



Special article

Management of patients in oral and maxillofacial surgery during the stage of crisis and subsequent control of COVID-19 pandemic

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A B S T R A C T

The pandemic due to the new respiratory infection known as coronavirus 2019 disease (COVID-19), caused by the SARS-CoV-2 virus, has triggered an unprecedented disruption in the normal activity of oral and maxillofacial surgery departments in Spain, delaying routine patient care and elective surgical interventions. Oral and maxillofacial surgeons are one of the healthcare groups with the highest risk of nosocomial infection because of the close contact that occurs with asymptomatic and symptomatic patients with SARS-CoV-2 infection through the oral cavity and oropharynx. The purpose of this document has been to update the available evidence for the safe and effective management and treatment in outpatient clinic, ambulatory, elective and emergency surgeries, and hospitalization, while minimizing as much as possible the risk of infection for the oral and maxillofacial surgeon, health workers and patients. This document aims to clarify the most significant aspects and create a common protocol for the management of patients with COVID-19 in oral and maxillofacial surgery during the acute stage of spread and subsequent control of the pandemic in our country.

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Manejo de pacientes en cirugía oral y maxilofacial durante el periodo de crisis y de control posterior de la pandemia de COVID-19

R E S U M E N

Palabras clave:

Cirugía oral y maxilofacial, COVID-19, SARS-CoV-2, pandemia, recomendaciones.

La pandemia por la nueva infección respiratoria conocida como enfermedad coronavirus 2019 (COVID-19), causada por el virus SARS-CoV-2, ha desencadenado una perturbación sin precedentes en la actividad habitual de los servicios de cirugía oral y maxilofacial en España, retrasando la atención rutinaria de pacientes e intervenciones quirúrgicas programadas. Los cirujanos orales y maxilofaciales son uno de los colectivos sanitarios con mayor riesgo de infección nosocomial por el estrecho contacto que se produce con los pacientes asintomáticos y sintomáticos con infección por SARS-CoV-2 a través de la cavidad oral y orofaringe. El propósito del presente documento ha sido actualizar la evidencia disponible para el manejo y tratamiento seguro y efectivo en consulta, cirugías ambulatorias, programadas y urgentes y hospitalización, minimizando al mismo tiempo, tanto como sea posible, el riesgo de contagio para el cirujano oral y maxilofacial, personal sanitario y pacientes. Este documento pretende esclarecer los aspectos más significativos y crear un protocolo común de manejo de pacientes con COVID-19 en cirugía oral y maxilofacial durante la fase aguda de propagación y de control posterior de la pandemia en nuestro país.

INTRODUCTION

The World Health Organization declared an outbreak of a new infection called SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2) as an international public health emergency on January 30, 2020¹. The outbreak of the new coronavirus disease (COVID-19), which had initially been identified in December 2019 in the People's Republic of China², has become a historical health disaster in Spain where it has already caused a huge number of deaths, especially in relation to groups of patients with previous pathologies and the elderly^{3,4}.

The state of alarm decreed by the Spanish government and the enormous number of patients who have required health care due to the rapid expansion of the pandemic between March and April 2020⁵ has triggered an unprecedented disruption of the normal activity of oral and maxillofacial surgery departments, which has led to delayed patient care and elective surgical interventions. The incidence of cases has not been homogeneous throughout the national territory, since some oral and maxillofacial surgery departments have had to drastically reduce or postpone their activity, while others have been able to maintain a certain surgical activity. In May 2020, health authorities are planning a process of de-escalation of the acute alert stage and the end of the confinement to move to a pandemic control stage, which will lead to new challenges in the management of patients and in the daily running in outpatient clinic, ambulatory, elective and emergency surgeries, and hospitalization.

Since the onset of the pandemic, oral and maxillofacial surgeons have been included among healthcare workers with the highest risk of nosocomial infection due to the close contact that occurs with asymptomatic and symptomatic

patients with SARS-CoV-2 infection through the oral cavity and oropharynx. In order to try to clarify the most significant aspects and create a common protocol on COVID-19 pandemic, a group of surgeons from the Spanish Society of Oral and Maxillofacial and Head and Neck Surgery (SECOM-CyC, in Spanish) has proposed this document that establishes a series of recommendations to be followed in the stage of crisis and subsequent control of the pandemic. To this end, studies published until April 26, 2020 on the management of patients in oral and maxillofacial surgery during the pandemic were reviewed, preparing the current recommendations after their analysis.

