

The Impact of COVID-19 Lockdown on Urgent Dental Care: An Overview of Dental Services in Türkiye: Descriptive Research

COVID-19 Kapanma Döneminin Acil Diş Hekimliği Tedavilerine Etkisi: Türkiye'deki Diş Hekimliği Hizmetlerinin Değerlendirilmesi: Tanımlayıcı Araştırma

^{id} Sara SAMUR ERGÜVEN^a, ^{id} Emre KORKUT^b, ^{id} Seda ALP^b, ^{id} Figen ÇİZMECİ ŞENEL^c

^aDepartment of Oral and Maxillofacial Surgery, University of Health Sciences Gülhane Faculty of Dentistry, Ankara, Türkiye

^bDepartment of Oral Health, Ministry of Health, General Directorate of Health Services, Ankara, Türkiye

^cMinistry of Health, Health Institutes of Türkiye (TUSEB), Ankara, Türkiye

ABSTRACT Objective: The coronavirus disease-2019 (COVID-19) has had a significant impact on the healthcare system worldwide. To prevent the spread of the disease, a nationwide lockdown was imposed in Türkiye from March 17 to June 1, 2020. During the lockdown period, a limited number of emergency/urgent dental procedures were performed. This study aims to report the influence of COVID-19 lockdown on urgent dental services in Türkiye. **Material and Methods:** The number of referrals during the lockdown period to public dental hospitals open for 24 hours period were compared with those during the same time period in 2019. **Results:** A significant effect of the lockdown on the number of referrals were found. The highest number of referrals was related to oral surgical procedures (86.65%). Although the number of procedures performed decreased significantly, a marked increase was noted in the rate of prescription. **Conclusion:** Despite the limitations, the results of this study provide insights into the planning of emergency dental services in the event of future lockdowns. A dedicated team and human resources should be assigned considering the high frequency of oral surgical procedures. An increase in the rate of prescription could be a reason for the progression of odontogenic infections in the forthcoming period.

ÖZET Amaç: Koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)], tüm dünyada sağlık sistemi üzerinde büyük bir etki meydana getirmiştir. Hastalığın ilerleyişini durdurmak amacıyla Türkiye'de 17 Mart-1 Haziran 2020 dönemi arasında ulusal çapta kapanma dönemi uygulanmıştır. Kapanma dönemi süresince kısıtlı sayıda acil diş hekimliği tedavisi uygulanmıştır. Bu çalışmada, COVID-19 kapanmasının Türkiye'deki acil diş hekimliği hizmetlerine yönelik etkisinin değerlendirilmesi amaçlanmaktadır. **Gereç ve Yöntemler:** Kapanma döneminde 24 saat süreyle açık kamu ağız diş sağlığı hastanelerine yapılan başvurular, 2019 yılının aynı zaman aralığı ile karşılaştırılmıştır. **Bulgular:** Kapanma döneminin, başvuru sayısı üzerine önemli düzeyde etkisi olduğu sonucu belirlenmiştir. Başvuru nedenlerinin büyük bir kısmının, ağız cerrahisi işlemlerine yönelik olduğu saptanmıştır (%86,65). Uygulanan işlem sayısı, ciddi düzeyde azalmakla birlikte reçete yazma oranında belirgin bir artış tespit edilmiştir. **Sonuç:** Bu çalışmanın sonuçları, gelecekteki olası kapanma dönemlerine yönelik olarak acil diş hekimliği hizmetlerinin planlamasına göre farkındalık oluşturmayı amaçlamaktadır. İş gücü planlanması ve insan kaynaklarının yönetiminde, ağız cerrahisi işlemlerinin yüksek oranı göz önünde bulundurulmalıdır. Reçete yazma oranlarındaki artış, ilerleyen dönemde odontojenik enfeksiyonların artışına ilişkin bir gerekçe olarak sunulabilir.

