support for all the different study paths in terms of professional growth but also in terms of a concrete relationship with us! Let's be all together the pioneers of a new vision in dental sector!" ■



Visit University Program site:

universityprogram.hu-friedy.eu



Brexit and Dentistry: A European Perspective



Ioana Onicas, Romania

As the UK ponders its decision to leave the EU, we take a look at how Brexit will impact on dentistry and dental students from a European perspective.

The European Union is the world's largest and most advanced regional economic bloc; despite this, it is about to lose one of its biggest members, the United Kingdom, thanks to a public vote called a referendum. It was held on the 23rd June 2016, when voters were asked if the UK should leave or remain in the European Union – the British voted by 52% to 48 to leave the EU. Negotiations are ongoing, but how and when the UK leaves the EU will have implications that ripple around the globe.

What it has to do with dentistry

Brexit will have impacts on dentistry in both the UK and in the EU. These effects will include changes in the movement of dentists and dental care professionals (including the various processes for the mutual recognition of qualifications), the import and export of dental equipment and materials, the supply of medicines, health and safety

legislation, data protection regulations, research and development.

EU dentist who work in The UK

So far the Government confirmed that EU citizens and their family members that are resident in the UK by 29 March 2019 will be able to remain there and continue to work under the EU Settlement Scheme, which consist of 3 simple questions online. People will be asked to prove their ID, note any criminal convictions and say if they live in the UK and the information will be checked by the Government before giving the status settled or pre-settled. It is not possible to choose which one to apply for. The status depends on the period of living in the UK when the EU citizens is applying.

The rights will be different depending the status type. Therefore the dentists who are working in the present in the UK are safe for now. However, it is still a mystery how the timescales and requirements for applying for settled status will be, depending on whether there is a deal or no-deal Brexit.

EU dentist who want to come to work in The UK

EU candidates are becoming increasingly less interested in UK positions as

“EU candidates are becoming increasingly less interested in UK positions”

a consequence of Brexit. Many EU professionals are unwilling to risk coming to the UK in case a hard Brexit or no deal makes staying here impossible for them. Uncertainty over whether this recognition will remain after Brexit understandably can create a huge

element of instability as to how the NHS and dental practices will hire their future workforce and whether there will be enough candidates to fill positions after March 2019.

Furthermore, the implication is that they will have to compete for work visas due to the fact that the Government is currently standing by their election pledge to reduce net migration to the “tens of thousands”, where only the person who obtains the job is given the permission to work in the UK, and only for a defined time after which they might apply for indefinite leave to remain.

How about dentistry students

At this very moment there are around 135,000 EU students in UK universities and vice-chancellors recently called for “urgent clarification” about the status of EU students who might apply for courses beginning in autumn 2019. For now there is no decision or deal regarding the treatment of EU students that want to study in UK. The worst-case scenario is that EU students who want to study in UK will be recognized as overseas students and, as a consequence, will pay a bigger amount of money for university. This could push these students to choose to study in another country. As for students who started their studies in the UK before Brexit they will continue

to pay the same tuition fees as British citizens and be eligible for tuition fee loans. Regarding access to student grants or loans, EU students in the scope of the Withdrawal Agreement will continue to enjoy the same rules as they enjoyed before Brexit.

The number 1 issue in UK: workforce

Another challenge which arises in dentistry due to Brexit is the workforce crisis in UK. The profession has relied greatly on the EU to fill vacancies in recent years and make up for the country’s shortcomings in new recruits. Approximately 17% of dentists registered with the GDC are from the EU – they are estimated to deliver around 22% of NHS dentistry rising up to 30% in socially deprived areas and up to a third of the UK’s 6,300 European qualified dental registrants intend to leave UK dentistry due to a survey from the General Dental Council. As a result there will be a struggle for dental providers to meet the demand for dental services in their communities. A spokesperson for the British Dental Association mentioned: “Practices are experiencing increasing difficulties in recruiting dentists. That is particularly the case outside of the larger urban areas. We need to ensure that our requirement for dentists is matched by the available supply. That supply should come

principally from our own dental schools, but in the shorter term, migration policy now and post-Brexit also needs to ensure appropriate availability of dentists.”

The import of medicines and medical devices from Europe

Apart from the lack of dental care professionals, another possible issue that will be caused by Brexit is related to medicines and medical devices exported from European countries that are part of EU. At this very moment it is questionable the future provision of medicines and devices used in dental practice. There is a big chance of a price rising that have to be covered by dentist. What is more, this affects both the dentist and the client, considering the fact that the price is prone to increasing. It is true to say that EU will suffer too, due to the fact that UK exports every month around 45 million packs of medicines to EU and EEU.

