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HOSPITAL READINESS CHECKLIST

for COVID-19

This document has been adapted from the Hospital emergency preparedness checklist for pandemic influenza: Focus on pandemic (H1N1) 2009 published by WHO EURO at http://www.euro.who.int/__data/assets/pdf_file/0004/78988/E93006.pdf

Hospital Readiness Checklist for COVID-19. World Health Organization Regional Office for Europe, Copenhagen, 2020

INTRODUCTION

Hospitals play a critical role within the health system in providing essential medical care to the community, particularly in a crisis. Prolonged and combined outbreaks can lead to the progressive spread of disease with rapidly increasing service demands that can potentially overwhelm the capacity of hospitals and the health system at large. To enhance the readiness of the health facilities to cope with the challenges of the outbreak, a pandemic or any other emergency or disaster, hospital managers need to ensure the initiation of relevant generic priority action. This document aims to provide a checklist of the key action to take in the context of a continuous hospital emergency preparedness process.

Hospitals are complex and vulnerable institutions, dependent on crucial external support and supply lines. Under normal working conditions, many hospitals frequently operate at near-surge capacity. Consequently, even a modest rise in admission volume can overwhelm a hospital beyond its functional reserve. Well-established partnerships with local authorities, service providers (e.g. of water, power and means of communication), supply vendors, transportation companies and other organizations are required to ensure the continuity of essential services.

During the current outbreak of COVID-19, an interruption of these critical support services and supplies would potentially disrupt provision of acute healthcare by an unprepared healthcare facility. In addition, a high rate of staff absenteeism can be expected. Shortage of critical equipment and supplies could limit access to needed care and have a direct impact in healthcare delivery. Panic could potentially jeopardize established working routines. Even for a well-prepared hospital, coping with the health consequences of a COVID-19 outbreak would be a complex challenge. Despite the difficult demands and obstacles foreseen, the proactive and systematic implementation of key generic and specific actions can facilitate effective hospital-based management during a rapidly evolving outbreak.

The benefits of an effective, hospital-based response include: (1) continuity of essential services; (2) well-coordinated implementation of priority action; (3) clear and accurate internal and external communication; (4) swift adaptation to increased demands; (5) effective use of scarce resources; and (6) safe environment for health workers.

This checklist has been prepared with the aim of supporting hospital managers and emergency planners in achieving the above by defining and initiating actions needed to ensure a rapid response to the COVID-19 outbreak. The checklist is structured on eleven key components; under each component, there is a list of questions regarding the status of implementation of the recommended action specific to that component. Hospitals at risk of increased health service demand should be prepared to initiate the implementation of each action promptly. The section on "Recommended reading" lists selected tools, guidelines and strategies relevant to each component, as well as other supportive documentation.

Hospital emergency preparedness is a continuous process that needs to link to the overall national preparedness programme. Many of the principles and recommendations outlined in this tool are generic and applicable to other contingencies. The checklist is intended to complement comprehensive, all-hazard, multisectoral hospital emergency preparedness planning programmes, not replace them.

