

COVID-19 infection prevention and control measures for primary care, including general practitioner practices, dental clinics and pharmacy settings: first update

19 October 2020

Scope of this document

This document provides guidance on infection prevention and control (IPC) measures to healthcare providers in the European Union/European Economic Area (EU/EEA) and the United Kingdom (UK) in order to prevent COVID-19 infection.

Target audience

Healthcare workers in general practitioner (GP) offices, primary care clinics, dental offices/clinics, and pharmacies in the EU/EEA and the UK.

Background

As of 12 October, 4 121 025 cases of COVID-19 were reported by EU/EEA countries and the UK, including 195 641 deaths [1]. COVID-19 case notification rates have increased steadily across the EU/EEA and the UK since August 2020 [2]. The current epidemiological situation in many countries is concerning, as it poses an increasing risk of COVID-19 infection for vulnerable individuals (i.e. individuals with risk factors for severe COVID-19 disease, such as the elderly) and healthcare workers, particularly in primary care. Detailed information on COVID-19 cases reported so far are available on a dedicated ECDC webpage [3].

Infection prevention and control (IPC) measures are of critical importance for protecting the functioning of healthcare services at all levels and mitigating the impact on vulnerable populations. Although the management of possible COVID-19 cases is usually guided by national policies for specific healthcare facilities, community transmission is currently widespread in most EU/EEA countries and the UK. As a result, primary healthcare providers in the community, such as GPs, dentists and pharmacists, are at risk of being exposed to COVID-19.

In most instances, coronaviruses are believed to be transmitted from person-to-person via respiratory droplets, either being inhaled or deposited on mucosal surfaces, including aerosols produced when coughing and speaking. Aerosol-generating procedures increase the production of aerosols. Transmission through contact with contaminated fomites is considered possible, although it has not yet been documented for SARS-CoV-2, and cultivable SARS-CoV-2 has not been detected from fomites in environmental investigations in clinical settings [4,5]. SARS-CoV-2 has been detected in respiratory and faecal specimens. SARS-CoV-2 RNA has also been detected in blood specimens, albeit rarely, but there is no evidence of transmission of SARS-CoV-2 through contact with blood [6]. The relative role of droplet, fomite and aerosol transmission for SARS-CoV-2, and the transmissibility of SARS-CoV-2 at different stages of the disease remain unclear. Caution should therefore be exercised when considering these elements [7].

Suggested citation: European Centre for Disease Prevention and Control. COVID-19 infection prevention and control measures for primary care, including general practitioner practices, dental clinics and pharmacy settings: first update. 19 October 2020. ECDC: Stockholm; 2020.

© European Centre for Disease Prevention and Control, Stockholm, 2020

There is increasing evidence that persons with mild or no symptoms contribute to the spread of COVID-19 [8-10]. Asymptomatic infection at time of laboratory confirmation has been reported from many settings [11-14]. A recent review of seven studies with little or no bias estimated this proportion at 31%, with a prediction interval from 24 to 38% [10]. The viral load and the probability to culture viable SARS-CoV-2 were found to be similar in symptomatic and asymptomatic persons in two studies, thus indicating that asymptomatic persons represent a source of transmissible SARS-CoV-2 [15,16].

Furthermore, the possibility of transmission of SARS-CoV-2 during the pre-symptomatic stage of COVID-19 has been well documented [17-21]. Several studies have indicated that secondary transmissions from an index case can occur up to three days before the onset of symptoms of the index case [17,22-24]. The proportion of pre-symptomatic transmission out of all occurrences of transmission from an index case was estimated at 37% (95% confidence interval (CI) 16–52%) [25] and 44% [23]. Because of the importance of asymptomatic and pre-symptomatic individuals in the transmission of COVID-19, WHO recommended that in areas with community transmission of COVID-19, all healthcare workers, including community health workers and caregivers who work in clinical areas should continuously wear a medical mask during their routine activities throughout the entire shift [23].

A recent systematic review and meta-analysis estimated that FFP2/3 respirators may have a stronger protective effect than medical face masks [26]. However, this conclusion was based on a limited number of observational studies and the authors assigned a low level of certainty to this conclusion. It is therefore unclear whether FFP2/3 respirators provide a better protection than medical face masks against other coronaviruses and other respiratory viruses such as influenza [27,28]. Therefore, a rational approach to the use of personal protective equipment (PPE) in the event of widespread community transmission and shortages of PPE necessitates that FFP2/3 respirators are prioritised for use during those care activities that have a higher perceived risk of transmission of SARS-CoV-2, such as aerosol-generating procedures (AGPs).

General infection prevention and control guidance

The following measures should be considered by all healthcare providers working in the community.

Training

- All staff working at general practitioner practices, dental offices/clinics and pharmacy settings should be informed and trained on:
 - hand hygiene practices
 - respiratory hygiene practices
 - the use of PPE
 - physical distancing guidelines
 - cleaning and disinfection practices
 - COVID-19 symptoms (cough, fever, sore throat, myalgia and weakness, difficulty to breath, diarrhoea, nausea and vomiting, loss of taste and/or smell)
 - risk of transmission of COVID-19 from asymptomatic and pre-symptomatic individuals
 - all internal procedures in place related to COVID-19, including procedures to be followed when a possible case is identified (pathways for confirmed/possible cases to avoid contact with non-possible cases and staff)
 - guidelines for self-isolation when having symptoms of COVID-19.
- Training for new staff and refresher training for current staff on the points above should also be considered.