Brexit: good or bad for dentistry?

All things considered, it is reasonable to say that Brexit will have many drawbacks for dentistry. Nevertheless, it is up to us, the EU citizens and to them, and the UK citizens how will cope with this type of transformation so we can all provide the best services in dentistry.



EVP



CHIETI



Patients with reduced mouth opening

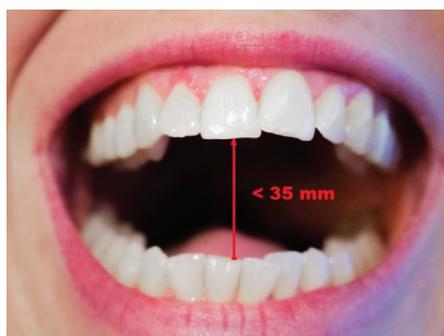
Getting patients to “open wide” is a common occurrence when treating patients in dentistry. But what happens when your patients simply can’t do it and what are the effects on their management and treatment?



Ivona Kandić, Croatia

Patients with limited mouth opening (LMO), also known as trismus or lockjaw, are relatively uncommon in general dental practice, however, some dentists do see patients suffering from this condition. Regardless of which specialty, both patient and dentist may experience significant difficulties. Although dental procedures and odontogenic infections may sometimes result in acute LMO, it is possible that the condition becomes permanent, seriously affecting the patient’s quality of life.

LMO is characterised by a maximum interincisal distance of less than three hand fingers or more precisely, less than 35 mm (figure 1). This is often a



symptomatic condition which makes eating, swallowing and speaking difficult and may result in poor bolus organization with frequent food aspiration (1). The orofacial pain seems to be the greatest problem in some patients because it persists and is associated with frequent use of painkillers, insomnia and mental health issues; one-third of the patients suffer from anxiety and one-fifth from depression at the time of diagnosis (2). It also affects patient’s daily activities, social and family life as well as the ability to work. In order to improve quality of

patient’s life, this condition should be treated using multidisciplinary approach by several medical and dental specialties (3).

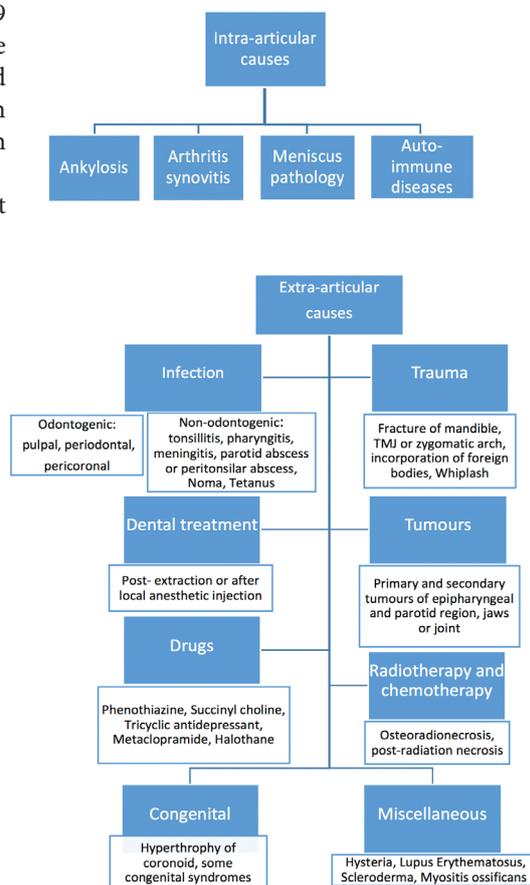
There are many causes of LMO, the most common being temporomandibular joint (TMJ) disorder, affecting 10% to 15% of adults (4). Another serious cause is head and neck tumours, which may grow into or near mouth closing muscles, inducing a reflex contraction which prevents the stretching of mouth closing muscles (5). Treatment of such tumours can also induce LMO; historic data and literature show that the incidence of radiation induced trismus in patients with head and neck carcinoma range from 5 % to 79 % after radiotherapy (6), due to exposure of the TMJ, pterygoid muscle, and masseter muscle to high dose radiation (7). Other causes of LMO are showed in figure 2 and 3.