ORAL AND MAXILLOFACIAL SURGEON PROTECTION

Oral and maxillofacial surgeons are especially vulnerable to SARS-CoV-2 infection due to extensive and close exposure to patients' cavities and oral, salivary, nasal secretions and body fluids⁶. Additionally, they are sensitive to aerosol exposure in procedures such as performing a tracheostomy, tracheostomy cures, airway aspiration, abscess drainage, wound irrigation, use of ultrasonic/piezoelectric devices, or high-speed handpieces⁷. Based on the above, it is recommended that the oral and maxillofacial surgeon wear protection with surgical masks during all healthcare, change them at least every four hours or sooner, check body temperature twice a day, and monitor for possible appearance of any symptom^{8,9}. In case of identifying compatible symptoms, healthcare activity should be ended and a diagnostic test with high priority should be performed.

Currently, specific guidelines and recommendations for the protection of health workers involved in diagnostic and thera-

peutic procedures in anatomical areas at high risk of infection such as the oral cavity and the head and neck area are few and limited and are in process of change and evolution. As a rule, before performing a surgical procedure or admitting a patient, a SARS-CoV-2 test should be performed. The patient with an urgent/emergent condition in which there is not enough time to perform this test should be treated as potentially infectious. Because there are a large number of asymptomatic SARS-CoV-2 positive patients, it should be assumed that initially all patients are potentially infectious¹⁰.

There are different types of protective equipment. Table I details some basic protection elements necessary in the con-

text of the SARS-CoV-2 pandemic for the area of outpatient clinic area, ambulatory, elective and emergency surgeries, and hospitalization¹¹⁻¹³. To ensure the correct protection of operating room personnel, if a COVID positive patient is treated, personal protective equipment (PPE) must be used together with the usual operating room clothing. Given the forms of transmission seem to include a direct route (cough, sneeze and drop inhalation) and a contact transmission route (oral, nasal and ocular mucosa)^{14,15}, the PPE must completely cover the skin, especially the high-risk areas of the body (nose, mouth and eyes) taking into account that aerosols can be generated during surgical interventions in the oro-maxillofacial area.

Table I. Personal protective equipment (PPE) for healthcare workers, modified from World Health Organization (WHO) y European Centre for Disease Prevention and Control (EDCD)¹¹⁻¹³

Activity	Type of PPE
Protection in outpatient clinic area	
Patients without symptoms and negative COVID-19	<ul style="list-style-type: none"> • Surgical mask / FFP1 • Gloves
Suspicious patients with respiratory symptoms or positive COVID-19	<ul style="list-style-type: none"> • FFP2 mask • Coat • Gloves • Surgical cap • Eye protection (sealed glasses/face mask)
Protection in the oral surgery office / hospitalization ward	
Activity in patients without symptoms and negative COVID-19	<ul style="list-style-type: none"> • Surgical mask / FFP1 • Gloves
Direct activity in suspicious patients with symptoms or positive COVID-19	<ul style="list-style-type: none"> • FFP2 mask • Coat • Gloves • Surgical cap • Eye protection (sealed glasses/face mask)
Aerosol-generating procedures in suspect patient with symptoms or COVID-19 positive	<ul style="list-style-type: none"> • FFP3 mask • Coat • Gloves • Disposable surgical cap • Eye protection (sealed glasses/face mask) • Apron
Protection in the operating room	
Patients without symptoms and negative COVID-19	<ul style="list-style-type: none"> • FFP2 mask • Waterproof sterile surgical gown • Sterile surgical gloves • Disposable surgical cap • Eye protection (sealed glasses/face mask)
Direct activity in suspicious patients with symptoms or COVID-19 positive	<ul style="list-style-type: none"> • FFP3 mask • Waterproof sterile surgical gown • Sterile surgical gloves • Double disposable surgical cap • Eye protection (sealed glasses/face mask)

Eye protection glasses should fit over and around the eyes or personal lenses and be indirectly ventilated to prevent penetration of splashes or aerosols. The protective screens provide barrier protection for the facial area and related mucous membranes (eyes, nose and lips) and are considered an alternative to protective glasses. Optionally, approved protective screens can be used in situations where there is a high risk of aerosolization.

