



A practical tool
for the preparation
of a hospital crisis
preparedness plan,
with special focus on
pandemic influenza

Edited by: Enrico Davoli

Country Health Systems Division
WHO Regional Office for Europe

2nd edition



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Programme of Emergency Medical Services

Country Policies, Systems and Services

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ABSTRACT

The usefulness of drafting a crisis preparedness plan (CPP) is now undisputed. This document aims to offer a practical tool for planning appropriate measures to be adopted by a hospital and/or more generally a health facility in order to be better prepared to face a critical situation. The tool is the result of concerted contributions of various experts in the field of emergency services management. The recommendations provided are tailored to a medium-to-large hospital with various specialties included, and should be adjusted as appropriate at the different levels of health care of the health facility. This document provides a list of issues that are considered by the contributors as essential themes that must be tackled in all CPPs for hospitals. Each issue represents concepts and problems that are likely to be universally present in all critical situations, emergency or disasters and cannot be set aside when drafting the CPP. The document provides specific measures and hints for preparedness in the event of communicable disease epidemic, such as the possible influenza pandemic.

Keywords

DISEASE OUTBREAKS - prevention and control
DISASTER PLANNING
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Acronyms

CBRN	chemical, biological, radiological, nuclear
CPP	crisis preparedness plan
EMS	emergency medical services
GP	general practitioner
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>
NGOs	nongovernmental organizations
PHC	primary health care
PPE	personal protective equipment
PTSD	post-traumatic stress disorder
SOP	special organism precautions

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Introduction

1. The usefulness of drafting a **crisis preparedness plan (CPP)** is undisputed. To some extent, the crucial factors are: the way it is drafted, the sustainability and feasibility of the plan, the level of knowledge and awareness of the plan that main actors have, the flexibility of the plan itself, and the amount of time and attention dedicated to test the plan.

2. This document aims to offer a **practical tool** for planning appropriate measures to be adopted by a hospital and/or, more in general, a health facility in order to be better prepared to face a critical situation. The tool is the result of a concerted contribution of various experts in the field of emergency services management. The experts participated in two WHO workshops organized in February and May 2006 at the WHO office in Barcelona (Spain), and all contributed extensively to the final draft.

3. The recommendations provided are tailored to a medium-to-large hospital with various specialties included, and should be adjusted as appropriate at the different levels of medical care of the health facility. They are aimed to cover areas of work that are crucial in the occurrence of a crisis.

4. A special focus is given to activities needed in the event of a pandemic influenza. Considering the potential global threat of a pandemic influenza, the document endeavours to highlight the best precautionary measures which can be taken.

5. By means of this initiative, the WHO Regional Office for Europe aims to:

- stimulate hospitals and health facilities in initiating all activities for appropriate preparedness to critical situations;
- provide a list of essential issues which must be addressed in constructing the skeleton of the preparedness plan;
- define minimum standards for a CPP for hospitals in the WHO European Region, generally applicable whatever the functions, positions, actual resources and other main characteristics of the health facility.

6. The ultimate aim is to enable the health facility to provide the best attainable standard of medical care for all patients and those in need of care in all situations.

7. Throughout the document, the term **hospital** stands for various kinds of health facilities such as:

- hospitals of all sizes and types;
- specialized medical services;
- primary health care (PHC) posts;
- general practitioner's (GP's) surgery etc.

Feedback welcome

8. This practical tool can be used by managers of health services in their routine practice. It is subject to improvements based on the experience of those who use it, and the Regional Office therefore encourages users to provide feedback on its use and to suggest possible revisions or updates to the document.

- ❖ Please forward your comments to **Dr Enrico Davoli**; Programme of Emergency Medical Services, WHO Barcelona office, 22-36 Marc Aureli, E-08006 Spain (email: eda@es.euro.who.int).

Crisis preparedness plan

9. A crisis preparedness plan (CPP) should simply aim to give basic directions on the mobilization and the organization of all available resources in order to be able to respond to critical situations. It is advisable that the responsibility for the details should be delegated, according to the lines of authority outlined in the CPP itself.

10. A **critical situation** is hereby defined as any situation where a hospital receives such a rush of new patients that it strains the resources of the service to the limit. In order to provide a more concrete and measurable definition of the circumstances that require apposite preparedness, "critical situation" is preferred to other keywords in this document. The "critical situation" is well depicted as the equilibrium between the demand and the supply of medical services. This occurs when the hospital receives an unusually large amount of new patients in a relatively short period of time, a rush that overwhelms the capacity to meet needs if exceptional measures are not implemented.

11. The term **crisis preparedness** is used as the most appropriate term for the hospital preparedness plan. Alternatively, other expressions can be found in the literature with similar meaning such as:

- The term **mass casualty incident** is particularly used in literature from the United States of America. This term underlines the implication of a high number of patients requiring medical assistance at once. On the other hand, it disregards the ratio between supply and demand, which is a two dimensional relationship.
- The term **disaster** is widely used. To some extent, it might even indicate a further step, when the hospital itself is subject to a structural damage that hampers its functionality.
- The word **emergency** ("a sudden unforeseen crisis that requires immediate action", ©*Wordnet 2.0 by Princeton University*) is also common in the medical terminology, although it indicates the urgency of the medical problem and its need for immediate attention. However, in all relevant literature, "emergency preparedness plan" is certainly the most encountered expression. The use of the term "emergency" recalls the tightness of time available to react in these circumstances and this could be misleading. Furthermore, the term emergency is widely referred to in the medical glossary for clinical cases that need immediate action (i.e. life-threatening situation). Therefore, the use of the term "emergency" might bias by putting the focus on the acute medical care itself, rather than on the whole organization and mobilization of hospital and extra hospital resources which would allow doing this in an appropriate and composite manner.