Infection prevention and control measures

- In group practices and community health centres, consider appointing a person responsible for infection prevention and control (IPC) measures. Local procedures for the prevention and management of COVID-19 should be developed and made accessible to staff.
- A mechanism to update these procedures in accordance with the latest recommendations/evidence should be in place, as well as a communication procedure to keep all staff updated.
- Consider installing glass or plastic panels, e.g. at pharmacy counters, at reception desks, or in consultation rooms, as protection against respiratory droplets. If not available or possible, consider using face shields/visors as eye protection. Installation of glass/plastic panels or use of face shields/visors do not absolve patients/customers and healthcare providers/staff from respecting physical distance, and from the use of face masks where indicated (see below).

- Physical distance (at least 1.5 metres, ideally two metres) should be maintained between healthcare providers/staff and patients/customers, for example in pharmacies or at the reception of GP offices/clinics and dental offices/clinics. Markings on the ground or on surfaces can be considered to indicate the physical distance that must be respected.
- The use of face masks by patients/customers and by healthcare providers/staff should be strongly considered at all times, as a means of source control and for personal protection. In particular, face masks for personal protection should be used by individuals belonging to vulnerable groups, e.g. the elderly or those with underlying medical conditions [23].
- Hand hygiene should be practiced frequently and meticulously by staff, patients and customers. Easy access to hand-washing facilities, single-use paper towels and alcohol-based hand rub solutions should be available and visible in various areas. Signs/posters about hand hygiene and on how to perform it correctly should be displayed (e.g. at arrival, in the waiting room, in the toilets).
- Respiratory hygiene, including suitable cough etiquette, should be followed scrupulously. This entails coughing or sneezing into a tissue or into the elbow. If a tissue is used, it should be disposed of carefully after a single use and followed by hand hygiene.
- PPE should be available in sufficient quantity and sizes.
- Frequently touched surfaces should be regularly cleaned with a neutral detergent.
- Increasing the number of air exchanges per hour will decrease the risk of transmission of SARS-CoV-2 in closed spaces. This may be achieved by natural ventilation (e.g. opening doors and windows) or by mechanical ventilation, depending on the setting [29].

Staffing and workplace considerations

- Perform a needs assessment based on the IPC measures described above; if necessary, consider increasing the number of staff to cope with the current patient load. Shortages of staff can affect stress levels and compliance with IPC measures. Therefore, a plan to deal with work overload, anticipating possible sick leaves, should be in place.
- Staff presenting with symptoms that are compatible with COVID-19 should be allowed to stop working or not report to work, self-isolate at home, and should be advised to contact health authorities, e.g. for testing or if their symptoms worsen, in accordance with national procedures.
- The psychological health needs of the staff should be considered and addressed as necessary.
- Where possible, a mechanism to organise and assign teleworking should be considered, along with a mechanism to provide staff with the necessary equipment to carry out their normal workload remotely.
- Staff whose presence is not absolutely indispensable for running the clinic/practice and staff members in quarantine who are otherwise healthy and able to work, could be assigned to strengthen telemedicine services if these are offered.
- Staff with underlying health conditions (e.g. immunodeficiency, diabetes, etc.) should preferably be assigned to activities with little or no contact with the patients/customers (e.g. phone, email or online consultation), as feasible.
- The use of electronic devices (computerisation of procedures, telemedicine, etc.), touchless devices, a paperless office, and the introduction or revision of procedures to reduce physical contact with patients/customers – without compromising the quality of the offered services – should be considered. Data gathered and stored must be compliant with the [General Data Protection Regulation 2016/679](#) [30] of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data.
- A plan to keep track and control use of key supplies (e.g. PPE, cleaning and disinfection material, alcohol-based hand rub solution, etc.) should be in place to avoid misuse and/or overuse of limited resources.
- If possible, materials, objects, and devices should be stored in a manner that facilitates additional environmental cleaning, for example in a clean storage room. Staff should be informed and reminded accordingly.

General practitioner and other specialty primary care clinics and practices

The following advice provides an outline of principles for developing more individualised guidance or operating procedures to reduce the risk of transmission of COVID-19 in GP offices/clinics and other primary care providers in the community (e.g. internists, paediatricians, etc.). The organisation of general practices/clinics varies considerably across Europe, from solo practices, group practices with two to three general practitioners to large community health centres with multidisciplinary teams [31,32]. In addition, several countries have implemented a triaging system, which refers patients with symptoms compatible with COVID-19 to centralised COVID-19 treatment centres run by medical teams that also include GPs.

