



*Shahid Beheshti University of Medical Sciences,  
School of Dentistry, Health and Treatment  
Surveillance Committee*

# **SUPERVISION GUIDELINE**

*for the Health and Treatment Affairs  
in Reopening of Shahid Beheshti School of Dentistry  
during the COVID-19 Pandemic*

*June, 2020  
First Edition*



# *Introduction* <sup>(1st)</sup>

As we are currently facing the COVID-19 pandemic, it is imperative to reconsider the course of treatment of patients and even clinical training of dental students. On the one hand, the permission for provision of non-emergency dental treatments has been granted by the authorities in charge, and the Iranian Ministry of Health and Medical Education has been trying to promptly and carefully codify the related guidelines and reopen the medical universities nationwide. However, due to the structural differences and unique infrastructures of dental schools across the country, it is also necessary for each dental school to codify the executive details of reopening according to their specific conditions while following the instructions of the Ministry of Health. In order to ensure complete implementation of the issued guidelines, Shahid Beheshti Dental School formed the Health and Medical Surveillance Committee during the COVID-19 pandemic to benefit from the cooperation of faculty members, nursing staff, dental facilities, and student teams. The following guidelines include the organizational chart and all the behavioral requirements in the scope of duties of each partner unit and will be updated over time upon receiving new information about the disease. The provision of personal and environmental protection equipment and installation of infrastructures are performed under the supervision of the Deputy of Support, and the codification project and supervision of implementation of the guidelines are among the responsibilities of the Deputy of Treatment with the cooperation of other deputies. The most important issue in reopening of dental schools is to guarantee the health of each and every individual in the faculty. Herein, I would like to appreciate the cooperation of all those involved in this process, and emphasize that all issues discussed in this protocol need to be strictly followed, and negligence in adherence to the set measures will not be tolerated.

***Dr. Mohsen Dalband***  
***Dean of Shahid Beheshti School of Dentistry***  
***June, 2020***

# *Introduction (2nd)*

Considering the unknown nature of the coronavirus, reviewing the latest guidelines released by the scientific communities can pave the way for making informed decisions in the current situation. For this purpose, the elected team of Shahid Beheshti Dental School is regularly reviewing the newly published literature and guidelines in this respect. Evidence shows that most countries have allowed careful transition from the emergency dental treatment phase to elective treatments under controlled conditions. Transmission via the respiratory droplets is believed to be the main route of transmission of coronavirus disease-2019 (COVID-19), and virus transmission via the ambient air does not seem to be an important route of disease transmission as long as social distancing has been observed. Thus, social distancing and use of personal protective equipment (PPE) are still the best strategies to prevent infection transmission. Meanwhile, portable air purifiers equipped with HEPA filters are also recommended to purify the ambient air as much as possible. In designing the environmental facilities of dental schools, it has been shown that use of isolation rooms with appropriate sealing can help reduce the spread of droplets. In such rooms, droplets disappear after approximately 15 minutes. Therefore, 15 minutes after completion of treatment, the staff can enter the room to disinfect the surfaces. Thus, given that air conditioners are working properly, dental staff can wait for 15 minutes after each patient, disinfect the surfaces with approved solutions such as diluted sodium hypochlorite, and then start the treatment of the next patient in as soon as 20 minutes. The treatment procedures can be expedited if two dental clinicians cooperate in treatment of each patient. Dissemination of aerosols would also decrease as such. Adequate knowledge in this regard can greatly help in safe reopening of education and treatment facilities, and guarantee the health of personnel and patients to a great extent.

***The Elected Health and Treatment Surveillance Committee  
Shahid Beheshti School of Dentistry  
June, 2020***

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# *Organizational Chart*

**(A) Chairman of the Committee (Dean of the Faculty)**

**(B-4) Deputy of Treatment**

**(B-2) Deputy of Students and Cultural Affairs**

**(B-3) Deputy of Support**

**(B-4) Deputy of Education**

**(B-5) Deputy of Research**

**(B-6) Deputy of Postgraduate Education**

**(C-1) Scientific-Educational and Performance Monitoring Unit**

**(C-2) DIS and Medical Records Unit**

**(C-3) Environmental Health Unit**

**(C-4) Screening and Supervision Unit**

**(C-5) Dental Triage and Emergency Unit**

**(C-6) Equipment Supply and Support Unit**

**(C-7) Public Education and Awareness Unit**

# *Authorities of Units*

## **(C-1) Scientific-Educational and Performance Monitoring Unit**

1. The Elected Treatment Committee
2. Deputy of Education, Research, and Undergraduate and Postgraduate Instruction
3. Nursing Office

## **(C-2) DIS and Medical Records Unit**

1. IT Department
2. Medical Records Office

## **(C-3) Environmental Health Unit**

1. Nursing Office
2. Service Department

## **(C-4) Screening and Supervision Unit**

1. Nursing Office
2. Medical Records Office
3. Security

## **(C-5) Dental Triage and Emergency Unit**

1. Physical Examination and On-Call Departments
2. Specialty Clinic
3. Medical Records Office

## **(C-6) Equipment Supply and Support Unit**

1. Deputy of Support
2. Facilities
3. Dental Equipment

## **(C-7) Public Education and Awareness Unit**

1. Public Relations
2. Medical Records Office

# Human Resources

## **(C-1) Scientific-Educational and Performance Monitoring Unit**

1. Researcher
2. Deputy Representatives
3. Nursing Office Director
4. Treatment Intermediary
5. Supervisory inspector

## **(C-2) DIS and Medical Records Unit**

1. DIS Manager
2. DIS Intermediary
3. Medical Records Manager
4. Receptionists

## **(C-3) Environmental Health Unit**

1. Environmental Health Expert
2. Nursing Office Employee
3. Service Personnel

## **(C-4) Screening and Supervision Unit**

1. Security Forces
2. Nurse
3. Receptionist

## **(C-5) Dental Triage and Emergency Unit**

1. Oral Medicine Specialists and Periodontists
2. Postgraduate Students of Endodontics, Oral and Maxillofacial Surgery, and Pediatric Dentistry
3. Full-time Dentist
4. Emergency Health Technician
5. Receptionist
6. Reception and Triage Intermediary

## **(C-6) Equipment Supply and Support Unit**

1. Financial Affairs Manager
2. Facilities Unit Staff
3. Dental Equipment Unit Staff

## **(C-7) Public Education and Awareness Unit**

1. Public Relations Manager
2. Health Expert



# **(C-1) *Scientific-Educational and Performance Monitoring Unit***

## **The Elected Treatment Committee**

- 1.** Researcher
- 2.** Supervisory Inspector

### ***Researcher:***

(from the Deputy of Treatment and Deputy of Research)

1. Collecting and updating information regarding the COVID-19 pandemic.
2. Training the head nurses of the departments in order to educate others.
3. Transferring the latest information to the Public Relations Unit to raise awareness.
4. Monitoring the health status of the faculty members and conduction of research projects.

### ***Supervisory Inspector:***

1. Supervising the correct implementation of scientific guidelines by the departments.
2. Completing a checklist about the possible errors by the staff.
3. Conducting a need assessment on changing the protocols and providing the researchers with the results.

## **Deputy of Education, Research, and Undergraduate and Postgraduate Instruction:**

- 1.** Deputy of Students Affairs Representative
- 2.** Deputy of Education and Specialty Representative

### ***Deputy of Students Affairs Representative:***

1. Instruction of the behavioral protocol to students and supervising their behavior and outfit outside the departments and clinics.
2. Providing the students with surgical gowns with the cooperation of the Deputy of Support.

### ***Deputy of Education and Specialty Representative:***

1. Compiling a list of the operating clinical departments.
2. Providing the triage unit and the reception desk of different departments with the list of present undergraduate and postgraduate students to provide patients for them.
3. Announcing the clinical requirements of students by the Office of Students Affairs.

## *Nursing Office*

1. Nursing Office Director
2. Treatment Intermediaries

### ***Nursing Office Director:***

1. Educating the nurses regarding the treatment and behavioral protocols.
2. Supervising the implementation of scientific guidelines by the departments.
3. Conducting a need assessment on changing the protocols and providing the researchers with the results.

### ***Treatment Intermediaries:***

1. Behavioral control of patients outside the departments and clinics.
2. Fast guidance and referral of patients to the respective departments.
3. Ensuring timely service provision by the reception desk of the departments.
4. Respecting the clients in order to decrease misunderstandings.
5. Expertise in DIS to help the treatment units.

- ❖ The department supervisors were instructed before the reopening of dental school, and in the meantime, the supervisors were responsible to train their subordinates. Attendance in dental school required passing the respective educational course. The training courses will be repeated upon changes in the protocols. The students' behavioral education was the responsibility of the Deputy of Students Affairs and the departments.
- ❖ In order to ensure the optimal performance of the departments, the supervisory inspector is in direct contact with the heads of the departments and would transfer the suggestions or criticisms to the Deputy of Treatment. In each department, the head of the department is responsible to supervise the performance of the faculty members and the staff in the department. The Deputy of Education is responsible to educate the students regarding the health protocols upon the initiation of their clinical course in each department.
- ❖ The students are required to wear scrubs comprising of a surgical gown and matching pants in the same color to minimize the risk of infection transmission from or to the university.

**(C-1)** *Scientific-Educational and Performance Monitoring Unit Diagram*



**(1)** Codification of scientific and educational information



**(2)** Continuous training of supervisors



**(3)** Supervision of subordinate units with the cooperation of managers according to the checklist



**(4)** Ensuring fast service provision to patients and their guidance with utmost respect

## **(C-2) *DIS and Medical Records Unit***

### **IT Department**

- 1.** DIS Manager
- 2.** DIS Intermediary

#### ***DIS Manager:***

1. Completing the infrastructure for electronic registration and recording of patient documents and data, especially systemic scheduling of patient appointments by the reception desk of the departments such that the schedules are visible to the Screening Unit.
2. Adding the self-screening form to the DIS files and enabling the system to record the fingerprint or signature of patients as well.
3. Training the users regarding the registration method and use of DIS information.
4. Adding a feature to the DIS to send text messages to patients regarding updated information or to remind them about their upcoming appointment.

#### ***DIS Intermediary:***

1. Supervising the users for proper execution of tasks with the DIS.
2. Conducting a need assessment and solving the problems of the users at different levels.

### **Medical Records Office**

- 1.** Medical Records Manager
- 2.** Reception Desks of the Departments

#### ***Medical Records Manager:***

1. Keeping continuous contact with the DIS manager.
2. Ensuring the accuracy of patient records uploaded by the receptionists of the departments in the DIS.
3. Mandatory distribution of a single-page treatment plan by the receptionists of the departments and uploading them in the DIS at the end of each work day.
4. Daily provision of receptionists by the Screening Unit.
5. Sending the old paper medical records of patients to the departments by the medical records

staff, if required.

6. Maintaining the contaminated files in a separate file cabinet for 7 days.

### ***Reception Desks of the Departments:***

1. Coordination with undergraduate and postgraduate students to visit patients according to the waiting list.

2. Telephone triage of patients in the waiting list or patients with incomplete treatments.

3. In-person scheduling of patients' appointments in the DIS in order to be visible to the Screening Unit.

4. Systemic recording of patient referrals to other departments.

5. Accepting only card payments by the patients, issuing a receipt, and delivering it to the central cashier.

6. Referring the extra patients to the central cashier in case of excessive increase in the number of patients in the departments.

- ❖ Since a large number of patients had presented to the Emergency Department during the temporary university closure period that now require completion of their emergency treatments, the Nursing Office should provide the departments with the list of such patients, and appointments should be scheduled for completion of treatment of such patients after telephone triage.

## **(C-2)** *DIS and Medical Records Unit Diagram*



**(1)** Training the administrative users and faculty members on how to use the DIS and monitoring their performance



**(2)** Registration and digital referral of patient records by the receptionists



**(3)** Phone triage of patients according to the waiting list, and systemic scheduling of patients by the reception desk



**(4)** Sending old paper files to the departments, if required

## **(C-3) Environmental Health Unit**

### **Nursing Office**

1. Environmental Health Expert
2. Nursing Office Employee

#### ***Environmental Health Expert:***

1. Periodic supervision of all departments
2. Controlling the cleanliness and monitoring optimal disinfection of all areas.
3. Need assessment to supply hand sanitizers and disinfecting solutions, and repair the sanitary equipment, if broken.

#### ***Nursing Office Employee:***

1. Supply hand sanitizers and disinfecting solutions as requested by the health expert.
2. Conducting a need assessment for protocol change and providing the researchers with the results.

