



World Health
Organization

REGIONAL OFFICE FOR **Europe**

Interim version,
February 24, 2020

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

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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.

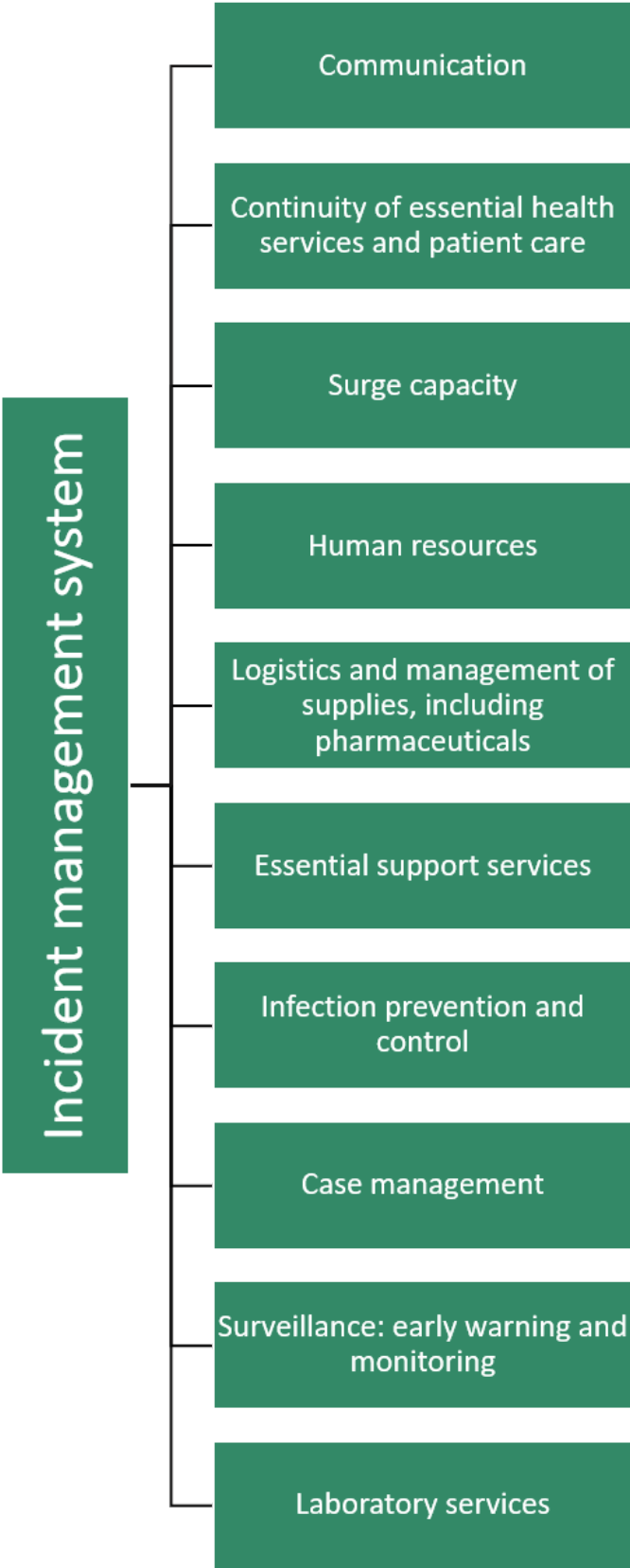
During the current outbreak of COVID-19, an interruption of these critical support services and supplies would potentially disrupt the provision of acute health care by an unprepared health-care facility. In addition, a high rate of staff absenteeism can be expected. A shortage of critical equipment and supplies could limit access to needed care and have a direct impact on health-care 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 supporting 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.