Treating a patient with permanent LMO is very challenging task for dentists. Personal oral hygiene, dental examinations and all dental treatment required may be painful or dangerous for the patient and difficult or impossible for the dentist to undertake, so modifications of usual dental procedures are often necessary (8). It is possible that dental and surgical procedures may only be achievable under general anaesthesia with forced mouth opening (9).

Personal oral hygiene

Patients with LMO often present with poor oral hygiene, carious lesions, gingivitis and periodontal diseases (10). When effective plaque control with a toothbrush is difficult to achieve, it is recommended to use chlorhexidine mouthwash or gel. The cleaning of

oral surfaces can be facilitated with the use of intra-oral ‘lollipop’ sponges, as showed in figure 3. Daily hygiene also includes application of neutral sodium fluoride gel (5,000 ppm) or the use of intraoral fluoride-releasing systems (8). In comparison to chlorhexidine, mouthwash with bicarbonate (a half teaspoon of salt and one teaspoon of baking soda in one litre of water) may be used for a longer time in order to elevate salivary pH (11). Preventive measures play an important role among patients exposed to head and neck radiation because of possibility of permanent



LMO. Restorations and tooth extractions must be done before radiotherapy. Daily use of high dose fluorides (1 % gel in a customised tray or 3% toothpaste using a brush on technique) lowers the incidence of post-radiation caries. Strict oral hygiene and non-cariogenic food are important to support the effectiveness of fluorides (12).

Dental examination

Moderate LMO will pose difficulty in examination and treatment of all teeth. Severely limited opening may make examination of anterior teeth difficult, with access only to labial aspects. For these cases, bitewing radiographs are used to enable occlusal or proximal caries detection and extra oral dental panoramic tomograms to detect periapical status (8).

Injection of local anaesthetics

In the absence of other specific conditions, all patients can receive local anaesthesia containing epinephrine. Modifications of the inferior alveolar block technique, as well as others such as Vazirani-Akinosi technique may be performed (13).

Restorative and endodontic treatment

Long sittings during dental procedures should be avoided and frequent breaks are important to reduce patient's fatigue. The use of oral benzodiazepines before dental treatment can be helpful to achieve appropriate anxiety control and muscle relaxation (14). When carrying out procedures, saliva ejectors and aspirators of smaller diameter may be more appropriate to adapt in patient's mouth, while it is recommended to use small-sized or short-shaft dental burs and small-sized head instruments with



careful manipulation.

It is usually advisable to attempt a simple line of treatment initially to gauge patient's tolerance. The treatment of proximal and occlusal lesions on distal teeth can sometimes be facilitated by the loss of anterior teeth or by approaching the lesions through the buccal aspect of the tooth (8). Fluoride-releasing dental materials are preferred in patients with limited oral hygiene to prevent secondary caries (15). Endodontic treatment should be priority for strategic/important teeth which, in some cases, could only be possible for teeth in the anterior region and may even be necessary to gain access to the pulp canal space via the labial aspect of the tooth (8).

Prosthetic treatment

If the patient's maximal oral opening is smaller than size of a complete denture, prosthetic treatment can be a significant challenge. Limiting the size of the teeth as well as reducing the vertical dimension of occlusion may often be necessary, however, it is patient dependent whether denture construction and insertion can be tolerated (8).

For primary impressions where stock trays do not fit in the mouth, a wooden spatula can be used as a carrier/handle for a custom tray made of impression putty material (16). Sectional upper and/or lower impressions are usually performed for master impression. The master

impression is recorded in two parts using special custom acrylic tray with two-pieces which are relocated outside the mouth once the impression is done. The tight fit using acrylic resin blocks and pins ensures precise locking between tray's pieces (17).

Some patients are given fractionated prosthesis, whose parts are connected with stainless steel wires, orthodontic begg's tube or press buttons (17, 18).

In some patients, flexible denture, as showed in figure 5, may be proposed. The flexibility of the prosthesis in the median and sagittal position facilitates its insertion. However, flexible dentures are difficult to adapt and maintain with consequences in terms of moisture retention and loss of support (3).

Bridgework can be an unrealistic and often impossible task. However, resin bonded bridgework with minimal or no preparation and a simple impression technique, may be achievable to replace single isolated missing teeth in the anterior region (8).

Implant surgery

The decision to perform dental implant surgery is not straightforward, and the patient and dentist should discuss the treatment in detail to take into account the LMO severity, presence of other specific conditions, limitations in teeth brushing and drug therapy (particularly bisphosphonates). Ideally, anterior implants are favoured, particularly in the canine area of the jaw, to stabilize a removable prosthesis (3). Implant-supported prosthesis is proposed when routine prosthetic treatments are not



successful because of post – radiation xerostomia and reduced surface tension between mucosa and prosthesis (15). In patients suffering from progressive diseases such as scleroderma, daily removal of the prosthesis may become increasingly difficult as the condition progresses, so fixed-detachable implant-supported restoration (when possible) may be more preferable (10).