12. Emergencies in reality do allow time for proper reaction, especially if practical experiences, where patients reach the hospital at different times, are taken into consideration: most commonly, those less in need of emergency care are first to reach the hospital. When a large number of casualties arrive, the medical service is already overstressed and disorganized, mainly due to lack of **planning and coordination** ("panic wins!").

Pandemic/epidemic scenarios

WHO has said¹:

"Since the last pandemic in 1968-1969, the risk of an influenza pandemic has not been considered greater than at the present time. As of the date of this document [2006], AI A (H5N1) is endemic in birds in many parts of the world. The widespread persistence of H5N1 in bird populations poses two main risks to human health. The first is the risk of infection when the virus spreads directly from birds to humans. The second risk, which is of even greater concern, is that there will be increased possibilities for the widely circulating virus to infect humans and possibly reassort into a strain that is both highly infectious for humans and spreads easily from human-to-human. Such a change could mark the start of a pandemic."

13. This document focuses on such a possibility, with the aim to provide a practical instrument. The pandemic already showed its potential impact on some occasions, when isolated virus transmission from the bird population to humans suddenly generated an unexpected request for

1. *Avian influenza, including influenza A (H5N1), in humans: WHO interim infection control guideline for health care facilities.* Manila, WHO Regional Office for the Western Pacific, 2006.

service at the health facilities where the population seeks reassurance and protection, rather than actual emergency medical care. Health services and particularly emergency medical services should be able to respond to these needs, too, with alacrity and appropriateness.

14. Recommendations for a so called pandemic scenario can apply to many other contingencies: in general, all epidemics from communicable diseases can benefit from such a preparedness plan, more specifically those with airborne origin can easily correspond to the scenario foreseen in this document.

Methodology

15. The methodology applied refers to the general concept of **deconstruction**. This favours the approach of defining all essential components of a CPP in a simple and accessible format. The concept of *deconstruction* of each foreseeable problem mainly consists of thoroughly analysing or breaking down each problem to ensure that all relevant pieces of knowledge, conventions and assumptions are taken into consideration. In other words, the mechanism aims to achieve an abstraction of a problem, through the capacity of reducing a complex set of variables into fundamental features that characterize and define its core value.

16. In practical terms, this document provides a list of issues that are considered by the contributors as essential themes that must be tackled in all CPP for hospitals. Each issue represents problems and issues which are likely to be crucial in all critical situations, emergency or disasters and cannot be set aside when drafting the CPP. The selected items are presented individually, in a standard table. The part written in normal letters refers to emergency situations in general while the part in *yellow* is related to the pandemic influenza. A short description with a sample is provided below.

Title or keyword

General emergencies	Definition	A short description of the relevance and pertinence of the problem in a critical situation.
	Purpose	The objective to pursue in drafting the CPP.
	Minimum Standard	A proposal for defining a desirable minimum level of quality of care.
	Hint	Advice and ideas that are considered useful to consider when planning.
Pandemic	Minimum Standard	When and if needed, specific measures are envisaged in the event of a pandemic/epidemic scenario.
	Hint	Advice and ideas that are considered useful to consider when planning.

Example: Hospital crisis preparedness plan

General emergencies	Definition	Pre-established plan of action in case of emergency, crisis, mass casualty incident or any other event that causes a consistent unbalance in the request for services of acute care compared to the actual capacities of the hospital.
	Purpose	To define all procedures and actions to be pursued by all concerned staff in a crisis in order to provide the best attainable quality in delivering medical care to all patients in the hospital. The CPP must be updated regularly.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Define organization and management and nominate the responsible person ❖ Identify needed space, human resources and logistics.
	Hint	Planning should be done by a multidisciplinary group.
Pandemic	Purpose	To improve resilience and capacity of the hospital to face an epidemic (pandemic).
	Hint	Cooperation and coordination with national and regional epidemiological and infectious diseases centres is fundamental.

17. All keywords (issues) are listed in the following chapters, grouped into four main areas of work:

- **organization and management**
- **human resources**
- **delivery of care**
- **general resources.**

Main recommendations

18. The key to readiness in critical situation is to have **simple plans!**

- At least, the plan must be widely **shared** and understood by all concerned actors (staff, patients, volunteers, institutions, etc.)
- It must clearly define **roles**, behaviours and protocols for all those involved, and enable everyone to automatically act in accordance with a functional and functioning mechanism that can ensure the optimization of time, space and resources; the latter are usually inadequate and crucial in all critical situations and represent either the weak point or the clue to success.
- The protocols in CPP should not substantially differ from the **daily practice** and vice versa. By doing so, the planned actions will be more effective in one or the other situation.

19. It is of fundamental importance to pay particular attention to the following general recommendations.

- In the first place, preparation for a crisis preparedness plan for a hospital is a **fundamental exercise** that will also provide a huge benefit to the general organization and management of emergency medical services in daily practice.
- CPP is the **responsibility of all staff**. The management team or the director should identify the person/s with capacity and willingness to develop the plan, but all staff must be involved in the drafting of the plan to the maximum extent.
- Either in preparedness or in response, a hospital should mainly **rely on internal resources**, especially with regard to the human resources, as long as this remains feasible. They know what, when, where and how to undertake all actions required, and most important of all, hospital staff will understand why things have to be done in a certain way, if they have taken active part in the planning process.
- Drills and tests of the CPP are a crucial factor. Getting ready for the worst is a matter of **practice**. The more the hospital tests its capacity to respond to crises, the more it acquires knowledge and experience in organization and management of inestimable value.

