Checklist for hospitals preparing for reception and care for coronavirus 2019 (COVID-19) patients

February 2020

Scope of this document

This document supports the public health preparedness planning for hospitals in relation to novel coronavirus disease 2019 (COVID-19).

The checklist is based on the current knowledge of the COVID-19 outbreak and the evidence available.

ECDC will update this checklist, should new relevant information become available.

Target audience

Public health authorities and hospital administrators in EU/EEA countries and in the United Kingdom.

Background

What is COVID-19?

SARS-Cov-2, the causative agent of COVID-19, is a coronavirus. It is transmitted through large respiratory droplets and direct contact; other modes of transmission (i.e. airborne and faeco-oral) have also been proposed.

The average incubation period is estimated at 5-6 days, ranging from 0 to 14 days [1]. There is currently no specific treatment or vaccine against COVID-19.

More information can be found in the ECDC [2] and WHO [3] *ad hoc* webpages, and in the most recent ECDC Rapid Risk Assessment [4].

Checklist for hospital preparedness

This checklist has been developed to support hospital preparedness for the management of COVID-19 patients. The elements described in the list may not be applicable to all hospitals and may need to be adapted to the specific characteristics of the hospital, the individual national health system, legislation and community where the hospital is located.

Elements to be assessed have been divided into the following areas:

- Establishment of a core team and key internal and external contact points
- Human, material and facility capacity
- Communication and data protection
- Hand hygiene, personal protective equipment (PPE), and waste management
- Triage, first contact and prioritization

- Patient placement, moving of the patients in the facility, and visitor access
- Environmental cleaning

For each area, the elements or processes have been identified and the items to be checked have been listed.

A procedure for the self-auditing of compliance with this checklist can be considered.

Further information can be found in the ECDC Health emergency preparedness for imported cases of high consequence infectious diseases [5], in the WHO Hospital emergency response checklist [6], and in the CDC Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Assessment Tool [7].

Establishment of a core team and key internal and external contact points

Element/Process	Items to check
Core team	• A core team for the management of the event is established (including a member of the hospital management, the hospital infection control team, an infectious disease expert, and experts representing the intensive care unit (ICU) and emergency room (ER)) • A backup for each of the roles is established • A list with the contact details of the core team and backups is compiled, up to date and easily accessible • A clear document describing the roles and responsibilities is prepared and centrally accessible • All the team members are informed of and trained in their role and responsibilities, a contact list and documentation are centrally accessible • A place where the core team can regularly meet is identified • All facilities required for meetings are available to the core team (e.g. rooms, computers, projectors, boards, phones for teleconference, other office supplies) • A procedure to keep track and control of all documentation (e.g. procedures, meeting notes, training materials, etc.) is in place • A mechanism to keep documentation updated and staff informed on where to find the information is in place
Key internal contact points	• Key internal contact points for the different roles (e.g. administration, communication, nurse administration, security, human resources, pharmacy, biosafety officer, infection control, ICU, emergency services, infectious diseases, pneumology, engineering and maintenance, laboratory, laundry, cleaning and waste management, and hospital morgue) are identified • A backup for each of the roles is established • A list with the contact details of the internal contact points and backups is compiled, up-to-date and easily and centrally accessible • All the internal contact points are informed of and trained in their role and responsibilities, and documentation is centrally accessible • Contact information from all hospital staff is updated
Key external contact points	• Key external contact points and their backups including necessary local/regional/national contacts (e.g. for case notification, management of cases, suppliers, other hospitals, local authorities, etc.) are identified and gathered in an easily accessible contact list, and staff involved has been made aware of it • There is a document that briefly describes when those contact points need to be contacted

Human, material and facility capacity

Element/Process	Items to check
Procurement and stock management	• A procurement procedure to acquire the necessary material and supplies is in place and can be used on a short notice • Alternative suppliers have been identified for instances when main suppliers run out of stocks (especially for personal protective equipment (PPE)) • Buffer stock of key material (e.g. for hand and respiratory hygiene, PPE, isolation, ICU supplies, respirators) has been acquired