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Fig. 1. Key components of the hospital readiness checklist for COVID-19
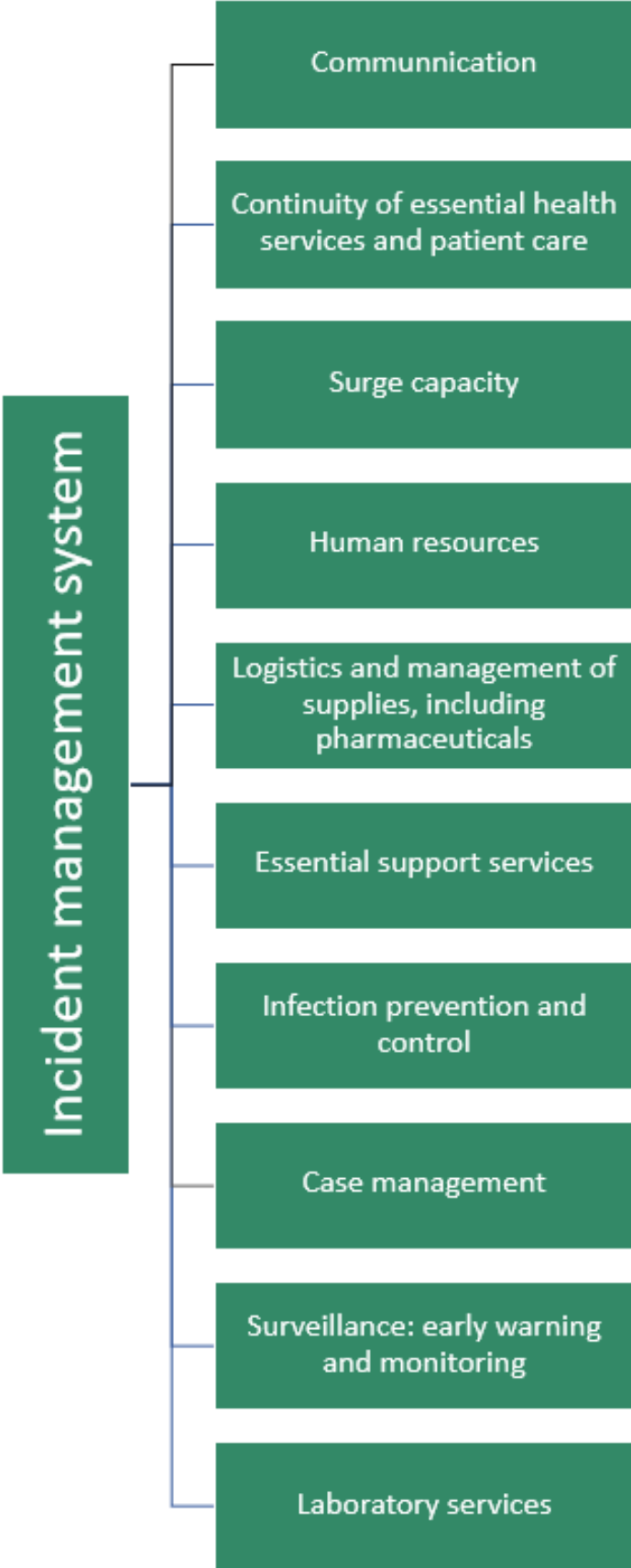
DESCRIPTION OF HOSPITAL

Evaluation date:

Name of the hospital:

City:

Country:

Administrative status: state ☐   private ☐   university ☐   other ☐

Beds:

Annual discharges:

Annual occupied bed days:

Beds Intensive Care Unit (ICU):

Microbiology laboratory: Yes ☐   No ☐

ICU beds for adults:

Number of isolations/year:

ICU beds for pediatrics:

Number of antibiograms/year:

ICU beds for neonatology

Name of evaluators:

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I. INCIDENT MANAGEMENT SYSTEM

A well-functioning hospital incident management system is essential for the effective management of emergency operations (Recommended reading 1). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Do you have a hospital emergency response plan? If yes, activate it. If not, establish an ad hoc Incident Management System (IMS), i.e. supervisory body responsible for directinghospital-based emergency response operations.	◯	◯	◯
Designate a Hospital Emergency Operation Centre, i.e. a specific location prepared to convene and coordinate hospital-wide emergency response activities and equipped with wellfunctioning means of communication.	◯	◯	◯
Designate a lead for each key component provided in this document with the aim of ensuring the appropriate coordination and management of related response activities.	◯	◯	◯
Appoint prospective replacements for directors and focal points to guarantee the continuity of decision-making and resource management in any situation.	◯	◯	◯
To ensure effective and efficient hospital management in the face of a COVID-19 outbreak, consult core internal and external documents related to management of COVID-19 beforehand.	◯	◯	◯

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Box 1. Ad hoc hospital incident management group

If there is no mechanism in place for coordinated hospital incident management, the hospital director should promptly convene a meeting with all heads of service in order to create an ad hoc IMS. An IMS is essential for the effective development and management of the hospital-based systems and procedures required for successful COVID-19 response.