Keywords: COVID-19; dentistry; emergencies; oral surgical procedures; pandemics

Anahtar Kelimeler: COVID-19; diş hekimliği; aciller; oral cerrahi işlemleri; pandemik

Coronavirus disease-2019 (COVID-19) was declared a pandemic by World Health Organization on March 11, 2020; from that date to February 3, 2022, there have been 383,509,779 confirmed cases and

5,693,824 deaths globally.^{1,2} The outbreak of this global pandemic has caused significant limitations in the public's access to routine dental and medical care.³ Insufficient coordination of health services re-

Correspondence: Sara SAMUR ERGÜVEN

Department of Oral and Maxillofacial Surgery, University of Health Sciences Gülhane Faculty of Dentistry, Ankara, Türkiye

E-mail: sara_samur@hotmail.com



Peer review under responsibility of Türkiye Klinikleri Journal of Dental Sciences.

Received: 04 Feb 2022

Accepted: 17 Feb 2022

Available online: 02 Mar 2022

2146-8966 / Copyright © 2022 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

lated to the pandemic and lack of personal protective equipment (PPE), especially at the beginning of the pandemic, are the reasons for the overwhelming effects on dental professionals and a decrease in the dental procedures.^{4,5}

Dental professionals are at a high risk of infection because of the high virulence and transmission of the severe acute respiratory syndrome-CoV-2 (SARS-CoV-2) through salivary droplets.^{6,7} Postponing the non-emergency dental procedures by the dental professions has globally been accepted to play a significant role in breaking the chain of transmission.⁸ However, dental emergencies can occur and exacerbate in a short period, and therefore, these require immediate treatment.⁹ Untreated dental emergencies and late dental complications may have life-threatening consequences.³ Regulatory authorities such as the American Dental Association, National Health Service, and Center for Disease Control and Prevention instructed the dental professionals to regulate dental services.¹⁰ To prevent spread of the COVID-19, a nationwide lockdown was imposed in

Türkiye from March 17 to June 1, 2020. During the lockdown period, emergency/urgent dental procedures were limited, and these were determined by the scientific advisory board.

This study aims to report the influence of the COVID-19 lockdown on urgent dental care in Türkiye and to give insights to dental professionals for future pandemics.

MATERIAL AND METHODS

This study was approved by the University of Health Sciences Gülhane Scientific Research Ethics Committee with the registration number 2021/139 (date: April 8, 2021) and it was performed following the guidelines of the Declaration of Helsinki. We compared the number of referrals to the 28 public dental health hospitals that operated for 24 h during the national lock down period with those during the same period in 2019 in light of the compulsory procedures list indicated by the scientific advisory board (Table 1).

TABLE 1: Classification of dental emergency/urgent status that requires intervention according to the scientific committee during the lockdown period.

Emergency or urgent dental status
1. Severe pain related to pulpal inflammation
2. Severe pain from pericoronitis or third molar
3. Postoperative osteitis or alveolitis
4. Abscess or bacterial infection causing localized pain and swelling
5. Tooth fracture causing pain or soft tissue trauma
6. Trauma-induced tooth avulsion/luxation
7. Jaw and facial fractures
8. Acute and painful lesions/ulceration of the oral mucosa
9. Life-threatening or uncontrolled bleeding
10. Intraoral/extraoral infections that threaten the patient's airway patency
11. Treatment of patients who were or are receiving radiotherapy and chemotherapy and who are scheduled for organ transplantation
12. Patients seeking dental consultation for medical problems
13. Taking sutures
14. Aerosol-free treatment of restoration/removable prostheses fractures
15. Pain and/or infection due to injury to the soft tissue caused by breaking the brackets and wires of patients under orthodontic treatment
16. Nutritional plate applications of newborn patients with cleft lip and palate
17. TMJ luxation
18. Biopsy (in the case of patients with a suspected malignancy)

TMJ: Temporomandibular joint.

Records were obtained from the Health Statistics and Causal Analysis (SINA) program of the Ministry of Health. Data were transferred to Microsoft Excel (Microsoft Corporation, USA) and statistical analysis was performed using version 23 of IBM-SPSS for Windows (SPSS Inc, Chicago, IL, USA).

