

Letters to the editor

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CORONAVIRUS

Are 'family bubbles' safe?

Sir, we write in regard to Dr Cohen's suggestion of treating all family members in a single dental session (*BDJ* 2020; **229**: 6). This proposes that household transmission is the main concern in this process, however, studies found that secondary transmission of SARS-CoV-2 developed in only about 16.3% of household contacts.¹ Conversely, community and nosocomial infection impose a higher risk for family members to get infected. Therefore, such recommendations may be misleading and may worsen the pandemic by going against infection control and safety guidelines.

By the middle of April 2020, more than 9,000 healthcare workers in the United States had been infected by SARS-CoV-2, accounting for 19% of the total number of patients reported by the Centers for Disease Control and Prevention (CDC) thus implying that there is a significant knowledge gap regarding infection control as well as the practice among dentists and doctors. Considering the highly infectious nature of the current pandemic and its modes of transmission which are not yet fully understood, especially in the prodromal and convalescent stages, dental healthcare workers must strictly follow biosafety protocols and specific COVID-19 protective measures.

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BAME and COVID-19

Sir, research indicates that BAME communities are disproportionately adversely impacted by SARS-CoV2 (COVID-19). The *HSE* reported the results of an analysis of deaths of NHS staff from COVID-19 based upon media reports up to 22 April 2020.¹ Those from BAME communities were found to account for 63% of the deaths, yet the communities only formed 21% of all NHS staff. Among medical staff the comparable figures were even more concerning, 95% and 44% respectively. An ONS analysis found that a proportion of the excess risk of adverse risk COVID-19 presents to BAME groups is accounted for by demographics, socio-economic profiles and some dimensions of health, but the remainder remained unexplained.

Pan *et al.*² recently reported the findings of a systematic review to assess whether ethnicity had been reported in research relating to patients with COVID-19 and its relation to clinical outcomes. They concluded that BAME individuals are at raised risk of adverse outcomes including hospitalisation, ITU admission and mortality.

For COVID-19, severe disease is characterised by a proinflammatory hypercytokinemia which damages heart, kidney, liver and lung tissues with the latter leading to acute respiratory distress syndrome.³

The response of different skin types to UV radiation may be estimated using the Fitzpatrick scale comprising six phototypes which are semi-quantitative in that each has an associated minimal erythematous UV dose (MED) range.⁴ By way of confirming an apparent correlation between

phototype MED values and ethnicity related COVID-19 death risk I calculated the r values⁵ for men ($r = 0.81$) and women ($r = 0.81$) using ONS fully adjusted model data⁶ and author estimated MED values⁷ for the relevant ethnic groups.

I believe that the strong correlations support the logical hypothesis that ultraviolet radiation (UVR) skin exposure induced immunosuppression reduces the risk of hypercytokinemia development in COVID-19 infected individuals and in turn the following cascade of predictions:

- UV induced inflammation in the skin induces immunosuppression which is locally protective and also acts systemically
- Immunoregulatory efficiency as it relates to hypercytokinemia risk, is inversely correlated with increasing Fitzpatrick Skin Type code.

Possible mechanisms for the greater innate immunomodulation efficiency in lower MED range phenotypes groups might include:

- Differences between skin types are related to phenotypic variations, more probably those in the genes coding for elements of the NF- κ B protein complex and/or IL-6-STAT3 signalling pathways
- Utilisation of vitamin D in the management of an inflammatory response⁸ in the skin is more efficient/optimised in lower MED range skin phenotypes. However, the effect is systemic so improving immunomodulation efficiency
- The efficiency with which UVR induced regulatory T cells mediated immunosuppression is induced (whether a continuous or discrete process) is inversely correlated with skin phenotype MED value when corrected for the age of the individual.

UVR induced systemic immunosuppression would effect a reduction in periodontal inflammation and thereby reduce periodontal disease severity. Skin lesions reported in C19 patients are autoimmune reactions caused by COVID-19 induced numerical deficiency or functional defect/s in regulatory T cells.

A more detailed summary of the above may be accessed online.⁹

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The resurgence of sedation

Sir, the impact of COVID-19 on patient access to hospital general anaesthesia (GA) for oral surgery is significant. With day case elective GA on hold over the pandemic, patients waiting for dental extractions under this modality (DGA) will be stacking up nationally. The 18-week pathway from referral will be more challenging to achieve now for adult dental extractions under GA than ever before. This is likely to have an impact on the previously reported culture of patient demand for this treatment.¹ Sedation will have a big role to play and there is likely to be a resurgence in its use.

We read with interest the recent positive anecdotal reports of patient satisfaction

and successful outcomes via the use of oral sedation with diazepam prior to attendance for urgent dental care.² For a number of years our OMFS department has also utilised oral diazepam prior to attendance for surgical removal of impacted wisdom teeth, with content and more relaxed patients in many cases. In addition, we are advocates for the technique of intranasal midazolam sedation using a MAD-device. We envisage this being an increasingly employed way of keeping needle phobic patients away from GA lists and within the more accessible sedation pathways.

Our own service pre-COVID was on the brink of introducing intravenous conscious sedation services to the department for our referred patients. Its current introduction at our site looks to be a well-timed, convenient development and some patients on waiting lists for GA are being successfully transferred to IV sedation. In 2017 a national survey of OMFS units containing questions about GA and sedation services demonstrated that a quarter of units were not routinely offering or able to offer sedation and that there was a need to review provision of sedation in the UK.¹ It highlighted a consensus of a lack of availability of sedation services and showed presence of a strong culture of patient demand-driven adult DGA in the UK.¹ Cultures needed addressing from patient demand back to clinical need and the authors asked 'what would it take to shift the cultural norm again?' It looks as though the answer to this question is coming to light – a pandemic, reduced access to DGA waiting lists, the resurgence of sedation and patients opting for the more accessible modality.

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Thermal screening

Sir, use of thermal screening has resurfaced recently in the light of the COVID-19 pandemic. It has been widely accepted worldwide for mass screening to restrict patients with high grade fever entering specific areas during high infectious periods. The concept of thermal imaging is not new and dates back to 1963 when Barnes

*et al.*¹ first demonstrated its usefulness in diagnosing physical illness. Sherman *et al.*² concluded that infrared thermography (IRT) is the simplest method of detecting body temperature in which thermal radiation emitted by a surface is captured by an infrared camera and converted to temperature.

Oral, axillary and inguinal temperatures are perhaps the most common sites apart from rectal and oesophageal. However, all these sites normally underestimate true core body temperature. They also require the measuring device to have direct contact with the subject which is undesirable in mass screening in a pandemic era for fear of spreading infection. The development of non-contact infrared thermal images of the head to determine body core temperature is clearly very promising. Recent data indicated that the temperature of the inner canthus of the eye is consistently the warmest area on the head and the most suitable site for use in fever detection, however this is complicated as it is also affected by climatic conditions. There will be always be incubation situations when infectious persons may not have an elevated body core temperature for several days and so will not be picked up by a screening system. Likewise there will be persons who have regained normal body temperature following a bout of fever yet who may still be infectious or who have suppressed their elevated body temperatures with pharmaceutical agents such as aspirin or paracetamol.

Despite this some authorities, for example the USA, maintain that fever screening may reduce spread statistics by up to 50%. The incorrect use and failure to follow guidelines for devices used are also causes for concern. Several administrative institutes and hospitals have recently used thermal infrared imaging techniques for mass screening but at high risk of bias, hence the need for large placebo-controlled clinical trials before any technique can be recommended.

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