World Health Organization
REGIONAL OFFICE FOR Europe

Strengthening health-system emergency preparedness

Toolkit for assessing health-system capacity for crisis management

Part 1. User manual

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Supported by the European Commission, Directorate-General for Health and Consumers (DG SANCO)

ABSTRACT

In preparing for health crises, health systems face the prospect of multiple hazards, limited resources for dealing with them and high expectations with regard to their performance. The WHO Regional Office for Europe is working with its Member States towards strengthening health-system capacity by providing technical assistance in developing and implementing crisis preparedness and management programmes. In 2008, with the aim of improving the preparedness of countries for public health emergencies, the European Commission Directorate-General for Health and Consumers and the WHO Regional Office embarked on a joint project entitled, "Support to health security, perparedness planning and crises management in European Union (EU), EU accession and neighbouring (ENP) countries". The objectives of this project included the development of a standardized toolkit for assessing health-system capacity for managing crises.

This toolkit was developed and revised during the course of pilot assessments carried out in Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Poland, the Republic of Moldova, Turkey and Ukraine between 2007 and 2010. It comprises two parts: (1) the present document (user manual) and (2) the assessment form.

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CONTENTS

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ACRONYMS

AMP	Advanced medical post
BLS	Basic life support
CBRN	Chemical, biological, radiological and nuclear
CERT	Community emergency response team
DG SANCO	Directorate-General for Health and Consumers
DVI	Disaster victim identification
EC	European Commission
ECDC	European Centre for Disease Prevention and Control
EMS	Emergency medical services
EU	European Union
ENP	European neighbourhood policy
GIS	Geographical information system
IDP	Internally displaced people
IEC	Information, education and communication
IFRC	International Federation of Red Cross and Red Crescent Societies
IHR	International Health Regulations
IMS	Integrated management system
IRA	Initial rapid assessment
MDG	Millennium Development Goals
MISP	Minimum initial service package
NGO	Nongovernmental organization
NSDI	National Spatial Data Infrastructure
PAHO	Pan American Health Organization
PPE	Personal protective equipment
PHC	Primary health care
UNFPA	United Nations Population Fund
UNHCR	United Nations Refugee Agency
UNICEF	United Nations Children's Fund
WFP	World Food Programme

INTRODUCTION

Disasters and crises are highly unpredictable. They can hit communities at any time, causing substantial human suffering and loss of life. If national and local systems, particularly health systems, are ill-prepared to deal with a crisis, the vulnerability of both individuals and communities becomes even more pronounced. The sudden increase in demand for essential health services brought on by a crisis often overwhelms health systems and their institutions, rendering them unable to provide the necessary life-saving interventions.

Preparing a health system for crises is no trivial task. Strengthening stewardship, implementing preparedness planning as a continuous process with a multihazard approach and establishing sustainable crisis-management and health-related risk-reduction programmes require a clear understanding of the situation of a country. Unfortunately, until now, no standard formal methodology for assessing the preparedness of a health system for crises has been established.

In 2008, with the support of the Directorate-General for Health and Consumers (DG SANCO), WHO launched the project, "Support to health security, preparedness planning and crises management in European Union (EU), EU accession and neighbouring (ENP) countries", with the aim of improving preparedness for public health emergencies in EU Member States and selected EU accession and ENP countries in the WHO European Region. One of the goals was to refine the assessment tool for health-sector crisis-preparedness developed on the basis of experience gained through the joint European Community (EC)–WHO project, "Support to health security and preparedness planning in EU neighbouring (ENP) countries (2007–2008)", within which assessments on crises planning and management were carried out in Armenia, Azerbaijan and the Republic of Moldova. Further experience gained during a second round of assessments conducted in Kazakhstan, Kyrgyzstan, Poland, Turkey and Ukraine enabled finalization of the assessment tool. The WHO health-system framework *(1)* was the conceptual basis used for describing and analysing health systems during all country assessments. The following documents provided inspiration for the structure and development of the toolkit: *Hospital safety index. Guide for evaluators (2)*, *Health-sector self-assessment tool for disaster risk reduction (3)* and *Protocol for assessing national surveillance and response capacities for the International Health Regulations (2005) (4)*.

It is our firm belief that by accurately anticipating the health needs of the population and effectively preparing for those needs, health systems can respond promptly in the event of a crisis, thus saving lives and alleviating suffering. In developing this toolkit, it has been our intention to provide ministries of health, and other relevant authorities, with a guide for use in evaluating the capacity of health systems for crisis management and in addressing any identified gaps.

Background

Health crises are often unpredictable, occurring at any place or time. They can cause significant human suffering and loss of life and can have serious economic repercussions. Communities are particularly vulnerable when national and local systems, particularly health systems, are unable to cope with the consequences of a crisis, often because a sudden increase in demand overwhelms the institutions involved.

In this document, the terms "health emergencies" and "health crises" refer to the health threats associated with new or newly emerging diseases, the accidental release or deliberate use of biological, chemical or radionuclear agents, natural disasters, human-made disasters, complex emergencies, conflicts and other events with a potentially catastrophic impact on human health, including the potential implications of climate change.

In a changing global environment, preparing for and preventing a health crisis is becoming more complex. The increasing number of weather-related events (floods, storms, extreme temperatures, etc.) and the increasing threat of a human influenza pandemic have highlighted the need for worldwide cooperation in strengthening public health defences to respond to emerging international health problems. The spate of declarations and agreements made by the global community in recent years underlines the need for all countries to be prepared to meet these and other emerging threats to public health (Table 1).

Table 1. Declarations and agreements relating to strengthening health-system capacity for disaster preparedness

Declarations/agreements	Notes
WHO eleventh general programme of work (2006–2015)	Identifies the need to strengthen health systems as a key priority.
World Health Assembly resolutions WHA58.1 (2005) and WHA59.22 (2006) *(5, 6).*	These resolutions reinforce the WHO mandate to support Member States in preparing their health systems for crises and to strengthen its own institutional readiness.
The Millennium Development Goals (MDG)	MDG are directly and/or indirectly health-related; their achievement is crucial to strengthening health systems.
The Hyogo Framework (2005–2015) *(7)*	Adopted by 168 countries, the Hyogo Framework is a comprehensive action-oriented response to the growing impact of disasters on individuals, communities and national development. It stresses five priorities for action, one of which is to strengthen disaster preparedness at all levels.
EC communication on strengthening coordination on generic preparedness planning for public health emergencies at EU level and EU technical guidance on generic preparedness planning (2005) *(8, 9).*	The action recommended in these documents is being implemented at the political and technical levels in WHO European Member States with the support of the European Centre for Disease Prevention and Control (ECDC), which provides scientific advice, technical assistance and training.
World Health Assembly resolution WHA58.5 (2005) *(10)* acknowledging the serious threat to human health represented by outbreaks of avian influenza and associated human cases.	Stresses the need for all countries to collaborate with WHO and each other to reduce the risk of a human pandemic of avian influenza A (H5N1).
International Health Regulations (IHR) (2005) *(11)*	Approved by WHO Member States during the 58th session of the World Health Assembly in June 2007, IHR (2005) came into force as international law. The Regulations specifically target the need to respond to "public health emergencies of international concern", calling for the strengthening of health systems by improving national core capacity and mobilizing collective global action to deal with public health crises of international concern.

Within the framework of its medium-term strategic plan for 2008–2013, WHO is committed to collaborating with Member States to strengthen their capacity and overall preparedness for health crises and ensure the interoperability and coherence of their health-system crisis-management plans. To this end, WHO recommends establishing comprehensive programmes based on an all-hazards approach. The all-hazards concept acknowledges that, while hazards vary in source (natural, technological, societal), they often challenge health systems in similar ways. Thus, usually, the model used as a basis for action to reduce risk and to prepare for and respond to emergencies, regardless of cause, is the same. Experience shows that, to a large degree, the various elements of essential response action are generic (health information in crises, an emergency operations centre, coordination activities, logistics, public communications, etc.) irrespective of the hazard, and that prioritizing them generates synergies that benefit action.

WHO advocates for cross-border cooperation aimed at developing mutual assistance agreements

between countries and improving health-related crisis preparedness and management. The capability of each country to respond will thus be strengthened and international ties improved. IHR (2005) *(11)* requires States Parties to "prevent, protect against, control and provide a public health response to the international spread of disease so as to avoid unnecessary interference with international traffic and trade", emphasizing the importance of international collaboration.

Purpose of the toolkit

The overall goal of the toolkit is to help countries minimize the impact of future health crises by assessing the capacity of their health systems to respond to various threats and identify gaps. The toolkit does not enter into technical detail, nor is it intended to replace the pre-existing planning process. It is an instrument, which breaks down the complex crisis-preparedness process into manageable units and functions as an aide-memoire, thus enabling a ministry of health to:

- record and classify information regarding its capacity to manage crises;
- establish responsibility for specific tasks;
- determine the relationship between those involved in these tasks (partners, sectors, disciplines) with the aim of synergizing resources;
- identify shortcomings and gaps; and
- monitor progress.

The toolkit can be used to stimulate communication and coordination at all stages of preparing for and managing a health crisis. Although ministries of health should take the lead in strengthening their national health systems, there is much to be gained from multisectoral collaboration with national and international agencies to ensure the mobilization of all resources available in the case of a threat. Health-sector crisis preparedness is a process that needs to be updated continuously in the light of changes in the health system and the identification of new threats and gaps. Involving the stakeholders and sharing information with them enhances this process.

In carrying out assessments of health-system preparedness, it may be necessary to adapt the toolkit to accommodate national specifics. Assessments can be supported by WHO at the request of the country.

Structure of the toolkit

The toolkit comprises the user manual (Part 1) and the assessment form (Part 2).

User manual

In addition to information on the general background and objectives of the assessment, the user manual includes:

- a glossary of the main technical terms used in the document (Annex 1);
- the procedures for and recommendations on using the toolkit, including instructions on how to complete the assessment form and suggestions on the selection of assessment sites;
- recommendations on follow-up of the assessment and development of a plan of action;
- information about the essential attributes and indicator-related questions contained in the assessment form;
- a list of possible sources of the information required for assessment of the essential attributes (Annex 2); and
- recommendations on relevant additional reading.

Assessment form

The assessment form is sectioned according to the six functions (building blocks) of the WHO health-system framework (Table 2).

Table 2. The WHO health-system framework

Functions	**Overall goals/ outcomes**
Leadership and governance	Improved health (level and equity)
Health workforce	Responsiveness
Medical products, vaccines and technology	Social and financial risk protection
Health information	Improved efficiency
Health financing	
Service delivery	

WHO defines **health systems** as comprising all the resources, organizations and institutions that are devoted to producing interdependent actions aimed principally at improving, maintaining or

restoring health. Further information on health systems can be found in the following documents: *The world health report 2000 (12), Everybody's business: strengthening health systems to improve health outcomes (1)* and the report of the European Ministerial Conference on Health Systems, which includes *The Tallinn Charter: health systems for health and wealth (13).*

Leadership and governance (also called stewardship) is arguably the most complex function of any health system; it is also the most critical *(12).* Successful leadership and governance require strategic policy frameworks that are combined with oversight, coalition-building, accountability and appropriate regulations and incentives *(14).* In relation to crisis management, this means ensuring that national policies provide for a health-sector crisis-management programme. Effective coordination structures, partnerships and advocacy are also needed, as well as relevant, up-to-date information for decision-making, public-information strategies and monitoring and evaluation.

Health workforce (human resources for health) includes all health workers engaged in action to protect and improve the health of a population. "A well-performing health workforce is one, which works in ways that are responsive, fair and efficient, to achieve the best health outcomes possible, given available resources and circumstances" *(14).* This necessitates the fair distribution of a sufficient number and mix of competent, responsive and productive staff. A preparedness programme aims to ensure that such staff represents an integral part of the health workforce by conducting training-needs assessments, developing curricula and training material and organizing training courses.

A well-functioning health system ensures equitable access to essential **medical products, vaccines and technologies** of assured quality, safety, efficacy and cost–effectiveness, and their scientifically sound and cost-effective use *(14).* Medical equipment and supplies for prehospital activities, hospitals, temporary health facilities, public health pharmaceutical services, laboratory services and reserve blood services needed in case of a crisis also fall under "medical products, vaccines and technologies".

A well-functioning **health information system** is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health-system performance and health status *(14)*. A health information system also covers the collection, analysis and reporting of data. This includes data gathered through risk and needs assessments (hazard, vulnerability and capacity) and those relating to early-warning systems and the overall management of information.

A good **health-financing system** ensures the availability of adequate funds for the health system, and its financial protection in case of a crisis. In addition to providing funds for essential health-sector crisis-management programmes, it ensures that crisis victims have access to essential services and that health facilities and equipment are adequately insured for damage or loss.

Service delivery is the process of delivering safe and effective health interventions of high quality, both equitably and with a minimum waste of resources, to individuals or communities in need of them. The crisis-preparedness process provided by the WHO health-system framework *(4)* makes it possible to review the organization and management of services, ensure the resilience of health-care facilities and safeguard the quality, safety and continuity of care across health facilities during a crisis.

The six sections of the assessment form (structured according to the functions of the WHO health-system framework *(4)*) are broken down into the "key components" of a health-sector crisis-preparedness programme (Table 3).

Certain attributes are considered essential for the successful implementation of each key component. There are 51 essential attributes; they are listed according to the key components of each of the six WHO health-system framework functions blocks (Annex 3).

The assessment is facilitated by questions relating to each of the essential attributes. Assessors are required to answer each indicator-related question by choosing "yes", "partially" or "no", and to justify the answer given. This information forms the basis of a detailed narrative assessment report, which can be used to develop a plan of action to address gaps identified and monitor progress during follow-up assessments. Table 4 exemplifies the structure of the assessment form.

Procedures for and recommendations on using the toolkit

General coordination and pre-assessment activities

The assessment process is initiated by a coordination group comprising professionals from the decision-making level of the ministry of health and other relevant institutions responsible

Back

Table 3. Key components of the WHO health-system framework, by function

Functions	Key components
Leadership and governance	Legal framework for national multisectoral emergency management Legal framework for health-sector emergency management National multisectoral institutional framework for multisectoral emergency management Institutional framework for health-sector emergency management Health-sector emergency-management programme components
Health workforce	Human resources for health-sector emergency management
Medical products, vaccines and technology	Medical supplies and equipment for emergency-response operations
Heath information	Information-management systems for risk-reduction and emergency-preparedness programmes Information-management systems for emergency response and recovery Risk communication
Health financing	National and subnational strategies for financing health-sector emergency management
Service delivery	Response capacity and capability Emergency-medical-services (EMS) system and mass-casualty management Management of hospitals in mass-casualty incidents Continuity of essential health programmes and services Logistics and operational support functions in emergencies

Table 4. Structure of the assessment form

Function	**Leadership and governance**
Key component	**1.1.** Legal framework for national multisectoral emergency management
Essential attribute	**1.** Laws, policies, plans and procedures relevant to national multisectoral emergency management

Indicator-related questions	Answer (enter X where applicable) Yes	Partly	No	Justification
(a) Does the legislation follow an all-hazard approach?				
(b) Does the legislation consider all phases of emergency management?				
(c) Is the legislation reviewed and revised regularly?				
(d) Are procedures for declaring and terminating a state of emergency at both the national and subnational levels defined in the legislation?				

for health-sector crisis management. It is the responsibility of the coordination group to set up the assessment team, select the assessment sites and ensure the preparation of a report on the findings and recommendations of the team. On the basis of this report, the coordination group is responsible for and/or supervises the development of a national plan of action to address identified gaps in the crisis-management programme of the health sector. If such a programme does not yet exist, the plan of action should define steps to be taken to establish one. With a view to obtaining the necessary governmental support to implement the plan of action, it is of the utmost importance that the senior decision-makers appointed as members of the coordination group by the ministry of health participate in all steps of the assessment.

Activities leading to the assessment include the establishment of an assessment team, the selection of assessment sites and the compilation of relevant background information, such as country risk profiles, policy and legislation documents, and organigrams of existing crisis-management structures.

If requested by the country, the WHO Country Office and/or the WHO Regional Office can provide technical support for the preparation and conduct of the assessment, including introductory training on its methodology.

Composition of the assessment team

Team leader

The team leader should be a representative of the ministry of health, responsible for health-sector crisis preparedness and management. The team leader is responsible for organizing and implementing the mission (including field visits), following up on the assessment and ensuring that all team members are briefed on the objectives of the assessment and on how it is to be conducted.

Team members

Members of the assessment team should be drawn from the various disciplines involved in health-system crisis preparedness and management (Table 5). As it might not be possible to gather experts in all of the below-mentioned areas, professionals with less experience, or advanced-level students in these areas, may be selected to collect the data. These individuals should be closely supervised and should consult experts at all times regarding the interpretation of their findings. Team members' evaluations should be limited to their own areas of expertise.

Selection of sites for assessment

Assessments should be carried out through field visits at the national and subnational[1] levels. The coordination group, in collaboration with the assessment team leader, select the sites to be assessed. Annex 2 lists potential sources of

1 The subnational level is defined in this document as any administrative level below the national level, such as the provincial or municipal levels.

Table 5. Assessment-team expertise, by health-system function

Health-system function	Required expertise of assessment-team members
Leadership and governance	Policy-makers at national level
Health workforce	Health-sector professionals with knowledge of human resources' management
Medical products, vaccines and technologies	Health professionals involved in management of medical equipment, medical supplies, pharmaceuticals and laboratory services
Health information	Experts in surveillance, risk assessment and mapping Professionals responsible for IHR implementation Professionals with knowledge of information management and communication in crises
Health financing	An economist or other professional with knowledge of health financing
Service delivery	Health professionals with expertise in crisis management at the subnational level, experience in emergency medical services and hospital management in mass-casualty situations, and/or knowledge of logistics

information required for the assessment of the essential attributes and can be used in connection with the selection of the assessment sites.

At the national level, field visits should be arranged with the relevant stakeholders of health-sector crisis management. Though the focus of the assessment is on the health sector, interviews should be held with representatives of relevant stakeholders in other sectors (including private institutions), as well as nongovernmental organizations (NGOs) and international organizations. A schedule for the assessment should be set up in table format and should include details relating to each field visit and interview (site to be assessed, names of assessors, timing, etc.).

A general sampling strategy is followed (which entails collecting information from health facilities, laboratories, blood banks, public health institutes, etc.) at the national and subnational (provincial and municipal) levels. Precision sampling requiring evaluation across all functions of the health system throughout the country is not required. Rather than conducting a scientific study, the aim is to identify the strengths and weaknesses of health-system management capacity and develop a plan of action to address identified gaps. In addition, financial and time constraints may not permit precision sampling.

At the subnational level, health-sector crisis-management systems can be categorized as: (i) particularly well-functioning; (ii) functioning at an average level; and (iii) poorly functioning. It is important that each of these categories be represented in the sample, as well as areas at particular risk, such as those prone to specific natural hazards and vulnerable communities.

Assessment activities

Site visits

The main purpose of the site visits is to determine the capacity of the health system for crisis management by gathering relevant information using the assessment form in Part 2 of the toolkit.

In order for the visit to be successful, thorough planning is critical. To this end, the ministry of health, the coordination group and the leader of the assessment team should agree on the timetable prior to the arrival of the assessment team. The essential attributes to be assessed at each site should be identified in advance. On-site evaluation will involve asking questions, observing practices and gathering documentation concerning site activities.

The approach at each site should be to:

- hold an initial meeting between the main stakeholders at the site and the assessment team to explain the objectives of the assessment and clarify related questions;
- visit the health facility (or facilities), if applicable;
- obtain informal feedback on pre-identified problems and issues regarding health-sector crisis management;
- complete the assessment form in relation to the site.

During site visits, a high level of ethical behaviour is expected from the team members. In visiting facilities, they should not interfere with the daily work.

The assessment team should meet to document findings, discuss challenges, strengths and weaknesses that are encountered at the sites visited, and formulate possible recommendations. A field assessment communication checklist has been compiled to this end (Annex 4). The preliminary results of the assessment should be treated as confidential and must not be discussed with outside parties.

Completion of the assessment form

Before using the assessment form during a site visit, it is of the utmost importance that the assessors familiarize themselves with the essential attributes related to that site and their underlying principles. (See also the chapter entitled, “Guidance for the assessment process”, below).

(a) Essential attributes and indicator-related questions

The absence or presence of the essential attributes is evaluated through a set of indicator-related questions related to each attribute (see also Table 4 above). Taking the local context into account, the assessor needs to decide whether the answer to the question is “yes”, “partially” or “no”, using the appropriate colour code (see *(b)* below).

(b) Colour coding

The colour-code matrix illustrated in Annex 5 enables visualization of the evaluation results whereby green means “yes”, red means “no”, and yellow means “partially”.

(c) Justification for answers to indicator-related questions

To enable optimal compilation of the assessment report, it is important to elaborate on the answers

given. This is done in the space allocated for this purpose alongside each indicator-related question. If more room is required, a separate log may be used.

(d) Summary of findings
When all the indicator-related questions relating to the essential attribute(s) of a key component have been answered, the assessor is required to summarize the findings on that key component.

(e) Recommendations for priority action
When the assessment of all the key components of a health-system function has been completed, the assessors make their recommendations for priority action in the dedicated box at the end of the section on that particular health-system function.

Finalization of the assessment and development of plan of action
On completion of the assessment, the team meets to discuss its findings and formulate preliminary recommendations of priority action to address identified gaps. These are then discussed with the main stakeholders involved in the assessment process and health-sector crisis management. Thereafter, the team triangulates the findings and agrees on the final recommendations, on the basis of which it develops the first draft of a plan of action. A template for structuring the plan (Annex 6) is included in the assessment form.

Writing the assessment report
This is a team activity. The main content of the report is based on the summaries of findings relating to the individual key components and the recommendations for priority action with respect to each health-system function. The outline of an assessment report can be found in Annex 7. The report may include a draft plan of action.

Planning for the future

Plan of action
One of the main objectives of the assessment is to identify gaps in the overall capacity for health management during crises with the aim of developing a plan of action to address these gaps and strengthen capacity. Existing national structures, resources for the implementation of action, existing emergency-preparedness and/or emergency-response plans and the importance of linking with other sectors involved in crisis management should be taken into account when developing the plan. It should encompass the whole of the health sector and aim at building the capacity required to anticipate and prevent health crises and to prepare for, respond to, recover from and mitigate their effects. The outline of a plan of action is annexed to the assessment form (Part 2 of the toolkit).