The role of GPs in controlling the spread of COVID-19 in the community is important because they have a pivotal role in testing for SARS-CoV-2 and tracing contacts; GPs may decide whether possible cases that they see get tested for SARS-CoV-2 and can initiate contact tracing through the local public health authorities [33]. In the community/primary care setting, testing should be expanded to include all, or the majority of, patients who show symptoms of acute respiratory infections compatible with COVID-19, including through the winter season of increased infectious respiratory disease.

In addition, continuity of care for diseases other than COVID-19 needs to be ensured to avoid collateral damage of measures to prevent COVID-19 transmission [34]. There are several reports from European countries and the US about a decrease in the number of patients treated for acute myocardial infarction by roughly 50% during the COVID-19 pandemic [35]. Similar decreases in the diagnosis of the most common types of cancer have been reported [36]. In addition, an increase of out-of-hospital cardiac arrests has been reported that may be related to suboptimal treatment of acute heart problems [37]. The reason for these observations is most likely that patients avoided or delayed seeking medical care because of fear for getting infected with COVID-19, or because they were discouraged to seek care for health issues that were not urgent because of concerns about spread COVID-19 within healthcare and the impact of COVID-19 on the availability of hospital beds.

Staffing considerations

- If possible and supported by the national legal framework, conducting an initial clinical assessment over the phone or internet (e.g. consultations, prescription refills, follow ups, etc.) can be considered. Self-swabbing and secure shipment of samples from possible cases should be supported.
- If possible and supported by the national legal framework, the assessment of possible COVID-19 patients requiring medical attention in primary care can be performed in dedicated, mainly centralised assessment centres, staffed with one GP per area. This helps to optimise IPC practices and preserve resources.
- If the assessment of patients in primary care follows a decentralised approach, staff in group practices and community health centres can be allocated to two different teams: one taking care of symptomatic COVID-19 patients, and the other taking care of all other patients.
- All GPs need to be familiar with protocols on COVID-19 IPC measures, diagnostic methods, treatment, follow-up, notification of cases, and contact tracing.

Before the patient arrives

- Patients should be informed about the signs and symptoms of COVID-19 before the visit and should ideally contact the GP office/clinic by phone in advance of the visit.
- Due to the importance of early detection of mild COVID-19 cases and contact tracing, patients with mild symptoms need to be tested, depending on national policies. Patients can be referred to centralised assessment centres for testing, or get tested directly at a GP office/clinic. If available, samples taken by self-swabbing are an alternative when combined with safe shipment to a designated microbiological testing facility.
- Patients seeking primary care services who are living in the same household as someone who displays symptoms of COVID-19, should follow the same procedures as symptomatic COVID-19 patients if they require a face-to-face consultation, irrespective of whether they have symptoms themselves or not.
- Dedicated home visiting services should be considered for vulnerable patients.
- If national policies do not require testing for patients who experience mild symptoms compatible with COVID-19, face-to-face consultations may not be required for such patients, in which case they should be advised about further measures:
 - Patients with mild symptoms compatible with COVID-19 should be advised to self-isolate at home, self-monitor for symptoms, and contact health authorities if their symptoms worsen, in accordance with national procedures.
 - Patients with severe symptoms compatible with COVID-19 should be informed on how to access appropriate hospital care.
- Patients should not be accompanied to the GP office/clinic unless necessary, for example if they have a reduced score for activities of daily living (ADLs). They should be informed about the fact that they should not be accompanied before their arrival or at the reception.
- A service for the prescription of medication without the presence of the patient should be in place, especially for prescription refills.
- A record of all staff members that have been in contact with possible or confirmed COVID-19 cases should be retained.

During the patient visit

- Separate paths for triaged and non-triaged patients can be considered, depending on the set-up, size and resources of the GP office/clinic. Procedures to separate possible COVID-19 cases from other patients should be in place if the clinic's set-up, size and resources allow for it. Such procedures should include dedicated staff, waiting rooms and examination rooms.
- If the patient has been tele-triaged and only comes in to get tested for COVID-19 and/or oximetry, performing all procedures directly outside the GP office/clinic should be considered. For example, testing could be performed with patients waiting in their cars or in a tent outside the building.
- During the influenza season, consider testing patients with acute respiratory infections for both SARS-CoV-2 and influenza (and, if possible, other respiratory viruses such as RSV) to inform clinical management and public health measures.
- When visiting a GP office/clinic, patients should always practice physical distancing (at least 1.5 metres) when other patients are waiting. An even better alternative is to only have one single patient in the waiting room at a time.
- In areas with community transmission of COVID-19, patients should wear face masks as soon as they enter the building and in particular in the waiting area. Inside the GP office/clinic, patients with symptoms compatible with COVID-19 should follow the COVID-19 paths for symptomatic patients, wearing a medical face mask to avoid transmitting COVID-19 to other persons (source control).
- Patients visiting the GP office/clinic should be asked to perform hand hygiene. Information on how to perform proper hand hygiene should be available. Handwashing facilities and/or alcohol-based hand rub solution should be readily available.
- Consider closing down areas in waiting rooms that have a playground or toys for children; remove the toys. Magazines, books or other non-essential objects that patients/companions may touch should also be removed.
- Healthcare professionals should wear PPE in the following situations:
 - when performing triage, examining or providing care to patients with symptoms compatible with COVID-19
 - when performing high-risk procedures (e.g. physical examination of the oropharynx or nasopharyngeal swabbing) in patients with or without symptoms compatible with COVID-19.
- The suggested set of PPE includes:
 - FFP2/3 respirator¹ (or medical face mask if there is a shortage of FFP2/3 respirators), and goggles or face shield.
 - In addition, consider the use of gloves and a long-sleeved gown, especially if there is a risk of exposure to body fluids.