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:

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 |
|--|-----------------------|-----------------------|-----------------------|
| <p>Do you have a hospital emergency response plan? If yes, activate it. If not, establish an ad hoc Incident Management System (IMS), i.e., the supervisory body responsible for directing hospital-based emergency response operations.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Designate a Hospital Emergency Operation Centre, i.e., a specific location prepared to convene and coordinate hospital-wide emergency response activities and equipped with well-functioning means of communication.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Designate a lead for each key component provided in this document to ensure the appropriate coordination and management of related response activities.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Appoint prospective replacements for directors and focal points to guarantee the continuity of decision-making and resource management in any situation.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>To ensure effective and efficient hospital management in the face of a COVID-19 outbreak, consult core internal and external documents related to the management of COVID-19 beforehand.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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

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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Use available planning assumptions and tools to estimate increase in demand for hospital services during an outbreak of COVID-19. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Identify ways of expanding hospital in-patient capacity (including physical space, staff, supplies and processes). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

II. SURGE CAPACITY - CONTINUED

| 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). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cancel nonessential services (e.g. elective surgery) when necessary. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Adapt admission and discharge criteria and prioritize patients and clinical interventions according to available treatment capacity and demand. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Details:

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 |
|--|-----------------------|-----------------------|-----------------------|
| <p>Ensure that health care workers (HCW), patients, and visitors are aware of respiratory and hand hygiene and prevention of healthcare-associated infections. Provide verbal instructions, informational posters, cards, etc. If possible, install hand hygiene stations (water, soap, paper towel, alcohol-hand rub), and waste bins at strategic locations across the hospital.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Ensure that HCW are applying standard precautions for all patients.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Droplets and contact precautions are recommended for suspected or confirmed COVID-19 cases. These precautions should continue until the patient is asymptomatic.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>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.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Ensure a one-meter distance between beds regardless of whether patients are suspected of having COVID-19.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

III. INFECTION PREVENTION AND CONTROL - CONTINUED

| Recommended Action | Due for review | In progress | Completed |
|---|----------------|-------------|-----------|
| <p>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 between use for each patient (e.g., by using ethyl alcohol 70%).</p> | ○ | ○ | ○ |
| <p>Routinely clean and disinfect surfaces with which the patient is in contact. Implement methods of routine cleaning and disinfection of ambulances following the recommended standards and guidelines for COVID-19.</p> | ○ | ○ | ○ |
| <p>Ensure that HCWs are applying droplet and contact precautions before entering the room where suspected or confirmed COVID-19 patients are admitted.</p> | ○ | ○ | ○ |
| <p>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.</p> | ○ | ○ | ○ |
| <p>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) receive 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.).</p> | ○ | ○ | ○ |

III. INFECTION PREVENTION AND CONTROL - CONTINUED

| Recommended Action | Due for review | In progress | Completed |
|---|--------------------------|--------------------------|--------------------------|
| <p>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.</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>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 use 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.</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Limit visitors to those essential for patient support. Ensure visitors apply droplet and contact precautions.</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Maintain a record of all persons entering the patient's room, including all staff and visitors.</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <p>Manage laboratory specimens, laundry, food service utensils, and medical waste following safe routine procedures according to IPC guidelines.</p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

III. INFECTION PREVENTION AND CONTROL - CONTINUED

Details:

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 (goggles 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 and hand hygiene should be carried out. A new set of PPE 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 proper respirator fit.
- After patient care, appropriate doffing and disposal of all PPE and hand hygiene should be carried out. A new set of PPE 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). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Establish a well-equipped triage station at the entrance of the 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ensure that health-care workers have a high level of clinical suspicion. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Consider establishing additional areas for triage of patients on presentation at the hospital, possibly outside the hospital. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Appoint a triage supervisor responsible for overseeing all triage operations. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ensure the application of standard, and droplet precautions at all times. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

IV. CASE MANAGEMENT - CONTINUED

| Recommended Action | Due for review | In progress | Completed |
|---|-----------------------|-----------------------|-----------------------|
| <p>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.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Provide patient care following national and international guidelines. Ensure that all staff are aware of the national and international guidelines for case management.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>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.</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <p>Ensure health-care personnel are aware of protocols for off-license use of medicines, which should be done against observational trial protocol and outcomes recorded against standardized variables (see clinical characterization form).</p> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Details: | | | |

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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Estimate staff absenteeism in advance and monitor it continuously. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Prioritize staffing needs by unit or service and distribute personnel accordingly. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Recruit and train additional staff (e.g. retired staff, reserve military personnel, university affiliates/students, community volunteers) according to the anticipated need. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Familiarize ward staff to work in high-demand areas (e.g. infectious disease wards, emergency and intensive care units) to support surge. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

