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## Letters to the editor\*

### Shifts in the continuing education model

In his guest editorial in the July issue, Dr Eliades argued that the landscape of orthodontic continuing education has shifted in the past decade to include more organizations with commercial interests, that some of these organizations are covers for entrepreneurial concerns, and, as a result, that the promise of quick technology fixes gets ahead of the scientific base (Eliades T. A potentially hazardous shift in the orthodontic continuing education model: a crowd queuing up to educate us. *Amer J Orthod Dentofacial Orthop* 2020;158:1-3). The trend, he wrote, is apparent, and the effect is detrimental to the public.

Is this really what we asked for?

That is not a rhetorical question. Three additional collective decisions about continuing education, which are perhaps not as obvious or pernicious as those highlighted by Dr Eliades, have the disturbing feature of being ones the specialty has championed: mandatory continuing education, digital publication and search, and evidence-based dentistry.

There was a vigorous debate in the 1970s over mandatory continuing education requirements.<sup>1</sup> Some of us argued that neither professionalism nor curiosity could be legislated and that guaranteeing a market to commercial interests would drive courses away from the schools in which knowledge was being generated. The prospect of organizations offering a member benefit underwritten by industry and the specialty's fear of testing for continuing competency moved the model to what is in place today.

Low-cost rapid publication and computer searches have advantages and disadvantages. Overall, this has not saved me time in keeping up with the literature because there is so much more of it now, and the editors and reviewers I have counted on to point me in the right direction are so easily circumvented. There has never been a time when we were without controversy regarding aspects of treatment. However, we had rules for evidence and common forums to debate our way to consensus. Today, because of low barriers to entry into the professional opinion arena, those who want to can find others who share almost any position and need not engage with contrary views because they have their own publications and even their own institutions.

Tremendous progress has been made in experimental design, statistical techniques, and standards for

reporting. The 5-hour seminar on statistics I taught in 1972 featured calculating the *t* test by hand. However, the power of quality evidence has come with a price. Many cannot afford it, and what is not understood is often passed over. The abstract and perhaps the conclusions are scanned. If a small *P* value or the term "evidence based" accompanies the text, that often marks the end of the inquiry. Commercial continuing education organizations can repackage these convenient bits of evidence.

Although it may be a reach to find fault in the randomized clinical trial research design, we should at least acknowledge the difference between studies intended to estimate a measure of effect and those used to document the statistical significance of an intervention. Inquiry designed to enhance the understanding and predictability of orthodontic care, a measure of effect, stresses the dependent or outcome variable of oral health. Studies designed to show the significance of an intervention (regardless of whether other interventions are more effective) favor the independent variable. This approach is often used for something that can be sold. Clinical studies based on bits of evidence, often out of context, are now being added to continuing education programs. I imagine that part of Dr Eliades's complaint is that there is more to be made from selling products than understanding orthodontic outcomes.

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### Severe acute respiratory syndrome coronavirus 2 infection prevention in orthodontic practice

We read with great interest the recent article by Guo et al (Guo Y, Jing Y, Wang Y, To A, Du S, Wang L, et al. SARS-CoV-2 infection prevention in orthodontic

\*The viewpoints expressed are solely those of the author(s) and do not reflect those of the editor(s), publisher(s), or Association.

practice Am J Orthod Dentofac Orthop 2020;158:321-9) on severe acute respiratory syndrome coronavirus 2 infection prevention in orthodontic practice. We should not forget the limited awareness and compliance on infection prevention by standard procedures in dental and orthodontic facilities, and the lapses and errors even for dentists working from the area with the highest coronavirus disease 2019 prevalence.<sup>1-5</sup> In addition to standard infection control precautions for reopening of dental services,<sup>6</sup> we would like to call attention to some problems<sup>7</sup> in the light to propose proper guidelines and effective protocols for orthodontic facilities.