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Antimicrobial Resistance - the 21st century's biggest threat?

Antimicrobial resistance is a major global issue, with many commonly used antibiotics becoming useless against infections. As healthcare professionals, dentists should be aware of their prescribing of antibiotics - our Prevention Officer tells us more.



Tanguy Pinedo-Tora, EDSA Prevention Officer, France

Antimicrobial resistance (AMR) is the ability of a microorganism (like bacteria, viruses, and some parasites) to stop an antimicrobial (such as antibiotics, antivirals and antimalarials) from working against it. As a result, standard treatments become ineffective, infections persist and may spread to others. (WHO)

Antimicrobial resistance occurs naturally over time, usually through genetic changes. However, the misuse and overuse of antimicrobials is accelerating this process. In many places, antibiotics are overused and misused in people and animals, and often given without professional oversight.

Currently 33,000 people die each year in Europe from sepsis caused by antibiotic resistant bacteria. (ECDC, 2018 figures). In comparison, HIV/AIDS killed 4365 patients in 2010 (Eurostat

2010), RIP Freddie! That means we do not have efficient drugs against all types of microbes!

Does AMR means we are going back to the XIXth century?

Facing this issue, you could believe that the creme of the pharmaceutical world would be on red alert.

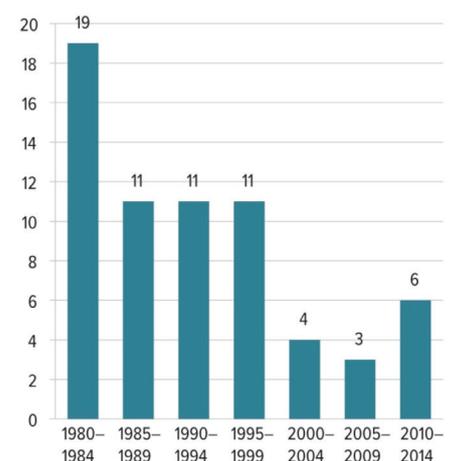
Sadly, no.

Of the 18 largest pharmaceutical companies, 15 abandoned the antibiotic field. Mergers between pharmaceutical companies have also substantially reduced the number and diversity of research teams. Antibiotic research conducted in academia has been scaled back as a result of funding cuts due to the 2008 economic crisis.

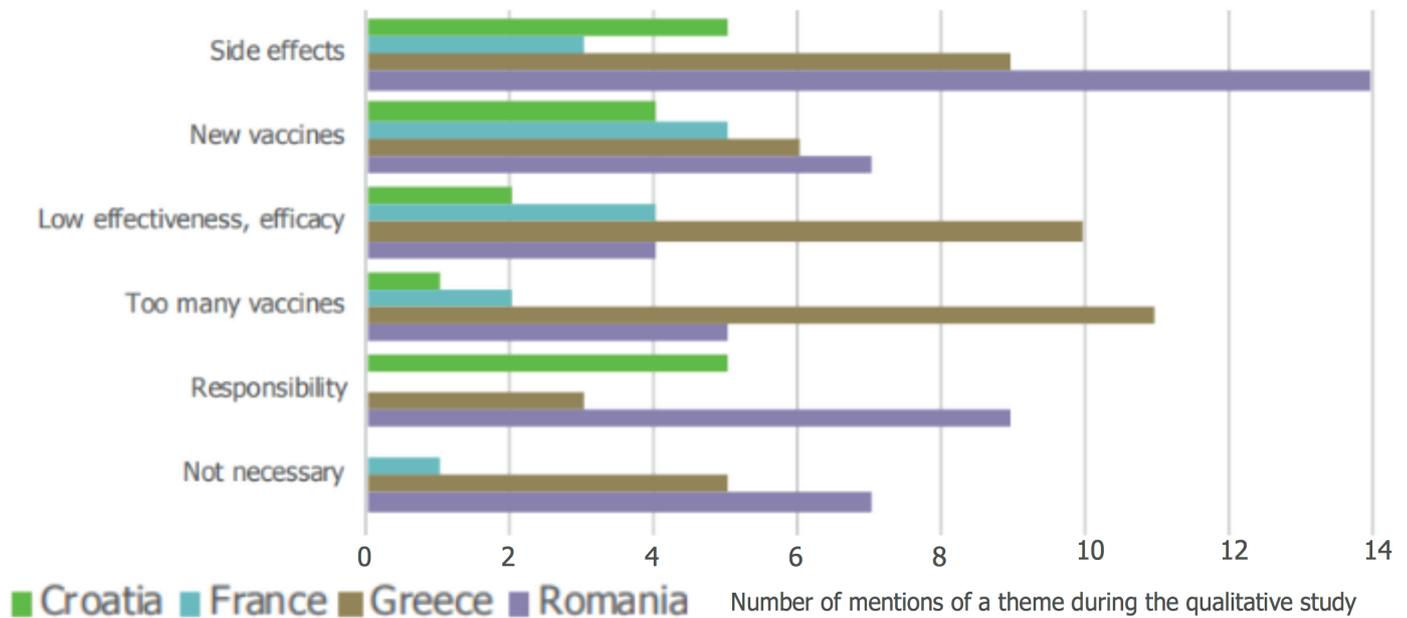
Furthermore, antibiotic development is no longer considered to be an