The plan of action should be developed by the coordination group, based on a draft prepared by the assessment team. It is important that all the relevant senior decision-makers and stakeholders are consulted during the process of developing the action plan. Eventually, the action plan should be formally endorsed.

Follow-up assessments
To monitor the implementation of the action plan and measure changes over time, follow-up assessments should be conducted periodically (e.g. every two years). Consideration might also be given to carrying out additional follow-up assessments that are limited to those health-system functions where major gaps have been identified. However, such partial assessments should not replace the periodic follow-up assessments since the different components of health-sector crisis management are normally closely intertwined.

Guidance for the assessment process

The next six sections represent the six functions (building blocks) of the WHO health-system framework *(4)*. Each is sectioned according to the key components of each function and the 51 attributes considered essential for the achievement of the key components. To facilitate assessment, a list of indicator-related questions has been compiled for each of the essential attributes.

Regarding the essential attributes, possible sources of the information are listed in Annex 2; for some, keynotes have been added.

Most of the indicator-related questions are followed by explanatory text. In some cases, the explanations follow two or more closely related questions. If a question is considered self-evident, no explanation is included.

Recommended reading is listed for each of the essential attributes.

Back

SECTION 1. LEADERSHIP AND GOVERNANCE

Leadership and governance pertain to the careful and responsible management of the health system, which influences the policies and action of all sectors involved in population health. Good governance is reflected, for example, in the existence of relevant policy, the allocation of the necessary resources to implement it, the enforcement of its implementation, the assignment of accountability and the involvement of civil society.

Key component 1.1	Legal framework for national multisectoral emergency management
Essential attribute 1	Laws, policies, plans and procedures relevant to national multisectoral emergency management

Keynotes

Recent experience related to crises, such as the H1N1 pandemic, has demonstrated that the legal aspects of emergency management are critical to the comprehensiveness of preparedness for public health emergencies. It is, therefore, important that the assessment include a review of the legal framework for managing emergencies at both the national and subnational levels.

A legal framework for multisectoral emergency management encompasses all the laws, policies, guidelines, plans and/or process descriptions related to this area. It should define emergency-management structures, the roles, responsibilities and authority of those involved and the rights and responsibilities of citizens and non-citizens. It should also define the procedures for and standards of programme implementation, including, for example, those relevant to data availability, compatibility and sharing, and the interoperability of the information system. The framework should also provide for the resources required to ensure the functioning of the structure. A regulatory framework for public health includes the laws, polices, administrative rules and regulations, executive orders, memoranda of understanding and mutual-aid agreements pertinent to public health.

Assessors need to determine the hierarchy of the legal documents. The provisions of high-ranking documents, such as the constitution and parliamentary laws, may override the contradictory provisions of executive regulations of a more inferior standing.

National policy on emergency management should be supported by legislation, which guides all aspects of this area, using an all-hazards approach based on the recognition that, regardless of the type of emergency, all responses have common elements of management.

Indicator-related questions

a. Does the legislation follow an all-hazards approach?

b. Does the legislation consider all phases of emergency management?

c. Is the legislation reviewed and revised regularly?

The legislation should seek to institutionalize an all-hazards, whole-health approach and should require that all phases of emergency management be given due consideration. These phases include anticipation, prevention, risk reduction, mitigation, preparedness, response and recovery, and post-event evaluation and revision. The legislation should establish the minimum standards required for emergency-management programmes at the national and subnational levels.

Assessors should bear in mind that certain information, especially at the national level, is considered confidential in some countries (for example, the location and content of stockpiles) and may not be accessible to them.

d. Are procedures for declaring and terminating a state of emergency at both the national and subnational levels defined in the legislation?

The legislation should clearly define how and by whom a state of emergency is declared and terminated, the criteria for doing so, as well as the process for informing the authorities and the public of the situation. It should also clarify the precise roles, rights and obligations of authorities, organizations and individuals during

a state of emergency, and distinguish between local, regional and national states of emergency.

e. ***Does the legislation recognize, and is it consistent with, legally binding international agreements and conventions to which the country is a party and/or which it has ratified (in particular, IHR 2005** (11) **and the Hyogo Framework for Action, 2005–2015)** (7)**?***
Assessors should review the national legislation in the context of international treaties and conventions to which the country is a party and highlight possible contradictions.

f. ***Does a formal arrangement exist for the protection and identification of infrastructures and personnel?***
The legal framework should incorporate the protection and identification of infrastructures and personnel. According to the *Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I), 8 June 1977 (15)*, measures for identifying persons are closely connected with the concept of protection, which constitutes the very basis of international humanitarian law. These measures provide the individuals concerned with a means of proving their status and claiming their rightful protection, particularly in conflict situations (including internal conflicts).

Recommended reading

European Commission. *Technical guidance on generic preparedness planning – interim document – April 2005.* Brussels, European Commission, 2005 (http://ec.europa.eu/health/ph_threats/Bioterrorisme/keydo_bio_01_en.pdf, accessed 7 April 2011).

Guidelines for assessing disaster preparedness in the health sector. Washington, DC, Pan American Health Organization, 1995 (http://helid.digicollection.org/en/d/J060/, accessed 7 April 2011).

Jackson BA et al. *Protecting emergency responders. Volume 3. Safety management in disaster and terrorism response.* Atlanta, The National Institute for Occupational Safety and Health, 2004 (http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG170.pdf, accessed 7 April 2011).

Koob, P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998 (http://www.who.int/disasters/repo/5814.doc, accessed 7 April 2011).

Marshall, LW. International Disaster Response Law: An Introduction. *American Journal of Disaster Medicine*. 2008 May–June, 3(3):181–4.

Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of non-international armed conflicts (Protocol II), 8 June 1977. Geneva, International Committee of the Red Cross, 1977 (http://www.icrc.org/ihl.nsf/INTRO/475?OpenDocument, accessed 5 August 2011).

Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the Adoption of an Additional Distinctive Emblem (Protocol III), 8 December 2005. Geneva, International Committee of the Red Cross, 1977 (http://www.icrc.org/ihl.nsf/INTRO/615?OpenDocument, accessed 5 August 2011).

Essential attribute 2 — National structure for multisectoral emergency management and coordination

Keynotes

The assessment should reveal the scope of authority (including delegated authority) of the partners within the national structure for multisectoral emergency management and coordination, as well as the level of interaction within the structure. The assessor may consider developing an organigram of the structure with special emphasis on the health sector.

Indicator-related questions

a. ***Does the national structure for emergency management and coordination consist of a high-level multisectoral committee?***
b. ***Is it supported by an operational entity and relevant subcommittees on specific technical issues?***
c. ***Are the roles and responsibilities of the various partners clearly defined?***
d. ***Is health on board of this committee and have resources been allocated for health-sector disaster risk reduction, emergency preparedness and response?***
The legislation should ensure the existence of: (i) a high-level multisectoral committee to steer and coordinate emergency procedures; (ii) an operational crisis-management entity responsible for implementing action related to emergencies and reporting to the high-level multisectoral committee; and (iii) sufficient resources to implement action, based on risk assessments.

Depending on the social context, the focus of the national policy and strategy in this area must be clearly directed at enabling the coordinating entities at all administrative levels to prepare for, respond to and facilitate recovery from an emergency. In reviewing the legal documents, the assessors should specifically evaluate the role and responsibilities of the ministry of health in relation to health emergencies.

The legal framework should specify the roles of partners, such as governmental departments, defence forces, public and private agencies and institutions, civil-society organizations and international partners, and their interaction in the emergency-management process, particularly during the response phase.

Provisions for the registration of foreign and domestic humanitarian agencies, the establishment of humanitarian operations and logistics mechanisms (including the importation, storage and distribution of humanitarian aid), and the sharing of information and resources, should also be considered.

Recommended reading

Baker D, Refsgaard K. Institutional development and scale matching in disaster response management. *Ecological Economics*, 2007, 63:331–343.

Koob P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998 (http://www.who.int/disasters/repo/5814.doc, accessed 9 April 2011).

Key component 1.2	Legal framework for health-sector emergency management
Essential attribute 3	Laws, policies, plans and procedures relevant to health-sector emergency management

Keynote

The legal framework for the health sector establishes the structure, procedures and dedicated resources for emergency management and defines the roles, responsibilities and authority of those involved in managing the health aspects of a crisis.

Indicator-related questions

a. ***Does the legislation follow a whole-health, all-hazards approach to emergency management?***
b. ***Does it cover all phases of emergency management?***
c. ***Is it reviewed and revised regularly?***
d. ***Does it define the conditions and procedures for quarantine and isolation relevant to emergencies?***

The legislation pertaining to health-sector emergency management should provide for a whole-health, all-hazards approach and cover all phases of emergency management, including the following: prevention (including risk assessment); risk reduction; mitigation; preparedness; response and recovery; regular evaluation; and updating. The whole-health approach recommends that emergency-preparedness planning include – in addition to the cross-cutting topics of coordination and information and support services – the following areas: environment and health (including water safety, sanitation and hygiene); chronic diseases (including mental health); maternal, newborn and child health; communicable diseases; nutrition; pharmaceutical and biological products; and health-care delivery (including health infrastructure). Specialized services may be included for the management of specific risks and, at the planning stage, investigations should be made into capacity available in health institutions, government institutions, the private sector, the military medical services, the national Red Cross and Red Crescent Societies and NGOs.

The legislation should require that all government material, especially at the national level, be considered confidential (for example, the location and content of stockpiles) and, therefore, inaccessible to assessors.

In relation to work carried out within the emergency-preparedness programme, relevant legislation should require participating agencies to develop expertise in and capacity for risk assessment, risk reduction, coordination and partnerships, public information and risk communication, institutional capacity-building and monitoring and evaluation. It should also define the conditions and requirements for and the authority of health workers with regard to the decontamination, isolation or quarantine of individuals, groups, areas, buildings, vehicles, etc., and the tracing and protection of exposed contacts.

The legislation should establish the minimum standards required for health-related emergency-management programmes at

the national and subnational levels. It should support the requirement that such programmes be based on risk assessments and include a regulation on the protection and identification of personnel and infrastructures. It is possible that the latter is included in a national document relating to one of the other key components.

In reviewing the national and, if relevant, subnational legal bases for managing health emergencies, assessors should verify that the authority and responsibilities of the health sector are defined at both levels.

Recommended reading

International Health Regulations (2005). Geneva, World Health Organization, 2008 (http://www.who.int/entity/csr/ihr/IHR_2005_en.pdf, accessed 7 April 2011).

Hyogo Framework for Action 2005-2015. Geneva, United Nations International Strategy for Disaster Reduction, 2005 (http://www.unisdr.org/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf, accessed 7 April 2011).

Technical guidance on generic preparedness planning – interim document – April 2005. Brussels, European Union, 2005 (http://ec.europa.eu/health/ph_threats/Bioterrorisme/keydo_bio_01_en.pdf, accessed 7 April 2011).

Strengthening health systems' response to crises. Towards a new focus on disaster preparedness. Report on a WHO workshop, Skopje, The former Yugoslav Republic of Macedonia, 13–15 July 2004. Copenhagen, WHO Regional Office for Europe, 2006 (http://www.euro.who.int/__data/assets/pdf_file/0004/79006/E87920.pdf, accessed 7 April 2011).

Stier DD, Goodman RA. Mutual aid agreements: essential legal tools for public health preparedness and response. *American Journal of Public Health,* 2007, 97(Supplement 1):62–68 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1854975/pdf/0970062.pdf, accessed 7 April 2011).

Essential attribute 4 — Structure for health-sector emergency management and coordination

Keynotes

The legislation should describe the structure for health-sector emergency management and how the coordination of medical activities and training programmes, and the prioritization of needs identified through vulnerability and needs assessments, are incorporated.

Indicator-related questions

a. ***Does the structure for health-sector emergency management consist of a high-level multidisciplinary committee?***
b. ***Is it linked at all levels to similar structures in other sectors?***
c. ***Is it supported by an operational entity and relevant subcommittees on specific technical issues?***
d. ***Does it specify the roles and responsibilities of key health-sector stakeholders?***
e. ***Does it promote mechanisms to ensure the allocation of resources for disaster risk reduction, emergency preparedness and response?***

Legislation should exist mandating the establishment – at both the national and subnational levels – of a dedicated high-level, multidisciplinary health-sector committee, which may be supported by an operational entity. Furthermore, it should define the roles, responsibilities and authority of key stakeholders in the health sector and provide the legal basis for the allocation of sufficient resources for action related to risk reduction, emergency preparedness and response, based on risk and needs assessments. (Regarding resources, see also essential attributes 15, 30, 31, 32, 33, 36 and 38).

Assessors should review the legal documents to clarify whether the ministry of health has the lead role in health emergencies or whether, depending on the social context, this function has been delegated to one or more health-sector organizations.

There should also be legislation specifying the roles of health partners, such as government departments, defence forces, public and private agencies and institutions, civil-society organizations, and international partners. This should include provisions for the registration of humanitarian agencies, the establishment of humanitarian operations and logistics mechanisms (including the importation, storage and distribution of humanitarian aid) and the standardization and sharing of data, information and resources (see also essential attribute 2).

Recommended reading

Johns Hopkins School of Hygiene and Public Health, International Federation of the Red Cross and Red Crescent Societies. *Public health guide*

for emergencies. First edition. Geneva, IFRC, 2004 (http://pdf.usaid.gov/pdf_docs/PNACU086.pdf, accessed 16 July 2011).

Baker D, Refsgaard K. Institutional development and scale matching in disaster response management. *Ecological Economics*, 2007, 63(2–3):331–343

Essential attribute 5	Regulation of external health-related emergency assistance

Indicator-related questions

a. ***Are there any regulations relating to the entry of foreign health workers to provide emergency relief services?***
Assessors should review the regulations on international relief activities to determine whether they include provisions relating to foreign medical teams, disaster victim identification teams, etc., and the importation of medicines, other medical supplies, field hospitals and medical equipment.

b. ***Are medical relief items exempt from import tax?***

c. ***Are there any regulations relating to donations of health and medical items?***

Recommended reading

Guidelines for drug donations. Geneva, World Health Organization, 1999 (http://whqlibdoc.who.int/hq/1999/WHO_EDM_PAR_99.4.pdf, accessed 7 April 2011).

Pan American Health Organization, WHO Regional Office for the Western Pacific. *Guidelines for the use of foreign field hospitals in the aftermath sudden-impact disasters*. Washington, DC, Pan American Health Organization, 2003 (http://www.paho.org/english/dd/ped/FieldHospitalsFolleto.pdf, accessed 7 April 2011)).

Stier DD, Goodman RA. Mutual aid agreements: essential legal tools for public health preparedness and response. *American Journal of Public Health,* 2007, 97(Suppl. 1):62–68 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1854975/pdf/0970062.pdf, accessed 7 April 2011).

Key component 1.3	National institutional framework for multisectoral emergency management
Essential attribute 6	National committee for multisectoral emergency management

Keynotes

The institutional framework is the overarching emergency-management mechanism at the national level. Usually, a multisectoral steering committee is established at the highest political level (e.g. the prime minister's office or the cabinet of ministers), supported by an operational entity (essential attribute 7). A similar set-up is frequently found in the health sector (see essential attribute 8).

Indicator-related questions

a. ***Has a national committee for multisectoral emergency management been established?***

b. ***If so, does the committee include high-level representatives of all relevant sectors?***

c. ***Are the responsibilities and authority of the committee members and secretariat defined?***

d. ***Are procedures for convening meetings defined?***

e. ***Is the committee supported by an operational entity?***
The national committee for multisectoral emergency management should be responsible for providing overall political and strategic leadership on the key aspects of processes related to crisis management. Members of the committee should be high-level decision-makers from relevant ministries and institutions. The mandate, responsibilities and authority of the committee and its link to the national operational entity for multisectoral emergency management (essential attribute 7) should be formally specified. Procedures for including ad hoc, temporary members should be defined.

As emergencies in most countries are dealt with primarily at the local level, the national structure for multisectoral emergency management and coordination (essential attribute 2) will only be properly effective if complementary emergency-management arrangements exist at all levels of government administration, particularly at the local level.

f. ***Is the committee linked to similar structures at all levels?***

Recommended reading

Briggs SM. Regional interoperability: making systems connect in complex disasters. *The Journal of Trauma Injury, Infection and Critical Care,* 2009, 67:88–90.

Oloruntoba R. An analysis of the Cyclone Larry emergency relief chain: Some key success factors. *International Journal of Production Economics*, 2010, 126:85–101.

Essential attribute 7	National operational entity for multisectoral emergency management

Indicator-related questions

a. ***Does the national operational entity for multisectoral emergency management possess sufficient resources and support systems to enable it to fulfil its mandate?***
b. ***Are the responsibilities and authority of the entity defined?***
c. ***Does the entity coordinate and supervise national preparedness planning involving all relevant stakeholders?***
d. ***Are similar structures in place at all administrative levels?***

The national operational entity for multisectoral emergency management could be a ministry, an agency, a service or the like, with a mandate to provide the overall technical leadership of processes and tasks related to emergency management and responsibility for coordinating and supervising them. In many countries, the ministry for emergencies acts as the operational arm of the national multisectoral management committee and has links to similar structures at lower administrative levels. The entity should receive sufficient resources (staff, equipment and funding) to enable it to fulfil its mandate.

Recommended reading

Briggs SM. Regional interoperability: making systems connect in complex disasters. *The Journal of Trauma Injury, Infection and Critical Care,* 2009, 67:88–90.

Koh HK et al. Regionalization of local public health systems in the era of preparedness. *Annual Review of Public Health,* 2008, 29:205–218.

Key component 1.4	National institutional framework for health-sector emergency management
Essential attribute 8	National committee for health-sector emergency management

Keynotes

The institutional framework of the health sector is the overarching mechanism for managing health emergencies at the national level. Often, a multidisciplinary steering committee exists at the highest political level in the ministry of health. It may be supported by an operational entity (see essential attribute 9) and represented by a similar structure at the subnational level.

Indicator-related questions

a. ***Has a national committee for health-sector emergency management been established?***
b. ***If so, does the committee include high-level representatives of all relevant sectors and disciplines?***
c. ***Are the responsibilities and authority of the members of the committee and its secretariat defined?***
d. ***Are procedures for convening meetings of the committee defined?***
e. ***Is the committee supported by an operational entity?***
f. ***Is the committee linked to complementary structures at all levels?***

The national committee for health-sector emergency management should provide the overall strategic leadership and supervision of the health-related aspects of emergency management. Formal documents should exist specifying the mandate, responsibilities and authority of the committee and its links to other national and subnational committees and operational entities.

The national committee for health-sector emergency management should supervise and direct the health-sector emergency-preparedness programme (essential attribute 12) and lead emergency response and recovery operations (essential attribute 13). Regular meetings should be held, chaired by a health-sector crisis coordinator. Committee members should be senior managers from operational departments within the ministry of health and from public and private health entities. Committee members should be capable of contributing substantively (both technically

and operationally) to planning health-sector emergency preparedness and coordinating the implementation of action. They should be authorized by their organizations and departments to commit to decisions made by the committee. The roles, responsibilities and authority of each committee member must be clearly delineated to ensure operational effectiveness in the event of a health emergency.

Although policy and technical frameworks for health-sector emergency management are set up at the national level, they are executed at the local level. Therefore, detailed, regularly updated plans should exist at this level and they should be disseminated to all relevant stakeholders.

Recommended reading

Briggs SM. Regional interoperability: making systems connect in complex disasters. *The Journal of Trauma Injury, Infection and Critical Care,* 2009, 67:88–90.

Koh HK et al. Regionalization of local public health systems in the era of preparedness. *Annual Review of Public Health,* 2008, 29:205–218.

Koob P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998 (http://www.who.int/disasters/repo/5814.doc, accessed 11 April 2011).

Essential attribute 9 National operational entity for health-sector emergency management

Indicator-related questions

a. ***Are the available resources (staff, equipment, finances) and systems (emergency- operations centres, transport and communications systems) considered sufficient to allow the operational entity for health-sector emergency management to fulfil its mandate?***

b. ***Are the responsibilities and authority of the national operational entity for health-sector management defined?***
The national operational entity for health-sector emergency management could be a unit or focal point in the ministry of health or, for example, a centre or institution. In this connection, WHO understands the focal point to be an entity responsible for overseeing the emergency-preparedness efforts of the ministry of health (such as the development of guidelines for hospital preparedness). The operational entity should report to the national committee for health-sector emergency management (essential attribute 8) and take action in accordance with the decisions of the committee. The head of the operational entity should be a member of the national committee for health-sector emergency management.

c. ***Does the operational entity coordinate and supervise the planning of the national health-sector emergency-preparedness programme and, if so, are all the relevant stakeholders involved?***
Coordination is the key responsibility of the national operational entity for health-sector management and requires the following action: convening meetings of the different actors; ensuring information-exchange; facilitating agreement on strategies developed in response to assessments and on follow-up mechanisms; planning joint action; assigning tasks and responsibilities; evaluating actions taken; and readjusting plans.

d. ***Are there similar entities in place at all administrative levels?***
The national operational entity for health-sector emergency management should be replicated at the subnational level. It should be authorized by the ministry of health and/or local authorities to coordinate all aspects of the national health-sector programme on risk-reduction and emergency-management programmes (essential attributes 11 and 12).

Recommended reading

Briggs SM. Regional interoperability: making systems connect in complex disasters. *The Journal of Trauma Injury, Infection and Critical Care,* 2009, 67:88–90.

Koh HK et al. Regionalization of local public health systems in the era of preparedness. *Annual Review of Public Health,* 2008, 29:205–218.

Koob P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998 (http://www.who.int/disasters/repo/5814.doc, accessed 11 April 2011).

Essential attribute 10 Mechanisms of coordination and partnership-building

Indicator-related questions

a. ***Do existing mechanisms of emergency coordination and partnership-building include agreements with entities in the public and private sectors and civil society?***
The coordination framework should include regular partnership-mapping. Since the roles and operational responsibilities of each partner must be clearly established before an eventual health emergency, it is possible that mutual-aid agreements have been established with organizations, such as the International Federation of Red Cross and Red Crescent Societies (IFRC) and WHO, as well as NGOs and other regional and national entities.

b. ***Are the health authorities at all levels involved in governmental and nongovernmental coordination mechanisms?***

c. ***Do existing coordination mechanisms include regular planning meetings on disaster-risk reduction and preparedness during emergency operations?***

d. ***Do existing mechanisms of coordination and partnership-building promote the documentation and follow-up of decisions made at the planning meetings?***
Mechanisms should exist for the coordination of all activities related to health-sector emergency preparedness, response and recovery. Information-sharing procedures should be agreed upon by the partners involved to ensure compatibility of information flow and analysis.