When organizing a hospital IMS, consider including representatives from the services dealing with:

- hospital administration (Hospital Director, Nursing Director, CEO)
- communication
- medical personnel (e.g. Medical and Nursing Heads of emergency medicine, intensive care, internal medicine, paediatrics)
- infection prevention and control
- respiratory therapy
- human resources
- security
- pharmaceuticals
- clinical engineering and maintenance
- laboratory services
- dietary services
- laundry, cleaning and waste management.
- supply department

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II. SURGE CAPACITY

Surge capacity is the ability of a health service to expand beyond its normal capacity to meet an increased demand for clinical care. COVID-19 cases may cause rapid increase in demand over a prolonged period of time ("rising tide" as opposed to "big bang" of a sudden-onset disaster) (Recommended reading 2). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Calculate maximal case admission capacity, determined not only by the total number of beds but also by the availability of human resources, the adaptability of facility space for critical care, isolation, cohort, the accessibility of mechanical ventilators and the availability of other resources.	◯	◯	◯
Use available planning assumptions and tools to estimate increase in demand for hospital services during an outbreak of COVID-19.	◯	◯	◯
Identify ways of expanding hospital in-patient capacity (including physical space, staff, supplies and processes).	◯	◯	◯
Identify potential gaps in the provision of health care, with an emphasis on critical care; address these gaps in coordination with the authorities and neighbouring hospitals.	◯	◯	◯
Release additional capacity by outsourcing care of non-critical patients to appropriate alternative treatment sites (e.g. home for mild illness, long-term care facilities for patients requiring chronic care).	◯	◯	◯

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Recommended Action	Due for review	In progress	Completed
In coordination with the local authorities, identify additional sites for conversion to patient care units (e.g. convalescent homes, hotels, schools, community centres, gymnasiums).	◯	◯	◯
Cancel nonessential services (e.g. elective surgery) when necessary.	◯	◯	◯
Adapt admission and discharge criteria and prioritize patients and clinical interventions according to available treatment capacity and demand.	◯	◯	◯

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III. INFECTION PREVENTION AND CONTROL

An operational infection prevention and control (IPC) programme is essential to minimize the risk of transmission of healthcare-associated infection to patients, hospital staff and visitors (Recommended reading 3). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Ensure that health care workers (HCW), patients and visitors are aware of respiratory and hand hygiene and prevention of healthcare-associated infections. Provide verbal instruction, informational posters, cards, etc. If possible, install hand hygiene stations (water, soap, paper towel, alcohol-hand rub), waste bins at strategic locations across the hospital.	◯	◯	◯
Ensure that HCW are applying standard precautions for all patients.	◯	◯	◯
Droplets and contact precautions are recommended for suspected or confirmed COVID-19 cases. These precautions should continue until the patient is asymptomatic.	◯	◯	◯
Patients should be placed in adequately ventilated single rooms (60 L/s per patient). When single rooms are not available, patients suspected of having COVID-19 should be grouped together. Avoid mixing of suspected and confirmed cases.	◯	◯	◯
Ensure one-meter distance between beds regardless of whether patients are suspected to have COVID-19.	◯	◯	◯