If wearing gloves, these must be changed between patients, and meticulous hand hygiene must be performed before putting on and after removing PPE. If changing gloves between patients cannot be guaranteed, meticulous hand hygiene without using gloves is preferred over the prolonged use of gloves.

Patient follow-up and information

- If patients show mild symptoms compatible with COVID-19, they should be advised to self-isolate at home and self-monitor for severe symptoms. Patients should be advised on how to contact healthcare providers (e.g. GPs, hospital, dedicated COVID-19 tele-triage) if their symptoms worsen and in accordance with national procedures. As a possible option, patients that need close monitoring could be provided with devices for self-monitoring (e.g. oximeters), provided training on how to use these devices, and informed about follow-up procedures. Follow-ups can be done by phone, email, videoconference or, if available, through an electronic platform that allows patients to enter data into an electronic system that automatically alerts healthcare providers/staff.
- People with risk factors who could have severe outcomes from COVID-19 infection should be offered information on COVID-19 and what measures they should take to reduce their own risk of getting infected.
- Information on COVID-19 should be available for all types of patients/household members and in different formats (e.g. posters, infographics and leaflets). Attention should be paid to individuals with sensory impairment and different linguistic needs.
- It is important that confirmed or possible COVID-19 cases whose clinical situation allows them to stay at home are well informed of the symptoms that should make them seek medical attention, thus avoiding severe outcomes or inversely unnecessary visits to the healthcare centre. Patients/household members should be informed on how to self-monitor for symptoms.

¹ Due to the risk posed by asymptomatic and pre-symptomatic patients, the use of a facial filtering piece (FFP) respirator class 2 or 3 should also be considered when caring for patients without COVID-19-compatible symptoms during the COVID-19 pandemic.

After the patient leaves

- All rooms (e.g. waiting rooms and consultation rooms) visited by a possible or confirmed case of COVID-19 should be naturally or mechanically ventilated, depending on the setting [29]. When a mechanical ventilation system is in place, the air should be exchanged 6 to 10 times per hour, depending on the national standards [38–40]. Where mechanical ventilation is not available, the rooms need to be naturally ventilated at regular intervals, with the required ventilation time depending on the size of the room, the number of windows and doors that can be opened, the outside temperature and the airflow/wind [38,39]. The precise requirements for the type and duration of ventilation before the next patient, which is especially important if an AGP was performed, may be subject to an agreement with local health authorities.
- The floor and frequently touched surfaces of examination rooms that were visited by a possible or confirmed case of COVID-19 should be carefully cleaned with a neutral detergent, followed by decontamination of surfaces with a disinfectant effective against viruses. Several products with viricidal activity are licensed in the national markets and can be used following the manufacturer's instructions. Alternatively, 0.05%–0.1% sodium hypochlorite (NaClO), i.e. dilution 1:50 if household bleach is used (household bleach usually has an initial concentration of 2.5–5% sodium hypochlorite) can be used. For surfaces that can be damaged by sodium hypochlorite, products based on ethanol (at least 70% volume/volume) can be used for decontamination after cleaning with a neutral detergent.
- Cleaning of toilets, bathroom sinks and sanitary facilities needs to be carefully performed, avoiding splashes. Disinfection should take place after normal cleaning by applying a disinfectant effective against viruses, or 0.1% sodium hypochlorite.
- The use of single-use disposable cleaning equipment (e.g. disposable towels) is recommended. If disposable cleaning equipment is not available, the cleaning materials (cloth, sponge, etc.) should be placed in a disinfectant solution effective against viruses, or 0.1% sodium hypochlorite. If neither solution is available, the material should be discarded.
- If there is a shortage of cleaning equipment, the cleaning process should proceed from the cleanest to the least clean areas (example of the latter: an area where an aerosol generating procedure has been performed).
- Staff engaged in environmental cleaning in healthcare settings should wear PPE. The minimal PPE set listed below is suggested when cleaning healthcare facilities that are likely to be contaminated by SARS-CoV-2:
 - medical face mask
 - disposable long-sleeved water-resistant gown
 - eye protection (goggles or face shield)
 - gloves.
- Hand hygiene should be performed every time PPE (gloves, face masks, etc.) is removed.
- Staff engaged in waste management should wear PPE. They should be informed and trained in the correct use of PPE, in all relevant procedures, and in the involved risks. Infectious clinical waste should be treated in accordance with healthcare facility policies and local regulations.

Dental offices and clinics

The following advice intends to provide an outline of principles for developing more individualised guidance or operating procedures to reduce the risk of transmission of COVID-19 in dental offices/clinics.