Assessors should consult the minutes of recent coordination meetings to establish their frequency before or during a crisis, as well as the level of participation in, and follow-up on, decisions made at the meetings.

e. ***Does the institutional framework promote joint planning procedures (to identify and deal with duplications and gaps in programme implementation)?***

f. ***Do existing mechanisms of coordination and partnership-building promote the joint mobilization of, and access to, resources?***
The health-sector institutional framework for emergency management should identify resource providers and promote joint planning. For example, ministries and government departments can provide the necessary human resources, services and supplies and the military, police, fire and utility services can provide essential logistical support (mobile hospitals, ambulances, vehicles and fuel), security and emergency services.

The institutional framework should also create an environment that allows the intervention of foreign and/or international agencies in an emergency situation, as well as agreement protocols between neighbouring countries. These can be more specific than international standards or conventions and include operational details and information on procedures and mechanisms for prompt and effective intercountry communication and mandatory national-health standards.

Recommended reading

Global assessment of health sector emergency preparedness and response. Geneva, World Health Organization, 2008 (http://www.who.int/hac/about/Global_survey_inside.pdf, accessed 11 April 2011).

Keim M. Using a community-based approach for prevention and mitigation of national health emergencies. *Pacific Health Dialog,* 2002, 9(1):93–96.

Koob P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998 (http://www.who.int/disasters/repo/5814.doc, accessed 11 April 2011).

Stier DD, Goodman RA. Mutual aid agreements: essential legal tools for public health preparedness and response. *American Journal of Public Health,* 2007, 97:62–68.

Key component 1.5	Components of national programme on health-sector emergency management
Essential attribute 11	National health-sector programme on risk reduction

Keynotes

A programme on health-sector emergency management is one of long-term, integrated, multidisciplinary developmental activities, with goals of strengthening the overall capacity of the health sector to manage the health aspects of all types of hazards in an efficient manner. The core components of such a programme are disaster risk reduction, emergency preparedness, and response and recovery.

A risk-reduction programme should be developed on the basis of regularly updated risk assessments (see essential attribute 21). The results of these assessments are combined into a national profile, which is used by planners to identify the factors

that put communities at risk for various hazards and prevent them from becoming emergencies. Once a risk has been defined and the capacity of services required to deal with it assessed, programmes can be adjusted to focus on reducing the risk and increasing capacity, if necessary.

Assessing and reducing disaster risk requires all stakeholders to be on board and to place high priority on the provision of sufficient resources to this end.

Indicator-related questions

a. ***Has a national health-sector risk-reduction programme been established?***
b. ***If so, does it, in collaboration with the national operational entity for multisectoral emergency management, identify risk-prone populations on the basis of risk analyses?***
c. ***Does the programme identify risk-prone health facilities on the basis of risk analyses?*** Assessors should establish whether a national profile of health risks, based on risk analyses, exists and is updated regularly. They should ensure that both the profile and the risk maps refer not only to hazards but also to risks (bearing the risk formula in mind: *risk* is proportional to *hazard* times *vulnerability* divided by *capacity*).

   A national profile of health risks is a comprehensive record of assets, liabilities and emergency threats at both the national and subnational levels covering a particular period of time.

d. ***Does the programme have the resources to address vulnerabilities and reduce risks?*** Assessors should look into whether the national risk-reduction programme systematically uses available information to determine the likelihood of certain events and the magnitude of their possible consequences. The programme should define acceptable levels of risk on the basis of risk assessments and assess whether the capacity and resources available are sufficient to address or manage unacceptable risks.

   Resources should be allocated and available for the mitigation of identified vulnerabilities to reduce risks.

Recommended reading

Arnold JL. Risk and risk assessment in health emergency management. *Prehospital and Disaster Medicine*, 2005, 20:143–154.

Boroschek Krauskopf R, Retamales Saavedra R. *Guidelines for vulnerability reduction in the design of new health facilities*. Washington, DC, Pan American Health Organization, 2004 (http://www.unisdr.org/eng/library/Literature/7760.pdf, accessed 11 April 2011).

Global assessment of health sector emergency preparedness and response. Geneva, World Health Organization, 2008 (http://www.who.int/hac/about/Global_survey_inside.pdf, accessed 11 April 2011).

United Nations International Strategy for Disaster Reduction. *Living with risk. A global review of disaster reduction initiatives*. Geneva, United Nations Publications, 2004 (http://www.unisdr.org/publications/v.php?id=657. accessed 11 April 2011).

United Nations International Strategy for Disaster Reduction, World Health Orgazation, World Bank. *Hospitals safe from disasters. Reduce risk, protect health facilities, save lives.* Geneva, United Nations International Strategy for Disaster Reduction, 2009 (http://www.unisdr.org/eng/public_aware/world_camp/2008-2009/pdf/wdrc-2008-2009-information-kit.pdf, accessed 11 April 2011).

Koob P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998, (http://www.who.int/disasters/repo/5814.doc, accessed 11 April 2011).

Thomalla F et al. Reducing hazard vulnerability: towards a common approach between disaster risk reduction and climate adaptation. *Disasters*, 2006, 30:39–48.

Essential attribute 12 Multisectoral and health-sector programmes on emergency preparedness

Keynotes

Emergency preparedness relates to measures taken to build and maintain the generic capacity required to enable anticipation of, response to and recovery from emergencies, regardless of cause.

Preparedness is not the same as preparation. Preparedness is not event-focused (as preparation is) but systems-focused. Preparedness builds and maintains the generic platforms and operating systems necessary to ensure that event-specific alerts, preparation, response and recovery can and do happen. Emergency preparedness is a continuous iterative process, integral to the development process. Preparedness cannot be just

a plan; it must be based on a programme with its own financial and human resources and annual work plans. Building effective preparedness programmes involves effort at all levels of government and coordination between government sectors, the private sector and NGOs to determine threats and vulnerabilities and identify required resources.

The principle work domains of an emergency-preparedness programme are regulation (laws, authorities), direction (policies, procedures, guidelines) and execution (plans, resources, knowledge, skills, awareness and attitudes). The quality of work carried out in each of these domains determines the level of readiness of a country, agency or institution to manage an emergency.

The coordination of emergency-preparedness planning and response activities (including research, training and education, disaster-related drills and public information) is usually designated to one main agency (such as the ministry for emergencies). The health sector may have a similar entity responsible for the health aspects of an emergency or it may be represented on the main agency's team. On a day-to-day basis, the emergency-preparedness programme carries out research, planning, training and education activities related to emergency response. These include: conducting risk analyses to determine the effects of real or possible hazards; working with appropriate departments on risk-mitigation programmes; developing inventories of resources; identifying resource deficiencies and recommending corrective action; establishing and maintaining protocols for communications and alert systems; and continually seeking resources to enhance the quality of the emergency-preparedness programme itself.

Assessors should establish whether emergency-preparedness programmes exist at the national and/or subnational levels and whether they include most or all of the necessary components.

Indicator-related questions

a. ***Do emergency-preparedness programmes existing at the national and/or subnational levels promote and conduct research? (See also essential attribute 14.)***

b. ***Do they include the development and dissemination of emergency-management guidelines?***
The programme should be based on hazard, vulnerability and risk assessments. Simple, flexible emergency-management guidelines specific to the local risk profile should be developed by those expected to implement them, taking best practices into consideration. Assessors should establish whether emergency-management guidelines on developing exercises and drills exist and whether they provide for feedback and recommendations after each exercise or drill with a view to improving them.

c. ***Do they foresee reviews and revisions of emergency-management policies?***
Policies and guidelines should be reviewed and amended regularly (which, in many countries, means annually) or after each event. Assessors should establish whether the programme promotes mechanisms to this end.

d. ***Do they include the development, organization and delivery of emergency-management training programmes?***
The emergency-preparedness programme should ensure that health-sector staff at all levels has the opportunity to participate in accredited education, training, drills and exercises in emergency management (see also essential attribute 16). It should also ensure the development and implementation of public-education programmes.

e. ***Do they include the promotion of a participatory emergency-management planning process?***
A preparedness and response plan is an agreed and approved set of arrangements for responding to and recovering from crises. It delineates responsibilities, management structures, strategies and resources (see also essential attribute 10).

f. ***Do they mobilize and allocate resources for preparedness? (See also essential attributes 15, 17–20, 31 and 33.)***

g. ***Do they include the development and maintenance of information systems and databases? (See also essential attributes 21–25.)***

h. ***Do they include the development of risk-communication, health-promotion and education strategies? (See also essential attributes 28 and 29.)***

i. ***Do they foresee the development and evaluation of exercises and drills?***

j. ***Do they include the development and maintenance of standards for emergency-management plans?***
Emergency-management plans (on risk reduction, emergency response and business continuity) should exist at the national, subnational and facilities' levels and should all follow a similar structure and format.

*k. **Do they provide for the coordination and monitoring of, and the regular reporting on, programme implementation?***
A built-in feedback loop should allow for the regular monitoring and evaluation of programme implementation.

Assessors should verify whether plans for the implementation of emergency-programme activities and reports on their results are published regularly and disseminated to relevant stakeholders.

Recommended reading

Adini B et al. Assessing levels of hospital emergency preparedness. *Prehospital and Disaster Medicine,* 2006, 21:451–457.

Ginter PM, Duncan WJ, Abdolrasulnia M. Hospital strategic preparedness planning: the new imperative. *Prehospital and Disaster Medicine,* 2007, *22*(6):529–536.

Glik DC. Risk communication for public health emergencies. *Annual Review of Public Health,* 2007, 28:33–54.

Global assessment of health sector emergency preparedness and response. Geneva, World Health Organization, 2008 (http://www.who.int/hac/about/Global_survey_inside.pdf, accessed 11 April 2011).

Koob P. *Health sector emergency preparedness guide*. Geneva, World Health Organization, 1998 (http://www.who.int/disasters/repo/5814.doc, accessed 11 April 2011).

State health emergency response plan (SHERP Victoria). Melbourne, Department of Health, 2009 (http://www.dhs.vic.gov.au/__data/assets/pdf_file/0005/400883/SHERP_2nd_edition_web.pdf, accessed 11 April 2011).

Stier DD, Goodman RA. Mutual aid agreements: essential legal tools for public health preparedness and response. *American Journal of Public Health,* 2007, 97(1):62–68 (http://ajph.aphapublications.org/cgi/content/short/97/Supplement_1/S62, accessed 11 April 2011).

Essential attribute 13 National health-sector plan for emergency response and recovery

Keynotes

An emergency-response plan is an agreed set of arrangements for responding to and facilitating recovery from emergencies. Its objectives are to protect life, property and the environment, and to safeguard the basic functions of lifelines and essential services. To be able to plan emergency response, it is necessary that decision-makers at the government and community levels recognize the existence of risks and vulnerabilities, the possibility that emergencies will occur, and the benefits of planning to deal with them. A national health-sector plan for emergency response is essentially an umbrella instrument that facilitates collaboration among response agencies and relevant sectors and levels of government, all of which have their own plans. The government's responsibility at national level is not to provide direct services but to support response agencies and local government in their operations. Thus, the national focus is on resource mobilization, logistics, communications, coordination between different jurisdictions and agencies, technical assistance and public information. Areas of responsibility specific to the national level include national security, foreign assistance, immigration and border control, customs and excise, donor coordination, refugees and cross-border coordination.

The implementation of a national health-sector emergency-response plan is guaranteed through appropriate legislation (see also essential attributes 1 and 3) and the designation of an organization responsible for coordinating the planning of action related to response and recovery in the event of an emergency (see also essential attributes 6–9).

Indicator-related questions

*a. **Is the national emergency-response plan based on an all-hazards approach and risk assessment?***
*b. **Does the plan include contingency measures?***
*c. **Is it compatible with relevant intersectoral and subnational health plans?***
*d. **Does it define activation, coordination and incident-command mechanisms?***
*e. **Is it based on available resources?***
*f. **Is it disseminated to key stakeholders after each revision?***
*g. **Is it regularly tested through exercises, drills and simulations?***
*h. **Has it been disseminated to the public?***
In developing the national emergency-response plan, account should be taken of plans existing at lower administrative levels, other national-level plans and plans developed for specific

hazards. All plans should be disseminated to stakeholders. They should be updated annually or after any emergency event.

Recommended reading

Perry RW, Lindell MK. Preparedness for emergency response: guidelines for the emergency planning process. *Disasters*, 2003, 27(4):336–350.

State Health Emergency Response Plan (SHERP Victoria). Melbourne, Department of Health, 2009 (http://www.dhs.vic.gov.au/__data/assets/pdf_file/0005/400883/SHERP_2nd_edition_web.pdf, accessed 11 April 2011).

Essential attribute 14 Research and evidence base

Indicator-related questions

a. Is the research agenda defined?

b. Have resources been allocated for research?

c. Have research results been applied?

A research agenda should be defined by the ministry of health with the focus on supporting efficient and effective decision-making. Drills and exercises generate evidence about what works and what does not; disseminating this knowledge should be institutionalized. Monitoring and evaluation exercises should be carried out for all aspects of health-sector emergency preparedness; the experience gained will benefit planning, programming and policy development.

Assessors should verify that the ministry of health supports the improvement of scientific and technical methods of, and capacity for, risk assessment, monitoring and early warning through research, partnerships and training, and by building technical capacity. The ministry of health should promote the application of in situ and space-based earth observations, space technologies, remote sensing, geographic information systems, hazard modelling and prediction, weather and climate modelling and forecasting, communication tools and studies of the costs and benefits of risk assessment and early warning.

Recommended reading

A methodological approach to monitoring and assessing scientific advice provision and impact: a test case analysis of the mechanism by which scientific advice catalyses interactions among societal actors. Framework contract no. RTD–JRC/00–06 June 2003. *Final report* for *the European Commission.* Twickenham, The Evaluation Partnership, 2003 (ec.europa.eu/research/science-society/pdf/bioterrorism_report_en.pdf, accessed 7 August 2011).

Nelson CD et al. How can we strengthen the evidence base in public health preparedness? *Disaster Medicine and Public Health Preparedness,* 2008, 2:247–249.

SECTION 2. HEALTH WORKFORCE

Health workers are the cornerstone of the health-care delivery system. They influence accessibility to and the quality and cost of health care, and the delivery of interventions to improve health outcomes, including progress towards attaining the health-related MDG and achieving health for all.

Key component 2.1	Human resources for health-sector emergency management
Essential attribute 15	Development of human resources

Keynote

The emergency-preparedness programme is responsible for ensuring that, taking the given circumstances and available resources (e.g. finances, hospital capacity for mass-casualties) into account, a sufficient number of qualified staff with an appropriate mix of skills is available to respond to any crisis and that relevant continuous education and training programmes are in place.

Indicator-related questions

a. ***Does a human-resources plan for emergency management exist and, if so, is it based on defined competencies?***
Assessors should determine whether the ministry of health has a strategy for the development of human resources. It should be based on an assessment of available human resources at the national level, including a gap analysis, and define the required competencies of emergency-management staff.

Furthermore, assessors should verify that:

- the roles, responsibilities and authority of each person identified as a responder in case of a crisis are clearly defined and that there are written terms of reference for each function;
- measures exist for identifying gaps vis-à-vis skilled staff and that critical positions are filled through recruitment procedures and/or on the basis of education and training.

It is necessary to plan surge capacity and identify a sufficient number of suitable staff to ensure the capacity required to respond to an emergency at short notice.

The procedures to be followed for mobilizing staff, and information about the roles, responsibilities and authority of those involved, should be circulated to relevant departments and organizations.

b. ***Is there a database of staff trained in emergency management and is it maintained?***
The ministry of health should have a database of the workforce available at the national level, as well as details of the roles of staff in an eventual crisis. The database should include, for example, doctors, nurses, paramedics, drivers, administrative staff, laboratory technicians, dispatchers, media and communications specialists, and relevant staff of public and private health organizations, IFRC, NGOs, civil society, international organizations, the military, the police force and civil defence.

This information should be accessible to the national operational entity for health-sector emergency management to enable the organization of resources for effective delivery, when necessary.

c. ***Do procedures exist for integrating national and international volunteers into service delivery in emergency situations?***
A volunteer policy includes procedures for coordinating volunteers to ensure consistency in the quality of service delivery. Training courses to improve the effectiveness of volunteers should be identified and available.

Recommended reading

Hsu EB et al. Healthcare worker competencies for disaster training. *BMC Medical Education,* 2006, 6:19 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1471784/, accessed 12 April 2011).

Reilly M, Markenson DS. Education and training of hospital workers: who are essential personnel during a disaster? *Prehospital and Disaster Medicine,* 2009, 24:239–245.

Schultz CH, Stratton SJ. Improving hospital surge capacity: a new concept for emergency credentialing

of volunteers. *Annals of Emergency Medicine,* 2007, 49(5):602–609 (http://www.annemergmed.com/article/S0196-0644(06)02349-3/abstract, accessed 12 April 2011).

Stier DD, Goodman RA. Mutual aid agreements: essential legal tools for public health preparedness and response. *American Journal of Public Health,* 2007, 97:62–68 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1854975/, accessed 12 April 2011).

Williams J, Nocera M, Casteel C. The effectiveness of disaster training for health care workers: a systematic review. *Annals of Emergency Medicine,* 2008, 52(3):211–222.e2 (http://www.annemergmed.com/article/S0196-0644(07)01624-1/abstract, accessed 12 April 2011).

Essential attribute 16 Training and education

Keynotes

One of the key objectives of an emergency-preparedness programme is to ensure that training and education programmes in emergency management are available, accessible, appropriate and effective. This involves determining the managerial, technical and administrative competencies required by conducting periodic needs assessments involving all health staff and ensuring that these are reflected in job descriptions and that a range of effective training courses is available and accessible to all staff members.

Assessors should verify the roles and responsibilities of the ministry of health and other actors, such as the ministries for emergencies and education and NGOs working in the area of health education. They should also determine the availability of training in competency-building for the management of public health services and the delivery of health care.

Nurses comprise the largest portion of the health workforce in most countries. They deliver core services at all levels of the health system and across the continuum of care to promote health, improve patient care, deliver services and contribute to positive health outcomes. Therefore, special emphasis should be placed on training nurses in emergency management.

Indicator-related questions

a. ***Do needs assessments determine the frequency and content of training, as well as the number of participants?***
b. ***Does a needs-based training plan exist?***
c. ***Do the curricula cater for the different competencies required?***

National programmes should ensure the availability of education and training programmes that cater for the various categories of health staff (nurses, paramedics, doctors, hospital managers). The training programmes should be academically supported, accredited and available in the national language(s). The curricula and format of the courses should be reviewed on a regular basis and adapted to the local needs (e.g. required staffing skills, capacity for training institutions). Complementary training opportunities, such as on-the-job training and pre- and postgraduate courses, should also be available.

Assessors should ascertain whether the emergency-management competencies required for the key ministry-of-health posts have been determined and are reflected in the job descriptions. They should also ensure that assessments of training needs are carried out periodically and that the design and delivery of training and education programmes are competency-based.

Some or all of the following topics should be included in the training programmes: risk management; risk assessment; rapid post-disaster needs assessment; mass-casualty management; hospital preparedness; search and rescue; control of communicable diseases and pandemics; chemical incidents; food and nutrition; management of supplies; noncommunicable diseases in emergencies.

All disaster-response plans must be tested and staff trained in using them.

d. ***Are the curricula and training materials harmonized across stakeholders?***

Operational guidelines and technical publications relating to health-sector emergency management should be distributed widely among partners to ensure commonality of response.

e. ***Does a formal mechanism exist for reviewing and revising curricula?***
f. ***Does training include exercises and drills?***
g. ***Are opportunities provided for emergency-management training?***

All health-sector crisis-management courses, as well as drills and exercises, should be accessible to all relevant partners to ensure the

use of a common methodology and harmonized standard operating procedures. International training courses (e.g. those hosted by the Regional Office and/or the European Centre for Disease Prevention and Control (ECDC)) should be available to key response staff.

h. ***Have sufficient resources been allocated for training programmes?***
Assessors should verify that the annual budgets of emergency-preparedness programmes include sufficient funds for training and education activities.

Recommended reading

Core public health worker competencies for emergency preparedness and response. Columbia, Center for Health Policy, Columbia University School of Nursing, 2001 (http://www.nnepi.org/pdf/IC_Public_Health1.pdf, accessed 17 July 2011).

Ghori Uddin S et al. Emergency preparedness: addressing a residency training gap. *Academic Medicine,* 2008, 83:298–304.

Hsu EB et al. Effectiveness of hospital staff mass-casualty incident training methods: a systematic literature review. *Prehospital and Disaster Medicine,* 2004, 19:192–200.

SECTION 3. MEDICAL PRODUCTS, VACCINES AND TECHNOLOGY

Appropriate and cost-effective diagnostic and therapeutic medical products are essential for the provision of quality health care and the mitigation of human mortality and morbidity in an emergency.

Key component 3.1	Medical supplies and equipment for emergency-response operations
Essential attribute 17	Medical equipment and supplies for prehospital and hospital (including temporary health facilities) activities and other public health interventions

Indicator-related questions

a. ***Are essential medical supplies and equipment for emergency operations determined on the basis of risk assessments and analyses?***

b. ***Are they readily available in sufficient quantities?***

c. ***Are medical supplies periodically tested, and are expired or inappropriate items disposed of in accordance with established guidelines?***

Assessors need to verify that standardized lists of emergency medical supplies and equipment exist, that they were developed according to the needs identified through risk assessments, that they are comprehensive and include the appropriate items (i.e. that they reflect the policies and guidelines of the ministry of health accurately and do not conflict with international best practices), and that mechanisms exist to ensure the timely delivery of such items to the local level when requested. Stockpiles should be stored at secure and easily accessible locations.

The national repository should be organized with a focus on flexible response and include, for example, antibiotics, chemical antidotes, antitoxins, life-support medications, intravenous equipment, airway maintenance supplies and medical/surgical items. The repository should be designed to supplement and supply national and subnational health facilities in the event of an emergency. In the same way, supplies and equipment should be stored for influenza pandemics (e.g. antiviral drugs, vaccines, personal protective equipment (PPE) for medical staff and laboratory diagnostics equipment). The appropriate quantities of supplies should be determined by data projecting the annual national needs.