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III. INFECTION PREVENTION AND CONTROL - CONTINUED

Recommended Action	Due for review	In progress	Completed
Ensure equipment is either single-use and disposable or if equipment (e.g., stethoscopes, blood pressure cuffs, thermometers, food trays) needs to be shared among patients, clean and disinfect it between use for each individual patient (e.g., by using ethyl alcohol 70%).	◯	◯	◯
Routinely clean and disinfect surfaces which the patient is in contact. Implement methods of routine cleaning and disinfection of ambulances in accordance with the recommended standards and guidelines for COVID-19.	◯	◯	◯
Ensure that HCWs are applying droplet and contact precautions before entering the room where suspected or confirmed COVID-19 patients are admitted.	◯	◯	◯
Ensure that HCWs are applying airborne precautions for aerosol-generating procedures, such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, collection of nasopharyngeal swap/aspirate and autopsy.	◯	◯	◯
Where possible, a team of HCWs should be designated to care exclusively for suspected or confirmed cases to reduce the risk of transmission. Ensure that staff (HCW, cleaning personnel) receives training on standard, contact, droplets and airborne precautions (including correct use of PPE, donning and doffing, masks tested for fitting, hand hygiene, respiratory hygiene, etc.).	◯	◯	◯

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III. INFECTION PREVENTION AND CONTROL - CONTINUED

Recommended Action	Due for review	In progress	Completed
Ensure that adequate personal protective equipment (PPE) (i.e. medical/surgical masks, N95/FFP2 respirators, gloves, gowns, eye protection) is easily accessible to staff. If the supply of PPE is limited, prioritize staff caring for cases.	◯	◯	◯
Avoid moving and transporting patients out of their room or area unless medically necessary. Use designated portable X-ray equipment and/or other designated diagnostic equipment. If transport is required, use predetermined transport routes to minimize exposure for staff, other patients and visitors, and have the patient using a medical mask if tolerable or reinforce respiratory hygiene. Ensure that HCWs who are transporting patients perform hand hygiene and wear appropriate PPE. Notify the area receiving the patient of any necessary precautions as early as possible before the patient's arrival.	◯	◯	◯
Limit visitors to those essential for patient support. Ensure visitors apply droplets and contact precautions.	◯	◯	◯
Maintain a record of all persons entering the patient's room, including all staff and visitors.	◯	◯	◯
Manage laboratory specimens, laundry, food service utensils and medical waste in accordance with safe routine procedures according to IPC guidelines.	◯	◯	◯

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Box 2. Standard, respiratory and droplet precautions

Standard precautions:

- Hand and respiratory hygiene, the use of appropriate PPE according to risk assessment, injection safety practices, safe waste management, proper linens, environmental cleaning and sterilization of patient-care equipment.

Droplet and contact precautions:

- Ensure patients are placed in adequately ventilated single rooms (for general ward rooms with natural ventilation, adequate ventilation is considered to be 60 L/s per patient)
- HCWs should use a medical mask, eye protection (googles or face shield), clean, non-sterile, long sleeved gown and gloves. The use of boots, coverall and apron is not required during routine care.
- After patient care, appropriate doffing and disposal of all PPE's and hand hygiene should be carried out. A new set of PPE's is needed, when care is given to a different patient.

Airborne precautions for aerosol-generating procedures:

- Ensure procedures are performed in an adequately ventilated room (for natural ventilation: air flow of at least 160 L/s per patient or in negative pressure rooms with at least 12 air changes per hour and controlled direction of air flow when using mechanical ventilation)
- HCWs should use a particulate respirator (N95, FFP2, or equivalent), eye protection (i.e., goggles or a face shield), clean, non-sterile, long-sleeved gown and gloves. If gowns are not fluid resistant, HCWs should use a waterproof apron for procedures expected to have high volumes of fluid that might penetrate the gown.
- When HCWs put on a disposable particulate respirator, they must always perform the seal check. Note that if the wearer has facial hair (i.e., a beard) it may prevent a proper respirator fit.
- After patient care, appropriate doffing and disposal of all PPE's and hand hygiene should be carried out. A new set of PPE's is needed, when care is given to a different patient.