RESULTS

We retrospectively analyzed a total of 769,704 procedures in 2019 and 35,554 procedures in the lockdown period (Table 2). Compared to the number of referrals in 2019, those during the lockdown decreased; thus, we observed a significant effect of the lockdown on the number of referrals. The treatment modalities used during the lockdown period were di-

vided into four groups, namely, endodontic approach, oral surgical approach, prosthetic/restorative approach, and orthodontic approach (Table 2). Comparison of the treatment approaches according to the specialized areas showed that the oral surgical approach (86.65%) ranked first among all procedures during the lockdown period (Table 3).

Although a significant decrease was observed in the overall number of dental procedures, a marked increase was observed in the rate of prescription during the lockdown period (Figure 1). The rate of prescription was calculated by using the number of prescriptions/number of referrals. The rate of prescription was 39.5% (711,403/1,797,784) in 2019 and 59.4% (403,201/677,748) during the lockdown period.

TABLE 2: Evaluation of dental emergencies/urgent status that require intervention according to the recommendations of the scientific committee and comparison of the management modalities used most frequently in the lockdown period with those used in the previous year during the same period.

Emergency or urgent status	Treatment modality*	2019 n (%)	2020 n (%)
1. Severe pain related to pulpal inflammation	Total	630,349 (95.55)	29,380 (4.45)
	a. Extirpation/endodontic treatment	259,808 (99.10)	2,359 (0.90)
	b. Simple extraction	351,596 (93.12)	25,983 (6.88)
2. Severe pain from pericoronitis or third molar	b. Surgical extraction	18,945 (94.81)	1,038 (5.19)
	b. Third molar extraction	50,243 (97.16)	1,471 (2.84)
3. Postoperative osteitis or alveolitis	b. Alveolitis treatment	4,131 (96.16)	165 (3.84)
4. Abscess or bacterial infection causing localized pain and swelling	b. Abscess drainage	29,181 (98.1)	566 (1.9)
1.5. Tooth fracture causing pain or soft tissue trauma	b. Periodontal splint		
1.6. Trauma-induced tooth avulsion/luxation	b. Intermaxillary fixation	552 (98.57)	8 (1.43)
1.7. Jaw and facial fractures	b. Open reduction for jaw fractures		
1.8. Acute and painful lesions/ulceration of the oral mucosa	Not possible to determine		
1.9. Life-threatening or uncontrolled bleeding	b. Within the scope of bleeding intervention	17,741 (98.74)	227 (1.26)
1.10. Intraoral/extraoral infections that threaten the patient's airway patency	Not possible to determine		
1.11. Treatment of patients who were or are receiving radiotherapy and chemotherapy and who are scheduled for organ transplantation	Not possible to determine		
1.12. Patients seeking dental consultation for medical problems	Not possible to determine		
1.13. Taking sutures	b. Taking sutures	2,787 (93.59)	191 (6.41)
1.14. Aerosol-free treatment of restoration/removable prostheses fractures	c. Repair	15,217 (86.58)	2,359 (13.42)
1.15. Pain and/or infection due to injury to the soft tissue caused by breaking the brackets and wires of patients under orthodontic treatment	d. Orthodontic repairs (band/wires/braces)	2,744 (98.95)	29 (1.05)
1.16. Nutritional plate applications of newborn patients with cleft lip and palate	Not possible to determine		
1.17. TMJ luxation	Total	15,847 (93.21)	1,154 (6.79)
	b. Gnathological treatment/TMJ	13,870 (93.19)	1,013 (6.81)
	b. Treatment of the TMJ luxation	15 (88.24)	2 (11.76)
	b. TME mechanotherapy	1,962 (93.38)	139 (6.62)
1.18. Biopsy (in cases of patients with a suspected malignancy)	b. Biopsy procedure	912 (99.56)	4 (0.44)

*a. Endodontic approach; b. Oral surgical approach; c. Prosthetic/restorative approach; d. Orthodontic approach; TMJ: Temporomandibular joint.