PPE will be necessary in any surgical procedure on the oral and maxillofacial territory and in other operating room procedures (intubation, regional anesthesia, canalizations, etc.). Therefore, it is necessary to define which personnel should use protection within each area and for each activity in outpatient clinic, ambulatory or elective surgeries and hospitalization wards. Surgeons, anesthetists, and scrub nurses must have the elements to ensure adequate conditions of maximum safety. In any case, the number of staff members in the operating room must be minimal¹⁶. The circulating nurse and operating room assistant would not need maximum protection since a surgical mask could be sufficient, although an FFP2 mask is always advisable in case they have to approach the patient in risky surgical maneuvers or during procedures with the risk of generating aerosols. It is essential that the entire team of staff have previously undergone training in supervised placement and removal of the PPE before performing a real procedure.

GUIDELINES FOR THE PATIENT IN ORAL AND MAXILLOFACIAL SURGERY

During the pandemic, it is advisable to carry out a prior telephone triage when contacting the patient to make an appointment or to register their elective hospital admission⁶. From the Oral and Maxillofacial Surgery Department, through a simple triage questionnaire, patients must be identified as having a high risk of infection and, consequently, adopt protective measures. The presence of some of the following symptoms should be investigated: temperature above 37.5 °C, dry cough, pharyngeal discomfort, nasal congestion, fatigue, headache, myalgia, hypogeusia, anosmia, skin disorders (rash, hives, varicelliform vesicles, acro-ischemic, livedoid and chilblain-type lesions), diarrhea and digestive complaints or general discomfort. In the event of any of these signs or symptoms, even at normal temperature, the patient must be informed that it is preferable to delay the treatments until at least 14 days have elapsed since their disappearance (except for emergencies) and refer him to the corresponding infectious or internal medicine department so that assess his final diagnosis. Likewise, it should be investigated if the patient has had close contact with patients diagnosed with COVID-19 and who are still in the quarantine period (14 days from the last contact).

Before assisting the patient in the outpatient clinic, operating room or hospitalization area, it is necessary to clearly explain to him which procedures are prioritized and which are preferably deferrable. Likewise, the patient must be informed that he should go to the Department alone, without an accompanying person, remove his bracelets, necklaces or earrings since the coronavirus remains on metal surfaces, and arrive

with a mask at the agreed time. Upon arrival at the Department, the patient will be given a series of instructions relevant according to the clinical care area of assistance and will be asked to rub his hands with a hydroalcoholic gel.

MANAGEMENT IN THE ORAL AND MAXILLOFACIAL SURGERY OUTPATIENT CLINIC

Regular activity in the oral and maxillofacial surgery outpatient clinic should be considered low-medium risk of infection. A relevant aspect is the training of the clinic's auxiliary health workers, who must know the protocols and measures for telephone triage, reception, organization and mobility around the clinic, hand hygiene and surface disinfection measures, and know how to use the appropriate clothing and protective measures according to each case (gloves, mask, gowns and eye protection). In general, the clinic staff should wear at least a surgical mask (preferably FFP2), and an eye protection and waterproof gown is suggested. In any case, it is recommended that the auxiliary staff is the minimum for an adequate operation of the clinic.

Clinical examination and cures are considered medium risk interventions that must be performed with gloves, eye protection, masks, adequate clothing, and single-use examination material. Although it is unlikely, examination maneuvers can generate aerosols when manipulating the oral cavity, and in this circumstance, the level of protection should be increased. It must be advisable to previously prepare the examination and cures material for each patient and to plan in advance the clinic activities that will be carried out particularly with each patient.

The cleaning and disinfection protocol between patients must ensure the removal of disposable protective equipment and the used instruments, and that the cleaning and disinfection protocols of the instruments are followed, the cleaning of surfaces in contact with the patient, the scrubbing of the floor with 0.1% hypochlorite solution after each patient, and ventilation of the room for 5-10 minutes¹⁷.

MANAGEMENT IN AMBULATORY SURGERY

Assistance of the patient in the outpatient oral surgery clinic in the de-escalation stage of the pandemic entails the reactivation of the clinic activity after the conclusion of the confinement, and therefore implies direct contact with the patient, mobilization from the different providers to the hospital (Primary Care, Reference Centers, etc.), and reopening of surgical activities previously considered high risk during the crisis stage. In oral and maxillofacial ambulatory surgery, there is a high level of exposure to virus transmission through exposure to saliva, sputum, body fluids, and the aerosols generated during oral surgery¹⁸.