1. Organization and management



Activation

General emergencies	Definition	The moment when the crisis preparedness plan (CPP) is declared active.
	Purpose	To define the procedures and responsibilities for starting all actions envisaged in the CPP.
	Minimum Standard	<ul style="list-style-type: none"> ❖ When (threshold of activation): define a minimum quantity of patients or its ratio over the daily influx that justifies the activation of the CPP. ❖ Who: designate a responsible in charge around the clock (24/7 function/position). ❖ How: define whom to call, how to communicate the activation and the first step to be undertaken before all responsibilities are in place.
	Hint	<ul style="list-style-type: none"> ❖ Usually it is the medical doctor in charge of the emergency room/unit who is responsible, but others might also be involved if presence is required 24/24 h and 7/7 days. ❖ The nature of the crisis might also be a variable to be taken into consideration here.

Transportation

General emergencies	Definition	Movement of patients inside as well as outside the hospital in case of relocation or evacuation.
	Purpose	To define the means of proper transportation and to identify the personnel that will have the task to move patients.
	Minimum Standard	Define means for in-hospital as well as out-of-hospital transportation as well as minimal capacity.
	Hint	Give clear instructions on: when, who and how for each category of patients.

Command and coordination structure: committee

General emergencies	Definition	The structure responsible for activating, coordinating, implementing, adapting and terminating the pre-established CPP including problem solving and reporting to authorities.
	Purpose	To pre-define the lead and mechanism of coordination in the implementation of emergency measures according to the CPP.
	Minimum Standard	The structure must include clinical, nursing, technical and security expertise.
	Hint	<ul style="list-style-type: none"> ❖ There might be 2 levels of structure: <ol style="list-style-type: none"> 1. first line at the very activation of the crisis that can be present around the clock for initial coordination and 2. second line pre-established command and coordination structure after the activation of the CPP. ❖ Include external experts if needed.

Mobilization

General emergencies	Definition	<ul style="list-style-type: none"> ❖ Internal immediate re-allocation of human resources from where they are less needed to where they are needed most. ❖ External gradual call-in of human resources to be brought in according to needs.
	Purpose	To get adequate resources (human, logistics etc.) in order to make the pre-established CPP functional and deliver the proper care.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Internal re-allocation comes first. ❖ Resources that are in the system have knowledge and capacities to better serve the hospital.
	Hint	Use of external resources (especially human resources) are generally difficult to handle and coordinate.

Information flow - reporting and recording

General emergencies	Definition	The mechanisms and procedures through which the information is distributed to different categories of structures, including the coordination structure, personnel, patients and relatives, agencies, authorities and media.
	Purpose	To establish the bidirectional flow of the correct information and to allow the coordination committee to undertake appropriate actions.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Documents and reporting forms must have clearly defined rules and pathways. ❖ All hospital staff should be trained on how to report to a designated person/organization. ❖ Basic information is: number of patients admitted, triage category, evolution of the care process and the need for extra resources.
	Hint	<ul style="list-style-type: none"> ❖ Use routine reporting forms. ❖ Decrease the quantity of information requested. ❖ Possibly rely on one single contact point or centre only.

Pre-hospital link

General emergencies	Definition	Permanent bidirectional contact between pre-hospital emergency services and the emergency reception area of the hospital.
	Purpose	<ul style="list-style-type: none"> ❖ To convey information from the pre-hospital system to the emergency reception area for proper response including the activation of the CPP. ❖ To convey information from the hospital to the pre-hospital system regarding capacity and needs.
	Minimum Standard	A radio communication system which is usually active on a day to day basis for individual emergencies.
	Hint	Check if it has capacity to expand its services.

Emergency care area

General emergencies	Definition	Designated area within the hospital providing emergency care around the clock, with dedicated human resources and logistics.
	Purpose	To localize patients in need of emergency care including life saving procedures.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Exclusively dedicated space. ❖ List of the basic emergency equipment. ❖ List of trained personnel.
	Hint	Always start from resources already dedicated to emergency care.
Pandemic	Definition	Separate access, assessment and admission facilities for those presenting symptoms of infection.
	Purpose	To prevent spread of infection.
	Hint	<ul style="list-style-type: none"> ❖ Important to maintain patient confidence to attend emergency services for other kinds of emergencies. ❖ Consider adding adequate environmental ventilation in this area.

Public relations and information

General emergencies	Definition	Communication to the general public through all available media.
	Purpose	To inform population on rights and means for appropriate health care.
	Minimum Standard	Identify and pre-train a credible spokesman and his or her deputies.
	Hint	<ul style="list-style-type: none"> ❖ The person should be able to give professional messages and to give correct answers to questions. ❖ Press releases should be pre-prepared as much as possible. <p style="margin-left: 20px;">All messages must be consistent with regional and national positions.</p>

Testing the plan

General emergencies	Definition	Selective or full scale simulation exercises that may be announced or not, involving some/all structures participating in the CPP implementation.
	Purpose	To validate a certain CPP and to train the personnel and various structures in its implementation.
	Minimum Standard	<p>Periodic selective exercises including table top (review of all procedures in an imaginary critical situation).</p> <p>Periodic full scale exercises whenever possible.</p>
	Hint	<ul style="list-style-type: none"> ❖ Incorporate drills and tests in the weekly routine. Small drills on a weekly or bi-weekly basis will largely benefit either the efficacy of daily work or the effectiveness of preparedness. ❖ Should be obligatory by law if possible.

