Dear Chief Editor,

I would like to bring to your attention an article which was published at the Economist: "Time to take gum disease seriously: The societal and economic impact of periodontitis".

I was astounded by their findings, and I do hope that this work will reach out to every dental professional and make us realize how much we need to improve our preventative and diagnostic skills.

My name is Mr. Dimitar Krastev and I am based in Newbury, England, working at a private practice performing general dentistry and root canal treatments. In my work, I am driven by one motto: “Prevention is the best and cheapest treatment option”. My patients and I have found that prevention is mainly achieved by self-discipline in maintaining immaculate oral hygiene and assessment and reinforcement on my side. Furthermore, it has been the most cost-effective approach (Botelho et al, 2021).

I have not come across a technique, a tool nor a predictable way to perform early diagnosis of the most common dental diseases - gingivitis, periodontitis, and caries (Cappelli & Schulman, 2008).

According to the National Institute of Dental and Craniofacial Research one of the most common tools for assessment and diagnosis is the dental probe. In 2007 Kuhnisch J, Dietz W et al, established that by using a sharp dental probe the enamel can get damaged and initiate or even cause further progression of the caries lesion.

I just could not believe, nor was ready to accept that in the twenty-first century us, dentists did not have a method for early detection of the most common dental diseases, and I was wrong. My research revealed that in 2007 Professor Laurence Walsh and Fardad Shakibaie published quite a fascinating piece of work regarding ultraviolet-induced fluorescence. In their article, the authors explained in greater detail the process called luminescence – a term which incorporates fluorescence and phosphorescence and in particular the former- UVA (long wave). The fluorescence appears due to the presence not solely but mainly of protoporphyrria IX (PP9) in bacteria. It is present in Gram-negative bacteria, and it discolours in red. This way one can determine the matureness of plaque and calculus. The researchers established that the same phenomenon was supreme in detection of demineralized enamel compared to a standard dental examination.

I will briefly mention one more study performed by Eun-Song Lee et al. which was published in 2019 where the authors concluded that the quantitative light-induced fluorescence method could be used as a risk indicator for gingival inflammation as the red fluorescence plaque was showing significant diversity of the periodontopathic bacteria.
The cornerstone for me was when I read Fluorescence-enhanced “Theragnosis”, a peer-reviewed work done by Professor Liviu Steier in 2020. This groundbreaking article gave clear guidance for early detection of plaque and caries diseases using the REVEAL SYSTEM.

Moreover, Professor Steier’s findings have been validated by Yan et al. in 2021 who concluded that autofluorescence method was sufficient to detect three of the most common bacteria causing caries, gingivitis and periodontitis-Porphyromonas gingivalis (PG), Aggregatibacter actinomycetemcomitans (AA) and Streptococcus mutans (SM). They also validated that the most appropriate excitation wavelength of the light source was 405nm.

“The truth has been Revealed.”

I immediately contacted my local dental distributor and I asked them to allow me to test drive the system. I had it for two weeks and I used it on every single patient- from a standard dental examination to a complex surgical root canal treatment where I did not have to use methylene blue to be able to distinguish the sound bone.

I was able to remove conservatively and confidently an old composite filling-it did not discolor in any colour but looked gray. I was also able to see the discoloured border between the filling and the sound tooth. The Reveal system demonstrated the difference between infected and affected dentine, which allowed me to save a huge amount of tooth structure. It assisted me in cleaning the EDJ to perfection which should secure no recurrence of caries.

I felt satisfied as finally I was able to see in real time what the condition of patients’ oral health was. More than ever before, I was also able to provide more accurate diagnosis and selective treatment.

The feedback from all patients was – “confidence” and “relaxed.”

What I liked about this system was its predictability and I would recommend to any dentist that they ask their local dental supplier to have a test drive and see with their own eyes.

I took the liberty to attach a link which is showing the Reveal system used by a neurosurgeon:

https://twitter.com/tedschwartz13/status/1405501626547376129?s=21

I wanted to finish this letter with one very simple but ingenious phrase:

“Everything should be made as simple as possible, but not simpler” A. Einstein

Sincerely: Dimitar Krastev- MSc in Endodontics
References:


