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# Fake News and Oral Healthcare

Fake news is a recurrent issue in healthcare. Dentistry is not immune to its influence. Patients might find it more convenient to use the Internet to learn more about their oral and dental problems. However, online content may often be misleading and potentially harmful. The advent of COVID-19 has exacerbated the problem. Here, we present simple actions to empower dental professionals against the proliferation of fake news. Understanding the implications of our online activity is important for professionals and our patients.

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'She looks like the real thing. She tastes like the real thing. My fake plastic love.'<sup>1</sup> The lyrics from Radiohead's *Fake Plastic Trees* described life in a world full of fake content. It could be said that this now mirrors current life where hidden interests dictate the content offered to people.

In the world of COVID-19, the self-interests of individuals have become the entertainment of others; and now the Internet not only allows us to access dental content, but also allows access to a range of obscure interests. Such ambiguous ideas are given elevated importance that allows them to grow and distort the boundaries of conventional scientific argument. Such ideas are increased and distributed through social media networks. Health-related questions are not immune to this distortion

of the truth. Often we will receive information about medical and dental issues from people or other sources that we trust. Naturally, this lowers our ability to critically evaluate and check the reliability of the content on offer. It is not easy to dismiss spurious content, especially if it arrives via trusted channels, such as family and friends.

Fake news has the potential to cause harm, especially when it concerns health-related issues. During the ensuing lockdown, people were afraid and searched the Internet for online 'cures' to prevent exposure to the Coronavirus. The wave of COVID-19 generated a 'massive infodemic' where people believed that injecting themselves with disinfectants prevented infection or the smelling of sesame seeds led to destruction of the virus.<sup>2</sup> Before the COVID-19 pandemic there was already confusion about whether it was safe to vaccinate against key childhood diseases, such as measles and rubella. This has resulted in an increase of these preventable diseases in the population, with serious consequences. This is still a persistent problem, even though the original research has been discredited and the offending author is no longer practising as a doctor.<sup>3</sup> There are worries that the development of a vaccine for Coronavirus may also lead to similar misinformation. Dentistry is also vulnerable to such disinformation

in several key subject areas, such as oral cancer, implants, fluorides and general oral care, all of which will impact on the quality of life of our patients. There was an early story about drinking water and using vinegar as a mouthwash to prevent Coronavirus infection that the World Health Organization quickly 'debunked' as fake news.<sup>4</sup> The misuse of vinegar would have certainly led to tooth erosion.

Patients are naturally inquisitive and will wish to learn more about the medical and dental conditions that they may have. 'Dr Google' is used worldwide to answer medically-related questions. In the UK, there has been a partnership set up between Alexa and the NHS which seeks to improve users' online experience on health-related questions. These are directed to Alexa, who will answer using information supplied by the NHS.<sup>5,6</sup> The demand for such approaches to healthcare diagnosis and treatment will increase and so will fake news which will take the opportunity to mislead patients as they seek answers to their medical problems.

## Is it so difficult to detect fake news?

Both misinformation, ie information published wrongly, and disinformation, ie material maliciously published, are termed fake news. Some 'fake news'

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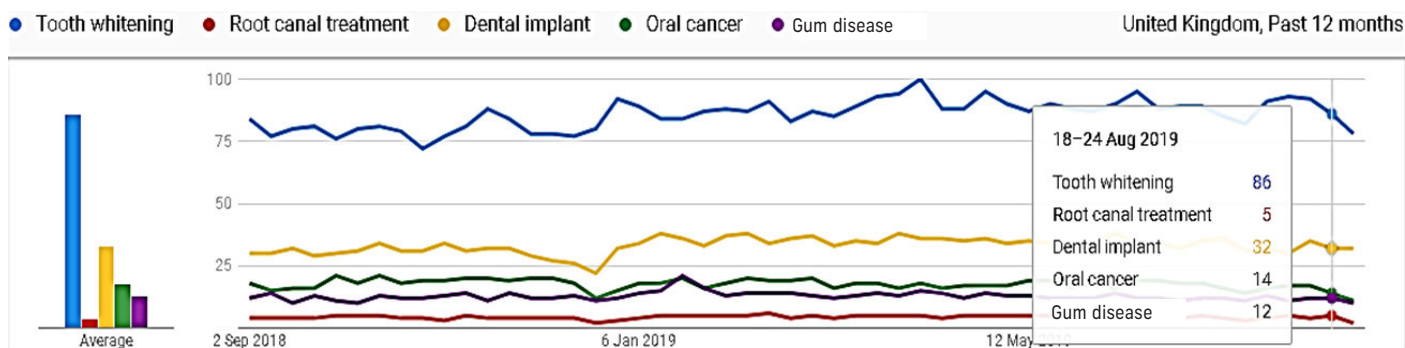


Figure 1. Interest over time: according to Google trends (Sept 2018 to Aug 2019) general web searching.