Evaluation

General emergencies	Definition	Debriefing and analysis of the CPP implementation including categories of involved staff and agencies.
	Purpose	To identify the strong and weak points of the CPP in order to improve it.
	Minimum Standard	At least one evaluation session not later than 24 hours from the termination of the CPP.
	Hint	<ul style="list-style-type: none"> ❖ Pre-establish measurement criteria and targets. ❖ Include psychological debriefing when necessary.

SPECIFIC ISSUES FOR PANDEMIC SCENARIOS

Hospital activation plan in epidemic/pandemic scenarios

Pandemic	Definition	Procedure for initiating the implementation of the CPP. The implementation of the plan can be gradually upgraded according to the extent of the burden with which the emergency medical services are dealing: from the first suspected cases of likely epidemic infections to the highest grade of epidemic/pandemic occurring in the concerned community.
	Purpose	To be able to adequately and promptly respond to the needs of the population, from information and prophylactic measures to the provision of medical assistance to the highest possible number of patients.
	Minimum Standard	Activation of the plan should be possible on the notification of the first suspected cases, either in the hospital or in the community.

Implementation of the plan can be developed in progressive steps tailored to the level of epidemics/pandemics (ratio of population affected and burden of hospital work) as suggested in the following four cases.

Case I: Enhanced awareness

Pandemic	Definition	Procedure for initiating the implementation of the CPP. Internal mechanisms to ensure early identification of pandemic strain.
	Purpose	To rapidly identify and appropriately manage small numbers of cases and prevent further spreading. To make timely and accurate reports to national epidemiological surveillance.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Rapid diagnosis according to WHO guidelines. ❖ Protocols for diagnosis and criteria for lab testing. ❖ Availability of special protection measures for staff. ❖ Isolation capacity available.
	Hint	Treat in isolation unless diagnosis of pandemic strain is excluded.

Case II: Managing social distress

Pandemic	Definition	Large numbers of panicking / concerned patients seeking diagnosis of exclusion .
	Purpose	To identify clusters of population affected by epidemic/pandemic strain in need of medical assistance and to participate in epidemiological surveillance activities.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Pre-defined treatment protocols. ❖ Set of information to be delivered to concerned people. ❖ Pre-set key messages to be released to local / national media.
	Hint	<ul style="list-style-type: none"> ❖ Security of personnel is a key issue. ❖ Communication and mass media messages should be prepared in advance when possible. ❖ Briefing session with local opinion leaders and politicians.

Case III: Escalation of epidemics

Pandemic	Definition	Large numbers of patients with infections of a pandemic strain.
	Purpose	To ensure that resources are appropriately redirected in order to deal with the critical situation.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Define standards of care. ❖ Activate triage. ❖ Reallocation of staff, equipment and materials. ❖ Decide on level of services to be continued. ❖ Staff support and backup cover for vital staff functions. ❖ Ensure supplies.
	Hint	<ul style="list-style-type: none"> ❖ Prepare for a long-term situation. ❖ Start planning for the scenario of level IV. ❖ Establish a plan for home treatment in collaboration with the health care community including primary and community care specialists.

Case IV: Epidemic/pandemic phase

Pandemic	Definition	Epidemic/pandemic (when officially stated by the Ministry of Health or WHO).
	Purpose	To ensure the maximum capacity of the facility so as to be able to face an epidemic.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Similar to level III ❖ Defined criteria for access to intensive care and ventilation.
	Hint	<p>The plan should stop all unnecessary non-life-saving procedures and provide for:</p> <ul style="list-style-type: none"> ❖ Staff support ❖ Continuity of activity and supplies ❖ Consistency with regional and national plans ❖ Mutual aid plans on regional and national levels.

2. Human resources



Permanent hospital staff

General emergencies	Definition	All professional and non-professional employees working on a daily basis in the hospital must be deployed in case of crisis.
	Purpose	To obtain availability of the most qualified staff, with experience and built-in knowledge and familiarity with the hospital setting during the response phase to a crisis.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Updated list of all personnel. ❖ Updated list of essential professionals. ❖ Updated map of competency. ❖ Emergency leaders identified (surgeons, anaesthesiologists). ❖ Full administration capacity.
	Hint	Use interview, questionnaires or standardized tools in order to gather information on knowledge or previous crisis experiences.
Pandemic	Hint	Beware of staff absence from sickness, care (staff caring for family members) or bereavement.

Functional teams

General emergencies	Definition	Emergency teams of professionals or non-professionals dedicated to 3 main specific areas of service: crisis management, logistics and care provision.
	Purpose	To provide homogeneous, effective and prompt adapted response in order to achieve the CPP's objectives.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Crisis management: director, admissions, engineer, head physician/head nurse, information technology, pharmacy. ❖ Logistics and general services: general services staff, information systems staff, engineers. ❖ Care provision: physicians, nurses, aides.
	Hint	<ul style="list-style-type: none"> ❖ Follow the daily structure and competencies assigned to each staff. ❖ Merge and simplify functions as much as possible.
Pandemic	Hint	Functional teams are crucial in the following areas: <ul style="list-style-type: none"> ❖ triage ❖ infection control ❖ critical care.