Before the patient arrives

- The possibility to postpone routine dental care should be considered in areas with high community transmission of COVID-19, due to the possibility of transmission by asymptomatic and pre-symptomatic patients. When possible, patients should avoid visiting a dental office/clinic if they are experiencing symptoms compatible with COVID-19.
- If a visit is necessary, patients should be encouraged to contact the dental office/clinic beforehand to define the best treatment plan, and should access the dental office/clinic only by appointment; visits should be scheduled with adequate time between appointments in order to minimise contact with other patients in the waiting room.
- A dedicated path for patients showing symptoms compatible with COVID-19 in need of emergency or urgent dental care should be in place, including appropriate protocols and procedures. If possible, patients with confirmed COVID-19 in need for emergency or urgent dental care should be referred to a designated dental care facility. These facilities usually have a dedicated COVID-19 path and dedicated well-ventilated room.
- Patients should be informed about signs and symptoms of COVID-19 before the visit. They should also receive information about the measures to reduce the risk of infection. Special communication strategies should be considered for patients with risk factors for severe outcome of COVID-19 infection.

- All patients should be triaged remotely before visiting a dental office/clinic. A procedure should be in place if a patient visits a dental office/clinic without previous appointment or triage (triage of symptoms, urgency of the consultation, patient placement, etc.).
- Patients should not be accompanied to the dental office/clinic unless necessary, for example if they have a reduced score for activities of daily living (ADLs). They should be informed about the fact that they should not be accompanied before their arrival or at the reception.

During dental care

- When visiting a dental office/clinic, patients should always practice physical distancing (at least 1.5 metres) when other patients are waiting. An even better alternative is to only have one single patient in the waiting room at a time.
- In areas with high community transmission, patients should wear face masks as soon as they enter the building and in all the common areas of dental practices.
- The suggested set of PPE for staff when caring for all patients includes:
 - an FFP2/3 respirator² (or a medical face mask if there is a shortage of respirators)
 - goggles or a face shield
 - gloves
 - and a long-sleeve, water-resistant gown.
- FFP2/3 respirators should be prioritised for:
 - aerosol-generating procedures (AGPs)³
 - when caring for patients showing COVID-19-compatible symptoms for whom treatment cannot be deferred
 - when caring for patients living in the same household with a possible or confirmed COVID-19 case.
- The choice between a FFP2/3 respirator rather than a medical face mask should be aided by an on-site risk assessment that takes into account the local prevalence of COVID-19 and the likelihood that the consultation will include an AGP.
- AGPs (e.g. high-speed dental drilling) should be avoided as much as possible (e.g. by using alternative non-aerosol-producing techniques if available). When the procedure cannot be deferred, the risk can be minimised by applying, for example, rubber dam isolation, the use of high-vacuum aspirators/suction, and scheduling AGPs in a way that allows for adequate time and proper cleaning protocols.
- If COVID-19-compatible symptoms are identified in a patient during dental care, the patient must be managed following the national or sub-national COVID-19 guidelines.

After the patient leaves

- PPE should be carefully removed by the staff following the correct sequence and procedure.
- Strict hand hygiene should be performed immediately after the removal of PPE.
- Non-disposable equipment should be disinfected in accordance with the manufacturer's instructions.
- If an AGP was performed, the room needs to be naturally or mechanically ventilated before admitting a new patient; the method and degree of required ventilation depends on the type of dental procedure, available anti-aerosol devices, the size of the room, and the presence of windows. When a mechanical ventilation system is in place, the air should be exchanged 6 to 10 times per hour, depending on the national standards. Where mechanical ventilation is not available, the rooms need to be naturally ventilated at regular intervals, with the required ventilation time depending on the size of the room, the number of windows and doors that can be opened, the outside temperature and the airflow/wind [38-41] (ref). The precise requirements for the type and duration of ventilation before the next patient, which is especially important if an AGP was performed, should follow national recommendations or may be subject to an agreement with local health authorities.
- Similarly, frequently touched surfaces or objects in the room should be carefully cleaned and disinfected before admitting a new patient.

² Due to the risk posed by asymptomatic and pre-symptomatic patients, the use of a facial filtering piece (FFP) respirator class 2 or 3 should also be considered when caring for patients without COVID-19-compatible symptoms during the COVID-19 pandemic.

³ Dental procedures using high speed devices such as ultrasonic scalers and high speed drills (https://hpspubsrepo.blob.core.windows.net/hps-website/nss/2893/documents/1_tbp-lr-agp.pdf)