### **Service Department**

1. Service Personnel

#### ***Service Personnel:***

1. Deployment of service personnel in the therapeutic departments to disinfect the area and surfaces in the intervals between patient visits
2. Continuous wetting of the shoe sanitizing mats according to the Environmental Equipment Chart
3. Disinfection of patient and staff restrooms in the 5<sup>th</sup> floor and the ground floor according to the Environmental Equipment Chart
4. Providing infectious waste bins at regular intervals
5. Regular disposal of personal protective equipment left in the halls
6. Regular disinfectant waste disposal to reduce the possibility of contamination spread.
7. Disinfecting surfaces such as doorknobs and elevator buttons at the end of each working day.

- ❖ Disinfection of the operatory rooms should be performed at the intervals between patient visits. The cover of dental chair, the tray, the armrests, dental unit light, and headrest

should be changed for each patient. The touch pad of the dental unit, the spittoon, the saliva ejector tubes, and the patient booth should all be disinfected. At the end of each treatment procedure and also at the end of each working day, the saliva ejector should be placed in a cup containing disinfectant solution and allow it to operate for a couple of minutes in order for the disinfectant to work on the internal surface of the tubes and the central tank. Instruction on how to prepare this solution is provided in the appendix.

### **(C-3) *Environmental Health Unit Diagram***



**(1)** Daily supply of hand sanitizers and surface disinfectants



**(2)** Disinfection of the environment and dental chair surfaces, placing the saliva ejector in a cup containing disinfectant and allow it to operate for a couple of minutes after visiting each patient



**(3)** Regular disposal of personal protective equipment left in the facility



**(4)** Regular supervision of therapeutic and non-therapeutic departments in terms of implementation of infection control measures



## **(C-4) Screening & Monitoring Unit**

### **Security**

1. Head of Security
2. Security Forces

### ***Head of Security:***

1. Recruitment and supervision of security forces stationed in the screening unit.
2. Issuing a permission to change the patient entrance door to the eastern door of the university.
3. Issuing a permission to design an outdoor waiting area for patients in the parking lot.

### ***Security Forces:***

1. Supervising the movement of the faculty members, students and staff.
2. Identifying patients and preventing the entry of others.
3. Packing the patients' unnecessary items when entering the facility after screening.

### **Nursing Office**

1. Emergency Clinician
2. Nurse

### ***Emergency Clinician:***

Training the health professionals for screening of patients and monitoring their performance

### ***Nurse:***

1. Separating emergency and non-emergency patients
2. Need assessment of the departments to receive new patients
3. Questioning of patients according to the self-screening form printed on a stand for registration in the system by the receptionist
4. Measurement of body temperature and blood oxygen level of patients with digital thermometers and pulse oximeters
5. Making sure that all patients wear a mask before entering the triage.

## Medical Records Office

### 1. Receptionists

#### ***Receptionists:***

1. Creating a DIS file for patients without a previous record
2. Identification of patients who have a scheduled appointment according to the DIS list
3. Confirmation of the entry of patients who have been scheduled an appointment in the DIS system to identify the canceled patients
4. Completion of the patient's electronic screening form in the DIS system
5. Telephone coordination with the triage reception to allow the entry of patients while maintaining the social distance and preventing crowding

- ❖ According to the decision of the Ministry of Health to reopen the universities with minimum attendance of students, the priority is given to postgraduate and senior dental students. Thus, the Deputy of Education should provide the Supervision Committee with a list of eligible students and a list of clinical operational departments. For non-emergency cases, patient reception is only subject to the list of treatments accepted by the Department of Education.
- ❖ The screening team should strictly ask the patients to inform the dental school staff if they develop COVID-19 symptoms within 2 weeks after their dental visit.

## **(C-4) *Screening & Monitoring Unit Diagram***



**(1)** Preventing the entry of people other than the patients and monitoring their movement



**(2)** Filling out the screening form by interviewing the patients



**(3)** Measuring the body temperature and blood oxygen level of patients and recording them in the DIS file



**(4)** Identification of emergency patients and their referral for coordination with the triage reception

## **(C-5) Dental Triage and Emergency Unit**

### **Medical Records Office**

1. Receptionist
2. Triage and Reception Intermediary

### ***Receptionist:***

1. Inquiring about the patient records from the DIS and referring the patients without records to the Oral Medicine Department
2. Receiving a visitation fee from patients without a DIS record
3. Recording patient referrals in the DIS after triage
4. Receiving the payments for emergency treatments and issuing receipts for delivery to the central cashier desk at the end of the day (emergency patients do not need to pay extra fees for treatment)

### ***Triage and Reception Intermediary:***

1. Contacting the Screening Unit to allow the entrance of patients scheduled for a visit
2. Guiding the patients before and after triage
3. Assisting the registration of patient referrals and the treatment needs determined by the examining dental clinician in the Triage Unit

### **Special Clinic**

1. Full-time Dentist
2. Emergency Health Professional

### ***Full-time Dentist:***

1. Performing non-specialty emergency treatments to decrease patient load
2. Consulting with specialists to determine the prognosis
  - ❖ Provision of a full-time dentist is performed by coordination with the special clinic of the university.
  - ❖ If radiography is required, coordination should be made with the triage or emergency units to refer the patient to the radiology department preferably for extraoral radiography. Otherwise, RVG inside the emergency department is used with the help of on-call radiology technicians.

## ***Emergency Health Professional:***

1. Full-time presence alongside the emergency dentist
2. Requesting an on-call resident from the respective department, if required

### **Physical Examination and On-call Departments**

1. Examiner (Oral Medicine Specialist and Periodontist)
2. On-call Resident

## ***The Examiner:***

(Oral Medicine Specialist and Periodontist)

1. Initial clinical examination by an oral medicine specialist for referral to the emergency or the respective department
2. Determination of the need for the first phase of periodontal therapy by a periodontist before referral
3. Determination of the primary prognosis by a periodontist according to the patient complaint
4. Referring the patient to other departments to complete the treatment performed in the emergency department
5. Only emergency treatments should be performed for the elderly and disabled patients to minimize their risk of disease contraction. Such patients should not be scheduled for treatments requiring multiple visits.

## ***On-call Residents:***

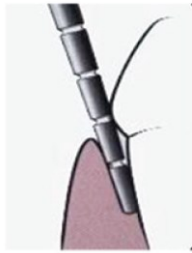
Timely presence of postgraduate students of endodontics, oral and maxillofacial surgery, and pediatric dentistry in the dental emergency department in case of increasing the number of patients, requiring specialized treatment procedures, or general dentists encountering problems during the procedures

- ❖ Specialized emergency treatments can be provided in the respective department if requested by the supervising mentor.

## **(C-5) *Dental Triage and Emergency Unit Diagram***



- (1)** Initial clinical examination by an oral medicine specialist and making a decision regarding the referral of patient



- (2)** Complementary clinical examination by a periodontist for need assessment for the first phase of periodontal therapy and determining the prognosis of required treatment



- (3)** Conduction of non-specialized emergency treatments by a general dentist (pain control, prescribing medication, simple tooth extraction).



- (4)** Preparedness of the endodontics, oral and maxillofacial surgery and pediatric dentistry departments to send an on-call resident to the emergency department or admitting an emergency patient.

## **(C-6) *Equipment Supply and Support Unit***

### **Deputy of Support**

1. Finance and Administration Director
2. Procurement Manager

#### ***Finance and Administration Director:***

1. Providing financial support to purchase personal and environmental protective equipment at the request of the Supervision Committee
2. Taking decisive actions in dealing with violations resulting from the possible negligence of employees in implementation of instructions.

#### ***Procurement Manager:***

Timely delivery of the requested equipment approved by the board of directors.

### **Facilities**

1. Facilities Unit Staff

#### ***Facilities Unit Staff:***

1. Designing ventilation infrastructures for the departments
2. Designing and installing isolated chambers around the dental units
3. Regular installation and service of the disinfection tank of the central suction sewage
4. Conducting a need assessment for the protocol change and providing the Supervision Committee with the results

### **Dental Equipment**

1. Dental Equipment Unit Staff

#### ***Dental Equipment Unit Staff:***

1. Ensuring the optimal performance of the foot pedal for adjusting the position of dental unit
2. Ensuring the optimal performance of both types of saliva ejectors connected to the isolated dental unit
3. Regular inspection of the installed equipment and their daily service
4. Conducting a need assessment of the protocol change and providing the Supervision Committee with the results

- ❖ In order to reduce the contact of hands with the dental unit position adjustment buttons and also to prevent repeated connection of high-speed and low-speed handpieces to the air pipes, the optimal function of the foot pedal and the handpieces should be regularly checked by the dental equipment unit staff.
- ❖ Departments should be provided with adequate number of attachments for the disposable handpieces and ensure their optimal function.

## **(C-6) *Equipment Supply and Support Unit Diagram***



- (1)** Providing personal and environmental protective equipment in accordance with the department requirements



- (2)** Installation of isolated chambers and improvement of the air conditioning system in therapeutic and non-therapeutic departments



- (3)** Regular inspection of the correct function of the foot pedal for adjusting the dental unit position and other components.



- (4)** Assessment of administrative violations due to negligence in implementation of instructions



## **(C-7) *Public Education and Awareness Unit***

### **Faculty of Public Relations**

#### **1. Public Relations Manager**

#### ***Public Relations Manager:***

1. Acquiring knowledge about public awareness and educational tools
2. Collection of public recommendations of the Ministry of Health
3. Preparing educational pamphlets and posters with the cooperation of researchers and their installation
4. Informing the target groups about the guidelines (students, faculty members, staff)
5. Updating the website and the answering system to guide patients in this epidemic
6. Providing the infrastructure for patient scheduling over the phone by increasing the activity of clinical departments
7. Launching the Beheshti Health Radio for public education and a text messaging system for patients

### **Medical Records Office**

#### **1. Health Professional**

#### ***Health Professional:***

1. Answering specialized questions of patients over the phone regarding their dental treatment
2. Providing expert advice to patients to minimize their unnecessary attendance in epidemic conditions
3. Continuous contact with the medical records office to access patients' old records
4. Access to the DIS to see patient appointments and treatment history
5. Contacting the reception desk of the departments to schedule triage service for patients over the phone

- ❖ A health expert should be present in the medical records office on a daily basis in order to answer the specialized questions of patients over the phone. If the patients require an emergency treatment, they would be requested to show up without a prior appointment. Otherwise, the patients would be placed in the waiting list which will be delivered to the

reception desk of the respective department. The patients would be then scheduled an appointment. As the situation returns to normal and all students return to the university, patient scheduling would be on-line and over the phone only, and only emergency patients would be visited without a prior appointment.

- ❖ The purpose of setting up a text messaging system for patients was to provide them with new information on the rules and regulations of patient admission and visits. In addition, upon patient registration in the DIS, they receive a text message asking them to inform the university staff if they develop cold symptoms within 2 weeks after their dental visit.