TABLE 3: Treatment modalities used during the lockdown (Table 2) were divided into four groups as follows: endodontic approach, oral surgical approach, prosthetic/restorative approach, and orthodontic approach.

Treatment modalities	2019 n (%)	2020 n (%)
a. Endodontic approach	259,808 (33.75)	2,359 (6.63)
b. Oral surgical approach	491,935 (63.91)	30,807 (86.65)
c. Prosthetic/restorative approach	15,217 (1.98)	2,359 (6.63)
d. Orthodontic approach	2,744 (0.36)	29 (0.08)
Total	769,704 (100.00)	35,554 (100.00)

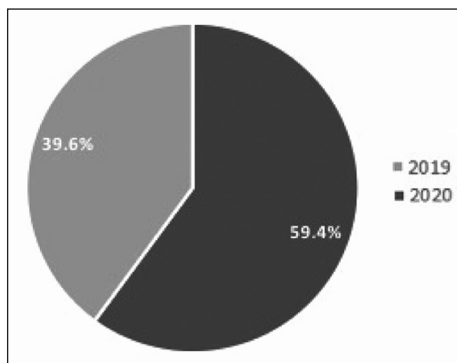


FIGURE 1: The rate of prescription during 2019 and during the lockdown period.

DISCUSSION

The COVID-19 epidemic has strongly impacted the utilization of emergency dental services.¹¹ Dental health services were significantly affected by the COVID-19 epidemic that originated in China, and public dental hospitals suspended general non-emergency dental treatment and began to provide only emergency dental services.¹²

A systematic review that underscores the importance of the risk of COVID-19 transmission and protective protocols in dentistry established that any elective non-emergency dental care for a patient suspected of having or confirmed to have COVID-19 infection should be postponed, and only urgent management of the dental disease can be performed taking into consideration protective protocols.¹³ All dental practitioners closed or significantly decreased their hours of operation during the COVID-19 pandemic in Italy, and most of them reported concerns about their professional future.¹⁴ Limiting the num-

ber of aerosol-generating procedures and using adequate PPE were important factors in protecting dental healthcare providers and patients by reducing the risk of transmission of COVID-19.¹⁵

For the safety of the community, dental practitioners are recommended to follow protocols formulated by national official committees for dental procedures to reduce possible the risk of transmission of the virus.¹⁶ During the nationwide lockdown in Türkiye a limited number of emergency/urgent dental procedures were performed, and they were determined by the scientific advisory board. The results of this study showed that the lockdown had a significant effect on the number of referrals. The highest number of applications were for oral surgeries. The referrals related to oral surgery provide important insights for workforce planning and organization in the event of a similar pandemic in the future.

A study on emergency dental services during a 5-week period of the peak of COVID-19 in the United Kingdom showed that simple extraction (49.1%), advice only (12.4%), extirpation (12%), surgical extraction (5.9%), prescription only (9.4%), and other methods (11.2%) were used for the management of patients.¹⁷ Similar to the results of our study, the results of the abovementioned study showed that the majority of dental procedures were related to oral surgery. Another study showed that 76% of the patients with dental emergencies presenting to maxillofacial units during the COVID-19 pandemic could have been treated in primary care, and 52% of the patients were already “triaged” on several occasions rather than any direct treatment.¹⁸ Despite a significant decrease in the overall number of procedures, a marked increase was noted in the rate of prescription. The rate of prescription during the lockdown period increased to 59.4% from a pre-COVID rate of 39.6%. Therefore, we would like to stress the risks associated with unnecessary antibiotic usage and unnecessary triage, especially in patients with systemic complications.