economically wise investment for the pharmaceutical industry. Because antibiotics are used for relatively short periods and are often curative, so they are not as profitable as drugs

Figure 3 Number of Antibacterial New Drug Application Approvals Versus Year Intervals



Snapshot of type of concerns expressed about vaccination and vaccine-preventable diseases by healthcare providers in four countries



Source: ECDC 2016 “let’s talk about hesitancy”

that treat chronic conditions, A cost-benefit analysis by the Office of Health Economics in London calculated that the net present value of a new antibiotic is only about \$50 million, compared to approximately \$1 billion for a drug used to treat a neuromuscular disease.

The World Health Organisation launched a Global Action Plan in 2015, with 5 objectives :

- 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education and training
- 2: Strengthen the knowledge and evidence base through surveillance and research
- 3: Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures
- 4: Optimize the use of antimicrobial medicines in human and animal health
- 5: Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other intervention.

This Plan is executed by the European Center for Disease Control on a continental scale, along with the WHO European Regional Office.

Awareness is a key factor to tackle AMR : if health professionals know best practices, and have the right use of antibiotics, we can avoid new resistances. That’s the aim of the ECDC Antibiotics Awareness meeting in brussels, with representatives of all medical fields and veterinarian industry.

Lack of vaccination is also a factor on AMR : if you are not sick, you don’t need antibiotics, that’s simple as that! In high income countries, we see the rise of anti-vaxx groups, on social media, news... The official word for this phenomenon is “vaccination hesitancy”. Knowing the causes of this reluctance can help you to convince your patients :

Even private pharmaceutical industry are taking action, creating a the AMR Industry Alliance, in 2017, issuing an industry statement on AMR, signed by one hundred companies. The aim of the alliance is to tracking and reporting on progress, identifying gaps in research and setting future targets, and will also act as a liaison with the public sector on controlling drug resistance.

So what about AMR and EDSA?

Dentist prescribe antibiotics, so they should be aware of best practices, and be competent advisors to their patients.

EDSA signed a joint policy paper on AMR with EMSA and EPSA, calling for improved prescription guidelines, prescription only dispensing, and public

education.

We have also been pushing the agenda in other European fora. In December we represented dental students in discussions with other European healthcare stakeholders, including the EU commission, in looking at how a One Health approach can be implemented in the undergraduate curriculum signing the press release calling for further work in this area. Furthermore, we were vocal advocates in pushing the student AMR agenda at the ECDC Antibiotics Awareness meeting in Brussels. Our online awareness campaigns have reached thousands of students, and we will continue to work on this area in future years. As dental students, it is important for us to anticipate the big issues that we will face in our lifetime. The issue of AMR is not going anywhere, and it is our generation that will have to deal with it. We must be ready.



IADS Guest Article: TNT Bucharest

Our friends from the International Association of Dental Students tell us more about their 'Training New Trainers' scheme which took place in December 2018.

Alexa Dogaru (Romania), Mihaela Raileanu (Romania), Mohammed Ahmed (Egypt)

In Bucharest, the end of 2018 was full of joy and celebrations marking the 100 year anniversary of Romania's Great Union Day.

At the Faculty of Dental Medicine, we had the honor to organize one of the most interesting and memorable students' projects: Training New Trainers. Training New Trainers (TNT) is a programme designed by students on topics related to soft skills, that are increasingly becoming the hard skills of today's work force.