V. HUMAN RESOURCES - CONTINUED

| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Address liability, insurance and temporary licensing issues with respect to staff who may be working outside their areas of expertise. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ensure there are policies in place to manage volunteer workers (vetting, accepting, rejecting, liability issues etc.). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Consider reassigning staff at high risk for complications of COVID-19 acute respiratory infection. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Details:

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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Identify and maintain the hospital services that your facility must provide at all times and under any circumstances. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Identify the resources (human resources and logistics) needed to ensure the continuity of the identified essential hospital services. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Be familiar with preparedness mechanisms across the local health-care network for other high-demand contingencies (e.g. disasters or mass-casualty incidents). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Details:

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 early warning 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 COVID-19 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Identify the information that needs to be collected and define the objectives for its use. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Implement data collection and reporting mechanisms following the national health policy and directives. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Comply with standardized case definitions, recommended levels of surveillance, and triggers for surveillance escalation or de-escalation in accordance with national criteria. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Immediately investigate reports by health care workers of unusual health events and/or unusual signals detected through monitoring activities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

VII. SURVEILLANCE: EARLY WARNING AND MONITORING - CONTINUED

| Recommended Action | Due for review | In progress | Completed |
|---|----------------|-------------|-----------|
| <p>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.</p> | ○ | ○ | ○ |
| <p>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.</p> | ○ | ○ | ○ |
| <p>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 training.</p> | ○ | ○ | ○ |
| Details: | | | |

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 the sharing of information between the hospital administration, department/unit heads, and facility staff. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Brief the hospital staff on their roles and responsibilities in the management of COVID-19 under the IMS. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Draft in advance, key messages, addressing a variety of COVID-19-related scenarios with different target audiences in mind (e.g., patients, visitors, staff, the general public, media). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Appoint a public information spokesperson to coordinate communication with the public, the media, and health authorities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

VIII. COMMUNICATION - CONTINUED

| Recommended Action | Due for review | In progress | Completed |
|---|----------------|-------------|-----------|
| <p>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.</p> | ○ | ○ | ○ |
| <p>Be familiar with referral mechanisms established at the national level and related communication mechanisms.</p> | ○ | ○ | ○ |

Details:

IX. LOGISTICS AND MANAGEMENT OF SUPPLIES, INCLUDING PHARMACEUTICALS

The continuity of hospital services and the availability of essential equipment and supplies, including pharmaceuticals, require a proactive approach to resource and facility management (Recommended reading 6). 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Estimate the consumption of essential equipment, supplies, and pharmaceuticals (e.g., amount used per week) based on most likely outbreak scenario. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Assess the quality of contingency items prior to purchase; request quality certification. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Define the role of the hospital pharmacy in providing pharmaceuticals for cases treated at home or other alternative treatment sites. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ensure a mechanism for the prompt maintenance and repair of the equipment required for the essential services. Postpone non-essential maintenance and repair. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ensure there is a policy in place for managing donations of medical supplies, food for staff, etc. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Details: | | | |

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). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Identify essential laboratory supplies and resources and ensure their continuous availability. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Identify back-up laboratory personnel and/or alternative laboratory services. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| For hospital-based surveillance, ensure mechanisms for the prompt provision of laboratory data to the physicians and health authorities responsible for clinical management and surveillance. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Establish a laboratory referral pathway for the identification, confirmation, and monitoring of COVID-19, (including changes in virus characteristics, such as virulence, transmissibility, and antiviral resistance). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

X. LABORATORY SERVICES - CONTINUED

| Recommended Action | Due for review | In progress | Completed |
|---|-----------------------|-----------------------|-----------------------|
| Establish and train staff on packaging and transportation procedures for specimen referrals in accordance with national and international transport regulations and requirements. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Enable the adaptation of the support services to cope with increased demand. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Anticipate the impact of COVID-19 on hospital food supplies; take proactive measures to ensure the availability of food. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ensure the availability of appropriate back-up arrangements for essential life-lines, including water, power, and oxygen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Designate an area for use as a temporary morgue; ensure the adequate supply of body bags and shroud packs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Formulate a postmortem care contingency plan with appropriate partners (e.g., undertakers, funeral services). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

