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## Impact of oral health education regarding an e-leaflet on children - brushing and diet guide for children during the COVID-19 pandemic

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### Abstract

**Background:** Covid-19 led to closure of many dental services, reducing the help and support for children and families. During COVID-19, many of the emergency calls received were regarding children with caries, which lead to pain and infection. We are concerned that decay rates for children may increase during the pandemic, whilst children are at home and access to dentistry is limited.

**Aim:** Our aim was to try target children with high caries risk by educating children and families in the form of an E-leaflet. The use of IT and technology has increased during the pandemic. Children are also familiar with E-learning.

**Methods:** Information gathering – assessing current information within the trust. Leaflet design alongside an illustrator, to ensure child-friendly. We used an online to obtain feedback. The leaflet was sent electronically.

**Result:** Positive feedback was gained, relating to its child friendly layout and easy-to-read format.

**Conclusions:** The E-leaflet has been a successful, cost effective and eco-friendly method of information sharing, in a time where face-to face appointments were not possible.

**Keywords:** Oral health education, children - brushing, diet guide

### Introduction

COVID-19 led to closure of many dental services, reducing the help and support for children and families. During COVID-19, many of the emergency calls received were regarding children with caries, which lead to pain and infection. They were often: Not registered with a dentist/thought their child was too young to see a dentist, consuming a cariogenic diet, not aware/motivated in maintaining good oral hygiene. We are concerned that decay rates for children may increase during the pandemic, whilst children are at home and access to dentistry is limited. COVID-19 pandemic, which has resulted in limited preventive dental services in the interest of public health safety <sup>[1]</sup>. Emergency departments, a less-than-ideal but common treatment destination for those facing oral health care access disparities, have also seen a significant drop in visits for health problems unrelated to COVID-19. School-based oral health programs, such as effective dental sealant programs to prevent dental caries — the only source of preventive oral health care for many children in vulnerable populations — have similarly been suspended because of government-mandated school closures <sup>[2, 3]</sup>.

Due to the tremendous increase in the use of new technologies, it is thought that younger generations think and process information in a different manner than their predecessors. Technology has changed the way we see the world <sup>[4]</sup>. There are many definitions of E-learning, one of these definitions is the use of “Internet technologies to deliver a broad array of solutions that enhance knowledge and performance”. However, E-learning is a broad term that includes any use of computers to support learning process, whether online or offline <sup>[5, 6]</sup>.

Research on e-Health interventions delivered via text message has been primarily focussed on two main areas: behavioural change interventions and health reminders. Studies have shown that text interventions have improved several health behaviours including smoking, diet, exercise, alcohol, sexual health, self-efficacy with medication for chronic conditions, and self-

care behaviours. Dental research in younger adults suggests that text interventions have influenced health attitudes and behaviours by increasing the knowledge of the participants and contributing to their well-being [7]. The aim of our study was to target children with high caries risk by educating children and families in the form of an E-leaflet. The use of IT and technology has increased during the pandemic. Children are also familiar with E-learning.

### Methodology

The study included 50 children, who received oral health education through leaflets and E-learning. The whole study was carried out for a period of one month. All parents who accepted to take part in this study had internet access connection and ability to browse and use the internet, were included in this study. The following groups were excluded: children outside the age range of the study; children currently under the regular care of an oral health care provider; children who have access to oral health education through a different and separate source than our intervention; children with acute dental issues (e.g.: dental abscess); mentally or physically compromised children and finally children whose parents did not provide consent for participation in our study. A colorful and attractive leaflet was designed. The leaflets were designed with particular emphasis on creating interest amongst the children. These educational papers included information related to proper brushing technique and frequency; introduced the regular use of dental floss; emphasized regular dental visits as well as provided basic demonstration of dental plaque and the implications of not removing it. The leaflets also contained nutritional guidelines in regards to minimizing caries risk. The leaflet was sent electronically and used an online survey to obtain feedback.