## **(C-7) *Public Education and Awareness Unit*** ***Diagram***



- (1)** Designing and installing posters for public education in the waiting areas



- (2)** Establishing channels in instant messaging services for the target groups for notification and training purposes



- (3)** Answering the specialized questions of patients regarding their dental treatment by experts



- (4)** Launching the Beheshti Health Radio for regular broadcasting of health messages and news related to the university

# Personal Protective Equipment Checklist

	Staff								General students and Residents						Faculty members						Student Meeting Room	Praying room	Buffer staff	Company and safe buffer (equipment staff)	Patients (clients)	Emergency medical team		
	Administrative				Therapeutic				Changing room	Pavilion	Library and reading room	Theory class	Phantom	Therapy ward	Biopsy Surgery Room	Changing room	Professor's room	Theory class	Phantom	Physical examination	Therapy ward	Biopsy Surgery Room	Student Meeting Room	Praying room	Buffer staff	Company and safe buffer (equipment staff)	Patients (clients)	Emergency medical team
	No contact with patient		Indirect contact with patient		Direct contact with patient		Indirect contact with patient																					
	Office staff: 1.Education department 2.Office security 3.Chairman 4.Department of student affairs	5.Medical records 6.Library 7.Station and IT	Operational staff: 1.Environmental security 2.Technical equipment 3.Cash desk		4.Environmental health services 5.Laundry	Material room nurses	1.Screening unit 2.Treatment intermediate 3.Reception wards 4.Nursing office	5.CSR unit																				
Access to disinfectant gel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Isolation goggles				✓			✓						✓	✓					✓	✓	✓						✓	
Isolation shield													✓	✓					✓	✓	✓						✓	
Medical cap				✓	✓		✓						✓	✓				✓	✓	✓	✓						✓	
Isolation gown																												
Fabric gown				✓	✓		✓						✓	✓					✓	✓	✓						✓	
Filtered mask																												
N95 mask				✓	✓		✓						✓	✓					✓	✓	✓						✓	
Simple (surgical) mask	✓	✓	✓				✓		✓	✓	✓			✓	✓	✓	✓					✓	✓	✓	✓	✓		
Sterile gloves														✓							✓							
Simple gloves		✓	✓	✓	✓	✓	✓															✓	✓	✓	✓	✓	✓	

## Order of using the personal protective equipment:

1. Washing hands; 2. Wearing gown; 3. Medical cap;
4. Mask; 5. Goggles; 6. Shield; 7. Gloves



## Order of removing the personal protective equipment:

1. Gloves; 2. Gown; 3. Shield;
4. Goggles; 5. Mask; 6. Cap; 7. Washing hands



# Environmental Protective Equipment Checklist

				Hand disinfection stand	Strong air conditioning (ventilation)	Isolation chamber	Infectious waste bins	Safety box	Environmental disinfection interval	Special equipment
Screening waiting room							✓		Daily	Free environment
Screening unit				✓			✓		Daily	
Entrance gate				✓					Every 30 min	Shoe sanitizing mats
Triage gate				✓	✓		✓		By transferring patients	
Emergency room				✓	✓		✓	✓	By transferring patients	UVGI device
Lobby area of departments				✓	✓		✓		Daily	
Departments	Nonclinical		Dental materials, Community dentistry	✓	✓		✓		Daily	
	Clinical	Non-aerosol producing	Pathology, Oral medicine	✓	✓		✓	✓	By transferring patients	
		Aerosol producing	Other departments	✓	✓	✓	✓	✓	By transferring patients	
	Administrative			✓	✓				Daily	
Central CSR				✓	✓		✓	✓	Daily	
Elevator				✓			✓		Every hour	Tissue papers and trash bins
WC				✓	✓		✓		Every hour	
Library				✓	✓				Daily	
Study hall				✓	✓				Daily	
Prayer room				✓	✓				Daily	
Equipment sales booth				✓					Daily	
Buffet				✓	✓				Daily	Preferably free environment
Central suction room					✓				Weekly	Sewage disinfection tank

- ❖ The air conditioning system in the isolation chambers should be adjusted with air circulation of 15 to 20 times per hour. In this case, one can enter the isolation chamber about 15 to 20 minutes after the patient leaves.

# *Supervision Checklist of Units' Performance*

The checklists should be completed by the supervising inspector in accordance with the scope of the tasks listed for each unit and with the help of the managers of each unit. The inspector should date and sign the completed checklist. Finally, the checklist is sent to the Supervision Unit and is reviewed daily to be transferred to the Director of Financial Affairs after eliminating the possible shortcomings and correcting the implementation of guidelines.

## *A sample of supervision checklist of units:*

Date:

<b>The performance of person in charge</b>	<b>Good</b>	<b>Average</b>	<b>Poor</b>
<b>Person in charge 1</b>			
<b>Person in charge 2</b>			
<b>Person in charge 3</b>			
<b>Person in charge 4</b>			
<b>Person in charge 5</b>			
<b>Person in charge 6</b>			

*Supervisor's comment and signature:*

## *Patient Triage and Reception*

**1.** Emergency patients can be scheduled for treatment without prior appointment. At the same time, the Screening Unit would separate these patients and guide them to the Triage Unit one after the other. If a patient is not diagnosed to be an emergency case by the Triage Unit, admission of this patient would depend on the requirements of undergraduate and postgraduate students, and the triage reception must negotiate the case with the respective department.

**2.** Non-emergency patients would receive phone calls from the reception desk of the respective department. For this purpose, the list of patients with incomplete treatments (either from before the closure of the university or emergency treatments started during the closure period) the waiting list of patients, and the list provided by the undergraduate and postgraduate students to the reception desk must be prioritized. Any patient scheduling other than the above-mentioned methods is prohibited without prior coordination with the reception desk.

**3.** The first screening of patients is performed over the phone by the respective departments. The self-screening form questions available in the DIS and in the patients' medical records should be asked from the patients. If the patients' complete health is suspected for any reason, their scheduling should be postponed for 2 weeks to ensure absence of signs and symptoms. Such patients would be scheduled an appointment after 2 weeks. At this time, the patients would be contacted to ensure their complete health. Admission of patients with COVID-19, even after their recovery, depends on their diagnostic test results.

**4.** Patient scheduling is performed by the reception desk in the DIS system, which can be also viewed by the Screening Unit to issue an entry permit for the patients.

**5.** First, a patient file is created in the Screening Unit for those who do not have previous records. For systemic physical examination, the patients would be referred to the Oral Medicine Department. For this purpose, after creating a patient file by the Screening Unit, the patient is guided to the triage reception desk. Those who already have records in the DIS would enter the Triage Unit. Otherwise, the patient would be referred to the Oral Medicine Department according to the opinion of the oral medicine specialist in the Triage Unit. After primary examinations, the patients would be referred back to the Triage Unit to decide about their dental treatment. If the patient requires emergency treatment, he/she would be admitted immediately. Otherwise, the patient would be referred to the respective department after being examined by a periodontist regarding the need for phase I periodontal therapy and prognosis of his/her required dental treatment.

**6.** The second phase of screening is performed in the Screening Unit by the nurses of this unit. For this purpose, the self-screening form printed on stands is used. The questions are then asked by the nurse, and the patients' responses are recorded in the form available in the DIS. In the next step, the body temperature and blood oxygen level of patients are measured and recorded in electronic patient files. Finally, the patient's signature or digital fingerprint is recorded in his/her file.

**7.** The third phase of patient screening is performed in each department by an undergraduate or postgraduate student. If the patient has signs and symptoms suspected for COVID-19 (confirmed by the supervising instructor), continuation of treatment would depend on the results the diagnostic tests, or the treatment should be postponed for 2 weeks to monitor the symptoms.

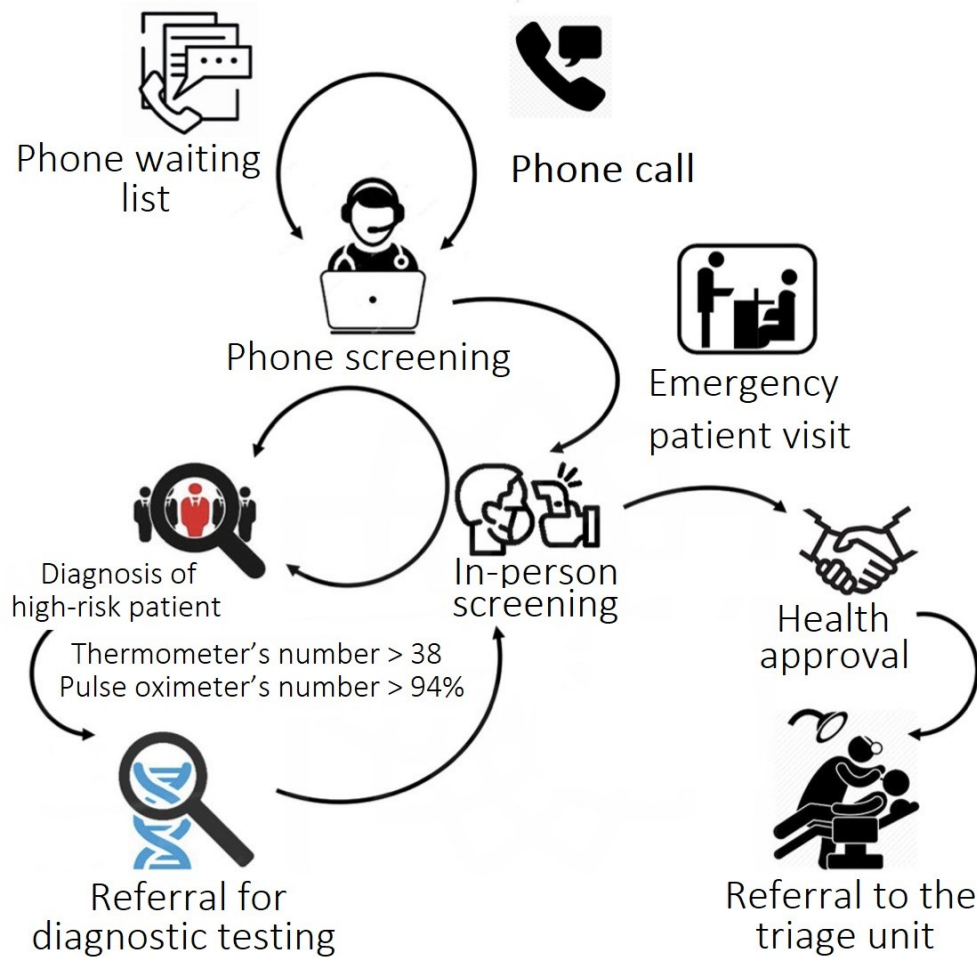
### ***Screening questions:***

- 1.** Are you infected with COVID-19 or were infected with it in the past?
- 2.** Have you ever had a history of acute respiratory infections?

3. Have you experienced symptoms such as fever, cough, shortness of breath, diarrhea, cold symptoms, airway obstruction or loss of the sense of smell or taste over the past month?
4. Have you had direct contact with a patient with COVID-19 over the past month?
5. Have you traveled to high-risk areas for COVID-19 over the past month or have you been in direct contact with travelers from these areas?
6. Do you work at a hospital or a medical center?



## *Patient Triage and Reception Diagram*



- ❖ The normal value displayed by the pulse oximeter at rest should be between 95% and 99%. Values below 94% should be considered abnormal. In severe cases, this value drops below 93%.
- ❖ Nail polish or coating of the nail, patient's movement, low battery charge of the device, and extreme ambient light, such as the unit light can interfere with the performance of pulse oximeter.

# *General Guidelines for Personal and Environmental Health Control*

- 1.** Avoid bringing any extra items that cause contamination.
- 2.** If you need to pack extra items, use the packages available in the security gate.
- 3.** Be aware of your body temperature and blood oxygen level at the time of arrival, and be sure to bring your mask with you. The mask should fit perfectly over your mouth and nose.
- 4.** Inform the Screening Unit if you previously had COVID-19 or are still under treatment for it.
- 5.** At the disinfection gate, walk on the carpet soaked with shoe disinfectants and also use hand sanitizers.
- 6.** In all public places of the facility, observe the social distance and wear a mask.
- 7.** Under no circumstances should you leave your mask, gloves or other protective equipment in the facility. For this purpose, infectious waste bins have been installed in all places.
- 8.** During your presence in the facility, do not use your cell phone. If necessary, use a disinfectant solution to clean it.
- 9.** In all floors, avoid direct hand contact with surfaces such as stair railing, elevator buttons, and doors.
- 10.** If you need to go to the restroom, please use the restrooms for patients (eastern floor), the staff or students (3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> floors).

- 11.** Wash your hands with soap and water and, if necessary, use hand sanitizer.
  - 12.** In order to prevent the virus from spreading, the use of drinking fountains is prohibited.  
You can purchase bottled water from the kiosk in the parking lot.
  - 13.** In order to reduce movements in the indoor environments, please leave the facility immediately after completion of your treatment.
  - 14.** Bring your own personal pen with you to reduce contact with others when writing notes.
  - 15.** If you have children with you, strictly avoid leaving them in the facility.
  - 16.** Throughout your stay, pay attention to the warning signs, educational posters and radio messages of the university.
- ❖ Due to the coronavirus epidemic, Shahid Beheshti Dental School would not take any responsibility with regard to non-compliance of patients with public and individual health measures and subsequent infection with COVID-19. In this regard, a letter has been sent to the University's Deputy of Treatment to transfer the issue to the Medical Council and the Forensic Medicine Organization.

***“Self-care is the first step for disease prevention.”***

## *Guidelines for Patient Flow*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

- 1.** The applicants' scheduling is only be performed over the phone and after ensuring that they are not infected with COVID-19 or they have fully recovered from it.
- 2.** Patients requiring emergency treatments can refer to the university clinic from 8 a.m. to 12 p.m. Otherwise, they can visit the Behfar Clinic in Damavand Street for emergency treatments and can benefit from the services of this university-affiliated clinic until 7 p.m.
- 3.** Attending the university clinic for treatment requires completing your own screening form and cooperating with the unit's nurses. In order to protect others' health, people who do not cooperate with this unit for any reason will be prevented from entry.
- 4.** To enter the facility, it is mandatory to wear a mask. Please enter with a mask.
- 5.** If you need medical advice, your physical presence is not required. Our experts will answer your questions over the phone. Please call 22403075 from 8 a.m. to 2 p.m.
- 6.** Due to the temporary reduction in the number of students at the time of reopening of the university, the admission of patients is limited and proportionate to the number of students. Therefore, please do not present to the university without prior appointment, except for emergencies. The facility will not be responsible for any non-emergency treatments in excess of the daily admission capacity.