XI. ESSENTIAL SUPPORT SERVICES - CONTINUED

Details:

RECOMMENDED READING

I. INCIDENT MANAGEMENT SYSTEM

- **Mass casualty management systems: strategies and guidelines for building health sector capacity.** Geneva, World Health Organization, 2007 (http://www.who.int/entity/hac/techguidance/MCM_guidelines_inside_final.pdf, accessed 21 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-novel-coronavirus-\(ncov\)-infection-presenting-with-mild-symptoms-and-management-of-contacts](https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-(ncov)-infection-presenting-with-mild-symptoms-and-management-of-contacts), accessed 21 February 2020).
- **Pandemic flu: management of demand and capacity in health care organisations. (Surge).** London, UK Department of Health, 2009 (https://webarchive.nationalarchives.gov.uk/20130124045951/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_098750.pdf, accessed 21 February 2020).
- **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 (<https://www.phe.gov/preparedness/planning/mscc/handbook/documents/mscc080626.pdf>, accessed 21 February 2020).
- **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 21 February 2009).

- **Swine flu: UK planning assumptions.** London, Department of Health, 2009 (https://webarchive.nationalarchives.gov.uk/20130124050719/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_102891.pdf, accessed 21 February 2020).
- **Planning assumptions.** In: Pandemic Influenza Plan 2017 Update. Washington, DC, U.S. Department of Health and Human Services, 2017 (<https://www.cdc.gov/flu/pandemic-resources/pdf/pan-flu-report-2017v2.pdf>, accessed 21 February 2020).

III. INFECTION PREVENTION AND CONTROL

- **Advice on the use of masks in the community, during home care and in health care settings in the context of the novel coronavirus (2019-nCoV) outbreak,** 28 January 2020 ([https://www.who.int/publications-detail/advice-on-the-use-of-masks-the-community-during-home-care-and-in-health-care-settings-in-the-context-of-the-novel-coronavirus-\(2019-ncov\)-outbreak](https://www.who.int/publications-detail/advice-on-the-use-of-masks-the-community-during-home-care-and-in-health-care-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak), accessed 5 February 2020).
- **Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected,** Interim guidance 25 January 2020 ([https://www.who.int/publicationsdetail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publicationsdetail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125), accessed 5 February 2020).
- **Minimum Requirements for infection prevention and control (IPC) programmes.** Geneva: World Health Organization; 2019 (<https://www.who.int/infection-prevention/publications/minreq-IPC-manual/en/>, accessed 10 February 2020).
- **Improving infection prevention and control at the health facility: Interim practical manual supporting implementation of the WHO Guidelines on Core Components of Infection Prevention and Control Programmes.** Geneva: World Health Organization; 2018 (<https://www.who.int/infection-prevention/tools/core-components/facility-manual.pdf?ua=1>, accessed 10 February 2020).
- **Infection Prevention and Control (IPC) Assessment Framework (IPCAF).** (<https://www.who.int/infection-prevention/tools/core-components/IPCAF-facility.PDF?ua=1>, accessed 10 February 2020).

- **Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care WHO Guidelines.** Geneva, World Health Organization, 2014 (https://apps.who.int/iris/bitstream/handle/10665/112656/9789241507134_eng.pdf?sequence=1, accessed 10 February 2020).

IV. CASE MANAGEMENT

- **The First Few X (FFX) Cases and contact investigation protocol for 2019-novel coronavirus (2019-nCoV) infection,** 29 January 2020 ([https://www.who.int/publications-detail/the-first-fewx-\(ffx\)-cases-and-contact-investigation-protocol-for-2019-novel-coronavirus-\(2019-ncov\)-infection](https://www.who.int/publications-detail/the-first-fewx-(ffx)-cases-and-contact-investigation-protocol-for-2019-novel-coronavirus-(2019-ncov)-infection), accessed 5 February 2020).
- **Clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected,** Interim guidance 28 January 2020 ([https://www.who.int/publicationsdetail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publicationsdetail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected), accessed 5 February 2020).
- **Advice on the use of masks in the community, during home care and in health care settings in the context of the novel coronavirus (2019-nCoV) outbreak,** 28 January 2020 ([https://www.who.int/publications-detail/advice-on-the-use-of-masks-the-community-duringhome-care-and-in-health-care-settings-in-the-context-of-the-novel-coronavirus-\(2019-ncov\)-outbreak](https://www.who.int/publications-detail/advice-on-the-use-of-masks-the-community-duringhome-care-and-in-health-care-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak), accessed 5 February 2020).