Selection and prioritization of the procedures to be performed in the outpatient oral surgery clinic will be carried out according to the diagnoses and procedures codification of each Oral and Maxillofacial Surgery Department, and in accordance with the recommendations of this document.

Before performing ambulatory oral surgery, it is mandatory, as in elective major surgery or emergency procedures, to monitor the patient using a SARS-CoV-2 test^{19,20}. To do this, the Appointments Service will manage the tests at the Hospital, Covid-car or Health Center 24-72 hours in advance. A clinical assessment of the risk of developing COVID-19 will be conducted through an interview on the presence of symptoms and possible contacts and a PCR (polymerase chain reaction) determination for SARS-CoV-2 in a nasopharyngeal sample. If both evaluations are negative, the possibility of having COVID-19 can be considered insignificant, and the intervention could be carried out in the context of the pandemic control stage. However, the result of the PCR in asymptomatic patients should be evaluated with caution due to the limited sensitivity of the test and the possibility of obtaining a false negative. In patients with positive PCR, treatment will be postponed for a minimum of two weeks, and the entire process must then be repeated.

Depending on the availability of each center and the individual assessment of each patient, a complementary qualitative or quantitative antibody test (IgM and IgG) may be requested, but caution must be exercised in its assessment due to the high rate of false negatives, especially during the early stages of infection. If the patient has clear clinical symptoms or close contact and the PCR result is repeatedly negative, a confirmatory antibody test may be indicated before the operation. The interpretation of serology in patients with negative PCR, in accordance with the recommendations of the Ministry of Health²¹, is summarized in Table II. The validation of

specificity and specificity of multiple antibody tests and their approval at ministerial instances are currently being verified. In any case, serology data should support the clinical decision but never condition the level of protection against the specific clinical case^{22,23}.

Upon admission to oral surgery office for a procedure under local anesthesia, the patient will be instructed on the technique to be practiced and his behavior during care. The informed consent of SECOM-CyC will be provided for each procedure as well as the adapted specific consent for the COVID-19 pandemic stage. The oral surgery procedure should be carried out with the office door closed and with the minimum number of people inside. Offices are required to comply with regulations for ventilation and air conditioning in hospital establishments²⁴⁻²⁷.

The patient should disinfect his hands with hydroalcoholic gel before sitting on the chair and avoid contact with the office material and protect him with a surgical cloth/gown and bib/apron. Before surgery, a mouthwash and gargle protocol with 1% hydrogen peroxide or solutions with 0.2% povidone iodine is recommended²⁸⁻³². It is also recommended to perform a complementary nasal wash with gauze or nasal swabs impregnated with the same substances. The use of rotating material (handpiece), electric scalpel, ultrasonic material and piezoelectric devices should be avoided as much as possible to minimize the formation of aerosols^{7,33}.

After washing hands with hydroalcoholic solution that includes up to the elbows, surgeon and assistant should put on protective equipment as indicated above. As a rule, it is

Table II. Interpretation of the diagnostic tests against SARS-CoV-2 in a negative PCR patient

Serology	Interpretation	Measurements
IgM+ IgG -	<ul style="list-style-type: none"> Recent SARS-CoV-2 contact Probable acute infection (can indicate more than 7-10 days from infection) 	<ul style="list-style-type: none"> Delaying surgery High risk of contagion Repeat tests
IgM+ IgG+	<ul style="list-style-type: none"> Contact established with the SARS-CoV-2 Probable acute infection (may indicate more than 14 days from infection) 	<ul style="list-style-type: none"> Delaying surgery High risk of contagion Repeat tests
IgM- IgG+	<ul style="list-style-type: none"> Individual's previous contact with SARS-CoV-2 regardless of having had many, few, or no symptoms. Probable past infection (without knowing the infection time) 	<ul style="list-style-type: none"> Could be operated on
IgM- IgG-	<ul style="list-style-type: none"> There is no immune response from the patient, or there is and it has not been detected because it is transient Not been in contact with the virus. Although it cannot be known for sure. If so, it is not infected Have had occasion to be in contact with the virus: <ol style="list-style-type: none"> If there is suspicion of possible infection for epidemiological reasons (contact with a nearby infected person) If there is clinical suspicion for symptoms or some complementary objective data, although nonspecific (increase in C-reactive protein, lymphopenia, doubtful or pathological radiology), it may be in a window period (there has not been time to produce antibodies) If meet epidemiological and/or clinical and/or complementary criteria, in the acute stage of the pandemic consider the patient as contagious 	<ul style="list-style-type: none"> Repeat tests