Numerous guidelines and recommendations have been reported to optimize the therapeutic approaches for patients with chronic diseases and cancer during the global COVID-19 pandemic.¹⁹

A fewer number of patients were diagnosed with cancer during the COVID-19 pandemic in the Netherlands.²⁰ Owing to the lockdown and emergency closure of clinics, routine examinations of patients with potentially malignant oral disorders were interrupted.²¹ New modalities are needed to provide dental care for patients with such specific conditions in terms of early detection of oral cancer. Hande et al. suggested a structured module to improve the status of diagnosis of patients with potentially malignant oral disease and survey the progression of patients previously diagnosed as with potentially malignant oral disease and oral squamous cell carcinoma.²² They recommend classifying patients in three groups as those with a presence of certain risk factors, those diagnosed with oral potentially malignant disease, and those diagnosed with oral squamous cell carcinoma, and screen them as per the prescribed protocol. In addition to this, oral self-examination presented as a potentially valuable tool for the early detection of oral cancer during the COVID-19 pandemic by Motta and Rodrigues.²³ In this study we observed a significant effect of the lockdown on the number of biopsies performed. The proportion of biopsy procedures performed decreased from a pre-COVID rate of 99.56% to 0.44% during the lockdown. These results may support that the global pandemic may be a possible reason for the delayed diagnoses and treatments for patients with premalignant/malignant lesions.

Early detection of premalignant/malignant lesions in clinical and histopathological stages is crucial for successful treatment, survival, and quality of life. Patients and dental professionals may have neglected serious health problems during the pandemic, and that may have adversely affected the early detection of oral cancers. Therefore, the novel approaches mentioned above and further studies are of great importance in preventing the delayed diagnosis of oral cancer.

Treatment of patients in the dental environment during the pandemic period was challenging because of the risk of transmission and aerosol generation. Further management protocols for dental practitioners in terms of effective infection control protocols in dental settings, recommendations for evaluation of

patients, oral examination, treatment of emergency cases have been presented in the light of current guidelines.^{7,9} Detailed medical history form, COVID-19 screening questionnaire, and true emergency questionnaire have been suggested for evaluation of the patients in dental practice during the pandemic.²⁴ In addition, management of medical emergencies in dental practice in a patient with COVID-19 in terms of risk assessment, PPE and resuscitation procedure have been suggested.²⁵

Our findings showed that the oral surgical applications ranked first among all procedures during the lockdown period. Further, this finding may be related to the emergency/urgent conditions list that usually leads patients to the treatment choices for oral surgery. However, oral surgeons are at a unique risk of exposure to SARS-CoV-2 because of being the proximity of working in and around the oropharynx and nasopharynx.²⁶ Previous studies have reported various approaches to compete with the COVID-19 challenge and for the management of patients requiring oral and maxillofacial surgery during the COVID-19 pandemic in terms of triage, PPE, patient care, and precautions in the inpatient/outpatient units and the operating room.²⁶⁻²⁹ Modifications in patient care such as the use of telemedicine and digital workflows could be used for minimizing the risk of exposure and transmission of SARS-CoV-2.³⁰ Further, precautions such as simplification of the surgical technique, reducing the operation time, and continuous negative pressure operative field barrier have been used for patients requiring oral and maxillofacial surgery to minimize the risk of infection and spread of COVID-19.^{29,31}

Although all routine dental services have been restricted in countries experiencing the first wave of the COVID-19 pandemic, providing urgent care by dental professionals equipped with adequate PPE is a priority.³² Additionally, it has been recommended to expand the dental curriculum to include treatment during events such as natural disasters and pandemics.¹⁰ Limitation of this study is that dental services carried out by private health institutions were not accessible therefore data of private dental services were not included in this study.

CONCLUSION

The COVID-19 pandemic has had a significant effect on the referrals to public dental services. The most common treatment modality for the emergency referrals was related to oral surgery, and these results provide valuable insights for workforce planning and organization in the event of a similar pandemic in the future.