Reserve staff

General emergencies	Definition	All professionals or non-professionals working outside the hospital setting that can have a complementary role in case of crisis.
	Purpose	To complement or replace the existing human resources if missing, inadequate, overwhelmed or unable to perform their tasks.
	Minimum Standard	Updated list of: <ul style="list-style-type: none"> ❖ all medical/nursing students ❖ all medical/nursing teachers ❖ volunteers ❖ retired professionals. All lists should be based on staff who have capacities and availability to join in (geographic proximity is important).
	Hint	Reserve staff should receive a copy of the CPP and always participate in drills and exercises.

Sourcing

General emergencies	Definition	Partnership agreement with professional boards and societies, NGOs, municipalities or other institutions in order to expand the support for crisis response with qualified staff.
	Purpose	To have an updated list of the reserve staff or roster of qualified staff.
	Minimum Standard	❖ Mapping of qualifications and/or experience.
	Hint	<ul style="list-style-type: none"> ❖ Review regularly and update the agreements. ❖ Open the hospital to new forms of collaboration.

Public health and preventive care

General emergencies	Definition	Prevention and decontamination for: chemical, biological, radiological, nuclear (CBRN) contamination.
	Purpose	To reduce related risks/avoid unnecessary exposures/manage staff protection.
	Minimum Standard	Appoint qualified personnel (with specific competencies).
	Hint	<ul style="list-style-type: none"> ❖ Appoint a responsible staff from the hospital for the development of specific plans for special circumstances (and refer to specific WHO guidelines). ❖ Network and coordinate with other relevant institutions: military forces, public health authorities, Red Cross Movement.

Continuous education and training

General emergencies	Definition	Strengthening and building capacities in emergency care skills in medical personnel.
	Purpose	To better manage emergency care in crisis situations.
	Minimum Standard	A detailed plan of training and continuing education for all cadres of key staff.
	Hint	<ul style="list-style-type: none"> ❖ Look for resources/funds to support staff in specific trainings. ❖ Encourage staff to undertake training. ❖ Training in the CPP to ensure sustainability. ❖ Rely on local and especially internal resources for training. Appointing some from the staff responsible for this will ensure that the training activities better fit with the real needs of the hospital.

Capacity building: training

General emergencies	Definition	List of items for addressing training needs among staff.
	Purpose	To ensure the duties of each person involved in the management of pandemic flu; communication to prevent and manage panic situation.
	Minimum Standard	Main areas of interest are: <ul style="list-style-type: none"> ❖ organization ❖ clinical management (triage, protection and safety of staff and patients, isolation, treatment).
	Hint	<ul style="list-style-type: none"> ❖ Give clear and simple instructions to every level of hospital staff. ❖ Training to communicate with media, relatives, patients, authorities, staff. ❖ Adjust training according to functional teams as per planning.
Pandemic	Minimum Standard	<ul style="list-style-type: none"> ❖ Laboratory management (handling samples). ❖ Case reporting. ❖ Communication.

Levels of training

General emergencies	Definition	Division of staff into groups, according to their planned duties in the CPP (functional teams).
	Purpose	To deliver effective training for the implementation of the CPP.
	Minimum Standard	<ul style="list-style-type: none"> ❖ All staff acquire basic knowledge on the CPP and skills for carrying out planned duties. ❖ Reserve staff are always included in training schedule.
	Hint	Identify the key person who will organize and supervise the training activities.

Materials for training

General emergencies	Definition	Generic guidelines and clinical protocols to achieve standard training for all hospital staff, in order to develop standard operating procedures.
	Purpose	To support training on the CPP and continue routine hospital functioning and obtain consensus on a standard training programme with specific inputs for different scenarios.
	Minimum Standard	Basic knowledge and training in general hospital preparedness plan for multiple casualties and disasters, followed by specific scenarios.
	Hint	<ul style="list-style-type: none"> ❖ The guidelines and clinical protocols should be made available at the point of care, adapted to local needs, and for various levels of staff ❖ Build the training material based on consensus, with full participation of staff.

Methodology of training

General emergencies	Definition	Development of teaching techniques.
	Purpose	To implement the training programme with maximum effectiveness.
	Minimum Standard	Sharing the knowledge and information (websites, distance learning, e-learning, meetings and workshops).
	Hint	<ul style="list-style-type: none"> ❖ Training should ensure sustainability through adaptation to local needs. ❖ Always refer to national and international training sources. ❖ Drills and tests are the most effective means of capacity building.

Monitoring and evaluation of training

General emergencies	Definition	All actions and systems for assessing the progress of training for pandemic influenza.
	Purpose	To assess the impact of training and meet quality assurance requirements.
	Minimum Standard	Each training activity must have an evaluation scheme.
	Hint	Incorporate lessons learnt in training programmes.

Quality of training

General emergencies	Definition	Measurement of quality of acquired knowledge and application of the training.
	Purpose	To ensure an adequate and useful degree of training.
	Minimum Standard	Evidence-based information.
	Hint	<ul style="list-style-type: none"> ❖ Periodic checks and regular update on the training skills and materials. ❖ Consult with the World Health Organization and the health ministry for training opportunities and tools.