An inventory process should be in place to ensure that a minimum stock of essential medical supplies and equipment is maintained. The repository should be replicated at the subnational and facility levels.

d. ***Are maintenance of the inventory and the rotation and safe stockpiling of medical supplies and equipment executed in accordance with established guidelines?***

e. ***Is there a system in place, including cold chain, for the distribution of medical supplies and equipment in the event of a health-sector emergency?***

f. ***Do procedures exist for the exceptional procurement of medical supplies that are not on the list of basic equipment?***

Assessors should verify that procedures exist for the periodic testing, replacement and/or disposal of stockpile medical supplies and equipment. There should also be procedures for drawing up contracts for the delivery of supplies and services during emergencies, including technical specifications and information about the prices, delivery times and reliability of the goods. A method of tracking deliveries and reporting discrepancies must be in place.

Assessors also need to establish whether there are procedures for requesting, accepting and refusing medicines, personnel, field hospitals and other services (donations) provided by international partners and whether provision has been made for import-tax exemption for, and the speedy clearance of, medical supplies.

Recommended reading

Emergency response and recovery. Non statutory guidance accompanying the civil contingencies act, 2004. London, HM Government, 2010

(http://www.worcestershire.gov.uk/cms/pdf/EmergencyResponse&Recovery%20April%202010.pdf, accessed 15 April 2011).

Balcik B et al. Coordination in humanitarian relief chains: practices, challenges and opportunities. *International Journal of Production Economics*, 2010, 126(1):22–34.

Brown DW et al. Evidence-based approach for disaster preparedness authorities to inform the contents of repositories for prescription medications for chronic disease management and control. *Prehospital and Disaster Medicine,* 2008, 23(5):447–457.

Pan American Health Organization. *Guidelines for the use of foreign field hospital in the aftermath of sudden-impact disasters*. Washington, DC, Pan American Health Organization, 2003 (http://helid.digicollection.org/en/p/printable.html, accessed 15 April 2011).

Pan American Health Organization. *Humanitarian assistance in disaster situations. A guide for effective aid.* Washington, DC, Pan American Health Organization, 1999 (http://www.paho.org/english/ped/pedhumen.pdf, accessed 15 April 2011).

Pan American Health Organization. *Humanitarian supply management and logistics in the health sector*. Washington, DC, Pan American Health Organization, 2001 (http://www.paho.org/english/ped/HumanitarianSupply-part1.pdf, accessed 15 April 2011).

Structural, non-structural and functional indicators. Manila, WHO Regional Office for the Western Pacific, 2009 (http://www.wpro.who.int/NR/rdonlyres/E554CC53-4C8C-4340-9CCC-47EE5727BB0C/0/IndicatorsforSafeHospitalsDRAFTApril2009.pdf, accessed 15 April 2011).

Essential attribute 18 Pharmaceutical services

Indicator questions

a. ***Are essential pharmaceutical supplies for emergency operations determined on the basis of risk analyses?***
b. ***Are they readily available in sufficient quantities?***
c. ***Are pharmaceutical supplies periodically tested, and are expired or inappropriate items disposed of in accordance with established guidelines?***
d. ***Are maintenance of the inventory and the rotation and safe stockpiling of pharmaceutical supplies executed in accordance with established guidelines?***
e. ***Is there a system in place, including cold chain, for the distribution of pharmaceutical supplies in the event of a health-sector emergency?***
f. ***Do procedures exist for the exceptional procurement of pharmaceutical supplies that are not on the list of essential drugs?***

Assessors should verify that procedures exist for the periodic testing, replacement and/or disposal of stockpile pharmaceuticals. There should also be procedures for drawing up contracts for the delivery of pharmaceutical supplies in emergencies, including technical specifications and information about the prices, delivery times and reliability of the goods. A method of tracking deliveries and reporting discrepancies must be in place.

Assessors also need to establish whether procedures are in place for requesting, accepting and refusing medicines, personnel, field hospitals and other services (donations) provided by international partners, and whether provision has been made for import-tax exemption for, and the speedy clearance of, pharmaceutical supplies.

Recommended reading

Pan American Health Organization, WHO Regional Office for the Western Pacific. *Humanitarian supply management and logistics in the health sector*. Washington, DC, Pan American Health Organization, 2001 (http://www.paho.org/english/ped/HumanitarianSupply-part1.pdf. accessed 15 April 2011).

World Health Organization et al. *The interagency emergency health kit 2006. Medicines and medical devices for 10 000 people for approximately 3 months. An interagency document.* Geneva, World Health Organization, 2006 (WHO/PSM/PAR/2006.4) (http://apps.who.int/medicinedocs/en/d/Js13486e/6.10.5.html, accessed 8 May 2011).

Essential attribute 19 Laboratory services

Indicator-related questions

a. ***Are essential laboratory supplies and equipment for emergency operations determined on the basis of risk analyses?***
b. ***Are they readily available in sufficient quantities?***

c. ***Are laboratory supplies and equipment periodically tested, and are expired or inappropriate items disposed of in accordance with established guidelines?***
d. ***Do procedures exist for the exceptional procurement of laboratory supplies and equipment?***
e. ***Are the safe transport and export of biological and environmental specimens for testing and/or confirmation by national and international reference laboratories assured?***

Assessors should verify that procedures exist for the periodic testing, replacement and/or disposal of stockpile laboratory supplies and equipment. There should also be procedures for drawing up contracts for the delivery of supplies and services in emergencies, including technical specifications and information about the prices, delivery times and reliability of the goods. A method of tracking deliveries and reporting discrepancies must be in place.

Assessors also need to establish whether there are procedures for requesting, accepting and refusing medicines, personnel, field hospitals and other services (donations) provided by international partners and whether provision has been made for import-tax exemption for, and the speedy clearance of, laboratory supplies.

Procedures for diagnosing samples quickly must be in place and regularly tested. Essential laboratory services and basic laboratory testing, such as complete blood count, chemistry profile, electrolysis, blood-gas analysis, blood culture and sputum examination, should be maintained. Protocols should be established with national and reference laboratories on the rapid sharing of information and specimens, including cross-border transport to international reference laboratories.

Recommended reading

Guidelines for the collection of clinical specimens during field investigation of outbreaks. Geneva, World Health Organization, 2000 (WHO/CDS/CSR/EDC/2000.4) (http://www.who.int/entity/csr/resources/publications/surveillance/whocdscsredc2004.pdf, assessed 15 April 2011).

Pan American Health Organization, WHO Regional Office for the Western Pacific. *Humanitarian supply management and logistics in the health sector*. Washington, DC, Pan American Health Organization, 2001 (http://www.paho.org/english/ped/HumanitarianSupply-part1.pdf. accessed 15 April 2011).

State health emergency response plan (SHERP Victoria). Second edition. Melbourne, Department of Health, 2009 (http://www.dhs.vic.gov.au/__data/assets/pdf_file/0005/400883/SHERP_2nd_edition_web.pdf, accessed 15 April 2011).

World Health Organization et al. *The interagency emergency health kit 2006. Medicines and medical devices for 10 000 people for approximately 3 months. An interagency document.* Geneva, World Health Organization, 2006 (WHO/PSM/PAR/2006.4) (http://apps.who.int/medicinedocs/en/d/Js13486e/6.10.5.html, accessed 8 May 2011).

Essential attribute 20 Blood services

Indicator-related questions

a. ***Are essential supplies and equipment for blood services determined on the basis of risk analyses?***
b. ***Are blood supplies readily available in sufficient quantities?***
c. ***Are arrangements in place (including public campaigns) for the rapid and exceptional collection, storage and distribution of blood and are these in accordance with established guidelines?***
d. ***Do procedures exist for the exceptional procurement of supplies and equipment for blood services?***
e. ***Is the safety of blood and blood products (and their safe disposal) ensured in accordance with established guidelines?***

Assessors should verify that procedures exist for the periodic testing, replacement and/or disposal of stockpile supplies and equipment for blood services. There should also be procedures for drawing up contracts for the delivery of supplies and services in emergencies, including technical specifications and information on the prices, delivery times and reliability of the goods. A method of tracking deliveries and reporting discrepancies must be in place.

Assessors also need to establish whether procedures exist for requesting, accepting and refusing medicines, personnel, field hospitals and other services (donations) provided by international partners and whether provision has been made for import-tax exemption for, and the speedy clearance of, blood and blood products.

As the most important factor in the initial response to a disaster, assessors should

determine whether an adequate blood inventory is being maintained. A seven-day supply of all blood types should be available at all times unless risk analyses demonstrate different needs.

Recommended reading

Blood safety and laboratory technology [web site]. New Delhi, WHO Regional Office for South East Asia, 2011 (http://www.searo.who.int/EN/Section10/Section17.htm, accessed 15 April 2011).

Pan American Health Organization, WHO Regional Office for the Western Pacific. *Humanitarian supply management and logistics in the health sector*. Washington, DC, Pan American Health Organization, 2001 (http://www.paho.org/english/ped/HumanitarianSupply-part1.pdf, accessed 15 April 2011).

World Health Organization et al. *The interagency emergency health kit 2006. Medicines and medical devices for 10 000 people for approximately 3 months. An interagency document.* Geneva, World Health Organization, 2006 (WHO/PSM/PAR/2006.4) (http://apps.who.int/medicinedocs/en/d/Js13486e/6.10.5.html, accessed 15 April 2011).

SECTION 4. HEALTH INFORMATION

Key component 4.1	Information-management systems for risk-reduction and emergency-preparedness programmes
Essential attribute 21	Information system for risk assessment and emergency-preparedness planning

Keynotes

Up-to-date, reliable data and information are required to conduct risk assessments and carry out the emergency-preparedness planning necessary to ensure appropriate decision-making. These data and information should be available through a distributed, interoperable and reliable information system that connects institutions (including the ministry of health) with the necessary mandate to collect and maintain them. At the same time, the data coming from these different institutions need to be compatible and documented if they are to be combined in the context of risk assessment and emergency planning. Finally, the use of geography and the geographic information system (GIS) as a neutral platform for the integration of these data to visualize and analyse risk calls for an information system that combines the geographical and time dimensions properly.

All the aforementioned elements are generally handled through the National Spatial Data Infrastructure (NSDI), a forum that groups partners according to their agreement on and implementation of the policies, standards and procedures necessary to ensure data compatibility and system interoperability in general, and to support emergency management in particular.

Once the above is in place, the necessary technical capacity and resources need to be available for conducting the risk assessments and using their results as a basis for planning action towards risk reduction and emergency preparedness.

A risk assessment starts with the identification of hazards that are prevalent at the national, subnational (community and municipal), or infrastructure levels. The vulnerabilities and capacities of the exposed populations, health infrastructures and services at these levels are then assessed on the basis of available data and information and combined with the aforementioned hazards profile to obtain the geographical distribution of risks.

Since planning for emergencies is based on risk-assessment analyses, its quality ultimately depends on the quality of the assessment.

Indicator-related questions

a. ***Are the responsibilities and authority related to the information system defined?***

b. ***Do protocols and procedures exist for the collection, management, analysis and dissemination of the necessary data for conducting risk assessments and performing emergency-preparedness planning?***

c. ***Does a national profile of health risks exist and, if so, is it based on disaggregated risk, hazard and vulnerability data?***

   Conducting a geographically based risk assessment to develop a national profile of health risks is a data-intensive exercise.

   Assessors should investigate when the latest national population census was conducted and check whether GIS was used and whether the demographic data are readily available in a format that could be used in a risk assessment.

   Assessors should also look into finding an up-to-date list of administrative divisions down to the local level (e.g. district, municipality) and determine whether the delimitation of these units exists in GIS format.

d. ***Are reports on the activities of the emergency-preparedness programme published and disseminated regularly?***

Recommended reading

Communicable disease control in emergencies. A field manual. Geneva, World Health Organization, 2005 (http://www.who.int/infectious-disease-news/IDdocs/whocds200527/ISBN_9241546166.pdf, accessed 16 April 2011).

Framework and standards for country health information systems. Second edition. Geneva, World Health Organization, 2008 (http://www.who.int/healthmetrics/documents/hmn_framework200803.pdf, accessed 16 April 2011).

Essential attribute 22 National health information system

Keynotes

A national health information system collects data from the health sector and, in combination with data from other relevant sectors, analyses them, ensures their overall quality, relevance and timeliness, and converts them into information for use in health-related decision-making. Reliable and timely health information is essential to public health action, including that related to strengthening health systems. The need for sound information is especially critical in connection with emergent diseases and other acute health threats in that rapid awareness, investigation and response can save lives and prevent national outbreaks and even global pandemics.

One of the key elements of a health information system is public health surveillance (see also essential attribute 24). This element is especially relevant when the need for timely reporting and response (as in the case of epidemic diseases), and effective links to those responsible for disease control, impose additional requirements on the health information system.

The responsibility for health data is often divided among different ministries or institutions and coordination may be difficult because of financial and administrative constraints. However, health information systems should be responsive to the needs and requirements of all those concerned and this should be assured through a single, comprehensive plan developed through widespread collaboration. The control of major diseases should also be approached in a comprehensive and coherent manner.

Good management of health information requires the capacity to gather, process and disseminate information to all relevant stakeholders on a 24/7 basis. Ideally, there should be a health information centre, which:

- is accessible 24/7;
- is linked to multiple information sources (ambulance-dispatch centres, the meteorological office, ministries, etc.) (see also essential attribute 27) to ensure the constant flow and sharing of information on any potential crises (also at the international level), as appropriate;
- is autonomous (equipped to operate independent of any outside source, for example, of electricity and telecommunications, that may be impacted in a crisis);
- has standard operating procedures to ensure commonality of information management across partners; and
- generates reports to stakeholders, as needed, using standard formats and templates.

Assessors should verify whether this capacity has been developed as part of the responsibilities of the country to facilitate a rapid exchange of information nationally and internationally in the event of a crisis.

Indicator-related questions

a. ***Does the national health information system provide disaggregated data for health-related emergency management at the national and subnational levels?***

A national health information system contributes significantly to health-related emergency management at all levels. Relevant data on the pre-crisis situation provide the baseline for comparison that enables meaningful conclusions to be drawn about the effects of the crisis and priority responses.

Assessors should, therefore, first verify whether complete, up-to-date registries are available for and enable the mapping of the following assets:

- health facilities (public and private);
- pharmacies and medical stores;
- cold stores;
- laboratories;
- blood banks;
- human (health-related) resources;
- medical supplies and equipment for emergency-response operations.

Assessors should then identify the health indicators for which data are available through the health information system and ascertain their level of disaggregation.

Finally, assessors should verify whether mechanisms exist to ensure the timely provision of the above-mentioned disaggregated baseline data relevant to health-related emergency management at the national and subnational levels, if needed.

b. ***Are the triggers for switching from routine to emergency reporting defined?***

The elements of reporting (e.g. frequency, content) during emergencies differ significantly from those of routine reporting.

Assessors should verify that triggers are defined for switching from routine to emergency reporting.

Recommended reading

Framework and standards for country health information systems. Geneva, World Health Organization, 2008 (http://www.who.int/healthmetrics/documents/hmn_framework200803.pdf, accessed 18 April 2010).

Health information systems development and strengthening: guidance on needs assessment for national health information systems development. Brazzaville, WHO Regional Office for Africa, 2000.

Measuring health systems strengthening and trends: a toolkit for countries. Geneva, World Health Organization, 2010 (http://www.who.int/entity/healthinfo/HSS_MandE_framework_Oct_2010.pdf, accessed 6 August 2010).

Essential attribute 23 National and international information-sharing

(See also essential attribute 40 on prevention and control of communicable diseases and immunization.)

Keynotes

Information-sharing and strategies on how to communicate information within and beyond a country's border are an integral component of national emergency planning. Detailed plans on what is to be communicated by whom, to whom and how in case of an emergency must be prepared in advance and repeatedly revised. Communication strategies for dealing with possible scenarios should define their objectives, target audiences, key messages, communication channels and action plans.

Assessors should verify whether mechanisms exist to facilitate communication and information-sharing among stakeholders and partners, including those in the non-health sector, at the national and international levels. In the case of an emergency, information must flow both ways. The objective of carrying out surveillance, surveys and outbreak investigations is not simply to collect data and distribute health information but also to evaluate the response of the health system to the emergency and provide feedback to data collectors. Strong links between health-care facility-based surveillance systems and public health surveillance systems are essential. Mechanisms should exist that facilitate the immediate reporting of all available information about possible public health threats of potential concern to the (local) public health authorities and, through them, to the national and international levels.

Indicator-related questions

a. ***Have information mechanisms for use in emergency situations been established at the community level and is trained staff available?***

It is essential that populations at risk have the information they need to make well-informed decisions and take the appropriate action to protect their health and safety during an emergency.

Assessors should verify whether relevant information mechanisms exist at the community level. Communication channels should be clearly defined and the staff involved trained and readily available.

b. ***Does the information-management system facilitate reporting according to IHR and other mandatory reporting requirements?***

States Parties to IHR (2005) have agreed to meet their requirements and obligations concerning the reporting, verification and assessment of public health events of international concern, the implementation of WHO-recommended control measures and the development of core capacities for surveillance and response. IHR (2005) also require that States Parties collaborate with each other, as well as with WHO and other partners, in assessing and responding to significant public health events.

Assessors should verify that the information-management system is capable of meeting the IHR and other reporting requirements and that it is being used for this purpose.

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

Early recognition, reporting and infection control management of acute respiratory diseases of potential international concern. Aide memoire. Geneva, World Health Organization, 2008 (http://www.who.int/entity/csr/disease/avian_influenza/guidelines/EPR_AM4_E3.pdf, accessed 18 April 2011).

International Health Regulations (2005). *Second edition.* Geneva, World Health Organization, 2008 (http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf, accessed 18 April 2011).

World Health Organization outbreak communication planning guide. Geneva, World Health Organization, 2008 (http://www.who.int/ihr/elibrary/WHOOutbreakCommsPlanngGuide.pdf, accessed 18 April 2011).

Essential attribute 24 Surveillance systems

(See also essential attribute 22.)

Keynotes

Surveillance is the ongoing, systematic collection, analysis and interpretation of health data. The information generated from these data is used to plan and implement priority public health interventions and to monitor and evaluate the effectiveness of these interventions. Thus, surveillance data facilitate decision-making and contribute to assessing programme implementation. Surveillance is essential for monitoring disease or nutritional trends and for identifying high-risk groups or high-risk situations. The application of a surveillance system in emergency situations requires the timely collection, analysis and dissemination of information.

In emergency situations, rapid and informed decision-making is a priority. Sensitivity is more important than specificity in the early stages and the surveillance system needs to be adapted accordingly. Epidemiologists tend to follow routine reporting protocols to ensure accuracy of the analysis of health data. Specific training in conducting epidemiological investigations during emergencies can facilitate an understanding of the slightly different approaches to data collection that are required in emergencies (such as the introduction of syndromic surveillance). Assessors should check whether such training is available.

In protracted emergencies, data are needed on injuries, communicable diseases, vectors, food safety, nutrition, disability, some priority noncommunicable diseases, blood safety, mental health, etc. The emergency surveillance system needs to gather these data from communities, hospitals, laboratories and blood banks in both the public and the private sectors, and to ensure that they are integrated in surveillance reports.

Surveillance of a situation according to certain key indicators makes it possible to monitor and document its evolution and progress. The monitoring of short-term trends, especially the incidence of excess cases, is of paramount importance after a disaster. Because the time and resources available for collecting, analysing and reporting data are limited, particularly in the acute phase of an emergency, only the most essential indicators should be selected. These should be determined in advance on the basis of known risks. Relevant case definitions, case-confirmation criteria, reporting thresholds, reporting schedules and reporting formats should be carefully reviewed once an emergency occurs and temporary, situation-specific revisions should be made whenever necessary.

When setting up surveillance systems, it is important to be aware of the local distribution of health conditions and include these in the surveillance programme.

Assessors should verify that all stakeholders involved in the collection of health data are identified and that their input is coordinated with and integrated in the surveillance process. For the sake of consistency, all authorities and institutions reporting through the surveillance system should use standardized case definitions. The system should be based on mandatory “zero reporting”, which means that each site shall report for each reporting period even if it means reporting zero cases. This avoids the confusion of equating “no report” and “no cases”. The system should also be time calibrated (e.g. daily zero reporting at first) and should define the criteria for changing reporting periods (e.g. from daily to weekly) and for returning to routine surveillance.

Indicator-related questions

a. ***Do emergency managers have access to relevant data (including data on trauma and injuries, communicable diseases, vector-borne diseases, water quality, nutrition, noncommunicable diseases and food safety)?***
b. ***Are epidemic-related intelligence activities being carried out (baseline estimates, definition of trends and thresholds for alert and action defined at the primary-response level, regular analysis of epidemic-prone diseases, etc.)?***
c. ***Is early-warning capacity in place to enable recognition of and reporting on any event of potential public health concern within 24 hours?***

The early-warning system is an important component of surveillance. It is aimed at predicting, detecting and confirming public health events in a timely fashion, and at disseminating information appropriately so that effective public health action can be taken.

Assessors should verify the existence of mechanisms to facilitate the early recognition of events of potential public health concern and the reporting of these events within 24 hours.

d. ***Is the surveillance system able to provide sufficiently trained staff?***
e. ***Is there a network infrastructure, including surge capacity, to enable adequate response to an event?***
f. ***Does the surveillance system have standardized protocols defining roles, responsibilities and procedures related to the standardization, collection, management, analysis and dissemination of data?***
g. ***Does the surveillance system provide for data-sharing with agricultural, veterinary and environmental-disease surveillance systems?***

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

Handbook for participants, management of public health risks in disasters. Regional training course on management of public health risks in disasters (MPHR). Cairo, WHO Regional Office for the Eastern Mediterranean, 2008.

Key component 4.2	Information-management systems for emergency response and recovery
Essential attribute 25	Rapid health-needs assessment

Keynotes

A rapid health-needs assessment[2] is a collection of subjective and objective information that can be used to measure the damage caused, identify the basic needs of an affected population, and determine the level and type of response needed. Its main steps are: to define the assessment priorities; to collect the data (by reviewing existing information, inspecting the affected area, interviewing key people and carrying out a rapid survey); to analyse and interpret the findings; and to present the results and conclusions. A rapid health-needs assessment is not an end in itself but the first step in a continuous process. In addition to providing initial, action-oriented information as clearly as possible, it forms the basis of more comprehensive follow-up assessments.