1. The need to grade orthodontic instruments as critical ones.<sup>8</sup>
2. The advantages of particulate respirators (National Institute for Occupational Safety and Health-certified N95, European Union standard filtering facepiece 2 [Europe EN 149-2001] or equivalent) vs surgical mask are often over evaluated. In addition, more knowledge is needed about this topic and skin injuries by filtering facepiece.<sup>7,9</sup>
3. Puncture-resistant gloves and improved glove design on the basis of test methods specific for orthodontic tasks should be evaluated in comparison with the use of double gloves.<sup>10-14</sup>
4. Alcohol-based hand sanitizers are the first choice because of the high turnover of orthodontic patients and the need for frequent hand hygiene<sup>2</sup>; awareness is requested to avoid the use of hand sanitizer products that have been tested by the U.S. Food and Drug Administration and labeled to contain ethyl alcohol, but that have tested positive for methanol contamination.<sup>15</sup>
5. The recommendation of an interval of 3-5 minutes between 2 consecutive patients to allow for optimal disinfection needs clarification. It could be possible with a certified medium level (activity against mycobacteria) disinfectant, low time of action (<5 minutes), wide compatibility with different clinical contact surfaces (made of metal or synthetic materials), and included in the U.S. Environmental Protection Agency's List N (<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2-covid-19>).<sup>7</sup> Unfortunately, the use of 75% alcohol and 1000 mg/L chlorine-containing disinfectant is not indicated in the Instructions for Use by the main producers of dental chair or photographic camera.
6. Guidelines for infection prevention using current computer-aided design, computer-aided manufacturing technology are lacking.<sup>4</sup>

7. The recommendation to discharge water for 30 seconds by handpieces and 3-way syringes needs confirmation because stagnation in dental unit waterlines (DUWL) is more frequent in orthodontic facilities. Then, it is more difficult to control water contamination and biofilm formation. We think mandatory DUWL disinfection (with products that will not interfere with bonding procedures during fixed orthodontics), water quality monitoring, and the use of drinking water in DUWL, according to guidelines and regulatory standards.<sup>16-19</sup>

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## Authors' response

We thank Di Blasio et al for their interest in our article and the great contributions they have made to infection control in dentistry. The suggestions given in the letter are pertinent and very important.

We agree that it is necessary to grade orthodontic instruments as critical instruments. Orthodontic patients could be in the incubation period or asymptomatic stage of several infectious diseases that would cause cross-infection because of the high turnover of patients and instruments. Therefore, reusable instruments, such as handpieces, cutters, and pliers, need to be cleaned and disinfected (usually through steam autoclave sterilization) after use following the principle of "one patient, one use, and one disinfection." For items like etchants, adhesive resins, elastomeric ligatures, and power chains, which are used in high frequency but are not suitable for steam autoclave sterilization, infection control could be improved through better packaging or assembly for single-patient use.<sup>1</sup>

For the infection prevention using current computer-aided design and computer-aided manufacturing technology compared with traditional methods, although guidelines are not available, we agree with the concerns and suggested practice procedures as noted by Barenghi et al<sup>2</sup> in their review article. We recommend readers refer to the full text for more detailed information, as it is the first article regarding infection prevention in detail using computer-aided design and computer-aided manufacturing technology in dentistry.<sup>2</sup>

The recommendation of an interval of 3-5 minutes between consecutive patients to allow for optimal disinfection was based upon the previous report that human coronaviruses can be efficiently inactivated by surface disinfection procedures with ethanol or chlorine-containing disinfectants within 1 minute, and a similar effect against the severe acute respiratory syndrome coronavirus 2 was expected.<sup>3</sup> Nevertheless, we agree that a surface disinfectant effective only against severe acute respiratory syndrome coronavirus 2 is not sufficient for clinical contact surfaces in dental practice. The exposure time and the types of disinfectants for clinical contact surfaces need further clarification. Producers of dental instruments should also provide clear instructions for use and disinfection.<sup>4</sup>

Finally, we agree with the suggestions on selecting the hand sanitizer and the procedures and tips for infection control of the dental unit waterlines as the American Dental Association have recommended.<sup>5</sup> Because of the limited knowledge so far, the characteristics of filtering facepiece covering compared with surgical masks and the gloves specifically for orthodontic practice need further testing.

We thank Di Blasio et al once again, and we look forward to more knowledge and guidelines about infection control in current orthodontic practice.

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