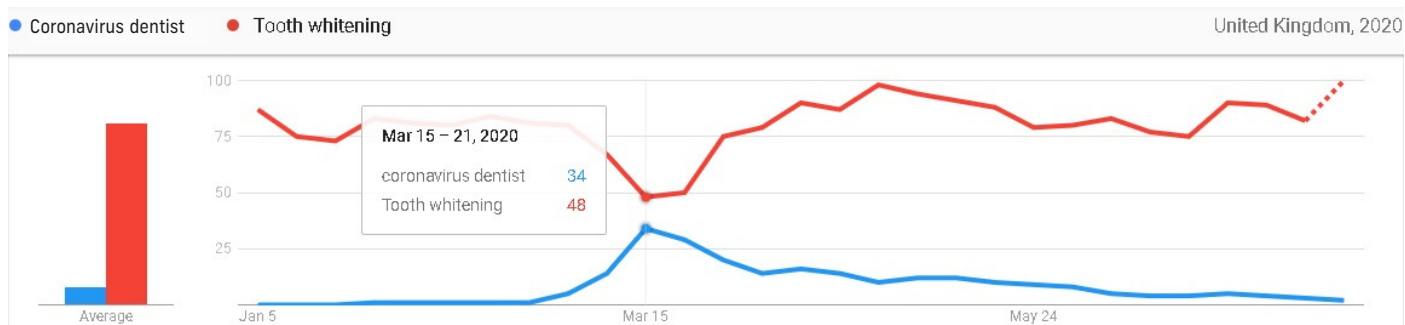


Figure 2. Interest over time: 'coronavirus dentist' vs 'tooth whitening' according to Google trends in 2020 in general web searching.

items are easily detectable, whilst others are packaged in a more elaborate manner where the scientific information is mixed up with false statements. In addition, family, friends, and colleagues are often some of the main propagators of news. They may be deceived by such information as it has some truth to it and they will forward it on within their close circle of friends. We are less likely to check the information that has originated from someone we trust.

Fake news is all around us and often it is very subtle in how it takes hold of our viewpoint on a subject. Counteracting the information is very simple. Be critical about any information that is too good to be true and confirms exactly what you always wanted to hear. Take time to critically analyse what you either are hearing or reading. This simple step provides time to reflect on the material and identify if it is correct.

If you do this then you will be one step ahead of fake news. Sadly, many people do not critically analyse the material given to them, which in turn allows fake news to spread.

### Dentists, patients and fake news

Dentists are seen by patients as a trusted source of oral health knowledge. However, the Internet is a convenient place for patients to search and learn more about their oral problems. A review of 'Google trends' provides an insight into what dental content people are searching for on the Internet.<sup>7</sup>

A search was made for specific dental treatments using non-technical terms from September 2018 to August 2019. The term 'tooth whitening' attracted a larger volume of web traffic than 'root canal', 'dental implants', 'oral cancer' or 'gum disease'

(Figure 1). In 2020, the search term 'coronavirus dentist' appeared and reached its peak in the third week of March, but 'tooth whitening', despite a short dip, remained a popular search item, especially during the lockdown period (Figure 2).

As people have a preference for video content and for the purposes of this article, YouTube was searched for tooth whitening, together with three extra keywords that people may associate with tooth whitening. These were 'lemon', 'baking soda' and 'charcoal'. An analysis was made of the first 10 results of each search. To ensure that this was a clean search and not part of any user's particular preference for searching, a non-logged account was used. The cache was cleared and any cookies removed. A clean browser and anonymous windows were used.

The search 'Lemon + tooth whitening' was the theme which

presented the highest average number of views/day (2.5k). This was followed by 'baking soda + tooth whitening (1k)' with 'charcoal + tooth whitening' (0.9k) in third place. Twenty-nine out of thirty YouTube videos were posted by unreliable sources. These are often untraceable sources with no academic or scientific background to the posting. One of the links was posted by the official YouTube page of a well-known TV show but the dentist invited did not provide any evidence-based references to back up his statements. Such biased content is typical of what is found and, unfortunately, it also results in higher numbers of views and likes. Fake news knows what the public want to read even if it is not correct.

## Fake news and dental products

It is interesting how 'Google trends' shows that dental products and dental materials attract more attention than oral diseases.<sup>7</sup>

Last year, the Advertising Standards Authority (ASA) raised concerns about the use of before and after images in misleading ways to over-promote the ability of health-related products.<sup>8</sup> Some health treatments might even present acceptable results by producing tooth whitening. However, patients do have the right to receive proper information about the characteristics and efficiency of dental products.