The objectives of a health-related humanitarian intervention during the acute phase of an emergency situation are to reduce excess mortality and morbidity and stabilize the population's health situation as rapidly as possible. In a situation marked by confusion, disruption and, often, danger, managers need access to a continuous flow of information, which – as a result of the circumstances – may not always be precise.

In most emergencies, timeliness must take precedence over accuracy, which means that life-saving decisions are taken on the basis of incomplete data. While the objective of a rapid health-needs assessment is to avoid making decisions without solid information, equally, "paralysis by analysis" must be avoided as the cost of more accurate and comprehensive information can be very high. Information in the early stages of an emergency does not need to be precise. The health sector is often overly concerned with accuracy and loses much time in pursuing it. For example, it is enough to know that about 1000 people depend on a water source, rather than to waste time in confirming that the exact number of people is 992.

There are several kinds of rapid health-needs assessment. Those carried out at the local level by local staff are required in any event. They should be based on a standardized method and format, as well as on agreed denominators, so that information from multiple sources can be usefully collated. Assessments carried out by national-level health staff, international agencies or NGOs should be conducted as joint assessments.

Indicator-related questions

a. ***Do mechanisms exist for carrying out rapid health-needs assessments?***
b. ***Are the necessary resources and trained staff available for doing so?***

2 The key questions to be answered in a rapid health-needs assessment are the following. Is there an emergency or not? What are the type, impact and possible evolution of the emergency? What are the most severely affected geographic area and catchment population? What is the main health problem? What is the existing response capacity? What are the critical information gaps (for follow-up assessments)? What response action is recommended as priority? What resources are needed to implement priority action? *(17)*

Assessors should verify that the following elements are in place:

- clearly defined criteria for rapid health-needs assessment, i.e. when and when not to carry out an assessment, how to do so and which data to collect;
- agreement with the sub-national authorities on the authority of the assessment team;
- information on support for assessment teams (security, transport, communications, funding);
- agreed and reliable denominators extracted from the different registries maintained by the health information system (see essential attribute 22), as well as the most recent population figures (see essential attribute 21);
- adequate training for the staff and mechanisms to ensure that those involved are experienced;
- a balanced team (vis-à-vis expertise, representation of different entities, etc.).

Since a rapid health-needs assessment requires a broad analysis, public health generalists, rather than specialists, should be included in the team.

Assessors should also verify that all possible avenues are explored to find the capacity required for carrying out rapid health-needs assessments. One example could be to identify potential institutions and agencies that could provide the necessary resources and integrate their input.

c. ***Do data resulting from rapid health-needs assessments determine resources' allocation and priority action?***
Assessors should verify that mechanisms exist for allocating resources and setting priorities on the basis of data resulting from rapid health-needs assessments. This requires that assessment reports are clear, standardized, action-oriented, timely and widely distributed.

d. ***Do these data reflect the needs in terms of the population and health services' delivery?***
A common mistake in carrying out rapid health-needs assessments is to determine health needs according to the presence or absence of health services without considering the health status of the population and the risks to which it is exposed. Systemic links should be established between health needs associated with: (i) current and future health risks; (ii) the capacity to deliver priority health-care services; and (iii) the current health status. Addressing the determinants of the health status is necessary to improve the health of the affected population; systematic ways of doing so need to be found.

The data do not need to be collected by external teams. A well-designed local emergency reporting system that continues to function in a crisis can provide all this information just as effectively and at considerably less cost both in time and resources.

Recommended reading

Darcy J, Hofmann C A. *According to need? Needs assessment and decision-making in the humanitarian sector. HPG Report 15, September 2003*. London, Overseas Development Institute, 2003 (http://www.odi.org.uk/resources/download/239.pdf, accessed 28 October 2011).

Inter-Agency Standing Committee, Global Health Cluster. *Health Cluster guide. A practical guide for country-level implementation of the Health Cluster.* Geneva, World Health Organization, 2009 (http://whqlibdoc.who.int/hq/2009/WHO_HAC_MAN_2009.7_eng.pdf, accessed 18 April 2011).

Rapid health assessment guidelines. Regional training course on rapid health assessment, 27–30 November 2007, Ha Noi, Viet Nam. Manila, WHO Regional Office for the Western Pacific, 2007 (http://www.wpro.who.int/internet/files/eha/dir/Regional%20Training%20Course%20on%20Rapid%20Health%20Assessment/RHA%20global%20health%20cluster.pdf, accessed 18 April 2011).

Thieren M. Health information systems in humanitarian emergencies. *Bulletin of the World Health Organization*, 2005, 83(8):584–589 (http://www.who.int/bulletin/volumes/83/8/584.pdf, accessed 18 April 2011).

Essential attribute 26 Multisectoral initial rapid assessment (IRA)

Keynotes

The purpose of a multisectoral IRA is to quickly provide an overview of an emergency situation based on essential multisectoral data, identify its immediate impacts of the crisis, estimate the needs and vulnerabilities of the affected population, and define the priorities for humanitarian action *(18).* The

areas assessed are security, infrastructure, shelter, sanitation and access to food and water. Frequently, health is not included, usually because the health sector has the reputation of collecting data efficiently through its own reporting systems. Other sectors do not have this capacity built in to their normal working methods. However, it is important for the health sector to be represented on an IRA team. This provides health staff with the opportunity to access data on important determinants of health at an early stage, which facilitates the prediction and prevention of future health risks. In addition, the IRA team can benefit from the information and comments provided by the health staff, which will improve the quality and usefulness of their report.

An IRA team should comprise generalists from various sectors rather than specialists only. However, although the use of generalists increases flexibility and reduces the expenses and time required, it does not eliminate the need for specialists. While junior staff members can participate effectively in the data-gathering process, the overall coordination and management of IRAs requires significant experience in emergency-related assessment and monitoring activities.

Data provided by means of IRAs are preliminary and their quality is limited by constraints in time and opportunity to structure their sampling and collection during the onset of an emergency. The exercise is limited to an approximate assessment of damage and immediate needs and cannot provide comprehensive, statistically sound or in-depth qualitative data. However, the IRA is the first step in a continuous process and, therefore, identifies needs to be considered in more comprehensive follow-up assessments (see also essential attribute 25).

One of the most common errors made in carrying out IRAs is to collect too much data and/or irrelevant information. It is important that the information needed at the different stages of emergency management is clearly defined (see also essential attribute 12).

Indicator-related questions

a. ***Is the health sector fully involved in the planning, preparation and implementation of IRAs?***

b. ***Do health professionals receive appropriate training in carrying out IRAs?***
Although the health sector is not responsible for the overall IRA process, it should be fully involved and contribute actively. The assessment of health-sector damages (loss of staff, loss of services, lack of water for health-care facilities, etc.) is a critical issue.
Assessors should verify that participants in IRAs are adequately trained and significantly experienced in emergency-related assessment and monitoring activities and that they have a full understanding of the methodology, practical options and limitations of the exercise.

c. ***Do mechanisms exist for allocating resources and initiating priority action based on IRA data?***
Assessors should verify that mechanisms exist for allocating resources and setting priorities on the basis of IRA data. This requires that IRA reports are clear, standardized, action-oriented, timely and widely distributed.

Recommended reading

Checchi F, Roberts L. *Interpreting and using mortality data in humanitarian emergencies: A primer for non-epidemiologists. Humanitarian Practice Network (HPN) paper no. 52, September 2005.* London, Overseas Development Institute, 2005 (http://www.odihpn.org/documents/networkpaper052.pdf, accessed 19 April 2011).

Guidelines for emergency assessment. Geneva, International Federation of Red Cross and Red Crescent Societies, 2005 (http://www.proventionconsortium.org/themes/default/pdfs/71600-Guidelines-for-emergency-en.pdf, accessed 19 April 2011).

Handbook for participants, management of public health risks in disasters. Regional training course on management of public health risks in disasters (MPHR). Cairo, WHO Regional Office for the Eastern Mediterranean, 2008.

Initial rapid assessment (IRA): guidance notes for country level. Version for field testing. Geneva, Inter-Agency Standing Committee, 2007 (www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page/clusters%20pages/health%20cluster/RT/IRA_Guidance_Country%20Level_field_test.doc, accessed 19 April 2011).

Essential attribute 27 Emergency reporting system

Keynotes

An emergency reporting system provides information on all health-sector activities with the exception of surveillance, which usually has its own system. It furnishes decision-makers with an overview of the daily activities of the office, programme, hospital,

service or institution in question and the problems or constraints they are encountering. It also provides the latest status reports on functionality (damages and repairs), staffing, supplies, security, and other factors, as well as information on workload (e.g. number of patients seen or specimens processed per day), meetings held and decisions taken.

Routine data reporting takes place weekly or monthly. The data, which are collected and processed regularly, are usually based on a set of indicators. However, a routine reporting system, which requires the collection of large quantities of data, is not efficient in emergencies. It does not include reporting on damaged or destroyed facilities, or on missing staff and supplies and, thus, cannot provide all the relevant information needed for rapid decision-making in emergencies. In addition, it is very slow and cannot capture the onset of severe emergencies (e.g. an outbreak of disease) early enough.

In emergency situations, only data that are necessary for decision-making should be collected and processed. These data must be reported on a more frequent basis (daily) from the onset of an emergency. Indicators for new events might not exist in the routine reporting system and in emergency situations investigations might have to be made without them. This implies that surveillance should be based not only on a set of indicators but also on the actual emergency event.

Assessors should verify that mechanisms exist for reporting emergency events in a timely manner.

Indicator-related questions

a. ***Does an emergency reporting system exist?***

b. ***Are resources and trained staff available ?***
Assessors should verify that an emergency reporting system exists, that there are activating and de-activating trigger mechanisms, and that staff have been trained in using the system.

c. ***Does the emergency reporting system provide information on critical human resources, health infrastructure, etc.?***
Assessors should verify whether there are mechanisms for collating the reports of all the programmes and services of the ministry of health and ensuring that they reach decision-makers in a timely manner.

d. ***Are data from all relevant stakeholders collected through the emergency reporting system?***
Assessors should verify the existence of mechanisms to ensure that data from various stakeholders can be collected and processed if needed.

Key reference document

Connolly MA, ed. *Communicable disease control in emergencies*. *A field manual.* Geneva, World Health Organization, 2005 (WHO/CDS/2005.27) (http://www.who.int/infectious-disease-news/IDdocs/whocds200527/ISBN_9241546166.pdf, accessed 19 April 2011).

Key component 4.3	Risk communication
Essential attribute 28	Strategies for risk communication with the public and the media

Keynotes

During an emergency, communication with the public and the media needs to be carefully planned and executed. It also needs to be properly integrated with emergency-management activities.[3] To communicate effectively through the media[4], response managers must plan their communication strategies accordingly and be ready promptly to provide transparent messages addressing public concerns. Doing so strengthens public confidence, minimizes secondary damage (such as adverse economic or political impact) and maintains the credibility of the health sector.

Indicator-related questions

a. ***Are the communication strategies based on risk assessment?***

b. ***Are there coordination mechanisms in place for involving stakeholders in the formulation of information for the public and the media to ensure consistency?***
To ensure the timely delivery of accurate and consistent information, coordination mechanisms should be in place to streamline information-sharing among various stakeholders.

c. ***Do procedures exist for the dissemination of information?***
Assessors should determine whether channels have been identified for the dissemination of messages (e.g. radio, television, World-Wide Web, telephone and information services, social

3 The WHO outbreak communication principles are: 1. trust; 2. early announcement; 3. transparency; 4. listening; and planning *(19).*

4 WHO recommends seven steps to effective media communication during public health emergencies: (1) assessment of media needs, media constraints and internal media-relations' capabilities; (2) development of goals, plans and strategies; (3) training of communicators; (4) preparation of messages; (5) identification of media outlets and media activities; (6) delivery of messages; and (7) evaluation of messages and performance *(20).*

networks) and whether documented plans and procedures exist for interacting with the media and the public during an emergency.

d. ***Is information regarding ongoing emergency-preparedness activities systematically communicated to the public and the media?***

e. ***Do the communication strategies also target minority and vulnerable populations?***
Assessors should verify whether mechanisms for reaching vulnerable, isolated and minority populations exist – including ways of overcoming challenges related to technology, language and culture – and whether representatives of these groups are included in the planning process.

f. ***Is the function of spokesperson defined?***
A well-trained, lead spokesperson and a media communication team are necessary to ensure effective media communications during public health emergencies.

Assessors should verify whether a spokesperson with the necessary training in risk communication and public health has been designated. The spokesperson should have excellent communication skills and sufficient experience to be able to simplify information flow and promote the consistency of message content. Several trained persons should be available to act as backup in different scenarios, if needed.

Recommended reading

Effective media communication during public health emergencies. *A WHO handbook*. Geneva, World Health Organization, 2005 (WHO/CDS/2005.31) (http://www.who.int/entity/csr/resources/publications/WHO%20MEDIA%20HANDBOOK.pdf, accessed 19 April 2011).

Effective media communication during public health emergencies. A WHO field guide. Geneva, World Health Organization, 2005 (WHO/CDS/2005.31a) (http://www.who.int/entity/csr/resources/publications/WHO%20MEDIA%20FIELD%20GUIDE.pdf, accessed 19 April 2011).

Pan American Health Organization, WHO Regional Office for the Western Pacific. *Creating a communication strategy for pandemic influenza.* Washington, DC, Pan American Health Organization, 2009 (http://www.paho.org/english/ad/PAHO_CommStrategy_Eng.pdf, accessed 19 April 2011).

World Health Organization outbreak communication planning guide. Geneva, World Health Organization, 2008 (http://www.who.int/ihr/elibrary/WHOOutbreakCommsPlanngGuide.pdf, accessed 19 April 2011).

Essential attribute 29 Strategies for risk communication with staff involved in emergency operations

Keynotes

Although the degree of risk varies in emergency-response operations, security incidents can occur that sometimes result in the death of responders. Although security risks cannot be completely eliminated during these operations, they can be kept to an absolute minimum. One way of doing so is to ensure that responders are aware of the risks and immediately provided with the necessary support (transport, protection, etc.) to enable them to fulfil their roles. All responders should participate in security-related courses on, for example, radio communication, the local language and culture and how to deal with checkpoints, road-traffic accidents, criminal activity or open-conflict situations.

The health sector is responsible for ensuring that all emergency responders have access to accurate and reliable information about the health risks they could face while carrying out their duties during an emergency and for providing them with advice on how to protect themselves. It is important that mechanisms exist for the rapid development of event-specific information for emergency-response agencies and the dissemination of this information to all stakeholders.

As regards telecommunications equipment (see also essential attribute 48), it is of vital importance that the communications system enables constant and direct communication among stakeholders, between stakeholders and responders, and among the responders themselves. It is important that responders from all sectors involved in telecommunications receive adequate training in how to set up and use the telecommunications equipment. They should also verify the existence of basic security regulations.

Standard procedures should be established for the systematic and immediate reporting of all security incidents affecting responders. Reports should include only facts and avoid assumptions or conclusions. At the same time, it should be possible for responders to report any observations of danger. A developing risk – such as renewed movement of terrain after a landslide or mudflow caused by

floods or an earthquake – might be discovered by a responder at a location some distance from the place in which its consequences will endanger the lives of relief workers.

Indicator-related questions

a. ***Do coordination mechanisms exist to ensure the consistency of information supplied by stakeholders to responders?***
During operations, responders might receive conflicting information, attributable often to the fact that the various reporting parties assess risks differently, which could undermine the security of the responders. In addition, if responders receive information that is inconsistent with their observations, they might start to doubt any of the information provided.

Assessors should determine whether stakeholders have mechanisms for ensuring the consistency of risk information provided to responders, as well as the accuracy and reliability of advice on how to protect themselves.

b. ***Do procedures exist for the communication of risk information by stakeholders to responders?***
It is important that responders involved in emergency operations be provided with timely and reliable health and safety information.

Assessors should verify the existence of procedures to be followed by stakeholders in doing so.

c. ***Has information on specific risks and self-protection measures for responders involved in emergency operations been prepared and, if so, is it regularly updated and disseminated?***
Mechanisms must be in place to enable the prompt communication of information on possible risks and self-protection measures to responders. For example, PPE, vaccinations, prophylactic medication and other such factors may need to be addressed in the midst of a rapidly evolving emergency. Information of this kind must be regularly updated and disseminated. Furthermore, it is important for team members to recognize that the action taken by one team member can affect the security of others, sometimes in ways that are not obvious. Hence, responders need to take charge of their own security and try to minimize not only their own security risks but also those of the team as a whole[5].

5 The following "seven pillars of security" may be useful in strengthening individual responsibility: (1) acceptance (accepting that normal personal freedom may be restricted); (2) identification (always carrying proper identification for operations, vehicles, staff, etc.); (3) information (taking responsibility for updating oneself about the security situation); (4) regulations (following appropriate security rules and regulations (with respect, for example, to travel, curfews, etc.); (5) behaviour (being honest, practising self-discipline and showing respect for the local culture and social habits); communication (observing the security rules about promptly communicating one's whereabouts) (6) protection (taking simple precautions to protect oneself and other team members and understanding the evacuation procedures) *(21).*

Recommended reading

Emergency response and recovery. Non statutory guidance accompanying the Civil Contingencies Act 2004. London, Her Majesty's Government, 2010 (http://www.worcestershire.gov.uk/cms/pdf/EmergencyResponse&Recovery%20April%202010.pdf, accessed 19 April 2011).

Resilient telecommunications. In: *Emergency response and recovery. Non statutory guidance accompanying the Civil Contingencies Act 2004. Third edition.* London, Her Majesty's Government, 2010 (http://www.cabinetoffice.gov.uk/sites/default/files/resources/emergency-response-recovery_0.pdf, accessed 19 April 2011).

SECTION 5. HEALTH FINANCING

This chapter evaluates the health financing strategies and mechanisms required to ensure the funding and financial protection necessary to enable the health system to reduce existing risks and avoid generating new ones.

Key component 5.1	National and subnational strategies for financing health-sector emergency management
Essential attribute 30	Multisectoral mechanisms of financing emergency preparedness and management

Indicator-related questions

a. ***Are funds available for the multisectoral preparedness for, and management of, emergencies at the national and subnational levels?***

b. ***Do multisectoral financing mechanisms include contingency funding for response and recovery at the national and subnational levels?***

c. ***Are multisectoral financing procedures available for the request, acceptance and utilization of international financial assistance?***
Assessors should verify whether funds are dedicated in the national budget for emergency-management and preparedness planning, more specifically for human resources, coordination, staff training, information management, simulation exercises, public awareness, supplies and equipment, and monitoring and evaluation. There should be a fast-track mechanism for requests from the ministry of health for national emergency contingency funds.

Recommended reading

Langabeer JR et al. Investment, managerial capacity, and bias in public health preparedness. *American Journal of Disaster Medicine,* 2009, 4(4):207–215.

De Lorenzo RA. Financing hospital disaster preparedness. *Prehospital and Disaster Medicine*, 2007, 22(5):436–439.

Essential attribute 31	Health-sector financing mechanisms

Keynote

The financing strategy of the ministry of health should provide for emergency-management activities, including operations for risk reduction and emergency preparedness and response. This also means funding action to determine the resilience of critical medical facilities (hospitals, laboratories, blood banks, warehouses, etc.) and to make necessary improvements according to a plan based on risk assessment and the level of importance of the facility. Funding to reduce the structural and nonstructural vulnerability of health facilities should be a budgetary priority.

Indicator-related questions

a. ***Do the health-sector financing mechanisms include a budget for a risk–reduction programme?***

b. ***Are funds designated for a health-sector emergency-preparedness programme?***
Assessors should verify that funds for emergency preparedness are allocated in the budget of the ministry of health.

c. ***Do mechanisms exist for accessing contingency funds for health-sector emergency-response and recovery operations?***
Assessors should determine whether the ministry of health has contingency funds and, if so, whether they are easily accessible when a crisis situation demands a rapid response necessitating an increase in health expenditure that is not provided for in the normal budget. Contingency funds should be sufficient to meet most needs in the short-term (staffing, procurement of essential supplies and services) according to the scenarios outlined in the risk assessment. The administrative procedures for accessing and allocating contingency funds in a crisis should be flexible and transparent and they should cater for fast-tracking.

d. ***Do health-sector financing mechanisms include effective and rapid recovery for loss and damage (e.g. damage to health facilities)?***
Critical facilities should be insured for damage in

the event of a natural or human-made disaster. Insurance should be comprehensive and a fast-tracking mechanism should be in place for the dealing with claims connected with the restoration of the facility.

Health staff operating in crises at the national and international levels should be insured for accidents, illness and death while performing their duties. Catastrophe bonds should be available to assist insurance companies to meet their commitments in the event of a major catastrophe, the impact of which exceeds their absorption capacity.

Recommended reading

Hanfling D. Equipment, supplies and pharmaceuticals: how much might it cost to achieve basic surge capacity? *Academic Emergency Medicine,* 2006, 13:1232–1237.

SECTION 6. SERVICE DELIVERY

Key component 6.1	Response capacity and capability
Essential attribute 32	Subnational health-sector emergency-response plans

(See also essential attribute 13.)

Indicator-related questions

a. ***Are subnational emergency-response plans based on national policy?***
Subnational health-related emergency-response plans should ensure safe, effective and coordinated health and medical response in an emergency by:

- establishing a health-sector incident management structure at the subnational level that both interfaces and works with the national incident management structure;
- coordinating health resources (from those at the incident site to those at the receiving health-care facilities);
- managing prehospital resources and ensuring hospital interaction.