SPECIFIC ISSUES FOR PANDEMIC SCENARIOS

Infection control committee

Pandemic	Definition	Responsible for recommendations and implementations related to infection control within the hospital, such as methicillin-resistant <i>Staphylococcus aureus</i> (MRSA).
	Purpose	To adapt general recommendations on infection control to a given hospital and monitor implementation.
	Minimum Standard	Provider of information and organizer of training within the hospital for the implementation of infection control recommendations. Monitor occurrence of infections, control failures and update recommendations (e.g. special organism precautions (SOP)).
	Hint	The committee can be an integral part of the coordination team in all crisis situations.

Raise awareness

Pandemic	Definition	Basic understanding of seasonal influenza, pandemic influenza, infection control and biosafety among staff and general public.
	Purpose	To raise awareness of biohazard risks.
	Minimum Standard	Basic information and understanding of universal precautions and transmission-based precautions among all staff working in the health care facility.
	Hint	<ul style="list-style-type: none"> ❖ Designate a person or team to disseminate information. ❖ The hospital can play an active and effective role in disseminating information to the general public.

3. Delivery of care



Triage

General emergencies	Definition	Categorization of patients according to priority of care.
	Purpose	To provide best care to as many patients as possible within available resources.
	Minimum Standard	Specified place and designated person in charge of the initial hospital triage, according to a predetermined protocol.
	Hint	Triage should be a dynamic process that follows the conditions of the patient and the availability of care, accordingly.
Pandemic	Hint	<ul style="list-style-type: none"> ❖ Triage protocols adapted to specific epidemics. ❖ Access criteria to intensive care and ventilation. ❖ Criteria for access to specific medication especially if eventually limited in availability. ❖ Need to cooperate with community care.

Clinical protocols

General emergencies	Definition	Pre-defined medical procedures for diagnosis and therapy (algorithms) for patient care.
	Purpose	To optimize the use of available resources.
	Minimum Standard	Protocols should be available for at least very common emergencies, such as resuscitation, trauma, pregnancy-related complications, infections and anaesthesia.
	Hint	<ul style="list-style-type: none"> ❖ Develop protocols based on scientific evidence. ❖ Share protocols with staff and obtain consensus. ❖ Protocols (algorithms) for main pathologies are useful in all circumstances despite activation of the CPP. ❖ Use posters to help staff remember all steps of protocols. ❖ Use of protocols and algorithms is an effective tool to ensure quality of medical care in critical situations.

Home care

General emergencies	Definition	Medical assistance delivered at the home of the patient.
	Purpose	To relieve the primary and hospital care, while providing medical care in the most familiar and comfortable environment for the patient.
	Minimum Standard	<ul style="list-style-type: none"> ❖ GPs are involved in caring for people at home. ❖ Stimulate self-care during a pandemic flu. ❖ Facilitate the involvement of neighbours and support people (social workers, volunteers).
	Hint	Mobilize and involve GPs and the local social system (social workers, neighbours).

Specialty care

General emergencies	Definition	Medical care that needs specialized technology and/or personnel.
	Purpose	To provide timely access to specialty care.
	Minimum Standard	Referral network in place for all medical needs.
	Hint	Coordinate the plan for referral at local and regional level.
Pandemic	Hint	<ul style="list-style-type: none"> ❖ Define criteria for access to specialty care, particularly to intensive care, in situations where resources can hardly meet the demand. ❖ Criteria should be based on ethics, equality, and shared with the community and the staff.

Medical records

General emergencies	Definition	Recording patients, demographic data and process of care.
	Purpose	<ul style="list-style-type: none"> ❖ To ensure patients' safety and quality of care. ❖ To respect legal obligations.
	Minimum Standard	Specification of: date and time of admission, admission number, gender, adult or child age group, and record of care process.
	Hint	<ul style="list-style-type: none"> ❖ Use routine existing medical records. ❖ Do not make specific crisis records.

Communication with relatives

General emergencies	Definition	Information provided to the relatives of the patients.
	Purpose	To meet relatives' needs for and right to information.
	Minimum Standard	Information based on reality, truth and timeliness.
	Hint	<ul style="list-style-type: none"> ❖ Designate a person to collect and appropriately disseminate information. ❖ Brief training of all staff is extremely effective and useful.
Pandemic	Hint	<ul style="list-style-type: none"> ❖ Consider additional training for staff on how to deliver bad news and limitations of access to specialist treatment. ❖ Support staff with a pre-set of information for relatives.

Quality assurance

General emergencies	Definition	Maintenance of the quality standard pursued and achieved by the hospital during the phase of response to the crisis.
	Purpose	To maintain minimum standards of quality of emergency care on the basis of experience, training and exercise.
	Minimum Standard	Defined according to routine objectives of quality in the medical care.
	Hint	Establish a multidisciplinary quality assurance team in the CPP.

Vulnerable groups

General emergencies	Definition	People with limited self-sufficiency i.e. unaccompanied children, elderly and disabled people often do not have equal access to medical care in general and particularly in critical (crisis) situations.
	Purpose	Ensure equitable access to care for all.
	Minimum Standard	<ul style="list-style-type: none"> ❖ Definition of vulnerable groups. ❖ Designation of one (or more) person(s) in charge of identifying patients in need of special assistance, facilitating and guiding them through all procedures of medical care delivery.
	Hint	Volunteers can help extensively.
Pandemic	Hint	Particular attention to be paid to the following groups in case of epidemics/pandemics: <ul style="list-style-type: none"> ❖ mental health facilities' patients ❖ persons with learning disabilities ❖ institutionalized communities (e.g. prisons, educational residences etc.) ❖ immigrants.