The Medicines and Healthcare products Regulatory Agency is the authorization body that must review any claims that arise from the use of medicinal or disease-related products.<sup>9</sup> For example, there was a toothpaste released that made the statement that it produced a 'reparative layer on the enamel surface' after its use.<sup>10</sup> There were six complaints that this was a misleading statement and, at the end of 2018, the television advertisement was banned.<sup>10</sup>

There are many different variations of the problem and the ASA found that everyone struggles to identify whether the information is evidence-based in the online

environment. In an effort to police fake news, social media can be used to check whether the information they provide is legal but this is an uphill task, especially as many of the propagators of fake news do not reside in the UK.

## How to tackle dental fake news?

As a health professional, you will be the target of many fake news articles and your patients will also be reading them. Patients will come into your surgery seeking advice or answers to the information that they have read either online or in the newspapers. It is useful for all the dental team to be ready for such questioning and have tips and advice for their patients about such items. There are some simple rules to follow which can be passed onto others. The success of fake news is in its proliferation across all platforms of the Internet, including social media. The rules are aimed at the very mechanisms that allow fake news to proliferate.

## Do not comment, like, dislike or share fake news

No action is the best action. Any interaction with any fake news item will enhance the engagement levels of the misleading information and improve its chances of being offered further distribution as a result of online searches. Always remind patients and colleagues to check the content of Internet stories that they share from unknown sources.<sup>11</sup>

### 1. Report fake content and profiles

Fake news is interconnected with social media and all the popular social media networks will be quick to propagate misinformation. Whilst Twitter, Facebook, and other social media sites will investigate and take action against potentially harmful content providers, they are often slower to respond compared to the speed of fake news. However, if there are a number of complaints about a particular item, then it will

be highlighted and removed quickly. It is, therefore, useful to ask your patients to tackle fake news in the same manner. Social media sites, such as Instagram, are employing a combination of artificial intelligence and users' reports to identify and remove offending postings on their site. Facebook and Instagram recently declared having removed or acted upon 10% of both reports and complaints.<sup>12</sup> However fake news is similar to a virus and adapts in different environments.

### 2. Use your social media account to post real dental news<sup>13</sup>

If you are an active user of social media channels then provide a stream of good information that your friends will read. A dental practice website or social media stream can be a good vehicle for providing up-to-date information, incorporating patient information sheets and blogs on relevant dental news items. It is acknowledged that active users tend to subscribe and follow reliable sources more than dubious or unregulated sites. Whenever possible, look to cite reliable sources or references in your posts.<sup>14</sup>

There are many other ways to counter fake news and there is always the 'STEADY' checklist. **STEADY** is an acronym that opens up as follows:

**S** = Check the Source

Who published the content? On social media, almost half of the health-related content shared is fake news and 20% of the material came from the same group of websites.<sup>15</sup>

**T** = Check the Text

Fake texts may have been produced abroad, and therefore may not be well written. Often the English spelling and grammar is not correct or it does not flow fluently when read.

**E** = Check the Entire article or most of it

Continue to read and carefully check over the 'sense' of the article. Never rely on the title alone.<sup>11</sup>

**A** = Check Additional sites

A quick Internet search may show that the same or related content is present

on different websites. This highlights the spreading nature of the news item and will often bring some light to where the source of the material came from and therefore helping to identify the fake news.

**D = Check the Date**

One common procedure when spreading fake news is to reintroduce old news as new content.<sup>11</sup> Surprisingly, the source may be old and out of date.

**Y = Check if it is a Yarn (joke)**

Some fake news can be created as a part of a joke.<sup>16</sup>

**Not sure? Do not share**

Evidence-based medicine (EBM) is a relatively young science and the content is still developing. The conclusion of many of the papers is that more scientific evidence is required. Whilst EBM is becoming more 'savvy' in promoting the good reliable evidence that is out there, it is still losing out to the more attractive and seemingly plausible facts contained in fake news articles. Unfortunately, there is more unreliable health-related content shared compared to evidenced-based information.<sup>13</sup> Therefore, patients are more likely to be exposed to a fake news item than real EBM health items. Wherever possible, it is our role as clinicians to communicate the truth and alert our patients to the dangers of ill-informed unreliable information.

**Conclusion**

The Internet has provided fake news with the ability to proliferate across different platforms. Fake news is shared more widely than scientific-based information.<sup>13</sup> The overexposure of an item often confirms people's beliefs, making fake news look more convincing than the truth,<sup>17</sup> An easy method to help tackle fake news is not to interact with it, but to promote the circulation of reliable information instead. Do not even cite the fake news and act like it never happened.

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**Compliance with Ethical Standards**

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