Emergency-response plans should follow an all-hazards approach, the concept of which acknowledges that, while hazards vary in source (natural, technological, social), they often challenge health systems in similar ways. Thus, the principles outlined in emergency-response plans should apply in any type of emergency. Experience shows that a substantial part of essential response action is generic (dissemination of health information, establishment of an emergency-operations centre, coordination of activities, logistics, communication with the public, etc.), irrespective of the hazard. Prioritizing these generic response measures generates synergies that benefit overall response operations and results. Assessors should verify that subnational emergency-response plans follow national policy and involve all relevant stakeholders, which would ensure the effective management and coordination of the whole-health response.

b. ***Are these plans compatible with the relevant subnational multisectoral emergency plan?***
Evaluators should verify that health-sector emergency-response plans are compatible with and linked to the relevant subnational multisectoral emergency plan.

c. ***Do the plans define mechanisms for activation, coordination, command and control?***
To ensure appropriate mechanisms for the activation, coordination, command and control of an emergency response, the existence of an integrated incident-management system (IMS) is essential. IMS (also referred to as "incident-command system") involves personnel, policies, procedures, facilities and equipment combined in a common organizational structure designed to improve emergency-response operations of all types and levels of complexity. An emergency operation in response to an incident, the nature and scale of which could have an impact on the health and well-being of the population, typically involves multiple agencies and requires the integration of their emergency plans.

d. ***Are the plans based on available resources?***
e. ***Are the plans tested, validated, exercised and maintained?***
f. ***Are the plans revised on the basis of lessons learnt?***
Assessors should verify that subnational plans are: (i) based on available resources; (ii) regularly tested, validated, exercised and maintained; and (iii) revised on the basis of lessons learnt. They should also establish whether key staff with responsibilities in health-sector response receives regular training as part of the process to ensure functionality of the plan.

g. ***Are the plans disseminated to key stakeholders after each revision?***
Planning a health-sector emergency-response plan at the subnational level requires the involvement of many stakeholders to ensure that it is managed and coordinated according to the whole-health approach. Therefore, it is important to disseminate the emergency-response plan to the key stakeholders every time it is revised.

N.B. In general, key stakeholders are required, in consultation with partner agencies, to develop standard operating procedures (SOPs) consistent with the principles of the emergency-response plan. SOPs form a major component of the plan and should be clearly formulated, regularly reviewed and distributed to all concerned after every revision.

Recommended reading

Mass casualty management systems. Strategies and guidelines for building health sector capacity. Geneva, World Health Organization, 2007 (http://www.who.int/hac/techguidance/MCM_guidelines_inside_final.pdf, accessed 25 April 2011).

State health emergency response plan. SHERP Victoria. Second edition – 2009. Melbourne, Department of Health, 2009 (http://www.dhs.vic.gov.au/__data/assets/pdf_file/0005/400883/SHERP_2nd_edition_web.pdf, accessed 25 April 2011).

Wahle T, Beatty G. *Emergency management guide for business & industry: a step-by-step approach to emergency planning, response and recovery for companies of all sizes.* Washington, DC, Federal Emergency Management Agency, 1993 (http://www.fema.gov/pdf/business/guide/bizindst.pdf, accessed 25 April 2011).

Essential attribute 33 Surge capacity for subnational health-sector response

(See also key component 2.1.)

Keynotes

The concept of medical surge forms the cornerstone of preparedness planning for major incidents of medical concern. *Surge* can be defined as "a demand for health services in a mass-casualty incident where additional capacities (in terms of the amount of personnel, equipment or supplies) and/or capabilities (in terms of specialized expertise) are required" *(22)*.

Medical surge has two components, capacity and capability. Medical surge *capacity* refers to the ability to evaluate and care for a markedly increased volume of patients (i.e. exceeding normal operating capacity). The surge requirements may extend beyond direct patient care to include such tasks as extensive laboratory studies or epidemiological investigations.

Medical surge *capability* refers to the ability of the health-care infrastructure to manage patients (e.g. those infected with highly contagious pathogens) requiring unusual or specialized medical evaluation and care (i.e. specialized medical and health services) that are not normally available at the location at which they are needed. Surge capability also includes special interventions to safeguard those providing medical care to these patients and to protect other patients in the health-care facility concerned.

Staff training is a key element of both the surge capacity and the surge capability of the health sector.

A mass-casualty incident has been defined as an event which generates more patients at one time than locally available resources can manage using routine procedures. It requires exceptional emergency arrangements and additional or extraordinary assistance *(23).* It has also been defined as any event resulting in a number of victims large enough to disrupt the normal course of emergency and health-care services *(24).*

Although national policy on managing mass-casualty incidents is essential, preparedness at the subnational (provincial and municipal) levels is crucial to the success of the national emergency plan. Strategies for enhancing medical surge capacity and capability require a systems-based approach rooted in interdisciplinary coordination at the local level. Ideally, this approach should be tiered to link hospitals, hospital networks and management systems at the national and subnational levels, and comprise: management of individual health-care assets (tier 1); management of a hospitals' network (tier 2); management of municipal response (tier 3); management of provincial response (tier 4); and national coordination and support to lower-level tiers (tier 5) *(22)*. Larger countries might be able to apply all five tiers but constraints in smaller countries could exclude this possibility. To make the tier approach more flexible, it might be useful to consider scaling the response.

The tiers of a mass-casualty management system do not operate in a vacuum. To assure maximum response in a mass-casualty incident, there should be coordination among the different tiers and between these and the non-medical incident response. At the same time, it is important to use resources and services as far as possible and to strengthen and develop them when necessary.

Indicator-related questions

a. ***Do mechanisms exist for the rapid mobilization of additional resources (personnel, equipment and materials) to and between the subnational levels?***
A scalable approach to assuring the necessary medical surge capacity for mass-casualty management requires the integration of stakeholders' efforts and relevant available resources (field hospitals, mobile hubs, military transport capacity, etc), at both the national and subnational levels, including the private sector, NGOs, the military, and others (see also essential attribute 4).

b. ***Are there procedures in place for the pre-positioning of essential supplies and for their release to high-risk areas?***
In order to supplement health-sector resources, private health services (including ambulance services, private hospitals and health professionals) and NGOs should be included as part of the surge capacity. The local emergency-management authorities should have access to an inventory of available services and resources (including human resources). Procedures for pre-positioning various supplies (e.g. medicines, disaster stockpiles) and an adequate management system should be in place. The private sector, NGOs and other stakeholders should participate in planning the response to mass-casualty incidents, as well as in relevant training exercises. Private companies and businesses may also be able to contribute significantly to planning and response. In this context, standardized procedures and risk communication are the key elements in enhancing cooperation and coordination among the actors.

c. ***Do mechanisms of hospital networking exist?***
In emergency situations, public, diagnostic and curative health facilities can become overwhelmed and it is of paramount importance that they can share the increased demand for medical intervention. To this end, hospital networking might be included in subnational (provincial and municipal) emergency-response plans.

d. ***Do procedures and the required capacity (ventilators, incubators, etc.) exist for providing life support and critical care during patient dispatch to hospitals outside the affected area?***

Recommended reading

American Red Cross et al. *Emergency management guide for business and industry. A step-by-step approach to emergency planning, response and recovery for companies of all sizes.* Washington, DC, Federal Emergency Management Agency, 1993 (http://www.fema.gov/pdf/business/guide/bizindst.pdf, accessed 26 April 2011).

Knebel A, Trabert E, eds. *Medical surge capacity and capability: a management system for integrating medical and health resources during large-scale emergencies.* Washington, DC, Department of Health and Human Services, 2007 (http://www.phe.gov/preparedness/planning/mscc/handbook/pages/default.aspx, accessed 20 July 2011).

Mass casualty management systems. Strategies and guidelines for building health sector capacity. Geneva, World Health Organization, 2007 (http://www.who.int/hac/techguidance/MCM_guidelines_inside_final.pdf, accessed 26 April 2011).

Essential attribute 34 — Management of prehospital medical operations

Indicator-related questions

a. ***Is there a system in place for managing medical activities at the scene?***
Prehospital medical operations include the medical evacuation and triage of patients and their dispatch to and receipt by health-care facilities. In terms of space, prehospital medical care starts at the disaster site and continues to the triage or reception area of the receiving hospital; in terms of time, from when the alarm is heard (or the pre-alert, when there is warning time) until the admission of the last casualty. Each country has its own prehospital system, also for medical operations, and its ministry of health should issue policy and application guidelines within the framework of that system at the multisectoral level (see also key components 5 and 6).

Regardless of the policy being followed on alerting the different emergency services (e.g. the use of a single national emergency number), assessors should verify whether efficient communication systems and clear procedures for doing so are in place and in accordance with the multisectoral emergency plan.

The management of prehospital medical operations involves considering the following

broad spectrum of components during assessments:

- integrated incident-management and command system (see also essential attribute 32);
- medical surge capacity (see also essential attribute 33);
- pre-positioning of disaster stocks;
- on-site organization of medical activities;
- activity types, services to be delivered and services-delivery agencies;
- triage (different types and algorithms; medical-disaster triage teams, etc.);
- emergency communications;
- logistics for prehospital medical operations (see also essential attribute 50);
- evacuation process;
- intersectoral coordination;
- coordination between prehospital and hospital components;
- health-sector preparedness (e.g. disaster and trauma teams);
- different types of training;
- community preparedness.

Assessors should determine whether all seven steps of the prehospital chain[6] are in place and whether the system is compatible with the different characteristics of disasters (type, magnitude, scope, accessibility of disaster site, etc.). The fundamental prerequisites for success are the following: an intersectoral emergency-management strategy based on broad health-sector policy; the designation and clear definition of overall authority and responsibilities (also in relation to the disaster site); regular training programmes in emergency management; and medical teams trained and ready to operate in special environments.

b. Is a standardized triage system in place?

When the number of casualties in an emergency exceeds the capacity of the individual medical teams to cope, it is necessary to organize the emergency-management triage process as quickly as possible. Although the goal of triage is to provide the greatest chance of survival to the largest possible number of casualties, assessors should bear in mind that triage is an ongoing process, which includes continuous evaluation and re-evaluation at each level of the chain over time. Triage protocols are of limited value unless triage is viewed as a process including: assessment of the medical condition of the patients; provision of immediate, basic, life-saving care; decision-making on the degree of priority for further medical care; and/or evacuation of patients. Therefore, it is necessary to integrate triage protocols into the broader framework of a mass-casualty management system.

The triage system should be standardized, taking protocols, methodology (forms and tags), staff education and resources into account. There are many different triage protocols in use in the countries. In some, trained laypersons and emergency and rescue personnel (e.g. firefighters) participate in a non-medical triage "system". In others, where physicians actively contribute to the delivery of prehospital medical care in mass-casualty incidents, the protocols are based on medical triage, which is handled by medical personnel with clinical experience (mainly, but not limited to, emergency medical technicians, emergency physicians and trauma surgeons). All countries would benefit from developing their own triage protocols based on medical triage rather than on non-medical protocols.

The triage process itself does not guarantee the efficient management of prehospital activities and use of scarce resources. The delivery of basic life-saving care and the appropriate dispatch of patients are of primary importance if the management of a mass-casualty incident is to result in a positive health outcome.[7]

c. Is there a system in place for medical evacuation and dispatch to appropriate health-care facilities?

Assessors should check whether procedures

6 The seven steps of the prehospital chain are (1) alert (in some situations warning); (2) reconnaissance; (3) setting up front medical organization; (4) triage and emergency care; (5) medical care during relief and rescue operations; (6) medical evacuation; (7) hospital reception (unloading of patients) *(25)*.

7 Dispatch in disasters has two components: quantitative (capacity for transport, types of vehicles, etc.); and qualitative (types of medical care, medical staff and health-care facility needed for patient care and evacuation).

for the evacuation and dispatch of patients to receiving hospitals are in place. This is a major element of response management.

Dispatch and transport are not the same. It is important to carry out patient dispatch according to pre-established criteria, such as the capacity and capability of the receiving hospitals.

Assessors should also verify whether there are provisions for the implementation of an advanced medical post (AMP) in emergencies for the registration, triage, medical care, discharge or evacuation of all casualties. An AMP might consist of several sections (e.g. for command, evacuation, care delivery and administration), all of which carry out duties assigned to them in an emergency. However, not all situations require the establishment of a formal AMP. In some cases, other quality health-care facilities with resources for patient transport might carry out AMP activities, or it may be decided to transfer victims to hospitals immediately (especially if the total number of severe cases is low).

d. Do search and rescue operations include a medical component?

Assessors should verify whether a medical component is included in search-and-rescue operations. The aim of including medical staff in a search and rescue task force is to assure health care and emergency medical treatment for members of the task force and advanced life support for victims. It is not the intention that these medical staff should act as a free-standing medical resource at the disaster site. Capable local medical systems are considered to be the primary providers of general medical care for disaster victims.

e. Are there specific arrangements in place for the prehospital handling of patients with diseases with epidemic potential and victims of chemical, biological, radiological and nuclear (CBRN) incidents?

Assessors should verify that prehospital management plans and procedures incorporate the following: management of diseases with epidemic potential[8] and CBRN incidents, such as adequate resources (e.g. PPE, life-saving antidotes, personnel); training; protection of the health transport system; contribution to communicable-diseases surveillance and response to outbreaks; sentinel and warning system for unusual events (CBRN); mass decontamination of casualties; and waste management. Specific arrangements with stakeholders outside the health sector (police, firefighters, etc.) should also be in place.

8 It is important to note that communicable diseases with epidemic potential pose a different challenge regardless of whether or not there is human-to-human transmission.

Recommended reading

Mass casualty management system. Strategies and guidelines for building health sector capacity. Geneva, World Health Organization, 2007 (http://www.who.int/hac/techguidance/MCM_guidelines_inside_final.pdf, accessed 26 April 2011).

Urban search and rescue capability guidelines for structural collapse response. Canberra, Emergency Management Australia, 2002 (http://www.ema.gov.au/www/emaweb/rwpattach.nsf/VAP/(3273BD3F76A7A5DEDAE36942A54D7D90)~Manual16-UARCapabilityGuidelinesforStructuralCollapseResponse.pdf/$file/Manual16-USARCapabilityGuidelinesforStructuralCollapseResponse.pdf, accessed 26 April 2011).

Essential attribute 35 Management of situations involving mass fatality and missing persons

Keynote

Assessors need to verify whether there are mechanisms and procedures in place for the management of victims and missing persons. Governments have a critical role to play in standardizing procedures to guide the process, ensure compliance with legal norms, and guarantee respect for the deceased and their families (see also essential attribute 1).

The management of victims involves several activities: the search for corpses; their transfer to the facility serving as a morgue; identification procedures, if required; the delivery of bodies to family members; and disposal of the bodies (in accordance with the wishes of the families and the religious and cultural norms of the community). This process requires the involvement of different stakeholders, including rescue personnel, experts in forensic medicine, public prosecutors, police, administrative personnel, psychologists, support teams, representatives of NGOs and international organizations, community volunteers and religious representatives.

Assessors should identify the leading agency for the management of victims and missing persons. Normally, the health sector would take the leading role in addressing public health concerns related to

corpses (e.g. presumed epidemiological risks) and in providing medical and psychological assistance to victims' families. To avoid duplication of effort, it is of primary importance to coordinate all action taken. When foreign aid is involved, the work becomes even more complex. In such cases, it is necessary to include embassies and the ministry of foreign affairs. Early coordination is vital at the subnational (provincial and municipal) levels and national disaster-preparedness plans should address this. (see also essential attributes 10, 12 and 13).

Indicator-related questions

a. ***Are there mechanisms in place for identifying victims and tracking missing persons?***

b. ***Are there mechanisms in place for the storage and release of corpses?***

The mobilization of forensic resources may be delayed for days, resulting in lost opportunities of early identification as the bodies decompose. Visual recognition (although there is a risk of error by the observer) or photographs of fresh bodies are the simplest forms of identification and can maximize the early non-forensic identification process. Visual recognition should be confirmed by the identification of other material, such as clothing or personal effects.

Assessors should verify that identification procedures include: *unique referencing* (sequentially assigning unique references to each body or body part); *labelling* (entering each unique reference on a body tag); *taking photographs* (ensuring that each unique reference is visible in a photograph); *recording* (documenting data relating to the body, e.g. sex, age, personal belongings); and *securing* (securely packaging personal belongings labelled with body tags with the same unique reference as the body or body part and stored with the body or body part).

The responsible authority should not release a body until identification is certain. It must also provide release documentation (a letter or death certificate).

The recovery and storage of bodies are also issues that need special consideration. In emergencies, body recovery can take from a few days to several weeks; however, in the case of a very large disaster (such as an earthquake), the period necessary for this action may be longer. Without cold storage, decomposition advances rapidly. Burial preserves evidence for possible future forensic investigation and is thus the most practical method of disposing of dead bodies. However, the cremation of unidentified bodies should be avoided.

c. ***Are there mechanisms in place for informing the public about the dead?***

In the event of mass-fatalities, the way in which information about dead bodies and their release is conveyed to the public is important. The commonly held belief that human and animal corpses pose a public health threat confuses the authorities and the general public alike. In past crises, confusion of this kind has frequently led to incorrect prioritization and misuse of scarce resources.

d. ***Are there mechanisms in place for assisting international disaster victim identification (DVI) teams, if needed?***

e. ***Has surge capacity been provided for with respect to forensics and mortuaries?***

In an emergency situation, forensic institutes and mortuaries might become overwhelmed. Close collaboration is needed among professionals and experts carrying out medicolegal work[9] and stakeholders that are able to provide these services. The composition of a medicolegal working group for managing mass fatalities will vary according to the conditions at the disaster site, the human resources available on site and the preparedness plan. When faced with a disaster, a community must incorporate resources, including scientists and professionals with specific roles in the community, such as those related to family support, logistics, dissemination of information and communication. Agreements should be made with the appropriate individuals or groups regarding the necessary personnel, work areas, transport, instruments, communications equipment and other material. Consideration needs to be given to potential temporary locations for medicolegal tasks, which in an emergency might include sites usually used for other purposes (for example, warehouses, sheds, farms, meat-packing plants, or sports fields). DVI teams are more and more frequently used in many countries where the teams and the equipment they require are prepared in advance.

Assessors should verify whether mechanisms exist for enhancing forensics and mortuary capacity to meet an increased demand (see also essential attribute 33).

9 The objectives of medicolegal work are to: legally determine or pronounce death; recover the remains of the dead; establish the identity of the dead; estimate the time of death; determine the cause of death; explain the possible circumstances of death; prepare the remains for final disposal; and study the event with a view to prevention in the future.

Recommended reading

Disaster victim identification guide. Lyon, Interpol, 1997 (http://www.interpol.int/public/DisasterVictim/guide/default.asp, accessed 1 May 2011).

Guidance on dealing with fatalities in emergencies. London, Home Office and Cabinet Office, 2004 (http://www.kenyoninternational.com/useful_info/UK%20Home%20Office%20Guidance%20on%20Dealing%20with%20Fatalities%20in%20Emergencies,%202004.pdf, accessed 1 May 2011).

Morgan O, Tidball-Binz M, van Alphen D. *Management of dead bodies after disasters: a field manual for first responders.* Washington, DC, Pan American Health Organization, 2006 (http://www.paho.org/english/dd/ped/deadbodiesfieldmanual.htm, accessed 1 May 2011).

Pan American Health Organization, WHO Regional Office for the Western Pacific. *Management of dead bodies in disaster situations.* Washington, DC, Pan American Health Organization, 2004 (Disaster management and guidelines series, No. 5; http://www.paho.org/english/dd/ped/DeadBodiesBook.pdf,accessed 1 May 2011).

Key component 6.2	EMS system and mass-casualty management
Essential attribute 36	Capacity for mass-casualty management

Keynotes

Since there is no internationally agreed definition of an EMS system (components, stakeholders, service-delivery mechanisms, management structures), each country must have its own definition of this concept. One definition commonly encountered is:

> " ... a community-based system, which provides for the utilization of available personnel, equipment, transportation and communication to ensure effective and coordinated delivery of medical care (such as, first aid and basic life support (BLS)) in emergency situations resulting from accidents, illnesses or other emergency situations from the site up to hospital-care delivery, and to contribute to mass-casualty management (including disasters)" *(26).*

An EMS system should deliver community-based health services that are fully integrated with the overall health-care system (providers of public and other health care) and public safety agencies (first responders; community-level first-aid volunteers). EMS must also contribute to the identification and modification of illness and injury risks, the provision of care in the case of acute illness and injury, the monitoring of community health and the efficient management of mass-casualty incidents.

Whatever the definition, the goal of those who plan and implement EMS should be to provide total care from the scene of the emergency through the delivery of hospital care and rehabilitation. An EMS system must have strong, continuous medical leadership. The use of all existing community-level resources (including private-sector and NGO assets) is essential if public safety services and emergency medical care are to be provided. This implies the creation of an EMS council or committee at the national level (covering policy, regulations, norms, standards, etc.) and a similar body at the local-government level (covering decisions, operations and funding). An advisory function is needed at both levels. There should be laws and regulations on the liability, accountability, sustainability and professionalism of the EMS system. Norms and standards should ensure the quality of the services and the efficient use of existing resources. In order to avoid duplication and ensure effectiveness, the activities of all stakeholders in the EMS system should be integrated and coordinated in a functional network. The integration of prehospital and hospital components is of paramount importance both in general and in times of major emergencies (see also essential attribute 34). The standardization of EMS elements (ambulance equipment; staff training; accreditation) is also critical.

Indicator-related questions

a. ***Are EMS plans (for dispatch, on-site management, transportation and evacuation) adaptable to mass-casualty incidents and other similar crises?***

b. ***Do the plans include the simultaneous management of day-to-day emergencies?***
To ensure EMS has the flexibility not only to manage daily emergencies but also to adapt to mass-casualty incidents if necessary, the geographical area covered by the EMS system must be well defined. Each region of the country should have EMS systems, which together could guarantee EMS access at the national level. In rural areas especially, EMS coverage might be low and here the concept of the community emergency-response team (CERT) should be adopted and fully integrated as part of the overall EMS system. CERT is a flexible service-delivery model that provides a solution to the problem of prolonged ambulance response times in rural and remote communities. Through a collaborative partnership between the EMS

and the local community, CERT provides BLS and first aid to the sick and injured until the ambulance arrives.

One of the essential components of an EMS system is a reliable communications system, which can be simple or complex depending upon the number of agencies involved. The area covered by the communications system (catchment area) should be well defined. It is of vital importance that it allows for permanent interoperability between the main EMS stakeholders (i.e. direct radio communication among all providers and health-care facilities) to ensure that the receiving facilities are ready and able to accept patients and maintain patient and provider safety.

A communications system is not limited to material means of communication (e.g. radio) but includes information management (see also essential attribute 48).

Since dispatch, and the medical regulation of patient transfer to receiving hospitals in the catchment area, when applicable, are key functions in any EMS system each agency is responsible for using a communications system that is compatible with those of their local dispatch centres and hospitals. Protocols must be established defining minimum standards both for the dispatch centres (to ensure uniformity of dispatch) and for the training and certification of the dispatchers.

A mechanism should be in place for monitoring the quality of the communication system (e.g. age and reliability of equipment and the quality of the dispatching process).

c. ***Are there mechanisms in place for accessing local, regional and national EMS resources?***
Assessors should verify that mechanisms are in place for accessing local EMS resources in a timely manner when needed.