	• An inventory of the stocks has taken place and there is a procedure to monitor and regularly update this inventory • A plan is in place to keep track and custody of the key stocks (e.g. PPE, ventilators, cleaning and disinfection material, alcoholic solution, etc.) to avoid misuse, overuse or theft
Human capacity	• The surge capacity of health care workers for triage, ER, ICU, laboratory, and the units where the patients will be placed has been assessed • The surge capacity of non-HCW (e.g. administration, cleaning personnel, etc.) has been assessed • Absenteeism of staff, in particular due to sick leave or having to care for sick people, has been considered and included in the assessment of human capacity • A mechanism to monitor staff absenteeism is in place • Sick-leave policy for symptomatic staff is in place • Thresholds that would trigger re-allocation of staff or recruitment of new staff have been established • The staff that is planned to be re-allocated has been informed and trained according to the role and responsibility foreseen • A mechanism for the recruitment, training and quick provision of all necessary administration and equipment for new staff on a short notice is in place and the budget is available and allocated • The possibility to recruit recently retired staff, military doctors, university students or volunteers has been assessed and contacts have been identified • The legal requirements to recruit any type of unusual additional staff (e.g. retired staff, students, etc.) are in place and necessary training planned • A plan is in place to avoid burnout among HCW and non-HCW, establishing a maximum number of working hours and ensuring equal distribution of workload among workers, minimum time of rest between shifts, breaks during the shift and a contact point to notify difficulties • Psychological support for HCW has been considered • There is a security team in place that could cover the needs • A security plan is in place to ensure safety and manage incidents, including escorting of personnel or patients if necessary, and staff has been informed • Possible security risks have been identified and thresholds that would trigger the need to have more resources or receive support from local authorities have been established
Facility and material	• The maximum facility capacity including the maximal ICU bed and mechanical ventilator capacity (with necessary human and supply capacity) have been calculated • There is a system to monitor bed occupancy including the number of patients in isolation, the number of rooms used for isolation and the number of rooms that can be potentially used for isolation • The number of patients in isolation that will trigger the progressive conversion of normal rooms into isolation rooms and the capacity for cohorting patients of the same disease have been calculated • The number and location of potential beds to be re-assigned as isolation rooms and a plan to re-allocate the non-isolated patients to other rooms has been established • The staff are aware of the triggers and procedures to convert normal rooms into isolation rooms • The triggers for referring patients to other centres or home care are established and the staff and other centres are aware • The current stocks and the expected additional needs for different scenarios, in particular hand and respiratory hygiene, PPE, isolation, ventilators, pharmacy, and other key supplies, have been calculated • New spaces have been identified to store the additional stock under appropriate conditions e.g. temperature, humidity, cold-chain, etc. • Alternative spaces to be transformed into waiting rooms have been identified and the threshold number of patients that would trigger the use of new spaces has been estimated • If possible, access to separate toilets and drinking water is available for patients in the waiting and emergency room

	• Adequate material for isolation units and ICU is available and disinfection procedures are in place for non-single-use material • An adequate amount of PPE of different sizes is available for HCW and cleaning personnel • A proper amount of cleaning and disinfection products shown to be effective against coronaviruses is available • An adequate number of bins for infectious material are available • Procedures/contracts for the treatment of an increased amount of infectious waste are in place • A procedure for the management of an increasing number of deceased patients is in place • The capacity to handle a potential increasing number of deceased patients is calculated, and an extra stock of body bags is available • An additional place has been established that can be used as a morgue, if required, and where the custody of the bodies will be ensured • All the internal protocols, communication lines and standard operating procedures are easily and centrally accessible for all workers and all staff are aware where to find them • There is a mechanism in place to ensure the well-functioning and replacement of the equipment
Laboratory capacity	• If the hospital has no laboratory capacity, a plan for sampling and safe shipment of samples is established • For hospitals with in-house laboratory capacity, an appropriate amount of reagents and material for testing and additional stockpile is available • A plan is in place to outsource services if the capacity is exceeded

Communication and data protection

Element/Process	To check
Internal communication	• An internal communication plan is established with clear communication lines to allow rapid communication to all staff and patients/visitors • Procedures are in place to communicate transparently to hospital staff, both HCW and non-HCW, information on the outbreak and situation in the hospital, procedures, rules for using PPE, preventive and protection measures, changes in the procedures and any other information related to the event • A mechanism is in place to ensure that communication to the staff and patients/visitors is checked for consistency before released • Draft key messages for different groups: HCW, other staff, patients, visitors etc. and a mechanism to update them are available • Procedure to receive feedback or questions from workers and notify incidents is established and working • Key communication people that will be responsible for disseminating information, providing training and receiving feedback and questions have been appointed and workers have been informed of their names, contact details and role
External communication	• An external communication plan has been established, including a mechanism to ensure that communications to media and the public are checked for consistency and approved before released • All the staff have been informed of the external communication plan • A core communication team and backups to coordinate and align external communications have been appointed • The spokesperson/s and their backups have been appointed • Draft key messages for different groups: journalists, general public, healthcare specialists, etc. are available
Data protection	• There are mechanism in place to ensure data protection in accordance with the legislation • All staff have been reminded of data protection rules • Mechanisms for tele-triage (e.g. phone/email/phone applications/telemedicine) have been designed to ensure data protection