**7.** Due to the fact that the whole process of patient admission is computerized, please refrain from bringing cash money and be patient in doing things regularly.

**8.** The security and treatment intermediaries supervise the compliance of patients to the infection control rules and regulations. In case of non-compliance, presence of the offender in the campus will be prevented, unless in emergency cases.

**9.** Avoid bringing young children (who do not require treatment) and companions.

**10.** Please leave the campus immediately after completion of your treatment.

**11.** Avoid wandering around the campus and ask the treatment intermediaries to help you.

**12.** Be sure to use the provided mouthwash for 60 seconds prior to dental examination/treatment.

**13.** If you have any of the following symptoms within 2 weeks after your dental visit, be sure to contact the healthcare professional of the facility.

# *Guidelines for the Attendance of Administrative Unit Staff*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

- 1.** Patient admission starts at 8 a.m. Therefore, be present at work before 8 a.m. to reduce movements and interference with patients.
- 2.** Similar to patients, cooperate with the Screening Unit upon your arrival to monitor your health.
  - ❖ Attendance in the facility is subject to the completion of the online form that is provided to you in the instant messaging channels of the university.
- 3.** During the entire period of your attendance in the facility, preferably remain in your own unit and avoid unnecessary movements between the units.
- 4.** Use the Internet, intranet, or landline to communicate with other units and reduce face-to-face contact.
- 5.** Use the sanitary facilities of your own unit and bring your own mask and gloves with you to reduce the consumption of sanitary equipment of the facility.
- 6.** Please do not keep your work phone busy and always be responsive to the requests of students and faculty members.
- 7.** If you do not have direct contact with patients and your mask is not wet or contaminated, it is possible to reuse the mask at least twice.
- 8.** Avoid bringing food with you as much as possible and do not eat open meals such as breakfast or lunch at work or other public places.
- 9.** Avoid gatherings during the breaks.
- 10.** Store your extra items in your personal locker and avoid leaving them exposed on the desk.

# *Guidelines for the Attendance of Treatment Unit Staff*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

**1.** Patient admission starts at 8 a.m. Therefore, be present at work before 8 a.m. to reduce movements and interference with patients.

**2.** Similar to others, cooperate with the Screening Unit upon arrival.

❖ Attendance in the facility is subject to the completion of the online form shared in the instant messaging channels of the university.

**3.** During the entire period of your attendance in the facility, preferably remain in your own unit and avoid unnecessary movements between the units.

**4.** Since patient admission starts at 8 a.m., cooperate with the Service Unit to disinfect your unit early in the morning in order not to delay patient admission.

**5.** Eating is prohibited in the clinical departments and in presence of patients.

**6.** Upon entering the facility, change your clothes immediately in the first step and do not enter the treatment area without wearing a surgical gown. In order to change clothes, use the locker rooms in the ground floor and empty the lockers in the departments for the scrubs and gowns worn by students.

**7.** Wear your mask and gloves during your entire presence in the clinical departments.

**8.** In case of direct contact with patients for physical examination or treatment, strictly follow the instructions regarding the personal protective equipment according to the respective chart.

**9.** Minimize unnecessary movements by sharing tasks with other colleagues.

❖ The number of nurses and personnel in each shift is under the control of the respective group manager.

**10.** You are responsible for controlling the behavior of patients in your unit; therefore, while maintaining full respect for the patients, ensure their complete adherence to the health protocols; if necessary, ask your department manager to remind them.

**11.** Refuse to accept patients who do not adhere to the health protocols after being reminded of, and inform the nursing office about it.

**12.** Educating the students on how to use personal protective equipment is the responsibility of the educational deputies of the departments, and monitoring the adherence of students to the personal health protocols in the departments is the responsibility of the nurse supervisor of the department.



# *Guidelines for the Attendance of Faculty Members*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

- 1.** Patient admission starts at 8 a.m. Therefore, please be present at work before 8 a.m. to reduce movements.
- 2.** Similar to others, cooperate with the Screening Unit upon arrival.
  - ❖ Attendance in the facility is subject to the completion of the online form shared in the instant messaging channels of the university.
- 3.** During the entire period of your attendance in the facility, preferably remain in your own unit and avoid unnecessary movements between the units.
- 4.** Preferably do your office tasks using the facility's internal phones, and avoid face-to-face contact with others.
- 5.** If the administrative units are not responsive over the phone, please report them to the dean.
- 6.** Eating is prohibited in the clinical departments and in presence of patients.
- 7.** Upon entering the facility, change your clothes immediately in the first step and do not enter the treatment area without wearing a surgical gown.

**8.** Educating the students on how to use personal protective equipment is the responsibility of the educational deputies of the departments, and monitoring the adherence of students to the personal health protocols in the departments is the responsibility of the nurse supervisor of the department. The chief of the departments, in coordination with the Department of Education must inquire about the number of students present daily in the department, monitor the performance of nurses and other faculty members, and discuss any necessary changes with the Deputy of Treatment. The Deputy of Treatment is in direct contact with the chiefs of the departments to achieve the set goals, and the instructions should be communicated to other people in the department through the chiefs of the departments.

**9.** To teach the clinical procedures hands-on, one of the students should preferably video tape the clinical procedure demonstrated by the mentor on a patient and then share the video clip via applications such as Adobe Connect such that other students could easily watch it. Also, the number of demonstrations can be increased based on the number of students in order to prevent crowds. For this purpose, a dental unit is going to be equipped with advanced video cameras for clinical demonstrations to prevent crowds. If theoretical classes are to be held in the department and there is not enough space to observe social distancing, coordination should be made with the Deputy of Education to allocate a large classroom for this purpose.

**10.** Since the radiology rooms in the endodontics and pediatric dentistry departments are not equipped with proper ventilation and air conditioning system, the Deputy of Support aims to procure portable radiographic units for the pediatric dentistry and endodontics departments to minimize patient referrals to the Radiology Department. Referrals should be preferably limited to extraoral radiography.

**11.** All the steps of registering the patient files, viewing patient records, designing a treatment plan, and referrals to other departments should be performed through the DIS system. Therefore, please do not use paper documents as much as possible. It should be noted that registration of patient treatment is the responsibility of the student in charge of patient.

**12.** If you need the patient's paper files, please refrain from referring the patient to receive the file. Instead, ask the reception desk to contact the Medical Records Office. Transfer of paper files is the responsibility of the service personnel of the departments or the employees of the Medical Records Office.

**13.** Primary clinical examination of patients in the Triage Unit is performed by an oral medicine specialist and a periodontist. Additional clinical examinations are the responsibility of the departments.

**14.** Emergency treatments that may not be of educational value should be performed in the emergency unit of the facility by a general dentist. Senior dental students passing the compressive treatment course in the Endodontics Department can be requested to perform the emergency treatments of patients. However, in case of increased demand, complexity of treatments, or procedural errors, on-call residents of endodontics, oral and maxillofacial surgery or pediatric dentistry can be of help. Therefore, please cooperate with the emergency department in this regard.

**15.** All personal equipment and computer systems present in the treatment units that are used for the DIS and are exposed to droplets should be moved and placed outside the droplet exposure area. Please contact the chiefs of the departments or the Deputy of Education in this regard and coordinate with the IT unit.

**16.** Students should be forced to use a rubber dam for aerosol-generating procedures, if possible.

## *Guidelines for the Attendance of Undergraduate and Postgraduate Students*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

**1.** Patient admission starts at 8 a.m. Therefore, please be present before 8 a.m. in order to reduce movements.

**2.** Similar to others, cooperate with the Screening Unit upon arrival.

❖ Attendance in the facility is subject to the completion of the online form shared in the instant messaging channels of the university.

**3.** During the entire period of your attendance in the facility, preferably remain in your own unit and avoid unnecessary movements between the units.

- 4.** Preferably do your office tasks using the facility's internal phones, and avoid face-to-face contact with others.
  
- 5.** If the administrative units are not responsive over the phone, please report the case to the dean.
  
- 6.** Eating is prohibited in the clinical departments and in presence of patients.
  
- 7.** Upon entering the facility, change your clothes immediately in the first step and do not enter the treatment area without wearing a surgical gown.
  
- 8.** Please store your extra items in your locker and do not bring them with you to the department or classroom.
  
- 9.** In the current situation, all extra protective and therapeutic materials and equipment are considered as infectious wastes. Thus, please discard them in special waste bins immediately after visiting each patient. As before, students are responsible for placing the disposable covers over the dental units and other equipment.
  
- 10.** The current dress code for the students includes a scrub for male students (short sleeved scrub tops and pull-on pants). If they want to leave their respective department, they should wear a long-sleeve lab coat over their scrub. However, it is not necessary to close the buttons of the lab coat. Female students should wear long-sleeve lab coats and pull-on pants. It is mandatory for the students to wear disposable gowns during the procedures.

**11.** Attending theoretical classes does not require wearing a lab coat. However, due to the possibility of movements between patients, it is recommended that the students wear a lab coat during their entire presence in the facility. It is mandatory for the students to wear a mask in theoretical classes. Phantom classes and prosthesis workshops require masks, gloves and medical caps.

**12.** To use the library facilities, preferably use e-books instead of paper books, if available. You can take your memory card with you to the library to receive the e-book files.

**13.** Observe social distancing if you need to use the study hall.

**14.** The patients should necessarily rinse their mouth with a mouthwash for 60 seconds before any clinical examination or dental procedure. Since saliva is continuously synthesized and secreted, irrigation with hydrogen peroxide with an irrigation syringe is required throughout the procedures.

**15.** All the steps of registering the patient files, viewing patient records, designing a treatment plan, and referrals to other departments should be performed through the DIS system. Therefore, please do not use paper documents as much as possible. It should be noted that registration of patient treatment is the responsibility of the student in charge of patient.

**16.** If you need the patient's paper files, please refrain from referring the patient to receive the file. Instead, ask the reception desk to contact the Medical Records Office.

Transfer of paper files is the responsibility of the service personnel of the departments or the employees of the Medical Records Office.

**17.** Student restrooms are located in the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> floors. Therefore, please refrain from visiting other floors for this purpose.

**18.** To visit other floors, preferably use the stairs instead of elevators.

**19.** To transfer laboratory items or biopsy specimens, please ask for sealable plastic bags from the nursing station. Impressions and casts should be washed and disinfected before sending to the laboratory and also after receiving them from the lab.

**20.** Please refrain from eating in the facility. The food kiosk is also being moved to the parking lot.

**21.** The environmental health forces are responsible for disinfecting the dental units and surfaces between patients. Be patient until the disinfection process is completed and inform the patients about this process. Schedule patient appointments with 15-min intervals to account for this time lapse.

**22.** Extraoral radiography should be preferred for patients. Therefore, try not to prescribe intraoral radiography for patients as much as possible.

**23.** In droplet-generating procedures, the patient should also wear goggles.

# *Guidelines for the Attendance of Employees of Companies and Sales Booths*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

- 1.** Similar to others, cooperate with the Screening Unit upon arrival.
- 2.** During the entire period of your attendance in the facility, preferably remain in your own unit and avoid unnecessary movements between the units.
- 3.** In addition to your name tag, please wear facemask and gloves during your stay in the facility.
- 4.** All equipment entering the facility must be disinfected altogether in a larger box by the environmental health forces using a disinfection spray before passing through the disinfection gate.
- 5.** Be careful not to leave empty boxes and packages in the campus.
- 6.** At the beginning and at the end of each working day, ask for help from the environmental health forces to disinfect the surfaces.



**7.** Disposable equipment sales booth for patients is required to provide disposable covers for the handpieces in sealed packages. Selling of open packages is prohibited. Due to the possibility of disease transmission, returns should not be accepted.

**8.** If possible, the equipment and items purchased by the patients should be transferred to the departments by the seller. Otherwise, plastic bags should be used to minimize patient contact with the items.

**9.** The food kiosk and the supermarket are being moved out of the facility to the parking lot. In order to prevent disease transmission, the food kiosk is only allowed to sell foods in vacuum company packaging. Only card payments are accepted. The seller is also responsible for disinfection of exposed surfaces on a daily basis.