IV. CASE MANAGEMENT

An efficient and accurate triage system and an organized in-patient management strategy are required to ensure adequate treatment of COVID-19 acute respiratory infection (Recommended reading 4). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Ensure mechanisms to implement triage, early recognition, and source control (isolating patients with suspected COVID-19).	○	○	○
Establish a well-equipped triage station at the entrance of health care facility, supported by trained staff. Institute the use of screening questionnaires according to the updated case definition and post signs in public areas reminding symptomatic patients to alert HCWs.	○	○	○
Ensure healthcare workers have a high level of clinical suspicion.	○	○	○
Designate an exclusive waiting and examination area for individuals presenting with respiratory symptoms and/or fever. The area should be well-ventilated, low-transit and secure. Within that group of patients, those with symptoms of respiratory distress and severe underlying conditions should be prioritized for medical evaluation.	○	○	○
Consider establishing additional areas for triage of patients on presentation at the hospital, possibly outside the hospital.	○	○	○
Appoint a triage supervisor responsible for overseeing all triage operations.	○	○	○

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IV. CASE MANAGEMENT - CONTINUED

Recommended Action	Due for review	In progress	Completed
Establish a triage protocol aimed at ensuring that cases of acute respiratory infection are recognized. Suspected cases of COVID19 require sufficient distancing in space in the space that is assigned to them.	◯	◯	◯
Ensure the application of standard, droplet and airborne precautions at all times.	◯	◯	◯
In coordination with local health authorities, implement the hospital strategy for the admission, internal transfer, referral and discharge of SARI patients, in line with relevant criteria and operational protocols.	◯	◯	◯
Consider home care for mild cases of COVID-19 acute respiratory infection in individuals with no comorbidities, recognized as posing a risk for severe or fatal disease associated with COVID-19. Identify a caregiver, preferably a family member.	◯	◯	◯
Consider hospital admission for cases of COVID-19 acute respiratory infection with comorbidities recognized as posing a risk for a severe or fatal course of COVID-19.	◯	◯	◯
Ensure the availability of staffed beds for the admission of severe COVID-19 acute respiratory infection cases requiring supportive care and the continuous/regular monitoring of vital signs, regardless of comorbidities, recognized as posing a risk for a severe or fatal course of COVID-19.	◯	◯	◯
Provide continuous monitoring of vital signs (e.g. temperature, blood pressure, pulse, respiratory rate, level of consciousness, clinical signs of dehydration or shock) and oxygen saturation (pulse oximetry or blood gas analyses).	◯	◯	◯

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Recommended Action	Due for review	In progress	Completed
Ensure the availability of oxygen and means of respiratory support, as well as sufficient sedation for intubated patients. Oxygen masks and nasal canulae should be single use.	◯	◯	◯
Provide patient care in accordance with national and international guidelines. Ensure that all staff are aware of the national and international guidelines for case management.	◯	◯	◯
Communicate admission criteria and triage logistics (e.g. location, routes of entry/exit) to the relevant hospital personnel, referring hospitals and clinics, pre-hospital networks and ambulance services.	◯	◯	◯
Ensure health care personnel is aware of protocol for off license use of medicines, which should be done against observational trial protocol and outcomes recorded against standardized variables (see clinical characterization form).	◯	◯	◯

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V. HUMAN RESOURCES

Adapted human resource management is required to ensure adequate staff capacity and continuity of operations in response to an increased demand for human resources, while maintaining the identified essential services (Recommended reading 4 and 5). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Update the staff contact list.	◯	◯	◯
Estimate staff absenteeism in advance and monitor it continuously	◯	◯	◯
Establish a clear policy (the policy should define levels of exposure) to monitor and manage staff suspected or confirmed of having COVID-19 or who have had exposure to a confirmed, probable or suspected COVID-19 patient.	◯	◯	◯
For each unit or service, identify the minimum number of health-care workers and other hospital staff needed to ensure the sufficient operation of the unit or service.	◯	◯	◯
Prioritize staffing needs by unit or service and distribute personnel accordingly.	◯	◯	◯
Recruit and train additional staff (e.g. retired staff, reserve military personnel, university affiliates/students, community volunteers) according to the anticipated need.	◯	◯	◯
Familiarize ward staff to work in high-demand areas (e.g. infectious disease wards, emergency and intensive care units) to support surge.	◯	◯	◯