- The floor and frequently touched surfaces of examination rooms that were visited by a possible or confirmed case of COVID-19 should be carefully cleaned with a neutral detergent, followed by decontamination of surfaces with a disinfectant effective against viruses. Several products with viricidal activity are licensed in the national markets and can be used following the manufacturer's instructions. Alternatively, 0.05%–0.1% sodium hypochlorite (NaClO), i.e. dilution 1:50 if household bleach is used (household bleach usually has an initial concentration of 2.5–5% sodium hypochlorite) can be used. For surfaces that can be damaged by sodium hypochlorite, products based on ethanol (at least 70% volume/volume) can be used for decontamination after cleaning with a neutral detergent.
- Cleaning of toilets, bathroom sinks and sanitary facilities needs to be carefully performed, avoiding splashes. Disinfection should take place after normal cleaning by applying a disinfectant effective against viruses, or 0.1% sodium hypochlorite.
- The use of single-use disposable cleaning equipment (e.g. disposable towels) is recommended. If disposable cleaning equipment is not available, the cleaning materials (cloth, sponge, etc.) should be placed in a disinfectant solution effective against viruses, or 0.1% sodium hypochlorite. If neither solution is available, the material should be discarded.
- The use of dedicated equipment for cleaning different areas of a dental office/clinic is recommended.
- If there is a shortage of cleaning equipment, the cleaning process should proceed from the cleanest to the less clean areas (example of the latter: an area where an AGP has been performed).
- Staff engaged in environmental cleaning in healthcare settings should wear PPE. The minimal PPE set listed below is suggested when cleaning healthcare facilities that are likely to be contaminated by SARS-CoV-2:
 - medical face mask
 - disposable long-sleeved water-resistant gown
 - eye protection (goggles or face shield)
 - gloves.
- Hand hygiene should be performed every time PPE (gloves, face masks, etc.) is removed.
- Staff engaged in waste management should wear PPE. They should be informed and trained in the correct use of PPE, in all relevant procedures, and in the involved risks. Waste should be handled in accordance with healthcare facility policies and national or local regulations [42].

Pharmacies

The following advice provides an outline of principles for developing more individualised guidance or operating procedures to reduce the risk of transmission of COVID-19 in pharmacies.

In the pharmacy

- Consider installing glass or plastic panels at the counters to protect the staff from respiratory droplets from customers. Installation of glass/plastic panels does not remove the need for staff and customers to respect physical distance.
- Signs at the entrance of the pharmacy should be considered, informing customers about the symptoms of COVID-19 and instructing them what to do if they experience symptoms (e.g. 'do not enter the pharmacy', 'call by phone instead and wait outside or in your vehicle', etc.).
- Pharmacy staff should consider wearing a medical face mask.

For the customers

- Customers should avoid visiting the pharmacy if they are experiencing symptoms compatible with COVID-19.
- Physical distance (at least 1.5 metres) between the customer and other people in the pharmacy (both staff and customers) should be guaranteed. To this end, the total number of customers in the pharmacy at any time may have to be restricted. When the maximum number of customers in the pharmacy is reached, further customers should queue outside of the pharmacy and respect physical distance (at least 1.5 metres) until the number of customers in the pharmacy is low enough for them to enter. Floor/ground markings indicating safe distancing can be considered, both in and out of the pharmacy.
- In areas of community transmission of COVID-19, consider requesting that all visiting customers wear a face mask inside the pharmacy and in queues (as a means of source control to prevent spread and for self-protection).
- Customers should be advised about further measures:
 - If they show mild symptoms compatible with COVID-19, they should be advised to self-isolate at home and self-monitor for symptoms. Customers should be advised to contact healthcare e.g. for testing or if their symptoms worsen, in accordance with national procedures.
 - If they show severe symptoms compatible with COVID-19, they should be advised to contact healthcare services promptly; alternatively, the pharmacist could contact healthcare services on their behalf. This should be done in accordance with national procedures.

Home delivery of medicines

- A simplified process for ordering medicines that require prescription (e.g. direct communication with the prescriber, digital transfer of prescriptions, etc.) should be considered where allowed.
- Home delivery of medicines should be considered to reduce the number of patients visiting the pharmacy.
- Before delivering medicines, pharmacists should always check with customers whether they, or any of their household members, are experiencing symptoms compatible with COVID-19 (such as fever and cough) or whether they are self-isolating or in quarantine.
- Physical distance should be maintained when medicines are delivered to a person's home.

Contributing ECDC experts (in alphabetical order)

Agoritsa Baka, Orlando Cenciarelli, Bruno Ciancio, Margot Einöder-Moreno, Pete Kinross, Diamantis Plachouras, Carl Suetens, Klaus Weist.