V. HUMAN RESOURCES

- **IASC guideline on mental health and psychosocial support in emergency settings.** Geneva, Inter-agency Standing Committee, 2007 (http://www.who.int/hac/network/interagency/news/mental_health_guidelines/en, accessed 21 February 2020).
- **Mental health in emergencies (WHO/MSD/MER/03.01).** Geneva, World Health Organization, 2003 (http://www.who.int/mental_health/media/en/640.pdf, accessed 21 February 2020).

VI. CONTINUITY OF ESSENTIAL HEALTH SERVICES AND PATIENT CARE

- **Service Prioritisation (Chapter 7).** In: **Pandemic flu: management of demand and capacity in health care organisations (Surge).** London, Department of Health, 2009 ([https://www.hsj.co.uk/Uploads/2/Files/2009/8/11/Pandemic%20flu-%20managing%20demand%20and%20capacity%20in%20health%20care%20organisations%20\(surge\).pdf](https://www.hsj.co.uk/Uploads/2/Files/2009/8/11/Pandemic%20flu-%20managing%20demand%20and%20capacity%20in%20health%20care%20organisations%20(surge).pdf), accessed 21 February 2020).

VII. SURVEILLANCE: EARLY WARNING AND MONITORING

- **The First Few X (FFX) Cases and contact investigation protocol for 2019-novel coronavirus (2019-nCoV) infection,** 29 January 2020 ([https://www.who.int/publications-detail/the-first-fewx-\(ffx\)-cases-and-contact-investigation-protocol-for-2019-novel-coronavirus-\(2019-ncov\)-infection](https://www.who.int/publications-detail/the-first-fewx-(ffx)-cases-and-contact-investigation-protocol-for-2019-novel-coronavirus-(2019-ncov)-infection), accessed 5 February 2020).

VIII. COMMUNICATION

- **Risk communication and community engagement (RCCE) readiness and response to the 2019 novel coronavirus (2019-nCoV)** (<https://apps.who.int/iris/bitstream/handle/10665/330377/WHO-2019-nCoV-RCCE-v2020.1-eng.pdf>, accessed 5 February 5, 2020).

IX. LOGISTICS AND MANAGEMENT OF SUPPLIES, INCLUDING PHARMACEUTICALS

- **2019-nCoV disease commodity package, 27 Jan 2020.** ([https://www.who.int/publicationsdetail/disease-commodity-package---novel-coronavirus-\(ncov\)](https://www.who.int/publicationsdetail/disease-commodity-package---novel-coronavirus-(ncov))), accessed 5 February 2020).

X. LOGISTICS AND MANAGEMENT OF SUPPLIES, INCLUDING PHARMACEUTICALS

- **Laboratory testing for 2019 novel coronavirus (2019-nCoV) in suspected human cases,** Interim Guidance, 17 January 2020 ([https://www.who.int/publications-detail/the-first-few-x-\(ffx\)-casesand-contact-investigation-protocol-for-2019-novel-coronavirus-\(2019-ncov\)-infection](https://www.who.int/publications-detail/the-first-few-x-(ffx)-casesand-contact-investigation-protocol-for-2019-novel-coronavirus-(2019-ncov)-infection), accessed 5 February 2020).

XI. ESSENTIAL SUPPORT SERVICES

- **Safe health-care waste management.** Geneva, World Health Organization, 2004 (https://www.who.int/water_sanitation_health/medicalwaste/en/hcwmpolicye.pdf, accessed 21 February 2020).
- **Waste disposal in clinical procedures in a resource limited health care facility.** Geneva, World Health Organization, 2005 (<http://apps.who.int/medicinedocs/documents/s17266e/s17266e.pdf>, accessed 21 February 2020).

The WHO Regional
Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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HOSPITAL READINESS CHECKLIST FOR COVID-19

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