# *Guidelines for the Attendance of the Laboratory Staff*

In addition to observing the general guidelines for personal and environmental health, please consider the following points:

- 1.** Similar to others, cooperate with the Screening Unit upon arrival.
- 2.** During the entire period of your attendance in the facility, preferably remain in your own unit and avoid unnecessary movements between the units. In case of using the freight elevator to transfer the lab equipment, thoroughly follow the hygiene guidelines and avoid leaving your personal protective equipment on the way.
- 3.** Use personal protective equipment including gloves, goggles, N95 masks, and gowns during your entire presence in the lab.
- 4.** Items sent by the students to the lab are washed, disinfected, and placed in a clean package before being sent to the lab. However, they should be disinfected again in the lab to minimize the risk of infection transmission. Similarly, the items should be washed and disinfected prior to being sent back to the department.
- 5.** If the item requires special handling, the lab should provide a note in this respect.
- 6.** Replace your gloves after completing the laboratory steps of each item and before starting the next task.

# *Preparation of Environmental Equipment and Disinfectant Solutions by the Health Professionals*

- 1.** Due to the fact that the admission time of patients starts at 8 a.m., disinfection of busy routes and equipment surfaces such as dental units should be performed before the departments open. The environmental equipment time table should be followed for disinfection of public areas and surfaces.
- 2.** It is imperative to use personal protective equipment during the process of disinfection.
- 3.** Use the following table in collaboration with the Nursing Office to prepare fresh disinfectant solutions on a daily basis.

Contamination level			Application	Percentage of active chlorine	Dilution criterion			How to prepare 1 L of the solution	
					Unit	Spoon (hypochlorite) in a glass of water	Percentage	Hypochlorite (cc)	Water (cc)
1	Low	Non-critical	Hands, clean surfaces, personal items	0.05%	1:99	1 spoon in 4 glasses	1%	10	990
2	Medium	Semi-critical	Halls and administrative units, transportation services, shoe disinfection gate	0.1%	1:49	2 spoons in 4 glasses	2%	20	980
3	High	Critical	Emergency room beds, restrooms and extremely contaminated textiles	0.25%	1:19	5 spoons in 4 glasses	5%	50	950
4	Very high	Eliminating the risk of suspected clinical specimens		0.5%	1:9	10 spoons in 4 glasses	10%	100	900
5	Very high	Bloody secretions and vomit		1%	1:4	20 spoons in 4 glasses	20%	200	800

To dilute and use sodium hypochlorite (household bleach) as a disinfectant solution, it is necessary to observe the followings:

- Wear goggles, masks, gloves and waterproof aprons.
- Mix sodium hypochlorite with water in a room with high ventilation.
- Hypochlorite must be mixed with cold water because hot water breaks down sodium hypochlorite and makes it ineffective.

# References

1. Sahu P. Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. *Cureus*. 2020;12(4):e7541. Published 2020 Apr 4. doi:10.7759/cureus.7541
2. Torres-Pagán L, Terepka A. School-based health centers during academic disruption: Challenges and opportunity in urban mental health [published online ahead of print, 2020 Jun 25]. *Psychol Trauma*. 2020;10.1037/tra0000611. doi:10.1037/tra0000611
3. Rothstein R, Olympia RP. School Nurses on the Front Lines of Healthcare: The Approach to Maintaining Student Health and Wellness During COVID-19 School Closures [published online ahead of print, 2020 Jun 25]. *NASN Sch Nurse*. 2020;1942602X20935612. doi:10.1177/1942602X20935612
4. Viner RM, Russell SJ, Croker H, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *Lancet Child Adolesc Health*. 2020;4(5):397-404. doi:10.1016/S2352-4642(20)30095-X
5. Nussbaumer-Streit B, Mayr V, Dobrescu AI, et al. Quarantine alone or in combination with other public health measures to control COVID-19: a rapid review. *Cochrane Database Syst Rev*. 2020;4(4):CD013574. Published 2020 Apr 8. doi:10.1002/14651858.CD013574
6. Bayham J, Fenichel EP. Impact of school closures for COVID-19 on the US health-care workforce and net mortality: a modelling study. *Lancet Public Health*. 2020;5(5):e271-e278. doi:10.1016/S2468-2667(20)30082-7
7. Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: a social crisis in the making. *Lancet Public Health*. 2020;5(5):e243-e244. doi:10.1016/S2468-2667(20)30084-0
8. Armitage R, Nellums LB. Considering inequalities in the school closure response to COVID-19. *Lancet Glob Health*. 2020;8(5):e644. doi:10.1016/S2214-109X(20)30116-9
9. Johansen TB, Astrup E, Jore S, et al. Infection prevention guidelines and considerations for paediatric risk groups when reopening primary schools during COVID-19 pandemic, Norway, April 2020. *Euro Surveill*. 2020;25(22):10.2807/1560-7917.ES.2020.25.22.2000921. doi:10.2807/1560-7917.ES.2020.25.22.2000921
10. Laskowski-Jones L. COVID-19 and changing social norms. *Nursing*. 2020;50(5):6. doi:10.1097/01.NURSE.0000659348.89357.ac
11. Sheikh A, Sheikh Z, Sheikh A. Novel approaches to estimate compliance with lockdown measures in the COVID-19 pandemic. *J Glob Health*. 2020;10(1):010348. doi:10.7189/jogh.10.010348
12. Chin ET, Huynh BQ, Lo NC, Hastie T, Basu S. Projected geographic disparities in healthcare worker absenteeism from COVID-19 school closures and the economic feasibility of child care subsidies: a simulation study. Preprint. *medRxiv*. 2020;2020.03.19.20039404. Published 2020 Apr 16. doi:10.1101/2020.03.19.20039404
13. House T, Baguelin M, Van Hoek AJ, et al. Modelling the impact of local reactive school closures on critical care provision during an influenza pandemic. *Proc Biol Sci*. 2011;278(1719):2753-2760. doi:10.1098/rspb.2010.2688
14. Jackson C, Mangtani P, Hawker J, Olowokure B, Vynnycky E. The effects of school closures on influenza outbreaks and pandemics: systematic review of simulation studies. *PLoS One*. 2014;9(5):e97297. Published 2014 May 15. doi:10.1371/journal.pone.0097297
15. Ferrel MN, Ryan JJ. The Impact of COVID-19 on Medical Education. *Cureus*. 2020;12(3):e7492. Published 2020 Mar 31. doi:10.7759/cureus.7492
16. Gabrielson AT, Kohn JR, Sparks HT, Clifton

- MM, Kohn TP. Proposed Changes to the 2021 Residency Application Process in the Wake of COVID-19 [published online ahead of print, 2020 May 26]. *Acad Med*. 2020;10.1097/ACM.0000000000003520. doi:10.1097/ACM.0000000000003520
- 17.** McManus IC, Richards P, Winder BC, Sproston KA. Clinical experience, performance in final examinations, and learning style in medical students: prospective study. *BMJ*. 1998;316(7128):345-350. doi:10.1136/bmj.316.7128.345
- 18.** Pasquale SJ, Pugnaire MP. Preparing medical students to teach. *Acad Med*. 2002;77(11):1175-1176. doi:10.1097/00001888-200211000-00046
- 19.** Jervis CG, Brown LR. The prospects of sitting 'end of year' open book exams in the light of COVID-19: A medical student's perspective [published online ahead of print, 2020 May 20]. *Med Teach*. 2020;1-2. doi:10.1080/0142159X.2020.1766668
- 20.** Sleiwah A, Mughal M, Hachach-Haram N, Roblin P. COVID-19 lockdown learning: The uprising of virtual teaching [published online ahead of print, 2020 May 23]. *J Plast Reconstr Aesthet Surg*. 2020;S1748-6815(20)30214-X. doi:10.1016/j.bjps.2020.05.032
- 21.** Huang TK, Yang CH, Hsieh YH, Wang JC, Hung CC. Augmented reality (AR) and virtual reality (VR) applied in dentistry. *Kaohsiung J Med Sci*. 2018;34(4):243-248. doi:10.1016/j.kjms.2018.01.009
- 22.** Joda T, Gallucci GO, Wismeijer D, Zitzmann NU. Augmented and virtual reality in dental medicine: A systematic review. *Comput Biol Med*. 2019;108:93-100. doi:10.1016/j.compbiomed.2019.03.012
- 23.** Jasinevicius TR, Landers M, Nelson S, Urbankova A. An evaluation of two dental simulation systems: virtual reality versus contemporary non-computer-assisted. *J Dent Educ*. 2004;68(11):1151-1162.
- 24.** Plessas A. Computerized Virtual Reality Simulation in Preclinical Dentistry: Can a Computerized Simulator Replace the Conventional Phantom Heads and Human Instruction?. *Simul Healthc*. 2017;12(5):332-338. doi:10.1097/SIH.0000000000000250
- 25.** Serrano CM, Wesselink PR, Vervoorn JM. Echte patiënten in de virtuele realiteit: de schakel tussen fantoom en kliniek [Real patients in virtual reality: the link between phantom heads and clinical dentistry]. *Ned Tijdschr Tandheelkd*. 2018;125(5):263-267. doi:10.5177/ntvt.2018.05.17192
- 26.** de Boer IR, Lagerweij MD, Wesselink PR, Vervoorn JM. The Effect of Variations in Force Feedback in a Virtual Reality Environment on the Performance and Satisfaction of Dental Students. *Simul Healthc*. 2019;14(3):169-174. doi:10.1097/SIH.0000000000000370
- 27.** Perry S, Bridges SM, Burrow MF. A review of the use of simulation in dental education. *Simul Healthc*. 2015;10(1):31-37. doi:10.1097/SIH.0000000000000059
- 28.** LeBlanc VR, Urbankova A, Hadavi F, Lichtenthal RM. A preliminary study in using virtual reality to train dental students. *J Dent Educ*. 2004;68(3):378-383.
- 29.** Mishra D, Nair AG, Gandhi RA, et al. The impact of COVID-19 related lockdown on ophthalmology training programs in India - Outcomes of a survey. *Indian J Ophthalmol*. 2020;68(6):999-1004. doi:10.4103/ijo.IJO\_1067\_20
- 30.** Zingaretti N, Contessi Negrini F, Tel A, Tresoldi MM, Bresadola V, Parodi PC. The Impact of COVID-19 on Plastic Surgery Residency Training [published online ahead of print, 2020 May 26]. *Aesthetic Plast Surg*. 2020;1-5. doi:10.1007/s00266-020-01789-w
- 31.** Singal A, Bansal A, Chaudhary P. Cadaverless anatomy: Darkness in the times of pandemic Covid-19 [published online ahead of print, 2020 May 28]. *Morphologie*. 2020;S1286-0115(20)30045-X. doi:10.1016/j.morpho.2020.05.003
- 32.** Kim Y, Kim H, Kim YO. Virtual Reality and Augmented Reality in Plastic Surgery: A Review. *Arch Plast Surg*. 2017;44(3):179-187. doi:10.5999/aps.2017.44.3.179