Training a procedures

Element/Process	To check

Training	• A plan for the general and specific training of personnel is in place, including a plan for regular training updates to refresh concepts and training for new personnel before arrival or as soon as they arrive
	• All documents and procedures are easily and centrally accessible, staff has been informed where to find them
	• Training/information materials have been developed, in particular for:
	  • Hand and respiratory hygiene
	  • Who should use PPE why, when and how
	  • Internal and external communication lines and rules (both to receive and provide information)
	  • Data protection of patients
	  • Triage procedures
	  • Case definition
	  • Notification of cases
	  • Placement and movement of patients in isolation and visitors' access
	  • Sick-leave policy and what to do if staff have symptoms
	  • Security plan
	  • Where to find the documents and training materials
	• All staff, HCW and non-HCW, have been informed and trained on the before mentioned subjects, as required
	• HCW have been trained to minimise the specific risks related to the management of suspected or confirmed COVID-19 patients
	• Non-HCW have been trained to minimise the specific risks related to their job, in particular the cleaning of areas occupied by a suspected or confirmed COVID-19 patient
	• All staff that will need to use PPE have been specifically trained on its use and made aware of where they can find the documents outlining the procedures

Hand hygiene, PPE, and waste management

Element/Process	To check
Hand hygiene	• Supplies of alcohol-based hand sanitizers are available for staff and patients, with special emphasis on waiting rooms, triage, examination rooms and areas where PPE are removed. • Supplies of soap and paper handtowels are available next to all sinks (toilets and all other sinks for washing hands) • A procedure to check and refill the supplies is established and working • Instructions for the correct hand hygiene procedures have been developed and are ready to be distributed to patients, visitors, HCW and cleaning personnel
PPE	• The PPE need has been estimated (further information can be found here). • An adequate amount of PPE for protection against contact, droplet, and airborne transmission is available in different sizes where it is required • A list of available sizes and expiry dates of the stockpiled PPE has been compiled and is up to date • HCW and cleaning personnel have been trained in putting on (donning) and taking off (doffing) PPE
Waste management	• The number of bins for infectious waste is sufficient to cover larger volumes, if needed • There are specific no-touch bins to dispose of tissues used by patients in waiting and triage areas • The facility is able to manage an increased amount of infectious waste by itself or outsources it trough contracts

Triage, first contact and prioritization

Element/Process	To check
General	• Procedures to separate suspected cases* from the other patients and isolation procedures are established e.g. placement in different waiting rooms, use of different toilet, including necessary movements to reach water/food supplies • Procedures for patient prioritisation (e.g. triage, discharge criteria, triggers to postpone elective hospitalisations or interventions) are in place and have been communicated to all staff involved • Procedures for cleaning of common areas that cannot be restricted to be used only by suspectedcases
Tele-triage	• A tele-triage system to triage patients before arriving at the hospital is in place: phone/email/telemedicine service is in place for possible cases to notify their symptoms, and coordinate their arrival at the hospital, if required • The tele-triage has been advertised through different ways to the population served by the hospital
First contact at the hospital	• Signs and information at entrance and in waiting rooms with Q&A about COVID-19, hand hygiene and respiratory hygiene are in place • Material for hand hygiene (e.g. alcohol-based hand sanitizers, access to water, soap and disposable tissues to dry hands) and respiratory hygiene (e.g. disposable tissues) is available for both staff and patients • Quick check at entry point in the emergency room, triaging of suspected cases and severity assessment procedures are in place • The possibility that the patients wait in their vehicle instead of the waiting room, their condition permitting, and a system to call them in has been considered • All emergency room staff are aware of the alternative spaces to be converted into waiting rooms when a threshold of patients is reached • A protocol is established to inform the patients with suspected COVID-19 on the procedures e.g. that they will be separated from other patients and why, how to perform hand and respiratory hygiene, when and how to use the PPE, procedures for using other areas e.g. toilets, water and food supplies • The capacity for patient transportation has been assessed
*The definition of suspected case can change during the event	