recommended that the operation be performed by an expert surgeon and assistant and in simultaneous work^{34,35}, choosing those less invasive or non-aerosol oral surgery procedures. It is advisable to minimize the use of the equipment's air-water syringe because it generates aerosols and dries with gauze the area that we need to explore or where we are operating. The vacuum cleaner should be located as close as possible to the surgical area to minimize contamination and generation of aerosols. The use of suction aspirators is recommended in wound irrigation procedures to avoid splashing¹⁸. For intraoral suture, it is recommended to preferably use absorbable suture. It is advisable to avoid taking x-rays as much as possible, especially intraoral ones, which stimulates salivation and can cause retching and coughing. Whenever possible, depending on the type of procedure, it is desirable to perform extraoral radiographs (orthopantomography) or CT⁶. Performing an oral surgery intervention on a COVID-19 positive patient or who requires emergent treatment and does not have a clinical-analytical screening will preferably be done in the hospital operating room that has been established for confirmed COVID-19 patients, following the protocol and circuit recommended in this document.

MANAGEMENT IN THE OPERATING ROOM FOR ELECTIVE SURGERY

In the stage of de-escalation and release from population confinement, a weekly schedule of elective surgery for negative COVID-19 patients will be carried out based on the resources enabled for this in each hospital. It is a responsibility of the Oral and Maxillofacial Surgery Department that patients follow the corresponding circuit, so it is essential that the operating rooms and the resources assigned are planned and programmed in advance. Considering the availability of operating rooms per week, the Department will select the candidate patients to undergo surgery according to the levels of surgical priority and the available resources.

Oral and maxillofacial surgery procedures can be classified according to their risk for patients and surgeons. Thus, it can be distinguished:

- High risk procedures. Interventions that expose the airway or oral mucosal surfaces with the possibility of generating aerosols are included. During the stage of acute pandemic crisis, elective surgery is discouraged, and only emergent interventions should be performed, for example, a tracheostomy or an operation to control an incoercible epistaxis. In these cases, all personnel within the operating room are considered to be at risk in the current context of a pandemic, so all must wear the appropriate protective equipment¹⁸. Even in unconfirmed patients, it should be assumed that they are potentially positive and protective measures should be taken to avoid unnecessary exposure¹⁶.
- Low-moderate risk procedures. Interventions in which no airway or mucosal surfaces are exposed are included. There is a certain risk of aerosol generation during intubation and extubation maneuvers, so the surgical team should not be present in the operating room at these lapse³⁶.

Before the operation, the surgeon will provide the patient with the usual surgical informed consent for the procedure, a specific informed consent for COVID-19, and some recommendations prior to surgery. The Department will arrange an appointment between 24 and 72 hours before the intervention to carry out a PCR test for SARS-CoV-2, a complete blood count test, a coagulation study and elemental biochemistry, and a pre-anesthetic study and radiological test as indicated (radiography or chest CT, according to clinical criteria)¹⁸. If the patient is diagnosed as positive PCR, the surgery will be postponed. If the patient repeatedly tests negative and has compatible symptoms or a history of close contact, a complementary antibody test (IgM and IgG) may be performed and he will be reminded to follow the recommendations for preventive medicine and symptom monitoring.

Upon proceeding to hospital admission, the Admission staff will carry out a prior triage. Whenever possible, the patient will be placed in a single room, with an asymptomatic companion. The patient will be operated on in an operating room reserved for COVID-19 negative patients, and a specific postoperative circuit will be established in the Post-anesthetic Resuscitation Unit.

In patients undergoing surgery in the emergency operating room, we will act in the same way as in elective surgery, that is, a complete preoperative study will be requested that includes a PCR detection test for SARS-CoV-2. If the patient requires urgent surgery and is COVID-19 positive, assistance will be provided in the established circuit for patients infected during the pandemic period. The emergency operating room for this type of patient must be defined in each center and equipped with all the necessary material for individual protection³⁷. In the event of an emergency in which we cannot wait for test result for SARS-CoV-2, it is advisable to take the same precautions as for COVID-19 positive patients, depending on whether the procedure is high or low-moderate risk.