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Recommended Action	Due for review	In progress	Completed
Provide training and exercises relevant to areas of need, including infection prevention and control, clinical management, to ensure staff competency and safety.	○	○	○
Identify domestic support measures (e.g. travel, childcare, care of ill or disabled family members) that could enhance staff flexibility for shift work and longer working hours and define off work time for recuperation.	○	○	○
Ensure the availability of the services of multidisciplinary psycho-social support teams for the families of staff and patients, including social workers, counsellors, interpreters and clergymen.	○	○	○
Address liability, insurance and temporary licensing issues with respect to staff who may be working outside their areas of expertise.	○	○	○
Ensure there are policies in place to manage volunteer workers (vetting, accepting, rejecting, liability issues etc.).	○	○	○
Consider reassigning staff at high risk for complications of COVID-19 acute respiratory infection.	○	○	○

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VI. CONTINUITY OF ESSENTIAL HEALTH SERVICES AND PATIENT CARE

An outbreak of COVID-19 will not dispel an already existing need for essential medical and surgical care (e.g. emergency services, urgent surgical operations, maternal and child-care); hence, it is necessary to ensure the continuity of essential health services. (Recommended reading 6). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
List all hospital services in priority order.	◯	◯	◯
Identify and maintain the hospital services that your facility must provide at all times and under any circumstances.	◯	◯	◯
Identify the resources (human resources and logistics) needed to ensure the continuity of the identified essential hospital services.	◯	◯	◯
Be familiar with preparedness mechanisms across the local health-care network for other high-demand contingencies (e.g. disasters or mass-casualty incidents).	◯	◯	◯

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VII. SURVEILLANCE: EARLY WARNING AND MONITORING

Health-care workers recognizing and immediately reporting unusual health events (e.g. clusters of cases, atypical clinical presentations, etc.) occurring in health care facilities are the cornerstone of the earlywarning function. In addition to serving the early warning function, the laboratory and epidemiological data obtained through systematic collection and analysis allows the public health authorities to monitor the progression of severe influenza-related disease and inform interventions on those at the highest risk of severe outcome (Recommended reading 7), and helps hospital managers to plan accordingly. Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Appoint a hospital epidemiologist with the overall responsibility for activities related to early warning and surveillance in the hospital.	○	○	○
Identify the information that needs to be collected and define the objectives for its use.	○	○	○
Promote the reporting of unusual health events (COVID-19) by health-care workers by establishing communication channels and procedures within the hospital and with public health authorities.	○	○	○
Implement data collection and reporting mechanisms in accordance with the national health policy and directives.	○	○	○
Comply with standardized case definitions, recommended levels of surveillance and triggers for surveillance escalation or deescalation in accordance with national criteria.	○	○	○
Immediately investigate reports by health care workers of unusual health events and/or unusual signals detected through monitoring activities.	○	○	○

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Recommended Action	Due for review	In progress	Completed
Ensure prompt distribution to hospital clinicians, front-line workers, and other relevant decision-makers of information obtained through monitoring activities and/or the investigation of unusual health events and/or signals.	◯	◯	◯
Ensure that testing of persons hospitalized for COVID-19 complies with the standardized case definitions, recommended levels of surveillance and triggers for surveillance escalation or de-escalation, in accordance with the national criteria.	◯	◯	◯
Ensure all staff are conversant with standardized case definitions, recommended levels of surveillance and triggers for surveillance escalation or de-escalation, in accordance with the national criteria, as well as recognizing unusual health events through trainings.	◯	◯	◯