Patient placement, moving of the patients in the facility, and visitor access

Element/Process	To check

Patient placement	• The capacity of isolation beds and ICU beds in the hospital has been assessed
	• If the hospital has rooms with negative pressure, the maximal number of patients that can be hosted in each room according to the manufacturer has been estimated
	• Maximal capacity of isolation of patients has been estimated:
	  - Maximum number of rooms that can be converted into isolation rooms, if there is increased need, has been calculated
	  - Maximum number of patients that can be cohorted in isolation rooms and number of potential isolation rooms has been calculated
	  - A plan is in place that indicates the criteria that would trigger the transformation of normal rooms into isolation rooms and the order in which this process would be carried out, including a plan to re-allocate patients, facilitate their rapid discharge as soon as their clinical status allows for it or treat other patients at home
	• The staff know the plan and have been trained accordingly, e.g. use of PPE, protocols, new tasks that they may be assigned to, etc.
	• The Airborne Infection Isolation (AII) rooms have been tested and certified for their effectiveness (within the timeframe indicated by local regulation)
	• PPE for aerosol-generating procedures are available for use in the AII in sufficient numbers and sizes

	• The personnel accessing the AII rooms has been trained and is limited in number. Tracking of the personnel should be kept for further monitoring. • Dedicated personnel should be considered to access AII to reduce the possibility of transmission among other patients
Moving patients in the facility	• The movement of a patient within the healthcare facility is limited to performing essential procedures • A surgical mask is provided to the patient when moving them inside the healthcare facility • The best routes for moving patients within the healthcare facility have been evaluated and established and the staff have been informed • All the HCW preparing, transporting, receiving patients are aware of the conditions of these patients and have been trained in the procedures, where to find PPE and how to use it
Visitor access	• All the visitors are informed by signs outside the ward and possibly checked for acute respiratory infection (ARI) symptoms before entering the facility • Rules are in place for the access of visitors to the facility and to the rooms (e.g. one visitor a time) with suspected or confirmed patients • Hand hygiene procedures are explained to the visitors before entering and after leaving the isolation room • PPE are available for visitors and procedures for donning and doffing are in place and accessible • A trained HCW is available to check the correct donning and doffing of PPE • All the visitors are informed about self-monitoring for acute respiratory symptoms according to the guidelines • A record of all visitors is maintained

Environmental cleaning

Element/Process	To check
Room cleaning	• Procedures are established for the cleaning of the rooms on a regular basis, as required and at patient discharge • Appropriate products for the cleaning and disinfection of the surfaces, equipment and machineries are available • PPE for the cleaning personnel are available in different sizes • The cleaning personnel have been specifically trained on procedures, times of contacts for the different products, the correct use of PPE (included donning and doffing), self-monitoring of symptoms and the procedure to follow if they have symptoms • A record of cleaning staff that have cleaned isolation rooms is maintained

Contributing ECDC experts (in alphabetical order)

Cornelia Adlhoch, Orlando Cenciarelli, Edoardo Colzani, Angelo D'Ambrosio, Margot Einöder-Moreno, Daniel Palm, Carl Suetens

References

1.   European Centre for Disease Prevention and Control (ECDC). COVID-19 2020 [cited 2020 24 February]. Available from: https://www.ecdc.europa.eu/en/novel-coronavirus-china.

2.   World Health Organization (WHO). Coronavirus disease (COVID-19) outbreak 2020 [cited 2020 24 February]. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019.

3.   European Centre for Disease Prevention and Control (ECDC). Outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2): increased transmission beyond China – fourth update 2020 [cited 2020 24 February]. Available from: https://www.ecdc.europa.eu/sites/default/files/documents/SARS-CoV-2-risk-assessment-14-february-2020.pdf.pdf.

4.   European Centre for Disease Prevention and Control (ECDC). Health emergency preparedness for imported cases of high-consequence infectious diseases. 2019 [cited 2020 24 February]. Available from:

https://www.ecdc.europa.eu/sites/default/files/documents/Health-emergency-preparedness-imported-cases-of-high-consequence-infectious-diseases.pdf.

5.   World Health Organization (WHO). Hospital emergency response checklist. An all-hazards tool for hospital administrators and emergency managers 2011 [cited 2020 24 February]. Available from: http://www.euro.who.int/__data/assets/pdf_file/0020/148214/e95978.pdf?ua=1.

6.   Centers for Disease Control and Prevention (CDC). Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Assessment Tool 2020 [cited 2020 24 February]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/hcp/hcp-hospital-checklist.html.