Acknowledgments

The authors would like to express their profound gratitude to the health care workers who contributed to the fight against COVID-19.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that pro-

vides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Sara Samur Ergüven, Figen Çizmeci Şenel; **Design:** Sara Samur Ergüven, Figen Çizmeci Şenel; **Control/Supervision:** Sara Samur Ergüven, Emre Korkut, Seda Alp, Figen Çizmeci Şenel; **Data Collection and/or Processing:** Sara Samur Ergüven, Emre Korkut, Seda Alp; **Analysis and/or Interpretation:** Sara Samur Ergüven, Emre Korkut, Seda Alp; **Literature Review:** Sara Samur Ergüven, Emre Korkut; **Writing the Article:** Sara Samur Ergüven, Figen Çizmeci Şenel; **Critical Review:** Sara Samur Ergüven, Figen Çizmeci Şenel.

REFERENCES

- World Health Organization [Internet]. © 2022 WHO [Cited: February 4, 2022]. WHO Coronavirus (COVID-19) Dashboard. Available from: [Link](#)
- Gökmen Kavak D, Öksüz AS, Cengiz C, Kayral İH, Çizmeci Şenel F. The importance of quality and accreditation in health care services in the process of struggle against Covid-19. *Turk J Med Sci.* 2020;50(8):1760-70. [[Crossref](#)] [[PubMed](#)]
- Yakubov D, Ward M, Ward B, Raymond GF, Paskhover B. Opinion: an increase in severe, late dental complications might result from reliance on home dental remedies during the COVID-19 pandemic. *J Oral Maxillofac Surg.* 2020;78(8):1232-3. [[PubMed](#)] [[PMC](#)]
- Tysiąg-Miśta M, Dziedzic A. The attitudes and professional approaches of dental practitioners during the COVID-19 outbreak in Poland: a cross-sectional survey. *Int J Environ Res Public Health.* 2020;17(13):4703. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Ferneini EM, Halepas S. Protecting ourselves during the COVID-19 pandemic. *J Oral Maxillofac Surg.* 2020;78(8):1227-8. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Pereira LJ, Pereira CV, Murata RM, Pardi V, Pereira-Dourado SM. Biological and social aspects of coronavirus disease 2019 (COVID-19) related to oral health. *Braz Oral Res.* 2020;34:e041. [[Crossref](#)] [[PubMed](#)]
- Basmaci F, Kilicarslan MA, Cizmeci Senel F. Recommendations for infection control in dental laboratories during COVID-19 pandemic and normalization period. *J Basic Clin Health Sci.* 2021;2:175-80. [[Crossref](#)]
- Fallahi HR, Keyhan SO, Zandian D, Kim SG, Cheshmi B. Being a frontline dentist during the Covid-19 pandemic: a literature review. *Maxillofac Plast Reconstr Surg.* 2020;42(1):12. [[PubMed](#)] [[PMC](#)]
- Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *J Dent Res.* 2020;99(5):481-7. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Odeh ND, Babkair H, Abu-Hammad S, Borzangy S, Abu-Hammad A, Abu-Hammad O. COVID-19: present and future challenges for dental practice. *Int J Environ Res Public Health.* 2020;17(9):3151. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Guo H, Zhou Y, Liu X, Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. *J Dent Sci.* 2020;15(4):564-7. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Yang Y, Zhou Y, Liu X, Tan J. Health services provision of 48 public tertiary dental hospitals during the COVID-19 epidemic in China. *Clin Oral Investig.* 2020;24(5):1861-4. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Banakar M, Bagheri Lankarani K, Jafarpour D, Moayedi S, Banakar MH, MohammadSadeghi A. COVID-19 transmission risk and protective protocols in dentistry: a systematic review. *BMC Oral Health.* 2020;20(1):275. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Consolo U, Bellini P, Bencivenni D, Iani C, Checchi V. Epidemiological aspects and psychological reactions to COVID-19 of dental practitioners in the Northern Italy Districts of Modena and Reggio Emilia. *Int J Environ Res Public Health.* 2020;17(10):3459. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Becker K, Brunello G, Gurzawska-Comis K, Becker J, Sivoletta S, Schwarz F, et al. Dental care during COVID-19 pandemic: Survey of experts' opinion. *Clin Oral Implants Res.* 2020;31(12):1253-60. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Bizzoca ME, Campisi G, Muzio LL. Covid-19 pandemic: what changes for dentists and oral medicine experts? A narrative review and novel approaches to infection containment. *Int J Environ Res Public Health.* 2020;17(11):3793. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Grossman S, Sandhu P, Sproat C, Patel V. Provision of dental services at a single institution in the UK's epicentre during the COVID-19 pandemic. *Br Dent J.* 2020;228(12):964-70. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Blackhall KK, Singh RP. Dental emergencies presenting to maxillofacial units during the COVID-19 pandemic: a five-centre UK hospital study. *Br Dent J.* 2021;1-4. [[PubMed](#)] [[PMC](#)]