References

1. European Centre for Disease Prevention and Control (ECDC). COVID-19 pandemic. [cited: 12 October 2020]. Available from: <https://www.ecdc.europa.eu/en/covid-19-pandemic>
2. European Centre for Disease Prevention and Control (ECDC). Rapid risk assessment: Increased transmission of COVID-19 in the EU/EEA and the UK – twelfth update. [updated 24 September 2020]. Available from: <https://www.ecdc.europa.eu/en/publications-data/covid-19-risk-assessment-increased-transmission-twelfth-update>
3. European Centre for Disease Prevention and Control (ECDC). COVID-19 Dashboard. [cited: 12 October 2020]. Available from: <https://qap.ecdc.europa.eu/public/extensions/covid-19/covid-19.html>
4. Ben-Shmuel A, Brosh-Nissimov T, Glinert I, Bar-David E, Sittner A, Poni R, et al. Detection and infectivity potential of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) environmental contamination in isolation units and quarantine facilities. *Clinical Microbiology and Infection*. Published online: 10 September 2020; Available from: <https://doi.org/10.1016/j.cmi.2020.09.004>
5. Colaneri M, Seminari E, Novati S, Asperges E, Biscarini S, Piralla A, et al. Severe acute respiratory syndrome coronavirus 2 RNA contamination of inanimate surfaces and virus viability in a health care emergency unit. *Clinical Microbiology and Infection*. 2020 Aug;26(8):1094.e1-.e5. Available from: <https://www.sciencedirect.com/science/article/pii/S1198743X2030286X?via%3Dihub>
6. World Health Organization (WHO). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) [cited: 1 March 2020]. Available from: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>
7. Ong SWX, Tan YK, Chia PY, Lee TH, Ng OT, Wong MSY, et al. Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient. *JAMA*. 2020 Apr 28;323(16):1610-2. Available from: <https://jamanetwork.com/journals/jama/fullarticle/2762692>
8. Quilty BJ, Diamond C, Liu Y, Gibbs H, Russell TW, Jarvis CI, et al. The effect of inter-city travel restrictions on geographical spread of COVID-19: Evidence from Wuhan, China. *medRxiv* [Preprint]. 16 April 2020; Available from: <https://doi.org/10.1101/2020.04.16.20067504>
9. Rothe C, Schunk M, Sothmann P, Bretzel G, Froeschl G, Wallrauch C, et al. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. *New England Journal of Medicine*. 2020;382:970-1. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMc2001468>
10. Buitrago-Garcia D, Egli-Gany D, Counotte MJ, Hossmann S, Imeri H, Ipekci AM, et al. Occurrence and transmission potential of asymptomatic and presymptomatic SARS-CoV-2 infections: A living systematic review and meta-analysis. *PLoS Medicine*. 2020;17(9):e1003346. Available from: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003346>
11. Ministry of Health Labour and Welfare Japan. Coronavirus disease 2019 (COVID-19) situation within and outside the country [cited: 16 May 2020]. Available from: https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/newpage_00032.html
12. Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020. *Euro Surveillance*. 2020;25(10):2000180. Available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.10.2000180>
13. Ki M. Epidemiologic characteristics of early cases with 2019 novel coronavirus (2019-nCoV) disease in Korea. *Epidemiology and Health*. 2020;42:e2020007. Available from: <https://www.e-epih.org/journal/view.php?doi=10.4178/epih.e2020007>
14. European Centre for Disease Prevention and Control (ECDC). Guidance for discharge and ending isolation in the context of widespread community transmission of COVID-19 – first update. [cited: 16 May 2020]. Available from: <https://www.ecdc.europa.eu/en/publications-data/covid-19-guidancedischarge-and-ending-isolation>
15. Lee S, Kim T, Lee E, Lee C, Kim H, Rhee H, et al. Clinical course and molecular viral shedding among asymptomatic and symptomatic patients with SARS-CoV-2 infection in a community treatment center in the Republic of Korea. *JAMA Internal Medicine* [Internet]. 6 August 2020. Available from: <https://doi.org/10.1001/jamainternmed.2020.3862>
16. Singanayagam A, Patel M, Charlett A, Bernal JL, Saliba V, Ellis J, et al. Duration of infectiousness and correlation with RT-PCR cycle threshold values in cases of COVID-19, England, January to May 2020. *Euro Surveillance*. 2020;25(32):2001483. Available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.32.2001483>