33. Mitton C, Adair CE, McKenzie E, Patten SB, Wayne Perry B. Knowledge transfer and exchange: review and synthesis of the literature. *Milbank Q.* 2007;85(4):729-768. doi:10.1111/j.1468-0009.2007.00506.x
34. Shi Y, Wang G, Cai XP, et al. An overview of COVID-19. *J Zhejiang Univ Sci B.* 2020;21(5):343-360. doi:10.1631/jzus.B2000083
35. Jin Y, Yang H, Ji W, et al. Virology, Epidemiology, Pathogenesis, and Control of COVID-19. *Viruses.* 2020;12(4):372. Published 2020 Mar 27. doi:10.3390/v12040372
36. Guo YR, Cao QD, Hong ZS, et al. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak - an update on the status. *Mil Med Res.* 2020;7(1):11. Published 2020 Mar 13. doi:10.1186/s40779-020-00240-0
37. Tu YF, Chien CS, Yarmishyn AA, et al. A Review of SARS-CoV-2 and the Ongoing Clinical Trials. *Int J Mol Sci.* 2020;21(7):2657. Published 2020 Apr 10. doi:10.3390/ijms21072657
38. Ye ZW, Jin DY. *Sheng Wu Gong Cheng Xue Bao.* 2020;36(4):571-592. doi:10.13345/j.cjb.200115
39. Ahn DG, Shin HJ, Kim MH, et al. Current Status of Epidemiology, Diagnosis, Therapeutics, and Vaccines for Novel Coronavirus Disease 2019 (COVID-19). *J Microbiol Biotechnol.* 2020;30(3):313-324. doi:10.4014/jmb.2003.03011
40. Contini C, Di Nuzzo M, Barp N, et al. The novel zoonotic COVID-19 pandemic: An expected global health concern. *J Infect Dev Ctries.* 2020;14(3):254-264. Published 2020 Mar 31. doi:10.3855/jidc.12671
41. Yang Y, Peng F, Wang R, et al. The deadly coronaviruses: The 2003 SARS pandemic and the 2020 novel coronavirus epidemic in China [published correction appears in *J Autoimmun.* 2020 Jul;111:102487]. *J Autoimmun.* 2020;109:102434. doi:10.1016/j.jaut.2020.102434
42. Lvov DK, Alkhovsky SV, Kolobukhina LV, Burtseva EI. *Vopr Virusol.* 2020;65(1):6-15. doi:10.36233/0507-4088-2020-65-1-6-15
43. Yan Y, Shin WI, Pang YX, et al. The First 75 Days of Novel Coronavirus (SARS-CoV-2) Outbreak: Recent Advances, Prevention, and Treatment. *Int J Environ Res Public Health.* 2020;17(7):2323. Published 2020 Mar 30. doi:10.3390/ijerph17072323
44. Chakraborty C, Sharma AR, Sharma G, Bhattacharya M, Lee SS. SARS-CoV-2 causing pneumonia-associated respiratory disorder (COVID-19): diagnostic and proposed therapeutic options. *Eur Rev Med Pharmacol Sci.* 2020;24(7):4016-4026. doi:10.26355/eurrev\_202004\_20871
45. Ge H, Wang X, Yuan X, et al. The epidemiology and clinical information about COVID-19. *Eur J Clin Microbiol Infect Dis.* 2020;39(6):1011-1019. doi:10.1007/s10096-020-03874-z
46. Amawi H, Abu Deiab GI, Aljabali AA, Dua K, Tambuwala MM. COVID-19 pandemic: an overview of epidemiology, pathogenesis, diagnostics and potential vaccines and therapeutics. *Ther Deliv.* 2020;11(4):245-268. doi:10.4155/tde-2020-0035
47. Tang D, Comish P, Kang R. The hallmarks of COVID-19 disease. *PLoS Pathog.* 2020;16(5):e1008536. Published 2020 May 22. doi:10.1371/journal.ppat.1008536
48. Paudel S, Dangal G, Chalise A, Bhandari TR, Dangal O. The Coronavirus Pandemic: What Does the Evidence Show?. *J Nepal Health Res Counc.* 2020;18(1):1-9. Published 2020 Apr 19. doi:10.33314/jnhrc.v18i1.2596
49. Deshmukh V, Tripathi SC, Pandey A, et al. COVID-19: a conundrum to decipher. *Eur Rev Med Pharmacol Sci.* 2020;24(10):5830-5841. doi:10.26355/eurrev\_202005\_21378
50. Ozma MA, Maroufi P, Khodadadi E, et al. Clinical manifestation, diagnosis, prevention and control of SARS-CoV-2 (COVID-19) during the outbreak period. *Infez Med.* 2020;28(2):153-165.
51. Harapan H, Itoh N, Yufika A, et al. Coronavirus disease 2019 (COVID-19): A literature review. *J Infect Public Health.* 2020;13(5):667-673. doi:10.1016/j.jiph.2020.03.019

- 52.** Yi Y, Lagniton PNP, Ye S, Li E, Xu RH. COVID-19: what has been learned and to be learned about the novel coronavirus disease. *Int J Biol Sci.* 2020;16(10):1753-1766. Published 2020 Mar 15. doi:10.7150/ijbs.45134
- 53.** Cao Y, Cai K, Xiong L. Coronavirus disease 2019: A new severe acute respiratory syndrome from Wuhan in China. *Acta Virol.* 2020;64(2):245-250. doi:10.4149/av\_2020\_201
- 54.** Li H, Liu SM, Yu XH, Tang SL, Tang CK. Coronavirus disease 2019 (COVID-19): current status and future perspectives. *Int J Antimicrob Agents.* 2020;55(5):105951. doi:10.1016/j.ijantimicag.2020.105951
- 55.** Awadasseid A, Wu Y, Tanaka Y, Zhang W. Initial success in the identification and management of the coronavirus disease 2019 (COVID-19) indicates human-to-human transmission in Wuhan, China. *Int J Biol Sci.* 2020;16(11):1846-1860. Published 2020 Apr 6. doi:10.7150/ijbs.45018
- 56.** Chatterjee P, Nagi N, Agarwal A, et al. The 2019 novel coronavirus disease (COVID-19) pandemic: A review of the current evidence. *Indian J Med Res.* 2020;151(2 & 3):147-159. doi:10.4103/ijmr.IJMR\_519\_20
- 57.** Yang CL, Qiu X, Zeng YK, Jiang M, Fan HR, Zhang ZM. Coronavirus disease 2019: a clinical review. *Eur Rev Med Pharmacol Sci.* 2020;24(8):4585-4596. doi:10.26355/eurrev\_202004\_21045
- 58.** Khan S, Siddique R, Shereen MA, et al. Emergence of a Novel Coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2: Biology and Therapeutic Options. *J Clin Microbiol.* 2020;58(5):e00187-20. Published 2020 Apr 23. doi:10.1128/JCM.00187-20
- 59.** Barabari P, Moharamzadeh K. Novel Coronavirus (COVID-19) and Dentistry-A Comprehensive Review of Literature. *Dent J (Basel).* 2020;8(2):E53. Published 2020 May 21. doi:10.3390/dj8020053
- 60.** Dziedzic A. Special Care Dentistry and COVID-19 Outbreak: What Lesson Should We Learn?. *Dent J (Basel).* 2020;8(2):E46. Published 2020 May 9. doi:10.3390/dj8020046
- 61.** Coulthard P. Dentistry and coronavirus (COVID-19) - moral decision-making. *Br Dent J.* 2020;228(7):503-505. doi:10.1038/s41415-020-1482-1
- 62.** Devker NR, Mohitey J, Vibhute A, et al. A study to evaluate and compare the efficacy of preprocedural mouthrinsing and high volume evacuator attachment alone and in combination in reducing the amount of viable aerosols produced during ultrasonic scaling procedure. *J Contemp Dent Pract.* 2012;13(5):681-689. Published 2012 Sep 1. doi:10.5005/jp-journals-10024-1209
- 63.** Jacks ME. A laboratory comparison of evacuation devices on aerosol reduction. *J Dent Hyg.* 2002;76(3):202-206.
- 64.** Graetz C, Bielfeldt J, Tillner A, Plaumann A, Dörfer CE. Spatter contamination in dental practices-how can it be prevented?. *Rev Med Chir Soc Med Nat Iasi.* 2014;118(4):1122-1134.
- 65.** Junevicius J, Surma A, Surma R. Effectiveness evaluation of different suction systems. *Stomatologija.* 2005;7(2):52-57.
- 66.** Singh TS, Mabe OD. Occupational exposure to endotoxin from contaminated dental unit waterlines. *SADJ.* 2009;64(1):8-14.
- 67.** Gurzawska-Comis K, Becker K, Brunello G, Gurzawska A, Schwarz F. Recommendations for Dental Care during COVID-19 Pandemic. *J Clin Med.* 2020;9(6):E1833. Published 2020 Jun 12. doi:10.3390/jcm9061833
- 68.** Cervino G, Oteri G. COVID-19 Pandemic and Telephone Triage before Attending Medical Office: Problem or Opportunity?. *Medicina (Kaunas).* 2020;56(5):250. Published 2020 May 20. doi:10.3390/medicina56050250
- 69.** Sarbadhikari S, Sarbadhikari SN. The global experience of digital health interventions in COVID-19 management. *Indian J Public Health.* 2020;64(Supplement):S117-S124. doi:10.4103/ijph.IJPH\_457\_20

- 70.** Hong Z, Li N, Li D, et al. Telemedicine During the COVID-19 Pandemic: Experiences From Western China. *J Med Internet Res.* 2020;22(5):e19577. Published 2020 May 8. doi:10.2196/19577
- 71.** Ting DSW, Carin L, Dzau V, Wong TY. Digital technology and COVID-19. *Nat Med.* 2020;26(4):459-461. doi:10.1038/s41591-020-0824-5
- 72.** Rockwell KL, Gilroy AS. Incorporating telemedicine as part of COVID-19 outbreak response systems. *Am J Manag Care.* 2020;26(4):147-148. doi:10.37765/ajmc.2020.42784
- 73.** The Lancet Infectious Diseases. COVID-19: endgames. *Lancet Infect Dis.* 2020;20(5):511. doi:10.1016/S1473-3099(20)30298-X
- 74.** Plummer KD, Wakefield CW. Practical infection control in dental laboratories. *Gen Dent.* 1994;42(6):545-548.
- 75.** Almortadi N, Chadwick RG. Disinfection of dental impressions - compliance to accepted standards. *Br Dent J.* 2010;209(12):607-611. doi:10.1038/sj.bdj.2010.1134
- 76.** Sofou A, Larsen T, Fiehn NE, Owall B. Contamination level of alginate impressions arriving at a dental laboratory. *Clin Oral Investig.* 2002;6(3):161-165. doi:10.1007/s00784-002-0173-4
- 77.** Blair FM, Wassell RW. A survey of the methods of disinfection of dental impressions used in dental hospitals in the United Kingdom. *Br Dent J.* 1996;180(10):369-375. doi:10.1038/sj.bdj.4809092
- 78.** Connor C. Cross-contamination control in prosthodontic practice. *Int J Prosthodont.* 1991;4(4):337-344.
- 79.** Miller CH. Infection control. *Dent Clin North Am.* 1996;40(2):437-456.
- 80.** Jakubovics N, Greenwood M, Meechan JG. General medicine and surgery for dental practitioners: part 4. Infections and infection control. *Br Dent J.* 2014;217(2):73-77. doi:10.1038/sj.bdj.2014.593
- 81.** Podgórska M, Jakimiak B, Röhm-Rodowald E, Chojecka A. Ocena prawidłowości procesów dezynfekcji i sterylizacji w wybranych gabinetach stomatologicznych jako istotnych elementów zapobiegania zakażeniom [Assessment of disinfection and sterilization processes in dental practice as an important factors in prevention of infections]. *Przeegl Epidemiol.* 2009;63(4):545-550.
- 82.** Palenik CJ, Burke FJ, Miller CH. Strategies for dental clinic infection control. *Dent Update.* 2000;27(1):7-15. doi:10.12968/denu.2000.27.1.7
- 83.** Yüzbasıoğlu E, Saraç D, Canbaz S, Saraç YS, Cengiz S. A survey of cross-infection control procedures: knowledge and attitudes of Turkish dentists. *J Appl Oral Sci.* 2009;17(6):565-569. doi:10.1590/s1678-77572009000600005
- 84.** Györfi A, Fazekas A. Az infekciókontroll jelentősége a fogászatban. Összefoglaló referátum [Significance of infection control in dentistry: a review]. *Fogorv Sz.* 2007;100(4):141-152.
- 85.** Batra P, Jyothikiran H. Tips for maintaining sterilization in your orthodontic work station. *Int J Orthod Milwaukee.* 2014;25(2):21-30.
- 86.** Doriguêto PVT, Americano JP, Devito KL. Challenges for the dental radiology clinic in times of the COVID-19 pandemic [published online ahead of print, 2020 Jun 20]. *Oral Radiol.* 2020;1-2. doi:10.1007/s11282-020-00456-9
- 87.** Alharbi A, Alharbi S, Alqaidi S. Guidelines for dental care provision during the COVID-19 pandemic [published online ahead of print, 2020 Apr 7]. *Saudi Dent J.* 2020;32(4):181-186. doi:10.1016/j.sdentj.2020.04.001
- 88.** Pontual MLA, do Nascimento EHL, da Cruz Perez DE, Pontual AA, Ramos-Perez FM. Challenges in oral radiology teaching during COVID-19 pandemic. *Dentomaxillofac Radiol.* 2020;49(5):20200178. doi:10.1259/dmfr.20200178
- 89.** Onana J, Ngongang A. Hygiène et méthodes de décontamination, désinfection, stérilisation en cabinet dentaire à Yaounde [Hygiene and methods of decontamination, disinfection and sterilization in dental offices in Yaounde]. *Odontostomatol Trop.* 2002;25(97):45-51.