19. Belkacemi Y, Grellier N, Ghith S, Debbi K, Coraggio G, Bounedjar A, et al. A review of the international early recommendations for departments organization and cancer management priorities during the global COVID-19 pandemic: applicability in low- and middle-income countries. *Eur J Cancer*. 2020;135:130-46. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
20. Dinmohamed AG, Visser O, Verhoeven RHA, Louwman MWJ, van Nederveen FH, Willems SM, et al. Fewer cancer diagnoses during the COVID-19 epidemic in the Netherlands. *Lancet Oncol*. 2020;21(6):750-1. Erratum in: *Lancet Oncol*. 2020. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
21. Al-Maweri SA, Halboub E, Warnakulasuriya S. Impact of COVID-19 on the early detection of oral cancer: a special emphasis on high risk populations. *Oral Oncol*. 2020;106:104760. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
22. Hande A, Sonone A, Gadbaill A, Gawande M, Patil S, Sharma P. Modalities to restrain the progression of oral potentially malignant diseases and oral squamous cell carcinoma in COVID-19 pandemic. *Oral Oncol*. 2021;114:105072. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
23. Motta ACF, Rodrigues KRHD. Could we benefit from oral self-examination during the COVID-19 pandemic? *Oral Oncol*. 2020;107:104840. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
24. Ather A, Patel B, Ruparel NB, Diogenes A, Hargreaves KM. Coronavirus disease 19 (COVID-19): implications for clinical dental care. *J Endod*. 2020;46(5):584-95. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
25. Jevon P, Shamsi S. COVID-19 and medical emergencies in the dental practice. *Br Dent J*. 2020;229(1):19-24. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
26. Panesar K, Dodson T, Lynch J, Bryson-Cahn C, Chew L, Dillon J. Evolution of COVID-19 Guidelines for University of Washington oral and maxillofacial surgery patient care. *J Oral Maxillofac Surg*. 2020;78(7):1136-46. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
27. Zimmermann M, Nkenke E. Approaches to the management of patients in oral and maxillofacial surgery during COVID-19 pandemic. *J Craniofacial Surg*. 2020;48(5):521-6. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
28. Zhao Z, Gao D. Precaution of 2019 novel coronavirus infection in department of oral and maxillofacial surgery. *Br J Oral Maxillofac Surg*. 2020;58(3):250-3. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
29. Barca I, Cordaro R, Kallaverja E, Ferragina F, Cristofaro MG. Management in oral and maxillofacial surgery during the COVID-19 pandemic: Our experience. *Br J Oral Maxillofac Surg*. 2020;58(6):687-91. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
30. Chigurupati R, Panchal N, Henry AM, Batal H, Sethi A, D'innocenzo R, et al. Considerations for oral and maxillofacial surgeons in COVID-19 era: can we sustain the solutions to keep our patients and healthcare personnel safe? *J Oral Maxillofac Surg*. 2020;78(8):1241-56. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
31. Gonzalez-Ciccarelli LF, Nilson J, Oreadi D, Fakitsas D, Sekhar P, Quraishi SA. Reducing transmission of COVID-19 using a continuous negative pressure operative field barrier during oral maxillofacial surgery. *Oral Maxillofac Surg Cases*. 2020;6(3):100160. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
32. Coulthard P. Dentistry and coronavirus (COVID-19) - moral decision-making. *Br Dent J*. 2020;228(7):503-5. [[Crossref](#)] [[PubMed](#)]