17. Wei WE, Li Z, Chiew CJ, Yong SE, Toh MP, Lee VJ. Presymptomatic Transmission of SARS-CoV-2—Singapore, January 23–March 16, 2020. *Morbidity and Mortality Weekly Report*. 2020;69(14):411. Available from: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6914e1.htm>
18. To KK-W, Tsang OT-Y, Leung W-S, Tam AR, Wu T-C, Lung DC, et al. Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study. *The Lancet Infectious Diseases*. 2020;20(5):565-74. Available from: [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30196-1/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30196-1/fulltext)
19. Cereda D, Tirani M, Rovida F, Demicheli V, Ajelli M, Poletti P, et al. The early phase of the COVID-19 outbreak in Lombardy, Italy. *ARXIV [Preprint]*. 20 March 2020; Available from: <https://arxiv.org/abs/2003.09320v1>
20. Han Y, Yang H. The transmission and diagnosis of 2019 novel coronavirus infection disease (COVID-19): A Chinese perspective. *Journal of Medical Virology*. 2020;92(6):639-44. Available from: <https://onlinelibrary.wiley.com/doi/10.1002/jmv.25749>
21. Zou L, Ruan F, Huang M, Liang L, Huang H, Hong Z, et al. SARS-CoV-2 viral load in upper respiratory specimens of infected patients. *New England Journal of Medicine*. 2020;382(12):1177-9. Available from: <https://www.nejm.org/doi/full/10.1056/nejmc2001737>
22. Pan Y, Zhang D, Yang P, Poon LL, Wang Q. Viral load of SARS-CoV-2 in clinical samples. *The Lancet Infectious Diseases*. 2020;20(4):411-2. Available from: [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30113-4/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30113-4/fulltext)
23. He X, Lau EH, Wu P, Deng X, Wang J, Hao X, et al. Temporal dynamics in viral shedding and transmissibility of COVID-19. *Nature Medicine*. 2020;26(5):672-5. Available from: <https://www.nature.com/articles/s41591-020-0869-5>
24. Kucirka LM, Lauer SA, Laeyendecker O, Boon D, Lessler J. Variation in false-negative rate of reverse transcriptase polymerase chain reaction–based SARS-CoV-2 tests by time since exposure. *Annals of Internal Medicine*. 2020;173(4):262-7. Available from: <https://www.acpjournals.org/doi/10.7326/M20-1495>
25. Chun JY, Baek G, Kim Y. Transmission onset distribution of COVID-19. *International Journal of Infectious Diseases*. 2020 Aug 6;99:403-7. Available from: <https://www.sciencedirect.com/science/article/pii/S1201971220306123>
26. Chu DK, Akl EA, Duda S, Solo K, Yaacoub S, Schünemann HJ, et al. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. *The Lancet*. 2020;395(10242):1973-87. Available from: [https://www.thelancet.com/article/S0140-6736\(20\)31142-9/fulltext](https://www.thelancet.com/article/S0140-6736(20)31142-9/fulltext)
27. Smith JD, MacDougall CC, Johnstone, Copes RA, Schwartz B, Garber GE. Effectiveness of N95 respirators versus surgical masks in protecting health care workers from acute respiratory infection: a systematic review and meta-analysis. *Canadian Medical Association Journal*. 2016;188(8):567-74. Available from: <https://www.cmaj.ca/content/188/8/567.long>
28. Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. *PLoS One*. 2012;7(4):e35797. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/22563403>
29. European Centre for Disease prevention and Control (ECDC). Heating, ventilation and air-conditioning systems in the context of COVID-19. [updated 22 June 2020]. Available from: <https://www.ecdc.europa.eu/en/publications-data/heating-ventilation-air-conditioning-systems-covid-19>
30. EUR-Lex - Access to European Union law. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [cited: 29 May 2020]. Available from: <https://eur-lex.europa.eu/eli/reg/2016/679/oj>
31. Wienke G.W. Boerma. Profiles of General Practice in Europe. An international study of variation in the tasks of general practitioners. [cited: 29 May 2020]. Available from: <https://www.nivel.nl/sites/default/files/bestanden/profiles-of-general-practice-in-europe.pdf>
32. McCarthy M. Sustainable general practice: looking across Europe. *The British Journal of General Practice*. 2016;66(642):36. Available from: <https://bjgp.org/content/66/642/36>
33. European Commission (EC). Joint European Roadmap towards lifting COVID-19 containment measures. [cited: 29 May 2020]. Available from: https://ec.europa.eu/info/sites/info/files/communication_-_a_european_roadmap_to_lifting_coronavirus_containment_measures_0.pdf
34. World Health Organization (WHO). COVID-19 significantly impacts health services for noncommunicable diseases. [updated 1 June 2020]. Available from: <https://www.who.int/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases>

35. Gluckman TJ, Wilson MA, Chiu S-T, Penny BW, Chepuri VB, Waggoner JW, et al. Case Rates, Treatment Approaches, and Outcomes in Acute Myocardial Infarction During the Coronavirus Disease 2019 Pandemic. JAMA Cardiology [Internet]. 7 August 2020. Available from: <https://doi.org/10.1001/jamacardio.2020.3629>
36. Disis ML. Oncology and COVID-19. JAMA. 2020;324(12):1141-2. Available from: <https://jamanetwork.com/journals/jama/fullarticle/2770865>
37. Bonow RO, O’Gara PT, Yancy CW. Cardiology and COVID-19. JAMA. 2020;324(12):1131-2. Available from: <https://jamanetwork.com/journals/jama/fullarticle/2770858>
38. American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE). Health Care Facilities. [cited: 15 October 2020]. Available from: https://www.ashrae.org/file%20library/technical%20resources/covid-19/si_a19_ch09healthcarefacilities.pdf
39. Atkinson J, Chartier Y, Pessoa-Silva CL, Jensen P, Li Y, Seto W-H. Natural Ventilation for Infection Control in Health-Care Settings. [16 October 2020]. Available from: https://apps.who.int/iris/bitstream/handle/10665/44167/9789241547857_eng.pdf?sequence=1
40. National Services Scotland (NSS). COVID-19: Frequently Asked Questions (FAQs) for Dentistry. [cited: 15 October 2020]. Available from: <https://www.scottishdental.org/wp-content/uploads/2020/08/Ventillation-Final-Copy-1.pdf>
41. The Federation of European Heating Ventilation and Air Conditioning associations (REHVA). REHVA COVID-19 guidance document. [updated 3 April 2020]. Available from: https://www.rehva.eu/fileadmin/user_upload/REHVA_COVID-19_guidance_document_ver2_20200403_1.pdf
42. European Centre for Disease Prevention and Control (ECDC). Infection prevention and control in dentistry. [cited: 15 October 2020]. Available from: <https://www.ecdc.europa.eu/en/publications-data/directory-guidance-prevention-and-control/core-requirements-healthcare-settings-1>