The project was held from 2nd to 9th of December 2018 and was organized by Bucharest Dental Students' Association (LSMDB) and International Association of Dental Students' (IADS), in partnership with the Faculty of Dental Medicine, "Carol Davila" University of Medicine and Pharmacy, Bucharest. We enjoyed the support of International Federation of Medical Students' Association too and we would like to thank them through this article, for helping us.

The local and international trainees, from Romania, France, Sudan and Jordan, attended ten training sessions with different topics, meant to prepare them for their lives as trainers, such as: Public



Speaking, Communication, Leadership or Feedback.

The participants were trained by four dedicated trainers: Gabriel Toma and Adelin Radu (from Romania), Mohamed Ahmed (from Egypt) and Salma Surag (from Sudan).

Throughout the sessions, when the trainers delivered a powerful theoretical base, but also organized games and interactive activities, the participants were really receptive and showed a lot of interest in the discussed subjects. Besides the fact that they developed their personal skills, they built great friendships and were surrounded by a family-like atmosphere.

At the end of the week, each of the trainees held a SRT (subregional training) and received feedbacks concerning their presentation from the other participants and from the trainers, following ten relevant criteria, such as: gesture, posture and proxemics, information delivery,

outfit or time management.

The Training Department and the IADS family have now prepared and capable new trainers, who will spread the word regarding the soft skills and the federation's mission.

As we all know, there is no IADS event missing an amazing social program and, since Bucharest is a great choice for social activities, it couldn't be below anyone's expectations.

Since the arrival day, we gathered the participants and had dinner at a traditional Romanian restaurant, where dishes like zacusca, ciulama or sarmale stole everyone's hearts. The first three evenings were about going out for dinner and then a drink and board game. The game changer was on Thursday night, when everybody enjoyed a house party at Salim's place (one of the volunteers), with shisha and Jordanian food.

For the end of the week, we had prepared



a trip to the mountains to relax after a week full of trainings. We visited Peles Castle in Sinaia, a castle built for King Carol I, inaugurated in 1883. One of the most beautifully decorated cities for Christmas, Brasov, offered us a home for the night, and everyone suddenly forgot about their worries and just enjoyed the view and the feeling.

The last night was definitely a sad one since we were about to end a nice experience for all of us, so we spent it at a rooftop restaurant called Linea / Closer to the Moon, where we sat in igloos and felt like on another planet.

As it turned out, this project not only taught us things about soft skills, different cultures and traditions, trainings, friendships and how to be better people, but it was also a 'first' for many of us: some travelled alone for the first time, some felt the cold for the first time, some saw and felt the snow for the first time and some saw a fox for the first time.

The TNT Bucharest was definitely the best way to start the last month of 2018. Cheers to a magical December!

Lobna Mostafa, Jordan, trainee: The 10 days I spent in Bucharest were unforgettable. Meeting wonderful people and learning a dozen new things while having tons of fun is not something that

happens everyday. I'm very thankful for this amazing experience. I would do it all over again in a heartbeat.

Mamadou Ndoye, France, trainee: The TNT/SRT was a great experience where I learned a lot of things about training, about Romania, but also about myself. During this week I've been able to improve my soft skills in order to be a better trainer and a better person in my daily life. Furthermore I've met amazing people from different countries. I've learnt from their culture and from their experience. Also, we've been trained by trainers that wanted to share their knowledge with us, that wanted us to achieve our goals. Thanks to all of that, I won't ever forget this experience.

Mohamed Ahmed, Egypt, trainer: I used to say that TNT is one of the most successful IADS programs. The idea is about becoming more confident, more skillful as a presenter and communicator, developing leadership skills, creating memories and sharing amazing experiences with different dental students from everywhere. It is an endless process of learning that books won't offer to you. Furthermore, Bucharest is one of those cities that once you visit, you come back again.