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VIII. COMMUNICATION

Accurate and timely communication is necessary to ensure informed decision-making, effective collaboration and cooperation, and public awareness and trust (Recommended reading 8). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Establish mechanisms of communication to streamline sharing of information between the hospital administration, department/unit heads and facility staff.	◯	◯	◯
Brief the hospital staff on their roles and responsibilities in the management of COVID-19 under the IMS.	◯	◯	◯
Ensure that all decisions on clinical triage (patient prioritization (e.g. adapted admission and discharge criteria), infection prevention and control measures and policies related to case management and hospital epidemiology are communicated to all relevant staff and stakeholders.	◯	◯	◯
Ensure the collection, processing and reporting of information to supervisory stakeholders (e.g. public health authorities), and through them to neighbouring hospitals, private practitioners and pre- hospital networks.	◯	◯	◯
Draft in advance key messages addressing variety of COVID-19-related scenarios with different target audiences in mind (e.g. patients, visitors, staff, general public, media).	◯	◯	◯
Appoint a public information spokesperson to coordinate communication with the public, the media and health authorities.	◯	◯	◯

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Recommended Action	Due for review	In progress	Completed
Ensure reliable and sustainable primary and back-up communication systems (e.g. landlines, the internet, mobile devices, pagers, satellite telephones, two-way radio equipment, unlisted numbers) and access to updated contact lists. Consider having a contact list with roles rather than specific people.	◯	◯	◯
Be familiar with referral mechanisms established at national level and related communication mechanisms.	◯	◯	◯

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IX. LOGISTICS AND MANAGEMENT OF SUPPLIES, INCLUDING PHARMACEUTICALS

Accurate and timely communication is necessary to ensure informed decision-making, effective collaboration and cooperation, and public awareness and trust (Recommended reading 8). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Develop/maintain an updated inventory of all equipment, supplies and pharmaceuticals; establish a shortage alert and reordering mechanism.	◯	◯	◯
Estimate the consumption of essential equipment, supplies and pharmaceuticals, (e.g. amount used per week) on the basis of the most likely outbreak scenario.	◯	◯	◯
Consult with authorities to ensure the continuous provision of essential medications and supplies (e.g. institutional and central stockpiles, emergency agreements with local suppliers, donations).	◯	◯	◯
Assess the quality of contingency items prior to purchase; request quality certification.	◯	◯	◯
Establish contingency agreements (e.g. memorandum of understanding, mutual aid agreement) with vendors to ensure the procurement and prompt delivery of equipment, supplies and other resources in times of shortage.	◯	◯	◯
Identify physical space within the hospital for the storage and stockpiling of additional supplies. Factors to consider include accessibility, security, ambient temperature, ventilation, light exposure and humidity. Ensure an uninterrupted cold chain for essential items requiring refrigeration.	◯	◯	◯

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IX. LOGISTICS AND MANAGEMENT OF SUPPLIES, INCLUDING PHARMACEUTICALS - CONTINUED

Recommended Action	Due for review	In progress	Completed
Stockpile essential supplies and pharmaceuticals according to recommended guidelines. Ensure the timely use of stockpiled items to avoid loss due to expiration.	◯	◯	◯
Define the role of the hospital pharmacy in providing pharmaceuticals for cases treated at home or other alternative treatment sites.	◯	◯	◯
Ensure a mechanism for the prompt maintenance and repair of the equipment required for the essential services. Postpone non-essential maintenance and repair.	◯	◯	◯
Coordinate with pre-hospital networks and transportation services in establishing a contingency transportation strategy to ensure continual patient transfers, such as designated ambulance teams (as the outbreak grows the strategy may need to change).	◯	◯	◯
Ensure there is a policy in place for managing donations of medical supplies, food for staff, etc.	◯	◯	◯