- 90.** OSAP. Frequently asked and answered questions. Infection control & safety. *Dent Assist.* 2012;81(6):10-18.
- 91.** Ewart JM, Jack WA, Jack AA. Hygiene controls. *Br Dent J.* 2009;207(1):5. doi:10.1038/sj.bdj.2009.564
- 92.** Thomas MV, Jarboe G, Frazer RQ. Infection control in the dental office. *Dent Clin North Am.* 2008;52(3):609-x. doi:10.1016/j.cden.2008.02.002
- 93.** Infection control recommendations for the dental office and the dental laboratory. ADA Council on Scientific Affairs and ADA Council on Dental Practice. *J Am Dent Assoc.* 1996;127(5):672-680. doi:10.14219/jada.archive.1996.0280
- 94.** Palenik CJ. Infection control practices for dental radiography. *Dent Today.* 2004;23(6):52-55.
- 95.** Budnyak MA, Gurevich KG, Fabrikant KG, Miller K, Puttaiah R. Dental infection control and occupational safety in the Russian Federation. *J Contemp Dent Pract.* 2012;13(5):703-712. Published 2012 Sep 1. doi:10.5005/jp-journals-10024-1213
- 96.** Grant AA, Walsh JF. Reducing cross-contamination in prosthodontics. *J Prosthet Dent.* 1975;34(3):324-328. doi:10.1016/0022-3913(75)90111-0
- 97.** Dave M, Seoudi N, Coulthard P. Urgent dental care for patients during the COVID-19 pandemic. *Lancet.* 2020;395(10232):1257. doi:10.1016/S0140-6736(20)30806-0
- 98.** Spicciarelli V, Marruganti C, Viviano M, et al. A new framework to identify dental emergencies in the COVID-19 era. *J Oral Sci.* 2020;62(3):344-347. doi:10.2334/josnusd.20-0208
- 99.** Wu KY, Wu DT, Nguyen TT, Tran SD. COVID-19's impact on private practice and academic dentistry in North America [published online ahead of print, 2020 May 30]. *Oral Dis.* 2020;10.1111/odi.13444. doi:10.1111/odi.13444
- 100.** Abramovitz I, Palmon A, Levy D, et al. Dental care during the coronavirus disease 2019 (COVID-19) outbreak: operatory considerations and clinical aspects. *Quintessence Int.* 2020;51(5):418-429. doi:10.3290/j.qi.a44392
- 101.** Chen XC, Ding JF, Xu DH, et al. Preventive and Control Measures for the Coronavirus Pandemic in Clinical Dentistry. *Chin J Dent Res.* 2020;23(2):99-104. doi:10.3290/j.cjdr.a44745
- 102.** Hirschmann MT, Hart A, Henckel J, Sadoghi P, Seil R, Mouton C. COVID-19 coronavirus: recommended personal protective equipment for the orthopaedic and trauma surgeon [published correction appears in *Knee Surg Sports Traumatol Arthrosc.* 2020 Jun 12;:]. *Knee Surg Sports Traumatol Arthrosc.* 2020;28(6):1690-1698. doi:10.1007/s00167-020-06022-4
- 103.** Ong SWX, Tan YK, Chia PY, et al. Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient [published online ahead of print, 2020 Mar 4]. *JAMA.* 2020;323(16):1610-1612. doi:10.1001/jama.2020.3227
- 104.** Cook TM. Personal protective equipment during the coronavirus disease (COVID) 2019 pandemic - a narrative review. *Anaesthesia.* 2020;75(7):920-927. doi:10.1111/anae.15071
- 105.** Ong JJY, Bharatendu C, Goh Y, et al. Headaches Associated With Personal Protective Equipment - A Cross-Sectional Study Among Frontline Healthcare Workers During COVID-19. *Headache.* 2020;60(5):864-877. doi:10.1111/head.13811
- 106.** Kantor J. Behavioral considerations and impact on personal protective equipment use: Early lessons from the coronavirus (COVID-19) pandemic. *J Am Acad Dermatol.* 2020;82(5):1087-1088. doi:10.1016/j.jaad.2020.03.013
- 107.** Gupta MK, Lipner SR. Personal protective equipment recommendations based on COVID-19 route of transmission. *J Am Acad Dermatol.* 2020;83(1):e45-e46. doi:10.1016/j.jaad.2020.04.068
- 108.** Rohan P, O'Reilly MK, Gibney B, Nason GJ. Supply of Personal Protective Equipment (PPE)

During the Covid-19 Pandemic. *Ir Med J*. 2020;113(4):66. Published 2020 Apr 3.

**109.** Ha JF. The covid-19 pandemic, personal protective equipment, and respirator: a narrative review [published online ahead of print, 2020 Jun 8]. *Int J Clin Pract*. 2020;e13578. doi:10.1111/ijcp.13578

**110.** Turer RW, Jones I, Rosenbloom ST, Slovis C, Ward MJ. Electronic personal protective equipment: A strategy to protect emergency department providers in the age of COVID-19. *J Am Med Inform Assoc*. 2020;27(6):967-971. doi:10.1093/jamia/ocaa048

**111.** Herron JBT, Hay-David AGC, Gilliam AD, Brennan PA. Personal protective equipment and Covid 19- a risk to healthcare staff?. *Br J Oral Maxillofac Surg*. 2020;58(5):500-502. doi:10.1016/j.bjoms.2020.04.015

**112.** Jamieson DJ, Steinberg JP, Martinello RA, Perl TM, Rasmussen SA. Obstetricians on the Coronavirus Disease 2019 (COVID-19) Front Lines and the Confusing World of Personal Protective Equipment. *Obstet Gynecol*. 2020;135(6):1257-1263. doi:10.1097/AOG.0000000000003919

**113.** Ong SWX, Tan YK, Sutjipto S, et al. Absence of contamination of personal protective equipment (PPE) by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). *Infect Control Hosp Epidemiol*. 2020;41(5):614-616. doi:10.1017/ice.2020.91

**114.** Ranney ML, Griffeth V, Jha AK. Critical Supply Shortages - The Need for Ventilators and Personal Protective Equipment during the Covid-19 Pandemic. *N Engl J Med*. 2020;382(18):e41. doi:10.1056/NEJMp2006141

**115.** Lockhart SL, Duggan LV, Wax RS, Saad S, Grocott HP. Personal protective equipment (PPE) for both anesthesiologists and other airway managers: principles and practice during the COVID-19 pandemic [published online ahead of print, 2020 Apr 23]. Équipements de protection individuelle (EPI) pour anesthésiologistes et autre personnel en charge des voies aériennes: principes et pratiques pendant la

pandémie de COVID-19 [published online ahead of print, 2020 Apr 23]. *Can J Anaesth*. 2020;1-11. doi:10.1007/s12630-020-01673-w

**116.** Delgado D, Wyss Quintana F, Perez G, et al. Personal Safety during the COVID-19 Pandemic: Realities and Perspectives of Healthcare Workers in Latin America. *Int J Environ Res Public Health*. 2020;17(8):2798. Published 2020 Apr 18. doi:10.3390/ijerph17082798

**117.** Panuganti BA, Pang J, Califano J, Chan JYK. Procedural precautions and personal protective equipment during head and neck instrumentation in the COVID-19 era [published online ahead of print, 2020 Apr 29]. *Head Neck*. 2020;10.1002/hed.26220. doi:10.1002/hed.26220

**118.** Pult H. COVID-19 Pandemic: Survey of future use of personal protective equipment in optometric practice. *Cont Lens Anterior Eye*. 2020;43(3):208-210. doi:10.1016/j.clae.2020.04.006

**119.** Lockhart SL, Naidu JJ, Badh CS, Duggan LV. Simulation as a tool for assessing and evolving your current personal protective equipment: lessons learned during the coronavirus disease (COVID-19) pandemic. *Can J Anaesth*. 2020;67(7):895-896. doi:10.1007/s12630-020-01638-z

**120.** Binkley CE, Kemp DS. Ethical Rationing of Personal Protective Equipment to Minimize Moral Residue During the COVID-19 Pandemic. *J Am Coll Surg*. 2020;230(6):1111-1113. doi:10.1016/j.jamcollsurg.2020.03.031

**121.** Gheisari M, Araghi F, Moravvej H, Tabary M, Dadkhahfar S. Skin Reactions to Non-glove Personal Protective Equipment: An Emerging Issue in the COVID-19 Pandemic [published online ahead of print, 2020 Apr 17]. *J Eur Acad Dermatol Venereol*. 2020;10.1111/jdv.16492. doi:10.1111/jdv.16492

**122.** Cavanagh G, Wambier CG. Reply to: "Personal protective equipment recommendations based on COVID-19 route of transmission". *J Am Acad Dermatol*. 2020;83(1):e47. doi:10.1016/j.jaad.2020.04.102

**123.** Gondi S, Beckman AL, Deveau N, et al. Personal protective equipment needs in the USA

during the COVID-19 pandemic. *Lancet*. 2020;395(10237):e90-e91. doi:10.1016/S0140-6736(20)31038-2

**124.** Shrestha GS. COVID-19 Pandemic: Shortage of Personal Protective Equipment, Use of Improvised Surrogates, and the Safety of Health Care Workers. *J Nepal Health Res Counc*. 2020;18(1):150. Published 2020 Apr 20. doi:10.33314/jnhrc.v18i1.2593

**125.** Greig PR, Carvalho C, El-Boghdadly K, Ramessur S. Safety testing improvised COVID-19 personal protective equipment based on a modified full-face snorkel mask. *Anaesthesia*. 2020;75(7):970-971. doi:10.1111/anae.15085

**126.** Rhee SW. Management of used personal protective equipment and wastes related to COVID-19 in South Korea [published online ahead of print, 2020 Jun 10]. *Waste Manag Res*. 2020;734242X20933343. doi:10.1177/0734242X20933343

**127.** Daigle P, Leung V, Yin V, Kalin-Hajdu E, Nijhawan N. Personal protective equipment (PPE) during the COVID-19 pandemic for oculo-facial plastic and orbital surgery [published online ahead of print, 2020 Jun 18]. *Orbit*. 2020;1-6. doi:10.1080/01676830.2020.1781200

**128.** Machida M, Nakamura I, Saito R, et al. Adoption of personal protective measures by ordinary citizens during the COVID-19 outbreak in Japan. *Int J Infect Dis*. 2020;94:139-144. doi:10.1016/j.ijid.2020.04.014

**129.** Sud SR. COVID-19 and Keeping Clean: A Narrative Review To Ascertain the Efficacy of Personal Protective Equipment To Safeguard Health Care Workers Against SARS-CoV-2 [published online ahead of print, 2020 May 8]. *Hosp Pediatr*. 2020;hpeds.2020-0135. doi:10.1542/hpeds.2020-0135

**130.** Ghai S. Are dental schools adequately preparing dental students to face outbreaks of infectious diseases such as COVID-19?. *J Dent Educ*. 2020;84(6):631-633. doi:10.1002/jdd.12174

**131.** Kaup S, Jain R, Shivalli S, Pandey S, Kaup S. Sustaining academics during COVID-19 pandemic:

The role of online teaching-learning. *Indian J Ophthalmol*. 2020;68(6):1220-1221. doi:10.4103/ijo.IJO\_1241\_20

**132.** Mupparapu M, Kothari KRM. Review of surface disinfection protocols in dentistry: a 2019 update. *Quintessence Int*. 2019;50(1):58-65. doi:10.3290/j.qi.a41337

**133.** Condrin AK. Disinfection and sterilization in dentistry. *Tex Dent J*. 2014;131(8):604-608.

**134.** Boyle MA, O'Donnell MJ, Russell RJ, Galvin N, Swan J, Coleman DC. Overcoming the problem of residual microbial contamination in dental suction units left by conventional disinfection using novel single component suction handpieces in combination with automated flood disinfection. *J Dent*. 2015;43(10):1268-1279. doi:10.1016/j.jdent.2015.07.018

**135.** Pankhurst CL, Scully C, Samaranyake L. Dental Unit Water Lines and their Disinfection and Management: A Review. *Dent Update*. 2017;44(4):284-292. doi:10.12968/denu.2017.44.4.284

**136.** Röhm-Rodowald E, Jakimiak B, Chojecka A, Zmuda-Baranowska M, Kancierski K. Ocena procesów dekontaminacji: mycia, dezynfekcji i sterylizacji w praktyce stomatologicznej w Polsce w latach 2011-2012 [Assessment of decontamination processes: cleaning, disinfection and sterilization in dental practice in Poland in the years 2011-2012]. *Przegl Epidemiol*. 2012;66(4):635-641.

**137.** Nov-Rider D, Bray KK, Eklund KJ, Williams KB, Mitchell TV. Massachusetts dental public health program directors practice behaviors and perceptions of infection control. *J Dent Hyg*. 2012;86(3):248-255.