Diala Abualimeh, Jordan, trainee: Bucharest was an amazing experience, I got to meet a lot of great people, try a lot of good food and went to so many beautiful sites. I also got to know the

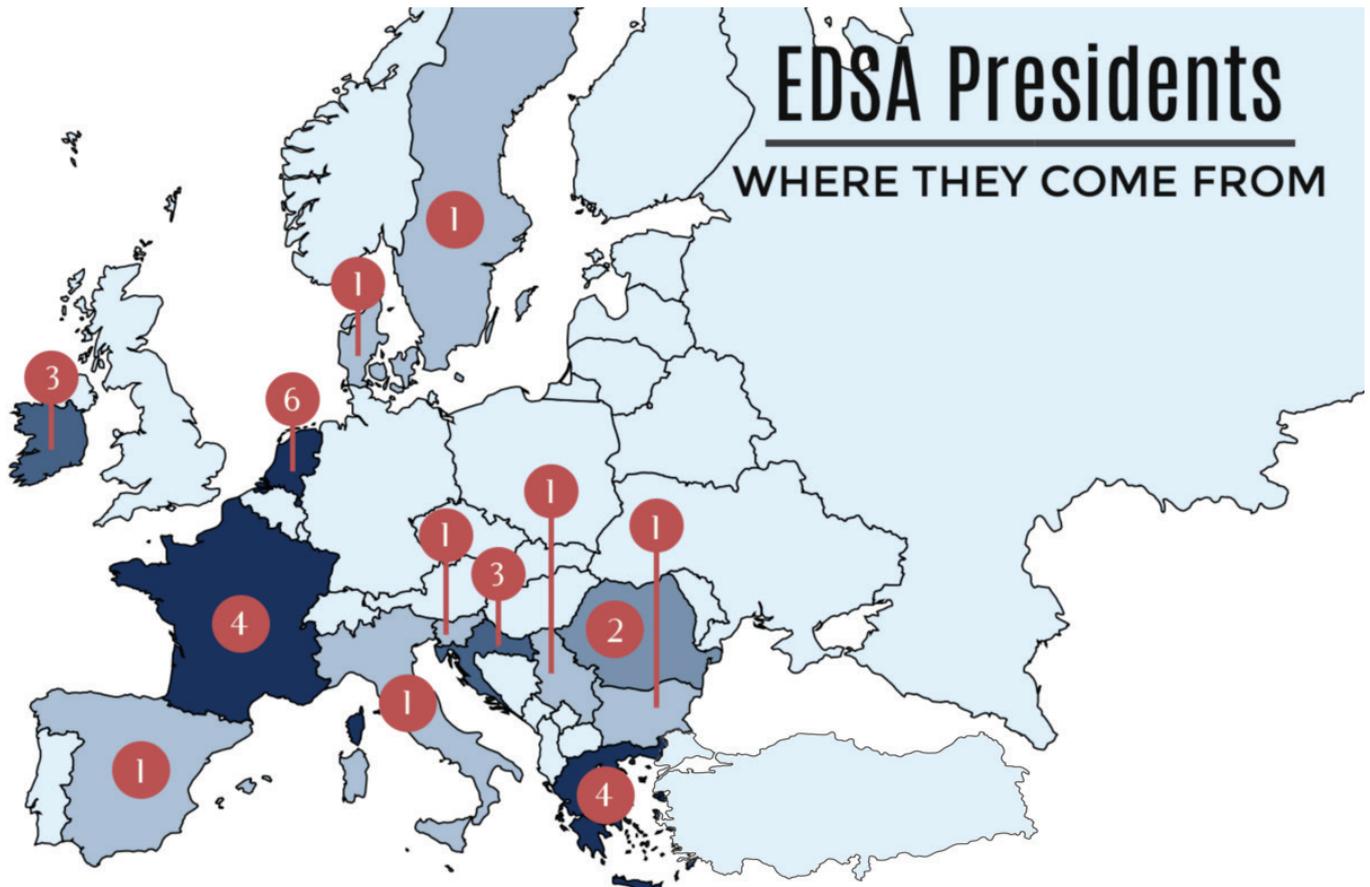
culture a bit more. The course itself was extremely useful, I know that I will use all the skills I learnt, if not for a training, then at least in my everyday life.

Hebah Tamimi, Jordan, trainee: I would like to thank everyone that helped in making this course successful. It was such a great experience from all aspects. The people I met in Bucharest were really kind and very welcoming, we felt as if we were home. The city is amazing especially with the Christmas vibes and decorations. Last but not least, I would highly recommend anyone to travel and get the chance to live this experience of knowing about different cultures, learning different languages, and meeting new people.

Diana Baci, Romania, trainee: TNT was a breath of fresh air for me. I got to defeat my speaking-in-front-of-people fear and learnt ways of getting better at it. I met the best people there. We helped each other a lot by giving and receiving feedback, paying attention to learn the good stuff and correcting mistakes when needed. We also had a lot of fun and visited all kind of places. It was an interactive experience where everybody felt as part of something bigger.