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X. LABORATORY SERVICES

Maintenance of the essential laboratory services is necessary for the appropriate clinical management of both pandemic and other patients, as well as for the hospital-based surveillance of COVID-19 (Recommended reading 10). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Ensure the continuous availability of basic laboratory testing (e.g. complete blood count, biochemistry profile, electrolytes, blood gas analysis, blood culture and sputum examination).	◯	◯	◯
Identify essential laboratory supplies and resources and ensure their continuous availability.	◯	◯	◯
Identify back-up laboratory personnel and/or alternative laboratory services.	◯	◯	◯
For the purpose of hospital-based surveillance, ensure mechanisms for the prompt provision of laboratory data to the physicians and health authorities responsible for clinical management and surveillance.	◯	◯	◯
Prioritize testing for respiratory viruses (e.g., COVID-19) according to clinical requirements and hospital-based surveillance needs. Use a panel of respiratory pathogens for differential diagnosis when required.	◯	◯	◯
Establish a laboratory referral pathway for the identification, confirmation and monitoring of COVID-19, (including changes in virus characteristics, such as virulence, transmissibility and antivirus resistance).	◯	◯	◯

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Recommended Action	Due for review	In progress	Completed
Establish and train staff on transportation procedures for specimen referral in accordance with national and international transport regulations and requirements.	○	○	○

Details:

XI. ESSENTIAL SUPPORT SERVICES

To optimize patient care during the COVID-19 outbreak, it is necessary to identify and maintain essential support services, such as those for laundry, cleaning, waste management, dietary services and security (Recommended reading 11). Consider taking the following action.

Recommended Action	Due for review	In progress	Completed
Estimate the additional supplies required by the support services and introduce a mechanism to ensure the continuous availability of these supplies.	◯	◯	◯
Enable the adaptation of the support services to cope with an increased demand.	◯	◯	◯
Anticipate the impact of COVID-19 on hospital food supplies; take proactive measures to ensure the availability of food.	◯	◯	◯
Ensure the availability of appropriate back-up arrangements for essential life-lines, including water, power and oxygen.	◯	◯	◯
Solicit the input of hospital security in identifying potential security constraints and optimizing the control of facility access, essential pharmaceutical stocks, patient flow, traffic and parking.	◯	◯	◯
Designate an area for use as a temporary morgue; ensure the adequate supply of body bags and shroud packs.	◯	◯	◯
Formulate a postmortem care contingency plan with appropriate partners (e.g. undertakers, funeral services).	◯	◯	◯

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RECOMMENDED READING

I. INCIDENT MANAGEMENT SYSTEM

○ **Mass casualty management systems: strategies and guidelines for building health sectorcapacity.** Geneva, World Health Organization, 2007 (http://www.who.int/entity/hac/techguidance/MCM_guidelines_inside_final.pdf, accessed 5 February 2020).

II. SURGE CAPACITY

○ **Home care for patients with suspected novel coronavirus (nCoV) infection presenting with mild symptoms and management of contacts**. Interim guidance 20, Jan 2020 (https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novelcoronavirus-(ncov)-infection-presenting-with-mild-symptoms-and-management-of-contacts, accessed 05 February 2020).

○ **Pandemic flu: management of demand and capacity in health care organisations.** (Surge). London, UK Department of Health, 2009 (http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_098750.pdf, accessed 6 November 2009).

○ **Medical surge capacity and capability: a management system for integrating medical and health resources during large-scale emergencies.** Washington, DC, U.S. Department of Health and Human Services, 2007 (http://www.hhs.gov/disasters/discussion/planners/mscc, accessed 6 November 2009).

○ **Planning assumptions for the first wave of pandemic A (H1N1) 2009 in Europe.** Stockholm, European Centre for Disease Prevention and Control, 2009 (http://www.ecdc.europa.eu/en/activities/sciadvice/Lists/ECDC%20Reviews/ECDC_DispForm.aspx?List=512ff74f-77d4-4ad8-b6d6-bf0f23083f30&ID=650, accessed 6 November 2009).

○ **Surge capacity: HCF PPE needs during epidemics/pandemics (Annex I). In: Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care WHO Interim Guidelines.** Geneva, World Health Organization, 2007 (http://www.who.int/entity/csr/resources/publications/WHO_CDS_EPR_2007_6c.pdf, accessed 6 November 2009).

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