### Results

Positive feedback was gained, relating to its child friendly layout and easy-to-read format. Many found: • the leaflet easy-to-read

- found the electronic format useful
  - showed their child the leaflet
  - the leaflet is child-friendly
  - now felt confident choosing age-specific toothpaste
  - felt confident choosing teeth-friendly snacks for their children
  - that they learnt new information
  - they preferred electronic leaflets in the future
  - “nice to have a reminder about this, thank you”
  - “very useful and great for children”
- Limitations:

Some due to cultural or religious beliefs - refused receiving information.

### Discussion

Populations disproportionately affected by coronavirus disease 2019 (COVID-19) are also at higher risk for oral diseases and experience oral health and oral health care disparities at higher rates. COVID-19 has led to closure and reduced hours of dental practices except for emergency and urgent services, limiting routine care and prevention. Dental care includes aerosol-generating procedures that can increase viral transmission [8]. The pandemic offers an opportunity for the dental profession to shift more toward nonaerosolizing, prevention-centric approaches to care and away from surgical interventions. Regulatory barrier changes to oral health care access during the pandemic could have a favorable impact if

sustained into the future. Because of the rise of infections, this recommendation was updated on April 1, 2020, when the ADA advised offices to remain closed to all but urgent and emergency procedures until April 30 at the earliest. As a result, access to dental care substantially decreased. During the week of March 23, 2020, an ADA Health Policy Institute survey indicated that 76% of dental offices surveyed were closed but seeing emergency patients only, 19% were completely closed, and 5% were open but seeing a lower volume of patients [9, 10].

Participants provided feedback about improvements to the frequency and content of the text-messaging service, including suggesting that it would be useful for individuals with learning disabilities. “The advice provided in the leaflet was in line with my normal dental care. I would recommend this type of education for children or for those with learning disabilities. The information is generic and did not address any individually relevant problems. The responses of the participants in this study advocates the need for more research on the complexity of the intervention required, and the potential to co-develop these interventions to ensure they are tailored to their needs [11, 12].

COVID-19 pandemic, which has resulted in limited preventive dental services in the interest of public health safety. Emergency departments, a less-than-ideal but common treatment destination for those facing oral health care access disparities, have also seen a significant drop in visits for health problems unrelated to COVID-19 [13]. School-based oral health programs, such as effective dental sealant programs to prevent dental caries — the only source of preventive oral health care for many children in vulnerable populations — have similarly been suspended because of government-mandated school closures. From the results observed, it can be concluded that short term oral health education programs may be useful in improving oral hygiene practices in children. Educational instructional leaflets are appropriate effective economic tools for improving oral and gingival health. Our study indicates that e-Oral health interventions are acceptable to children. Extending preventive care following a routine dental visit using texts or leaflets which include oral health messages was found to be helpful and motivating. It is important to consider tailoring the messages to individual needs and co-designing interventions may help with this. e-Health interventions such as texts have a wide reach and could address disparities of dental health care irrespective of age, physical restrictions on dental attendance or socioeconomic standing. Further research on the development and impact of these interventions is required.

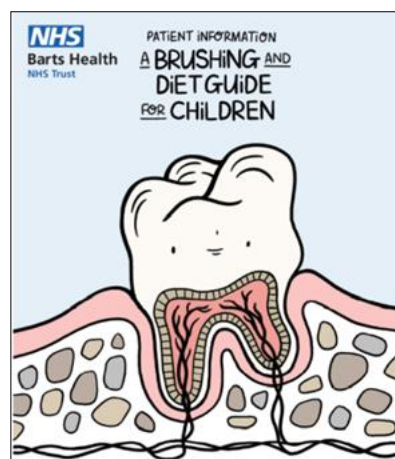


Fig 1: Front cover E-Leaflet



Fig 2: Age-specific advice from E-leaflet



Fig 3: Diet advice from E-leaflet

## Conclusion

The E-leaflet has been a successful, cost effective and eco-friendly method of information sharing, in a time where face-to face appointments were not possible and postal services were delayed. This information is easy-to-return to and share with other friends and families. Families now have the baseline information to aid in behavioural change that can benefit the entire family. We hope these changes will also aid in an eco friendly outlook for our services.

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