Surge capacity

General emergencies	Definition	Increasing the patient admission capacity.
	Purpose	To respond to exceptional requests for delivery of acute medical care.
	Minimum Standard	Definition of minimum standards of care by specific and measurable ratios, e.g.: doctors/patients, nurses/patients, patients/m ² , patients/toilets, etc.
	Hint	<ul style="list-style-type: none"> ❖ Envisage formal agreements with community resources for extra contributions (e.g. schools for extra space, professional associations for human resources, etc.). ❖ Plan for referral network, for discharging and moving patients from the hospital, and for means of transportation for patients.

Psychological support (patient/staff)

General emergencies	Definition	Service of psychological counselling and debriefing for PTSD (post-traumatic stress disorder) and burn-out (fatigue) of patients and staff.
	Purpose	To release stress and prevent PTSD in patients and staff (help them cope with the situation/losses).
	Minimum Standard	<ul style="list-style-type: none"> ❖ Involve volunteers from charity organizations, professionals (psychiatrists, psychologists, mental health nurses etc.). ❖ Train the emergency personnel to better manage frustrations and aggression caused by any emergency. ❖ Transportation systems for staff. ❖ Baby care services (24 hours) for staff.
	Hint	<ul style="list-style-type: none"> ❖ Coordinate (even outsource) with existing social and health resources at community level. ❖ Communities can be a source of spontaneous, reliable and effective psychological support (if well coordinated). ❖ Designate a place and nominate a person to organize as soon as possible after the event debriefing sessions for victims and health personnel. ❖ Involve the staff associations, clubs, and unions of the hospitals in organizing these services. ❖ Plan for dealing with bereavement among staff, making clear the rights to bereavement leave.

SPECIFIC ISSUES FOR PANDEMIC SCENARIOS

Screening, isolation, cohorting and traffic control of patients

Pandemic	Definition	Identification of alert cases and implementation of infection control precautions.
	Purpose	To minimize nosocomial infection and protection of staff, other patients and family members/visitors.
	Minimum Standard	Close link up with surveillance system, case definition for screening and laboratory results for confirmation.
	Hint	Accommodate together patients with similar clinical diagnosis and epidemiological factors.

Safe collection, handling and transport of clinical specimens

Pandemic	Definition	Procedures for biorisk reduction relating to laboratory testing.
	Purpose	To minimize risk of infection among persons dealing with sample collection, packaging for transport, and laboratory processing.
	Minimum Standard	Training opportunity for all staff involved on biosafety.
	Hint	<ul style="list-style-type: none"> ❖ Repeated training opportunity should be provided by authorized laboratory specialized in laboratory safety training. ❖ Refer to the health ministry and/or WHO for guidelines and training.

4. General resources



Financial coverage

General emergencies	Definition	Available reserve funds for covering extra work of the staff, additional resources (consumables etc.) and incidentals.
	Purpose	To be able to fully implement the plan and respond to the crisis situation.
	Minimum Standard	<ul style="list-style-type: none"> ❖ List the priority needs in different scenarios of critical situations ❖ Define and ensure reserve funding (extra budgetary).
	Hint	<ul style="list-style-type: none"> ❖ Make an approximate costing of expected burden. ❖ Define preliminary agreements with banks, foundations and health insurance funds for immediate release of loans and grants in time of crisis.

Planning for flexible spaces

General emergencies	Definition	Logistical capacity of reorganizing the space (amount and type) when patient inflow exceeds the normal capacities of EMS (emergency medical services) according to the nature of the crisis.
	Purpose	To pre-define and devote spaces according to new extraordinary needs emerging.
	Minimum Standard	<p>This step should be initiated as soon as the CPP is activated in response to a crisis.</p> <p>It should take into account at least spaces for:</p> <ul style="list-style-type: none"> ❖ triage ❖ treatment ❖ isolation ❖ waiting area ❖ extra beds (see discharge special procedures) ❖ crisis command room ❖ ambulance flow (entrance, discharge and way out) ❖ family and population dedicated area ❖ media and politicians, dedicated area ❖ staff private area ❖ reception of volunteers ❖ morgue services.
	Hint	Reallocating space highly depends on the characteristics of the hospital and on the creative solutions that may be put in place (tents, neighbouring facilities and buildings, etc.).

Patients and staff safety

General emergencies	Definition	Reducing as much as possible all risks for patients and health personnel, especially those derived from medical procedures.
	Purpose	Do no harm.
	Minimum Standard	<p>Define risks, prioritize, take action and evaluate. Define rules and protocols (if not already in place) for the following emergency interventions that may involve health hazards:</p> <ul style="list-style-type: none"> ❖ needle management and disposal/injections ❖ specific personal protective equipment ❖ enhanced waste management ❖ isolation of patients ❖ containment/security ❖ blood transfusions ❖ information records of the patients ❖ information record of therapies, prescribed and delivered ❖ alerts for allergies highlighted in clinical records/adverse events ❖ life saving clinical procedures linked to equipment ❖ infections.
	Hint	<ul style="list-style-type: none"> ❖ Use multidisciplinary approach to address patient and staff risks. ❖ Use extensively information and education posters for both patients and staff.
Pandemic	Minimum Standard	Vaccination of health care workers, including laboratory staff, against all likely infectious hazards, when available. Consider priority vaccination against pandemic virus when available. Consider prophylaxis with relevant antiviral drugs in the absence of vaccine.
	Hint	Explore in advance provision of vaccines and specific (antiviral – antimicrobial) drugs and develop plan for administration.