Proofreaders:- 1- Silvi Domnori (Turkey)
2- Aws Salah (Iraq)

EDSA Infographics



EDSA Presidents

WHERE THEY COME FROM

The Netherlands has had the most presidencies of any country, with 6 terms. The last president from the Netherlands was in 2012, when Hassib Kamell held the role. Yet the Netherlands has another reason to go down in the EDSA history books, as the longest serving president and the longest serving committee member both come from its flat lands. Amazingly, both of these titles go to the same person: **Ward van Dijk**. Many people have been on the committee for 3 years, including our current president, **Alyette Greiveldinger**, but none have yet managed to match Ward's record, set 26 years ago.



4 years

was the amount of time **Ward van Dijk** (Netherlands) was on the EDSA Committee, between 1990-1993. He was EDSA President for 3 of these years. He is therefore the longest serving committee member AND longest serving president.



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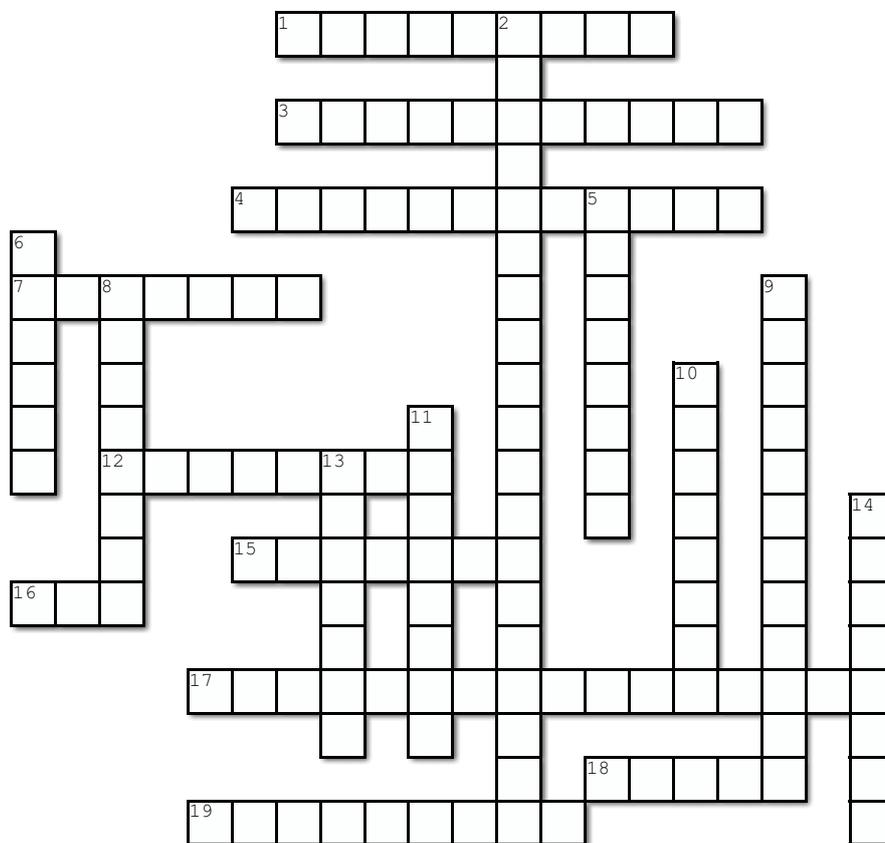
SM
LO



EDSA Crossword



Complete the crossword below



Across

- 1. Region in which Kazan is situated (9)
- 3. Country with most EDSA presidents since 1989 (11)
- 4. Autoimmune disease presenting with white patches in the mouth (6, 6)
- 7. Country most represented on EDSA committee 2018/19 (7)
- 12. Space between central incisors (8)
- 15. Localised collection of pus associated with a tooth (7)
- 16. When antimicrobials don't work (3)
- 17. The structural and functional connection between bone and an implant (16)
- 18. Number of roots in an upper 1st molar (5)
- 19. Name of head and neck cancer awareness campaign (4, 5)

Down

- 2. Main bacteria responsible for dental caries (13, 6)
- 5. Alternative local anaesthetic with improved bone penetration (8)
- 6. Slang for Britains exit from the EU (6)
- 8. Bad breath (8)
- 9. Functional group of endodontic irrigation liquid (12)
- 10. Location of the convention to phase down the use of amalgam (8)
- 11. EDSA 2017/18 President (8)
- 13. EDSA Instagram name (7)
- 14. Location of EDSA Spring Meeting 2020 (8)



2019



EDSA Berlin

18.08.-23.08.2019

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