SURGICAL PRIORITY LEVELS IN ORAL AND MAXILLOFACIAL SURGERY

In the acute outbreak of COVID-19 pandemic and during the subsequent stage of confinement, candidate patients for surgery should be classified according to the urgency and severity of their surgical process, and clinical-analytical screening and evaluation of risks should be ensured to avoid unnecessary exposure of healthcare workers. Depending on the urgency of the clinical process, five levels of surgical priority can be distinguished^{18,38,39}:

- Emergency surgical procedures, which resolution is needed in the first 24 hours, must be performed under a high level of protection. It includes active bleeding that compromises the patient's life, compromised airway, severe cervical-facial infection, free flap revascularization, severe craniofacial trauma with optic nerve compression or intracranial involvement. In the case of suspicious patients in whom, due to the emergency of the situation, it has not been possible to confirm their status of COVID-19 infection, all the protective precautions like positive cases will be taken.

- In emergency processes that cannot be delayed more than 72 hours, clinical-analytical screening of COVID-19 and preoperative evaluation are mandatory to avoid unnecessary exposure. It includes open facial fractures without active bleeding, fast consolidation facial fractures or those with significant functional compromise, suturing of a severed nerve, mandibular dislocation, surgical extraction in patients with severe pain or uncontrollable infection despite conservative treatment.
- For deferrable procedures, a full risk assessment is required before admission, which includes COVID-19 screening, a complete blood test, serum biochemistry, chest radiography, and pre-anesthetic evaluation. According to the indication, a chest CT can be performed on the patient. Procedures deferrable for up to 4 weeks include: oro-maxillofacial cancer surgery including facial cutaneous squamous cell carcinoma (controlling the extent and rate of tumor growth), facial fractures not previously described, maxillary osteotomy surgery in patients with severe but non-acute airway compromise, tooth extraction causing pain or moderate infection. Procedures deferrable for up to 3 months include: cutaneous basal cell carcinoma, glandular tumors with suspected low-grade or unconfirmed malignancy, surgery for uncertain maxillary cystic lesions, and neuralgia-like pain syndromes or those with severe pain (osteomyelitis, osteonecrosis, joints).
- In elective surgery, in which surgical treatment is delayed for more than 3 months, the patient will be monitored regularly until the health circumstances caused by the pandemic change. Here, the rest of the procedures not mentioned above are classified, for example, cleft lip and cleft palate, dentofacial deformities, and benign tumors.

MANAGEMENT IN HOSPITALIZATION

The patient must observe some instructions during hospital admission in the Oral and Maxillofacial Surgery ward common to the rest of the departments in order to reduce his infection risk⁴⁰. The patient must wash his hands frequently with soap and water and use the hydroalcoholic solution that will be available in the room, must avoid touching his eyes, nose and mouth, and maintain a safety distance of more than one meter with other people, except with the health workers in the procedures that require his assistance. Visits to the hospital are not allowed. A single companion who does not present symptoms can be authorized³³. The patient may not leave his room, except for diagnostic tests or therapeutic measures. If a SARS-COVID-19 infection is detected during admission, the patient will remain in isolation and may be transferred to another area of the hospital, where the affected patients are located. If a roommate contracts the infection, the patient will remain in isolation for the next 14 days.

FINAL CONSIDERATIONS

The recommendations contained in this document reflect an evolving and constantly changing situation in the pandem-

ic and are based on the best scientific information available at this time. The purpose has been to update the available evidence during the acute stage of the spread and the de-escalation process and the end of confinement stage in our country, providing advice and suggestions for safe and effective management and treatment for oral and maxillofacial surgery patients, while minimizing the risk to the surgeons, healthcare personnel and patients as much as possible.

On the other hand, the recommendations contained in the current document seek that, during the pandemic, the activity of oral and maxillofacial surgery in the Health System can be maintained with effective and safe functioning. Therefore, all efforts must be made and the resources necessary to achieve this must be obtained. The suggestions of this document could even serve as a basis for dealing with future SARS-COVID-19 outbreaks or other health crises from potential unknown pathogens. The recommendations and suggestions must necessarily have some flexibility in their application based on the specific needs of each patient, his clinical situation, the epidemiological environment where the procedure is performed (stage of health alert), the conditions and equipment available in each hospital, and the diagnostic tests of PCR and serology within reach of the center and clinic.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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ADDITIONAL MATERIAL

Additional material to this article (Annexes of specific informed consent and for surgical intervention in the context of the COVID-19 pandemic) are available in electronic version at <http://www.secom.org/recomendaciones-secomcyc/>.

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