Essential supplies and logistics

General emergencies	Definition	Surge capacity allowing health care to be delivered.
	Purpose	To plan and scale up supply delivery to meet the excess demand.
	Minimum Standard	<p>Essential supplies list may include:</p> <ul style="list-style-type: none"> ❖ pharmaceuticals, medical gas, blood supplies ❖ essential emergency equipment (capital and renewable or disposable items) ❖ water ❖ fuel, electricity, generator, backup system ❖ food/beverages ❖ communication equipment (external/internal communication) ❖ mechanisms to procure and ensure timely supplies (pipeline) should be in place.
	Hint	<ul style="list-style-type: none"> ❖ The hospital management to agree on the definition of minimum quantity of items. ❖ Fully involve (and possibly delegate) the usual providers, for they usually have better logistics and capacities. ❖ Sign formal agreements with providers. ❖ Cooperation (exchange of materials) with neighbouring health facilities (primary health care, hospital, private clinics).

Community help

General emergencies	Definition	Amplification of hospital capacity to respond to crisis situations.
	Purpose	To enlarge the hospital capacity in delivering medical and non-medical care.
	Minimum Standard	Large spaces with services (hotels, schools) and nursing capacities, family homes (home care).
	Hint	Despite its grade of organization and link with hospital activities, the community is a good source of exceptional resources.

Mitigation for health facilities

General emergencies	Definition	Structural and functional measures to ensure hospital resilience to the major local hazards.
	Purpose	To ensure that health facilities keep functioning during and after emergency situations.
	Minimum Standard	Critical services are maintained.
	Hint	<ul style="list-style-type: none"> ❖ New buildings should be planned and already existing structures should be retrofitted by adding components or adjusting the medical devices in order to increase their safety and resistance to malicious and disaster events. ❖ Partners in the process: construction engineers with mitigation focus.

Security

General emergencies	Definition	Protection of the hospital environment and the staff from violence and harmful overcrowding of premises.
	Purpose	To protect staff and environment from assaults, aggression, contamination, and other effects of overcrowding and public panic.
	Minimum Standard	Detailed plan to be drafted jointly with police forces and authorities.
	Hint	<ul style="list-style-type: none"> ❖ Regularly distribute information and security warnings messages to crowd, patients and staff. ❖ Community resources can also contribute (volunteers, private security firms).
Pandemic	Hint	<ul style="list-style-type: none"> ❖ Think of special security arrangements to prevent people from invading the hospital in search for medications / treatment, triage, access to specific medication. ❖ Provide PPE for security staff.

Mortuary services

General emergencies	Definition	All services for treatment and care of corpses.
	Purpose	To ensure religious, spiritual dignity for all corpses and efficiency in the management of the fluxes.
	Minimum Standard	Planned space for convenient accommodation of corpses.
	Hint	<ul style="list-style-type: none"> ❖ Prepare support advice for relatives. ❖ Ensure adequate mortuary facilities or alternative fast burial or cremation compatible with cultures. ❖ Minimize time of exposure of corpses.

SPECIFIC ISSUES FOR PANDEMIC SCENARIOS

Cleaning, disinfection and waste management

Pandemic	Definition	Proper cleaning, disinfection and waste management within health care facilities.
	Purpose	To minimize nosocomial infection and additional burden to the health care facility.
	Minimum Standard	Standards higher than routine.
	Hint	Designate a hospital infection control team in the plan.

Personal protective equipment (PPE)

Pandemic	Definition	All devices meant for protection of exposed persons to infectious diseases.
	Purpose	To protect staff, other patients and family members/visitors from being infected.
	Minimum Standard	Identify required level of protection and specification of materials together with appropriate procedures.
	Hint	<ul style="list-style-type: none"> ❖ Designated hospital infection control team to work on and train. ❖ Ensure stock, at the warehouse of the hospital or through agreements with supplier.

Essential supplies

Pandemic	Definition	Essential supplies for a specific pandemic situation.
	Purpose	To plan and scale up supply delivery to meet the specific demand.
	Minimum Standard	<ul style="list-style-type: none"> ❖ PPE. ❖ Antivirals. ❖ Antibiotics. ❖ Vaccines if available. ❖ Food and beverages supplies for staff and patients.
	Hint	<ul style="list-style-type: none"> ❖ Supplies need to meet quality standards. ❖ Plan for distribution systems for antimicrobial agents (antiviral, antibiotic, etc.) and vaccines. ❖ Select your criteria for stockpiling and distribution.

Suggested reading

Avian influenza, including influenza A (H5N1), in humans: WHO interim infection control guideline for health care facilities. Manila, WHO Regional Office for the Western Pacific, 2006.

WHO pandemic influenza draft protocol for rapid response and containment. Geneva, World Health Organization, 2006.

Assessment tool for national pandemic influenza preparedness. Stockholm, European Centre for Disease Prevention and Control in collaboration with the European Commission and the WHO Regional Office for Europe, 2006.

WHO checklist for influenza pandemic preparedness planning. Geneva, World Health Organization, 2005.

WHO integrated management for emergency and essential surgical care: WHO generic essential emergency equipment list; best practice protocols for clinical procedure safety. Geneva, World Health Organization, 2003.

WHO Global Influenza Preparedness Plan. The role of WHO and recommendations for national measures before and during pandemics. Geneva, World Health Organization, 2005.

Establishing a mass casualty management system. Washington, DC, Pan American Health Organization, 1995.

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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