**138.** Myers R. Hand care and waterlines: update for the dental profession. *Dent Today*. 2004;23(10):132-136.

**139.** Lado E, Grimaudo NJ. Select proper germicides for clinical tasks. *Today's FDA*. 2002;14(11):20-25.

**140.** Molinari JA. Surface disinfectants: read the labels. *Compend Contin Educ Dent*. 2001;22(12):1086-1088.

- 141.** Henjes KD. "Infectious" infection control. *Dent Assist.* 2013;82(6):6-8.
- 142.** Kohn WG, Harte JA, Malvitz DM, et al. Guidelines for infection control in dental health care settings--2003. *J Am Dent Assoc.* 2004;135(1):33-47. doi:10.14219/jada.archive.2004.0019
- 143.** Centers for Disease Control and Prevention. 2003 CDC infection control recommendations for dental health-care settings. *Compend Contin Educ Dent.* 2004;25(1 Suppl):43-53.
- 144.** Day CJ, Sandy JR, Ireland AJ. Aerosols and splatter in dentistry--a neglected menace?. *Dent Update.* 2006;33(10):601-606. doi:10.12968/denu.2006.33.10.601
- 145.** Hubar JS, Pelon W. Low-cost screening for microbial contaminants in aerosols generated in a dental office. *Gen Dent.* 2005;53(4):270-272.
- 146.** Dunn C. The efficacy of a pre-procedural antiseptic mouthwash against bacterial aerosols. *J N Z Soc Periodontol.* 1999;(84):21-23.
- 147.** Wei J, Li Y. Airborne spread of infectious agents in the indoor environment. *Am J Infect Control.* 2016;44(9 Suppl):S102-S108. doi:10.1016/j.ajic.2016.06.003
- 148.** Su J. *Zhonghua Kou Qiang Yi Xue Za Zhi.* 2020;55(4):229-234. doi:10.3760/cma.j.cn112144-20200303-00112
- 149.** Leggat PA, Kedjarune U. Bacterial aerosols in the dental clinic: a review. *Int Dent J.* 2001;51(1):39-44. doi:10.1002/j.1875-595x.2001.tb00816.x
- 150.** Myers R. Practical infection control in the dental office. *Dent Today.* 2000;19(6):88-91.
- 151.** Napoli C, Gallé F, Montagna MT, Liguori G; Gruppo di Lavoro; L'Igiene in Odontoiatria. Linee guida dei Centres for Disease Control and Prevention (CDC) per il controllo delle infezioni in odontoiatria: analisi e considerazioni [Guidelines for infection control practices for dentistry]. *Ann Ig.* 2007;19(5):417-427.
- 152.** Woods R. Universal precautions and pathways of infection. *J Dent Assoc S Afr.* 1997;52(3):194-196.
- 153.** Podgórska M, Jakimiak B, Röhm-Rodowald E, Chojecka A. Ocena prawidłowości procesów dezynfekcji i sterylizacji w wybranych gabinetach stomatologicznych jako istotnych elementów zapobiegania zakazeniom [Assessment of disinfection and sterilization processes in dental practice as an important factors in prevention of infections]. *Przegl Epidemiol.* 2009;63(4):545-550.
- 154.** Palenik CJ, Burke FJ, Miller CH. Strategies for dental clinic infection control. *Dent Update.* 2000;27(1):7-15. doi:10.12968/denu.2000.27.1.7
- 155.** Mukhtar F, Mukhtar N. Coronavirus (COVID-19): Let's Prevent Not Panic. *J Ayub Med Coll Abbottabad.* 2020;32(1):141-144.
- 156.** Signorelli C, Fara GM. COVID-19: Hygiene and Public Health to the front. *Acta Biomed.* 2020;91(3-S):7-8. Published 2020 Apr 7. doi:10.23750/abm.v91i3-S.9507
- 157.** Cavanagh G, Wambier CG. Rational hand hygiene during the coronavirus 2019 (COVID-19) pandemic. *J Am Acad Dermatol.* 2020;82(6):e211. doi:10.1016/j.jaad.2020.03.090
- 158.** Khanna RC, Cicinelli MV, Gilbert SS, Honavar SG, Murthy GSV. COVID-19 pandemic: Lessons learned and future directions. *Indian J Ophthalmol.* 2020;68(5):703-710. doi:10.4103/ijo.IJO\_843\_20
- 159.** Fleetwood J. Scores on doors: restaurant hygiene ratings and public health policy. *J Public Health Policy.* 2019;40(4):410-422. doi:10.1057/s41271-019-00183-4
- 160.** Buchholz U, Run G, Kool JL, Fielding J, Mascola L. A risk-based restaurant inspection system in Los Angeles County. *J Food Prot.* 2002;65(2):367-372. doi:10.4315/0362-028x-65.2.367
- 161.** Waters AB, VanDerslice J, Porucznik CA, Kim J, DeLegge R, Durrant L. Impact of internet posting of restaurant inspection scores on critical violations. *J Environ Health.* 2013;75(10):8-12.
- 162.** Riben PD, Mathias RG, Campbell E, Wiens M.

The evaluation of the effectiveness of routine restaurant inspections and education of food handlers: critical appraisal of the literature. *Can J Public Health*. 1994;85 Suppl 1:S56-S60.

**163.** Simon PA, Leslie P, Run G, et al. Impact of restaurant hygiene grade cards on foodborne-disease hospitalizations in Los Angeles County. *J Environ Health*. 2005;67(7):32-60.

**164.** Clark J, Crandall P, Shabatura J. Wearable Technology Effects on Training Outcomes of Restaurant Food Handlers. *J Food Prot*. 2018;81(8):1220-1226. doi:10.4315/0362-028X.JFP-18-033

**165.** Nizame FA, Alam MU, Masud AA, et al. Hygiene in Restaurants and among Street Food Vendors in Bangladesh. *Am J Trop Med Hyg*. 2019;101(3):566-575. doi:10.4269/ajtmh.18-0896

**166.** Behzadifar M, Ghanbari MK, Bakhtiari A, Behzadifar M, Bragazzi NL. Ensuring adequate health financing to prevent and control the COVID-19 in Iran. *Int J Equity Health*. 2020;19(1):61. Published 2020 May 6. doi:10.1186/s12939-020-01181-9

**167.** Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Biomed*. 2020;91(1):157-160. Published 2020 Mar 19. doi:10.23750/abm.v91i1.9397

**168.** Demirbilek Y, Pehlivan Türk G, Özgüler ZÖ, Alp Meşe E. COVID-19 outbreak control, example of ministry of health of Turkey. *Turk J Med Sci*. 2020;50(SI-1):489-494. Published 2020 Apr 21. doi:10.3906/sag-2004-187

**169.** van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. *N Engl J Med*. 2020;382(16):1564-1567. doi:10.1056/NEJMc2004973

**170.** Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. *J Travel Med*. 2020;27(2):taaa021. doi:10.1093/jtm/taaa021

**171.** Al-Tawfiq JA, Rodriguez-Morales AJ. Super-

spreading events and contribution to transmission of MERS, SARS, and SARS-CoV-2 (COVID-19). *J Hosp Infect*. 2020;105(2):111-112. doi:10.1016/j.jhin.2020.04.002

**172.** Malik YA. Properties of Coronavirus and SARS-CoV-2. *Malays J Pathol*. 2020;42(1):3-11.

**173.** Judson TJ, Odisho AY, Neinstein AB, et al. Rapid design and implementation of an integrated patient self-triage and self-scheduling tool for COVID-19. *J Am Med Inform Assoc*. 2020;27(6):860-866. doi:10.1093/jamia/ocaa051

**174.** Meselson M. Droplets and Aerosols in the Transmission of SARS-CoV-2. *N Engl J Med*. 2020;382(21):2063. doi:10.1056/NEJMc2009324

**175.** Godri Pollitt KJ, Peccia J, Ko AI, et al. COVID-19 vulnerability: the potential impact of genetic susceptibility and airborne transmission. *Hum Genomics*. 2020;14(1):17. Published 2020 May 12. doi:10.1186/s40246-020-00267-3

**176.** Khedkar PH, Patzak A. SARS-CoV-2: What do we know so far?. *Acta Physiol (Oxf)*. 2020;229(2):e13470. doi:10.1111/apha.13470

**177.** Petti S. Stability and Viability of SARS-CoV-2. *N Engl J Med*. 2020;382(20):1964-1965. doi:10.1056/NEJMc2007942

**178.** Helmers A. Stability and Viability of SARS-CoV-2. *N Engl J Med*. 2020;382(20):1964. doi:10.1056/NEJMc2007942

**179.** Lesho E, Laguio-Vila M, Walsh E. Stability and Viability of SARS-CoV-2. *N Engl J Med*. 2020;382(20):1963-1964. doi:10.1056/NEJMc2007942

**180.** Schwartz KL, Kim J, Garber G. Stability and Viability of SARS-CoV-2. *N Engl J Med*. 2020;382(20):1963. doi:10.1056/NEJMc2007942

**181.** Teanpaisan R, Taeporamaysamai M, Rattanachone P, Poldoung N, Srisintorn S. The usefulness of the modified extra-oral vacuum aspirator (EOVA) from household vacuum cleaner in reducing bacteria in dental aerosols. *Int Dent J*. 2001;51(6):413-416. doi:10.1002/j.1875-

**182.** Shetty SK, Sharath K, Shenoy S, Sreekumar C, Shetty RN, Biju T. Compare the efficacy of two commercially available mouthrinses in reducing viable bacterial count in dental aerosol produced during ultrasonic scaling when used as a preprocedural rinse. *J Contemp Dent Pract.* 2013;14(5):848-851. Published 2013 Sep 1. doi:10.5005/jp-journals-10024-1414

**183.** Prospero E, Savini S, Annino I. Microbial aerosol contamination of dental healthcare workers' faces and other surfaces in dental practice. *Infect Control Hosp Epidemiol.* 2003;24(2):139-141. doi:10.1086/502172

**184.** Szymańska J. Dental bioaerosol as an occupational hazard in a dentist's workplace. *Ann Agric Environ Med.* 2007;14(2):203-207.

**185.** Srikanth P, Sudharsanam S, Steinberg R. Bio-aerosols in indoor environment: composition, health effects and analysis. *Indian J Med Microbiol.* 2008;26(4):302-312. doi:10.4103/0255-0857.43555

**186.** Rautemaa R, Nordberg A, Wuolijoki-Saaristo K, Meurman JH. Bacterial aerosols in dental practice - a potential hospital infection problem?. *J Hosp Infect.* 2006;64(1):76-81. doi:10.1016/j.jhin.2006.04.011

**187.** Saravia SA, Raynor PC, Streifel AJ. A performance assessment of airborne infection isolation rooms. *Am J Infect Control.* 2007;35(5):324-331. doi:10.1016/j.ajic.2006.10.012

**188.** Rydock JP, Eian PK. Containment testing of

isolation rooms. *J Hosp Infect.* 2004;57(3):228-232. doi:10.1016/j.jhin.2004.01.032

**189.** Hayden CS 2nd, Earnest GS, Jensen PA. Development of an empirical model to aid in designing airborne infection isolation rooms. *J Occup Environ Hyg.* 2007;4(3):198-207. doi:10.1080/15459620601177370

**190.** Allo MD, Tedesco M. Operating room management: operative suite considerations, infection control. *Surg Clin North Am.* 2005;85(6):1291-xii. doi:10.1016/j.suc.2005.09.001

**191.** Cacciari P, Giannoni R, Marcelli E, Cercenelli L. Considerations on isolation rooms and alternative pressure ventilation systems. *Ann Ig.* 2004;16(6):777-801.

**192.** Elston DM. The coronavirus (COVID-19) epidemic and patient safety. *J Am Acad Dermatol.* 2020;82(4):819-820. doi:10.1016/j.jaad.2020.02.031

**193.** Szmuda T, Özdemir C, Ali S, Singh A, Syed MT, Słoniewski P. Readability of online patient education material for the novel coronavirus disease (COVID-19): a cross-sectional health literacy study [published online ahead of print, 2020 May 30]. *Public Health.* 2020;185:21-25. doi:10.1016/j.puhe.2020.05.041

**194.** Volgenant CMC, Persoon IF, de Ruijter RAG, de Soet JJH. Infection control in dental health care during and after the SARS-CoV-2 outbreak [published online ahead of print, 2020 May 11]. *Oral Dis.* 2020;10.1111/odi.13408. doi:10.1111/odi.13408