It is essential that stakeholders in the EMS system (such as the police, hospitals and ambulance services) are efficiently coordinated and that its resources are used effectively. Hence, each stakeholder, as well as the EMS system as a whole, should be assessed on a regular basis with a view to managing community needs and maintaining the services offered as efficiently and effectively as possible with the resources available.

The EMS stakeholders must have sufficient resources (including staff) to coordinate responses and carry out the activities for which they are responsible. Standardization is of paramount importance and the data-collection systems developed by the different stakeholders should be capable of monitoring resources and fully intercompatible. The data collected must be readily available for use in determining the quantity, quality and utilization of resources and should include information on existing formal programmes for recruiting and retaining EMS personnel, including volunteers.

d. ***Is the role of EMS in identifying and reporting unusual public health events clearly defined?***
Among other responsibilities, EMS have public health responsibilities, such as contributing to surveillance for outbreaks of communicable diseases and to the sentinel and early-warning systems for unusual events (CBRN).

e. ***Are EMS providers included in coordination meetings, joint exercises, drills and training exercises?***
Periodic disaster drills and exercises serve to assess performance, refine management and educate personnel and the community.

Assessors should verify that drills and exercises take place regularly, that all EMS providers are included in coordination meetings, joint exercises, drills and training, and that they receive feedback on their performances.

Recommended reading

De Boer J, Dubouloz M, eds. *Handbook of disaster medicine. Emergency medicine in mass casualty situations*. Zeist, VSP International Science Publishers, 2000.

Mass casualty management systems. Strategies and guidelines for building health sector capacity. Geneva, World Health Organization, 2007 (http://www.who.int/hac/techguidance/MCM_guidelines_inside_final.pdf, accessed 1 May 2011).

Strategy & recommendations in organizing & managing emergency medical services (EMS) in developing countries in managing daily emergencies & disasters. An ADPC perspective. Bangkok, Asian Disaster Preparedness Center, 2003 (http://www.adpc.net/v2007/ikm/ONLINE%20DOCUMENTS/downloads/ADUMP/EMS%20Paper%20FINAL.pdf, accessed 1 May 2011).

Key component 6.3	Management of hospitals in mass-casualty incidents
Essential attribute 37	Hospital emergency-preparedness programme

Indicator-related questions

a. ***Does a formal hospital emergency-preparedness programme exist?***
b. ***If so, is staff assigned to the programme?***
c. ***Are funds allocated to the programme?***
d. ***Are resources available for the programme?***
e. ***Does the programme fully incorporate the concept of safer hospitals?***

The ability of a hospital to manage its resources optimally in an emergency and to integrate with the community-level response is dependent on its emergency-preparedness programme. Preparedness is a continuous process; thus, a hospital emergency-preparedness programme should cover all hospital activities, i.e. not only those aimed at response but also at mitigation, rehabilitation, etc., taking all potential hazards into consideration (an all-hazards approach). This involves planning (especially for hospital response and contingency measures in emergencies), exercises, training, community education, information management, communication and warning systems. It is crucial in preparedness planning to define the system (the way in which resources are organized) and the process (action and interaction). Staff should receive education and training in how the system works to be able to fulfil their assigned roles.

An integral component of the hospital emergency-preparedness programme is the hospital emergency-response plan. It defines the management structure of the hospital and the methodology to be used by the hospital during an emergency response or in preparing the hospital for response if there is warning time (see also essential attribute 38). Surge capacity (to enhance the capacity for care delivery) is one of the key elements of hospital preparedness, as is the networking of hospitals and referral systems at the subnational levels (and, in certain scenarios, at the national level). Thus, the compatibility, complementarities and/or synergism of the individual hospital emergency-response plans, as well as any cross-border cooperation, also need to be considered by the hospital emergency-preparedness programme (see also essential attribute 33). Other health-care facilities, including public and private institutions, should be included in the networking and referral process.

Recommended reading

Hospital emergency response checklist. An all-hazards tool for hospital administrators and emergency managers. Copenhagen, WHO Regional Office for Europe, 2011 (http://www.euro.who.int/__data/assets/pdf_file/0020/148214/Hospital_emerg_checklist.pdf, accessed 29 October 2011).

United Nations International Strategy for Disaster Reduction, The World Bank, World Health Organization. *Hospitals safe from disasters. Reduce risk, protect health facilities, save lives*. *2008-2009 world disaster reduction campaign.* Geneva, United Nations International Strategy for Disaster Reduction, 2009 (http://www.unisdr.org/eng/public_aware/world_camp/2008-2009/pdf/wdrc-2008-2009-information-kit.pdf, accessed 2 May 2011).

Mass casualty management hospital emergency response plan. Regional training course on mass casualty management and hospital preparedness. Manila, WHO Regional Office for the Western Pacific, 2008 (http://acilafet.org/upload/dosyalar/Hospital_emergency_response_plan_Toolkit_.pdf, accessed 2 May 2011).

Safe hospitals. A collective responsibility. A global measure of disaster reduction. Washington, DC, Pan American Health Organization, 2008 (http://www.paho.org/english/dd/ped/SafeHospitalsBooklet.pdf, accessed 2 May 2011).

Essential attribute 38	Hospital plans for emergency response and recovery

Keynotes

Plans for emergency response and recovery are an integral component of a hospital-preparedness programme and represent the output defining the management structure and methodology to be used by a hospital during an emergency response (or in preparing a hospital for response if there is warning time), as well as the management arrangements for returning to normal operations as quickly as possible after the recovery phase (see also essential attribute 37).

Common reasons for the failure of hospital plans for emergency response and recovery are that:

- they were developed in isolation by a very limited group of experts;

- the end-users (staff) were not included in the development process, nor did they receive appropriate training;
- there was a breakdown in communication;
- the plans were neither validated nor maintained;
- the plans lacked mechanisms for coordinating with outside partners, including the prehospital component, and other health-care facilities.

Assessors should look specifically for such gaps when evaluating hospital emergency-response and recovery plans.

A hospital plan for emergency *response* defines the management structure of and the methodology to be used by a hospital during an emergency response (or to prepare the hospital for response, if there is warning time). The plan is of critical importance in defining the management processes that enable the hospital to coordinate its actions with other health-care facilities and responders.

When the hospital plan for emergency response is activated, an incident-command group decides on the priority action to be taken within its framework. In an emergency situation, each specific assignment of the emergency-management system is positioned on an organizational chart and is allocated a job action sheet (checklist) designed to direct those involved. The organizational chart and job action sheets form the backbone of the plan. The chart needs to be revised regularly and adapted to the actual management of service lines and departments.

A hospital plan for emergency *recovery* aims to facilitate the recovery of affected individuals, communities and infrastructures as quickly and practicably as possible. This is best achieved through effective and efficient management arrangements. As in the case of response plans, it is crucial that recovery-management arrangements are reviewed on a regular basis, particularly after the occurrence of major events.

The training of those who actively contribute to the development of hospital plans for emergency response and recovery is a key activity.

Indicator-related questions

a. ***Do hospitals have planning committees for emergency response and recovery?***
The development of emergency plans for response and recovery is a fundamental activity of hospital management in mass-casualty incidents, requiring the full attention and strong support of the health authorities and the local community. Hospital planning committees for response and recovery comprise people trained in developing these plans.

Assessors should check whether such a committee exists and, if so, whether it has a clear mandate and the full authority to develop plans for emergency response and recovery. They should request a list of committee members, which includes their functions and disciplines.

b. ***Do hospitals have plans for emergency response and recovery?***
c. ***If so, were these plans developed through a continuous planning process involving a planning committee?***
d. ***Are they in accordance with national policy?***
Assessors should verify whether the plans were developed through an on-going planning process. Hospital plans for emergency response and recovery comprise only one of the outputs of the emergency-planning process and serve as a basis for allocating resources for hospital emergency preparedness. Other important outputs are: awareness-raising among hospital staff; promotion of a risk-management culture within the health-care facility; conducting a vulnerability analysis resulting in possible recommendations for action towards mitigation, prevention and correction; motivating key staff to become active partners in assisting the hospital managerial team in risk management; developing partnerships with other key stakeholders; developing exercises; and improving the management of daily emergencies.

In addition, assessors should establish whether the plans were developed by a planning committee through a process to integrate them with already existing strategies, plans and resources, and whether they are in accordance with national policy.

e. ***Is a plan for emergency response and recovery a requirement for hospital accreditation?***
f. ***Are hospital plans for emergency response and recovery validated and accredited in accordance with national criteria?***
g. ***Are the plans reviewed, exercised, revised and updated regularly?***
Assessors must verify that hospital plans for

emergency response and recovery are not merely copies of other plans, that they were developed through an interactive process and meet the national planning criteria, and that they were tested and validated according to the national criteria. In addition, they should look into whether key staff is familiar with the details of the plans, which would imply that they receive regular training. Exercises and drills must take place regularly and lessons learnt must be incorporated in the revision process, which should occur on a regular basis. To this end, assessors should interview not only the medical director or members of the planning committee but also key staff working in the different departments.

h. Are the plans linked to subnational multisectoral emergency-response plans?

Assessors should verify that the hospital plans are not isolated subnational health-sector or multisectoral emergency-response plans. It is important that the hospital plans reflect the role of the hospital with respect to subnational emergency-response operations and that they are linked to the respective provincial and municipal health-sector or multisectoral hospital emergency-response plans.

i. Are the plans complemented by contingency procedures for internal incidents and local threats?

Assessors should verify whether the planning process and the plans per se follow an all-hazards approach, implying that the response would be applicable to all kinds of hazard events. The generic plan serves as the basis for developing contingency plans or procedures to be followed in the case of local threats and internal incidents (such as the outbreak of an infectious disease or an internal fire).

j. Do the plans include mechanisms for switching to emergency mode?

Mechanisms for activating emergency-response plans and contingency plans related to internal emergencies, as well as level of activation, must be well described in the plans to enable activation at any time on the basis of validating criteria. These criteria should not be based on trauma and injuries alone; the hospital surveillance system must be capable of detecting clusters of conditions, which are unexpected in relation to time and place (e.g. pandemic cases of disease, clusters of cases of communicable diseases, and chemical subchronic intoxication). The plans must also clearly indicate who is responsible for activating the plan, how it should be done and when (who, how and when). During exercises and drills, such procedures should be regularly tested and updated if necessary.

Recommended reading

Hospital preparedness checklist for pandemic influenza. Focus on pandemic (H1N1) 2009. Copenhagen, WHO Regional Office for Europe, 2009 (http://www.euro.who.int/__data/assets/pdf_file/0004/78988/E93006.pdf, accessed 1 May 2011).

Hospital emergency response checklist. An all-hazards tool for hospital administrators and emergency managers. Copenhagen, WHO Regional Office for Europe, 2011 (http://www.euro.who.int/__data/assets/pdf_file/0020/148214/Hospital_emerg_checklist.pdf, accessed on 29 October 2011).

Mass casualty management hospital emergency response plan. Regional training course on mass casualty management and hospital preparedness. Manila, WHO Regional Office for the Western Pacific, 2008 (http://acilafet.org/upload/dosyalar/Hospital_emergency_response_plan_Toolkit_.pdf, accessed 2 May 2011).

Mass casualty management systems, strategies and guidelines for building health sector capacity. Geneva, World Health Organization, 2007 (http://whqlibdoc.who.int/publications/2007/9789241596053_eng.pdf, accessed 2 May 2011).

Key component 6.4	Continuity of essential health programmes and services
Essential attribute 39	Continuous delivery of essential health and hospital services

Keynotes

Disasters often affect hospitals and with serious consequences. To optimize patient care during emergencies, it is necessary to identify and maintain essential health services. Activities, such as maintaining essential equipment, ensuring the availability of electrical power and water supplies, and contributing to damage assessment and rehabilitating lifelines, are essential to the continuity of business operations and the delivery of essential services.

Indicator-related questions

a. ***Does capacity exist for the immediate assessment of structural, nonstructural and functional safety after any incident?***
Assessing the damage to and safety of hospital buildings is the first step to be taken after a disaster, when applicable. Staff responsible for damage assessment should be identified and a list of potential staff kept up to date. The expertise of engineers and architects, usually from outside the hospital, will also be needed. Therefore, hospital emergency-response plans should include procedures for coordinating and working with other main stakeholders and for identifying any extra technical expertise needed from outside the hospital. The plans should also identify mechanisms for restoring critical equipment and lifelines, in cooperation with the relevant community services.

b. ***Do procedures exist for ensuring back-up of critical resources (e.g. water, electricity, heating etc.)?***
Assessors should verify that procedures exist for ensuring back-up for critical resources (power, oxygen, water, etc.) and essential lifelines in health-care facilities. Mechanisms should be in place for determining the operational level of critical equipment and for setting up a monitoring system to facilitate the anticipation of problems, such as shortage or overuse (see also essential attribute 51).

c. ***Do plans exist for ensuring the continuous delivery of essential hospital services (e.g. maternal care, dialysis etc.)?***
In any kind of emergency, hospitals must ensure the continuous delivery of essential services (i.e. services that must be provided at all times) in parallel to carrying out the emergency response. Plans should list all hospital services in priority order and identify those that are essential. Coordination with the health authorities and neighbouring hospitals is crucial to the continuity of essential hospital services. The roles and responsibilities of each member of the local health-care network must be clearly defined.

Recommended reading

Hospital preparedness checklist for pandemic influenza. Focus on pandemic (H1N1) 2009. Copenhagen, WHO Regional Office for Europe, 2009 (http://www.euro.who.int/__data/assets/pdf_file/0004/78988/E93006.pdf, accessed 1 May 2011).

Hospital emergency response checklist. An all-hazards tool for hospital administrators and emergency managers. Copenhagen, WHO Regional Office for Europe, 2011(http://www.euro.who.int/__data/assets/pdf_file/0020/148214/Hospital_emerg_checklist.pdf, accessed 29 October 2011).

Pandemic flu: managing demand and capacity in health care organisations. (Surge). London, Department of Health, 2009 (http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_098750.pdf, accessed 1 May 2011).

Safe hospital in emergencies and disasters. Structural, non-structural and functional indicators. Manila, WHO Regional Office for the Western Pacific, 2009 (http://www.wpro.who.int/NR/rdonlyres/390133EC-089F-4C77-902D-DFEE8532F558/0/SafeHospitalsinEmergenciesandDisasters160709.pdf, accessed 1 May 2011).

Essential attribute 40 Prevention and control of communicable diseases and immunization

Keynotes

Health-care facilities should have a clear policy on the early detection of contagious patients, especially those with communicable diseases with a human-to-human mode of transmission, as well as practical guidelines on and procedures for prehospital and hospital triage, admission, treatment, isolation and reporting (in accordance with the policies and guidelines recommended by the health authorities) (see also essential attribute 27).

In a pandemic, for instance, there should be coordination between the hospital and alternative treatment sites. An infection control programme or relevant procedures should cover standard precautions, contact precautions, droplet precautions, environmental and engineering control and administrative control.

Assessors should verify that specific facility-level environmental control systems (e.g. ventilation systems) are in place and that individual protective equipment is available in health-care facilities for staff, patients and visitors. They should also evaluate the level of readiness (competence, knowledge, skills and abilities) of the staff for taking infection-control measures, both routine and special, and urgently establishing the training activities required for different scenarios. The staff should be capable of managing health problems, from prevention to care delivery and follow-up. Standard precautions

should be fully established and routinely practised; examples of these are: hand hygiene; use of PPE (including gloves, facial protection and gowns); respiratory hygiene and cough etiquette, if relevant; prevention of needlestick and injuries from other sharp instruments; environmental cleaning; linen and waste disposal, if relevant; and disinfection of equipment for patient care.

At the local (hospital) level, assessors should check whether the emergency-response plans include the following contingency measures and/or whether others exist:

- appointment of a hospital epidemiologist with overall responsibility for activities related to early warning and monitoring in the hospital;
- identification of the information to be collected routinely and in emergencies and instructions on how it is to be used;
- establishment of communication channels within health-care facilities and with public health authorities for the reporting of unusual health events by health workers;
- establishment of data collection and reporting mechanisms in accordance with national health policy and directives, tailored to the local context;
- establishment of procedures for immediate investigation into reports by health-care workers of unusual health events and/or signals detected through monitoring activities;
- prompt distribution to hospital clinicians and other relevant decision-makers of information obtained through monitoring activities and/or the investigation of unusual health events and/or signals;
- establishment of procedures to facilitate access to health-care facilities by suspected or confirmed epidemic or pandemic patients, such as information-sharing (including that for the public, the staff and key stakeholders) with other stakeholders, especially EMS, the dispatch centre and private doctors;
- establishment of special procedures related to infection prevention and control, including patient arrival at the health-care facilities' reception areas for epidemic or pandemic patients, physical examination, triage, general nursing care and the flow of epidemic, pandemic and non-epidemic patients outside and inside the hospital;
- establishment of procedures for locating a well-ventilated isolation room in the hospital, cohorting epidemic and pandemic patients and ensuring adherence to requirements relating to minimum distance between beds (particularly important for droplet diseases);
- establishment of procedures for referral and follow-up of epidemic and pandemic patients not admitted to hospital;
- staff training for different functions with a focus on infection-control measures;
- establishment of procedures for logistics planning, e.g. for procurement of PPE, equipment and supplies;
- establishment of ambulatory-care arrangements, including location, functional aspects, procedures, staffing, equipment and management;
- establishment of procedures for implementing standardized treatment protocols on providing care to patients with suspected and confirmed communicable diseases with a view to preventing spread and protecting staff;
- establishment of procedures for communicating information to patients, visitors, staff and the public;
- introduction of mechanisms for providing continued care for communicable diseases patients in emergencies (e.g. treatment for HIV patients).

Indicator-related questions

a. ***Is an active health-surveillance system with early-warning capacity in place?***
Assessors should verify the existence of a routine, ongoing infection-control programme and a surveillance system that can act as an early-warning system for communicable diseases. This should be the basis for building further management capacity for major epidemics (see also the section entitled "health information" and key components 8, 9 and 10). The surveillance system must be capable of detecting clusters, atypical clinical presentations, and the like, at the earliest possible stage. Initial cases of communicable diseases with epidemic potential should immediately elicit a reaction from the health-care facility (see also essential attribute 1).

For instance, during an influenza pandemic, unusual health events might signal the emergence of novel influenza viruses or changes in the characteristics of circulating influenza viruses (increased virulence, resistance to antivirals, increased transmissibility), which warrant investigation. In addition to serving as an early-warning function, the laboratory and epidemiological data obtained through systematic collection and analysis will allow the public health authorities to monitor the progress of severe influenza-related diseases and inform interventions aimed at dealing with those at the highest risk of severe outcome.

b. ***Is there sufficient capacity for setting up special immunization programmes to meet specific needs?***
Following an emergency, the affected population is often displaced and temporarily resettled. Resettlement may entail high population densities, inadequate shelter, insufficient water supplies and sanitation, and a lack of even basic health care. In such situations, there is an increased threat of communicable diseases and a high risk of epidemics.

A systematic approach to the control of communicable diseases is a key component of humanitarian response and crucial in protecting the health of affected populations. Cooperation among the agencies working at the local, national and international levels is required, as well as collaboration among all sectors involved in emergency response (see also essential attribute 47).

One of the key components of prevention is mass vaccination against specific diseases. A successful campaign involves the community, the health authorities, international and nongovernmental organizations and private practitioners. Involving all stakeholders in planning a campaign will ensure that everyone is aware of its purpose and of the target population.

Assessors should verify that: the necessary capacity for immunization programmes exists; all relevant staff is informed of the purpose of vaccination campaigns and the technical issues pertinent to the specific vaccine(s); stocks are available and can be deployed when needed; and cold chain is ensured.

Recommended reading

Connolly MA, et al. Communicable diseases in complex emergencies: impact and challenges. *Lancet,* 2004, 364(9449):1974–1983.

Hospital preparedness checklist for pandemic influenza. Focus on pandemic (H1N1) 2009. Copenhagen, WHO Regional Office for Europe, 2009 (http://www.euro.who.int/__data/assets/pdf_file/0004/78988/E93006.pdf, accessed 1 May 2011).

Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care. *WHO interim guidelines, June 2007.* Geneva, World Health Organization, 2007 (WHO/CDS/EPR/2007.6; http://www.who.int/entity/csr/resources/publications/WHO_CDS_EPR_2007_6c.pdf, accessed 1 May 2011).

Prevention of hospital-acquired infection. *A practical guide. Second edition.* Geneva, World Health Organization, 2002 (WHO/CDS/CSR/EPH/2002.12; http://www.who.int/csr/resources/publications/whocdscsreph200212.pdf, accessed 1 May 2011).

Essential attribute 41 Mother-and-child health care and reproductive health

Keynotes

Poor reproductive health is a significant cause of death and disease in emergency situations. In an emergency, the priority should be to restore the services for mother-and-child health-care and reproductive health as quickly as possible, and to equip local staff with guidance on the management of individuals whose treatment has been disrupted or delayed. Emergency care in the area of reproductive health is necessary for the physical, mental and social well-being of those affected. It should be delivered in a timely manner, integrated with primary health care (PHC) and coordinated with the efforts of other sectors and institutions (see essential attribute 46). The affected community must be involved in programme planning so that religious and cultural sensitivities are taken into consideration.

Indicator-related questions

a. ***Are there mechanisms in place to ensure the continued delivery of core components of reproductive-health programmes in an emergency situation?***
Assessors should verify that mechanisms are in place to safeguard the core components of programmes on reproductive health and mother-and-child health care during an emergency.

The minimum initial service package (MISP)[10], developed by several international agencies addresses this need during the acute phase. MISP has five objectives: (1) to identify a lead organization for MISP implementation; (2) to prevent and manage the consequences of sexual violence; (3) to reduce HIV transmission; (4) to prevent excess maternal and newborn morbidity and mortality; and (5) to plan for comprehensive sexual- and reproductive-health services that are integrated in PHC as far as the situation permits. MISP focuses mainly on internally displaced people (IDP) and complex emergencies and outlines priority life-saving strategies and activities to be implemented at the onset of every humanitarian crisis. The package forms the starting point for sexual- and reproductive-health programming, which should aim at building comprehensive sexual- and reproductive-health services.

While MISP outlines priority strategies and activities, the United Nations Population Fund (UNFPA) reproductive health kit for emergency situations provides the actual material resources needed for implementing them. The UNFPA has organized 12 self-contained reproductive health kits that conform with the new WHO emergency health kit.

Assessors should verify that the objectives of MISP are represented in preparedness and response plans and that there are procedures for accessing reproductive health kits in case of emergency.

b. ***Are there mechanisms in place to ensure the continued delivery of care for newborn and emergency obstetrical patients?***[11]

In emergency situations, it is important that pregnant women receive appropriate attention throughout their pregnancies and during childbirth. This includes pre- and postnatal care, care of the newborn, breastfeeding support (see also essential attribute 45), and the referral of women with obstetrical complications, including those caused by unsafe abortion. Access to family-planning services and reproductive-health education is equally essential.

The following care components of service delivery have to be considered for mothers and their newborn in emergency situations: antenatal care; delivery care; emergency obstetrical care; postnatal care; and health education.

Regular *antenatal care* plays an important role in ensuring the health of both mother and child throughout pregnancy. It is during antenatal care that health-care workers can check for possible complications and/or risk factors on the basis of important health indicators.

To provide *delivery care*, referral systems need to be established or strengthened to ensure 24-hour access to emergency facilities. Interventions associated with delivery care include: the provision of skilled assistance; clean and safe delivery; early detection (recognition) and management of complications; referral and transportation to emergency obstetrical facilities on a 24-hour basis.

Emergency obstetrical care requires various resources: adequate supplies of drugs and equipment; safe blood for transfusion; trained staff (to identify emergency obstetrical conditions); counselling for high-risk mothers; and an appropriate system of referral and transportation for referred obstetrical emergencies.

Postnatal care ensures that the health status of the mother and child is monitored long enough to detect complications, which can occur after delivery. This is particularly important in emergency situations where a woman may be living alone or acting as the head of a household.

Health education can reduce maternal mortality by enabling early recognition of high-risk pregnancies and timely intervention. Most women are unaware of the causes of maternal death or of the danger signs of an obstetrical complication. Ways of implementing maternal-health programmes are needed, as well as information, education and communication (IEC) activities to facilitate early identification of obstetric complications and the implementation of appropriate action, when required.

In an emergency that causes the extensive disruption of routine services, or in the case of temporary settlements, guidelines are needed on establishing, managing, reporting on and terminating temporary or alternate antenatal- and postnatal-care services. Hospital emergency-response plans should contain specific guidelines for staff on the treatment of obstetrical emergencies. The involvement of public- and medical-transport organizations is needed to improve interhospital transfer

10 Further information about MISP is available (http://misp.rhrc.org/, accessed 28 July 2011).

11 Including measures related to safe motherhood and the prevention of sexually transmitted diseases. These measures are especially important for IDPs.

and minimize unnecessary delays. Obstetrical staff should be made aware of any temporary arrangements for the postnatal care of patients after an emergency.

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

Minimum initial service package (MISP) for reproductive health in crisis situations: a distance learning module. New York, Women's Refugee Commission, 2006 (http://www.searo.who.int/LinkFiles/Publications_MISP.pdf, accessed 3 May 2011).

Reproductive health during conflict and displacement. A guide for programme managers. Geneva, World Health Organization, 2000 [WHO/RHR/00.13] (http://whqlibdoc.who.int/hq/2001/WHO_RHR_00.13.pdf, accessed 3 May 2011).

United Nations Population Fund, United Nations Refugee Agency, World Health Organization. *Reproductive Health in refugee situations an Interagency field manual.* Geneva, UNHCR, 1999 (http://www.unhcr.org/3bc6ed6fa.html, accessed 3 May 2011).

Essential attribute 42 Mental health and psychosocial support

Keynotes

Until recently, there has been a general tendency to consider the basic needs of people affected by an emergency in terms of physical injury and material loss rather than mental anguish. Of the scars caused by a disaster, the psychological and social scars are the worst and some are even transgenerational. Mental health is now generally accepted as a priority in any emergency, whether at the individual or the community level. It is not sufficient to have a good knowledge of the plans and related strategies necessary to ensure a successful rescue operation; the rescuers, firefighters and medical staff involved in the prehospital and hospital links of the rescue chain must also have a good understanding of the social and psychological needs of those affected both in the immediate aftermath of the event and in the longer term. Furthermore, it is important that the efforts of the mental-health and psychosocial services to provide support are closely linked to those of the social services.

Assessors should verify adherence to the general WHO principles *(27)* with respect to the mental and social aspects of exposure to extreme stressors.

- National-level plans should be developed in *preparation for emergency situations*. They should include a coordination system specifying the focal persons responsible in each of the agencies involved and details of the training planned for relevant personnel in the areas of social and psychological intervention.
- Interventions should be preceded by a broad *assessment* of the local context and careful planning.
- Interventions should involve consultation and *collaboration* with other governmental organizations and NGOs working in the area. The continuous involvement of the government, preferably, or of local NGOs, is essential to ensuring sustainability.
- Mental-health interventions led by the health sector should *be integrated with PHC activities* and maximum use should be made of the care options provided by families and community resources (see also essential attribute 46).
- Setting up separate, vertical mental-health services for special populations is discouraged. As far as possible, these services should be *accessible to the whole community* and not restricted to subpopulations identified on the basis of their exposure to certain stressors.
- *Training and supervisory activities* should be carried out by mental-health specialists or under their guidance.
- It is preferable to focus on the *medium- and long-term perspectives* of post-emergency psychosocial support (i.e. the development of community-based, primary-care, mental-health services and social interventions) rather than on the provision of immediate, short-term relief of psychological distress during the acute phase.
- Activities should be monitored and evaluated on the basis of predefined *monitoring indicators*.

Indicator-related questions

a. ***Are there mechanisms in place to ensure the continuous treatment of patients in an emergency situation?***
During the acute phase of an emergency, psychiatric and mentally ill patients may not have access to medication and medical care. Assessors should verify that mechanisms exist for providing continuous treatment (including medication) and for resuming psychiatric care as soon as possible (see also essential attribute 44).

b. ***Does capacity exist for identification of the psychosocial needs of high-risk groups (including bereaved families) and for providing them with the appropriate support?***
One crucial aspect of mental-health care in emergency situations is the ability to understand stress-related symptoms in the light of the (local) cultural norms. To match the needs of populations affected by emergencies (particularly complex emergencies and those resulting in mass casualties) mental-health programmes should, to the extent possible, build on the PHC resources available in the community instead of relying entirely on external expertise. National stakeholders delivering social and psychological services should be strengthened as much as possible (see also essential attributes 46 and 47).

The community should be regarded as the "golden key" to helping traumatized victims (through social cohesion, social support, traditional networking, etc.). However, in an emergency situation, various external providers of psychosocial support offer their services (e.g. international organizations and NGOs). Since foreign help is often hypothetical, rarely in place, in time and potentially not adapted to the local culture, available local resources should be used before considering external support, whether national or international.

Assessors should verify that mechanisms exist for regulating and controlling externally provided psychosocial support.

Recommended reading

Boer J de, Dubouloz M, eds. *Handbook of disaster medicine. Emergency medicine in mass casualty situations.* Utrecht, BRILL, 2000.

IASC guidelines on mental health and psychosocial support in emergency settings. Geneva, Inter-Agency Standing Committee, 2007 (http://www.who.int/mental_health/emergencies/guidelines_iasc_mental_health_psychosocial_june_2007.pdf, accessed 3 May 2011).

Mental health in emergencies. Mental and social aspects of health of populations exposed to extreme stressors. Geneva, World Health Organization, 2003 (http://www.who.int/mental_health/media/en/640.pdf, accessed 3 May2011).

Essential attribute 43 Environmental health

Keynotes

Strategic planning to increase people's capacity to withstand disaster hazards must address environmental-health concerns. The goal should be not only to respond to disasters but also to reduce their impact on environmental-health infrastructures and systems (e.g. water supplies, sanitation facilities, shelters and vector-control systems) and strengthen people's ability to withstand the conditions resulting from the disruption of these facilities and to recover rapidly.

Assessors should verify whether emergency-preparedness programmes consider environmental-health needs in emergency and disaster situations in terms of action to: reduce community vulnerability; provide guidance on action to be taken at the different stages of the disaster-management cycle (prevention, preparedness, response and recovery) to protect environmental health; provide guidance on simple, practical technical interventions to meet the most important environmental-health needs of communities; address environmental-health needs within PHC (see also essential attribute 46), including training programmes, information systems and community involvement; and promote coordination and collaboration among all sectors.

Indicator-related questions

a. ***Are there mechanisms in place to ensure the availability of adequate amounts of safe water for service providers and the affected population?***
Functional water-supply systems play a major role in emergencies. A systematic vulnerability analysis should be carried out – from the source through the collection works, the transmission and treatment facilities and, finally, the distribution system – to determine whether the water-supply systems can withstand damage in an emergency, taking into account the effect of a disaster on sources, such as surface water (e.g. in the case of wildfires) and groundwater (e.g. in the case of industrial spills). In addition,

possible damage to reservoirs and water mains, the effects of power failures, personnel shortages due to lack of transport or injury, and communications' difficulties, all need to be considered. Each water-supply institution in a country (or district) should carry out a review of its resources (both human and material), assess the vulnerability of the components of its system to various hazards and prepare plans for possible repairs needed.

To ensure the provision of adequate amounts of safe water in an emergency, mechanisms should exist for carrying out assessments of unmet needs and of damage to water resources. The assessment of unmet needs should identify: the population affected by insufficient or contaminated water supplies; the quantity of water needed for various purposes (e.g. for humans, livestock, household use, agricultural use, industrial use); how often it will be needed; and any additional treatment, storage and distribution facilities required. Priority should be given to restoring the normal water supply and distribution systems. If these are significantly damaged or there are large groups of people in temporary shelters, arrangements should be made for providing a temporary water supply.

Assessors should verify that mechanisms exist to: enable assessment of unmet needs, damage and water resources; ensure the availability of adequate amounts of safe water for service providers and the affected population; and facilitate the constant monitoring of water quality[12] during an emergency *(28)*. In addition, they should check whether trained staff and technical equipment for testing water quality are in place and can easily be deployed when needed.

b. ***Are there mechanisms in place to enable health authorities to identify and control environmental factors that are hazardous to health?***

Assessors should check whether mechanisms exist for performing environmental-health vulnerability assessments, which would enable health authorities to identify hazardous environmental factors and anticipate problems that specific groups could face in the event of a disaster and during the recovery period.

Firstly, environmental health must be covered in an initial baseline survey of all hazards and patterns of vulnerability affecting the society. The survey should be organized by geographical region and the vulnerabilities of different ethnic and socioeconomic groups (relating, for example, to priority needs, such as water supply, drainage, sanitation, refuse and waste disposal, housing and food hygiene) should be documented. The priority needs of displaced populations should be included (see also essential attribute 47).

Secondly, the location and safety of industrial facilities in relation to settlements should be reviewed, as well as the risk of radiation, fire, explosion, accidental poisonous emissions and other such incidents.

Assessors should also verify that mechanisms are in place for controlling environmental factors identified as hazardous to health, such as solid waste, liquid waste and medical waste.

c. ***Do procedures and facilities exist for the safe disposal of medical waste in emergencies?***

Special care must be taken with medical waste from health-care facilities, the main categories of which are: infectious waste, pathological waste, sharps waste, pharmaceutical waste, genotoxic waste, chemical waste; waste with a high content of heavy metal, pressurized containers and radioactive waste *(29)*. Each type of waste requires specific handling, storage, collection and destruction measures.[13] The deep, compacted burial and, in particular, incineration of medical waste are essential to eliminating the associated health risks.

Assessors should verify that methods used for the safe disposal of medical waste are in accordance with the national guidelines and standards. There should be mechanisms for segregating medical waste according to type and for destroying and disposing of it (e.g. colour bags, PVC containers). The same environmental-health considerations are applicable to mobile emergency hospitals.

12 Water quality is usually measured by the absence or presence of specific groups of micro-organisms. Their presence indicates possible faeces contamination. Because human faeces typically contain tens of millions of bacteria per gram, even the smallest trace of them in water is often detectable by bacterial monitoring. Faecal coliforms are a category of bacteria that match the characteristics of those found in the stools of warm-blooded mammals. Other indicator bacteria, such as E. coli, faecal streptococci, or total coliforms, are maintained by the same premise – absence implies safe water *(28)*.

13 In the case of simple health centres, particularly in rural areas, well-managed onsite burial may be appropriate. In larger centres that produce significant quantities of sharps and infected waste, incineration may also be required. When health facilities operate diagnostic laboratory services, diagnostic radiology and treatment facilities, pharmacies, etc., waste management is a specialized activity requiring trained and well-equipped staff *(29)*.

d. Do procedures exist for the safe disposal of non-medical waste in emergencies?

Emergencies can cause transportation problems and disrupt waste-management systems that are inadequate even in normal conditions. Extra quantities or new forms of non-medical waste may be generated in emergencies, which often produce rubble from damaged buildings and other structures that far exceeds the capacity of solid-waste management systems. This waste is not hazardous but it does hamper emergency response by blocking roads (which hinders assessment of the full extent of the damage) and drainage channels (which leads to flooding and overflow of waste-water).

Assessors should verify that procedures and capacity exist for the safe disposal of non-medical waste. In the preparedness phase, each waste-disposal institution in a country (or district) should carry out a review of its resources (both human and material) and of the vulnerability of the components of its system to various hazards, and prepare plans for temporary repairs.

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC Public Health Guide for Emergencies.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://pdf.usaid.gov/pdf_docs/PNACU086.pdf, accessed 22 July 2011).

Sphere handbook: humanitarian charter and minimum standards in disaster response. Geneva, Sphere Project, 2004 (http://www.unhcr.org/refworld/publisher,SPHERE,,,3d64ad7b1,0.html, accessed 3 May 2011).

Essential attribute 44 Chronic and noncommunicable diseases

Keynote

Planning is essential to meeting the special needs of people with chronic and noncommunicable diseases during a disaster. Conditions, such as stress, lack of food or water, extremes of heat or cold and exposure to infection, can contribute to the rapid worsening of a chronic illness that was under control before the event. For instance, chronically ill persons are at risk of dying from an influenza infection during an epidemic or pandemic. Interruptions in medication regimens and medical technology can also exacerbate underlying conditions (e.g. diabetes) and increase the risk of morbidity or mortality.

Indicator-related questions

a. Are there mechanisms in place to ensure access to essential medicines and essential medical services?

b. Are there mechanisms in place to ensure access to rehabilitation services?

Assessors should verify the availability of:

- mechanisms to ensure access, through the PHC system, to medications required for the routine, ongoing management of serious chronic diseases;
- mechanisms to ensure continuity of the interfacility transfer and referral system for persons with chronic and noncommunicable diseases who require special hospital treatment (such as dialysis and chemotherapy) on a regular basis;
- hospital capacity, including rehabilitation services (contingency plan, surge capacity, trained personnel, equipment) and continued care for persons with chronic and noncommunicable diseases after an emergency;
- mapping systems for identifying areas with high concentrations of persons with chronic and noncommunicable diseases in the preparedness phase;
- a chronic or noncommunicable diseases identification and registration system;
- mechanisms for improving pre-disaster coordination and communication between, and response by, public health agencies, services providers, emergency responders and other entities dealing with persons with chronic and noncommunicable diseases;
- appropriate information on emergency preparedness for persons with chronic and noncommunicable diseases;
- an emergency-support system for in-home services, including emergency-care and communications systems for in-home caregivers;
- a formal, standardized, multidisciplinary curriculum for educating health-care professionals in working with and responding to the needs of the chronically ill in shelter care;
- mechanisms for implementing special medical-needs shelters that provide a level of medical

care beyond that of first aid to medically stable persons who only require shelter:

- private-sector resources (e.g. medical practitioners, private pharmacy suppliers).

Recommended reading

Aldrich N, Benson WF. Disaster preparedness and the chronic disease needs of vulnerable older adults. *Prevention Chronic Disease*, 2008, 5(1) (http://www.cdc.gov/pcd/issues/2008/jan/07_0135.htm, accessed 3 May 2011).

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Sphere handbook: humanitarian charter and minimum standards in disaster response. Geneva, Sphere Project, 2004 (http://www.unhcr.org/refworld/publisher,SPHERE,,,3d64ad7b1,0.html, accessed 3 May 2011).

Essential attribute 45 Nutrition and food safety

Keynotes

Major disasters, whether natural or human-made, commonly result in the impairment of food supplies and, consequently, in suffering, poor health and high rates of morbidity and mortality. Malnutrition characterizes emergency situations, especially those that are long-lasting and complex, as a result of which general malnutrition rates are often very high. Such emergency situations are also characterized by a marked increase in the incidence of communicable diseases, especially among vulnerable groups, such as infants and young children, resulting in the further deterioration of their nutritional status.

Assessors should verify that the authorities are in a position to review all stages of food supply from production through processing and manufacturing, transport; distribution and sale to preparation in food-service and catering establishments and households. A nutrition policy should exist, which:

- defines roles, responsibilities and limits of authority (see also the section entitled "leadership and governance");
- identifies minimum food-safety standards;
- identifies objectives related to priority public health issues;
- is coordinated with the policies of other sectors to ensure that priorities are met and gaps and overlaps avoided;
- provides measures to ensure that private or foreign agencies work within national guidelines under national supervision and that donated relief assistance meets national standards;
- takes local-development contexts (economic, social, political and environmental) into consideration.

Indicator-related questions

a. Are there mechanisms in place to ensure coverage of food and nutrition needs?

Assessors should verify that mechanisms exist for evaluating the nutritional status of the population during emergencies. This involves carrying out assessments: (i) to identify the nutritional needs of individuals, families, vulnerable groups and populations as a whole; (ii) to monitor the adequacy of the nutritional intake in these groups; and (iii) to ensure that adequate quantities of safe food and appropriate food commodities are procured for use as general rations and in selective feeding programmes. The assessments should include an IRA (to provide the basis for planning a food-relief programme), individual screening (to identify individuals who need special assistance) and surveillance of the nutritional status of the population *(30).*

Assessors should also verify the existence of mechanisms for evaluating the level of access to food both at the local administrative level and, in more detail, at the household level. The social and economic situation should also be assessed, taking into account family and school disruption, violence, employment opportunities, displacement of populations, vulnerable minorities and the availability of essential services and commodities, such as fuel.

The existence of food distribution and feeding programmes should also be determined. The aim of these programmes should be to ensure that the needs of the population are met through the provision of adequate general rations.[14] In

14 General food distribution provides enough food to maintain the health and nutritional status of the affected population. The food supplied in general and supplementary feeding programmes must match the food needs and habits of the recipients, be convenient to transport, store and distribute, and be equitably distributed.

certain situations, however, there may be a need to provide additional food for a period of time to specific groups who are already malnourished and/or at risk of becoming malnourished.[15]

b. Are there mechanisms in place to ensure capacity for food quality and safety control?

Assessors should verify that mechanisms exist to assess the effects of an emergency on the quality and safety of food. It should be a requirement that, before resuming their activities after an emergency, food industries (including slaughterhouses) and catering establishments are inspected to establish their ability to ensure food safety.

In an emergency situation, the extent and type of damage to food needs to be assessed and a decision taken regarding the separation and reconditioning of salvageable food. Control procedures should be in place to ensure that irredeemably damaged food is not marketed and that food distributed through markets, retailers or street vendors has not been subjected to time and temperature abuse, or otherwise contaminated.

Provisions must be in place to ensure that food unaffected by the emergency situation will not be exposed to other sources of contamination or kept where there is a possibility of bacterial growth, such as may be found in warehouses that have been flooded (high humidity encourages the growth of moulds and bacteria in foodstuff).

Mechanisms should exist for monitoring the condition of donated or imported food, starting at point of entry. Food that, on inspection and/or through laboratory analysis, is found to be unfit for human consumption should be rejected.

While public education in food safety is important at all times, in emergencies it becomes vital. In such circumstances, the possible contamination of raw foodstuffs, pollution of the environment and disruption of basic health services increase both the risk of epidemics of foodborne diseases and the severity of their consequences to health. Assessors should verify that mechanisms and procedures are in place for intensifying health-education activities and extending channels of communication with the public, if needed.[16]

15 Selective food distribution is the provision of additional food to specific, vulnerable groups and those needing nutritional rehabilitation. It has two subcategories: supplementary food distribution and therapeutic feeding.

16 Golden rules for safe food preparation: cook raw foods thoroughly; eat cooked food immediately; prepare food for only one meal; avoid contact between raw foods and cooked foods; choose foods processed for safety; wash hands repeatedly; keep all food-preparation areas meticulously clean; use safe water; be cautious with foods purchased outside; breastfeed infants and young children *(31)*.

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

De Boer J, Dubouloz M, eds. *Handbook of disaster medicine. Emergency medicine in mass casualty situations.* Utrecht, BRILL, 2000.

Guiding principles for feeding infants and young children during emergencies. Geneva, World Health Organization, 2004 (http://whqlibdoc.who.int/hq/2004/9241546069.pdf, accessed 4 May 2011).

Rapid health assessment protocols for emergencies. Geneva, World Health Organization, 1999.

Essential attribute 46 Primary health care

Keynotes

Many emergencies are characterized by a large displaced population living under crowded, unhygienic and often unsafe conditions (see also essential attribute 47). A significant proportion of the population may lack access to basic needs, including health care. Under these conditions, setting up curative services alone is unlikely to improve the health of the majority of this population. It is only through a combination of curative care and preventive and public health interventions that a significant reduction in the disease burden of the affected population can be maintained.

After the acute phase of an emergency, emergency health care typically shifts towards PHC.[17] This shift occurs more rapidly in sudden-impact disasters than in refugee situations. There are notable differences between PHC strategies and those for emergency health care. For instance, emergency health care does not focus much on social and economic

17 PHC is defined as essential health care based on practical, scientifically sound and socially acceptable methods and technology, which is accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain, in the spirit of self-reliance and self-determination *(32)*. The ultimate goal of PHC is better health for all. WHO has identified the following five key elements of that goal: reduction of exclusion and social disparities in health (universal coverage reforms); organization of health services around people's needs and expectations (service delivery reforms); integration of health into all sectors (public policy reforms); pursuance of collaborative models of policy dialogue (leadership reforms); and increased stakeholder participation.

development. This is because affected (displaced) populations are expected to return to their pre-disaster origins relatively soon after a disaster. The effectiveness of emergency health care in alleviating the suffering of displaced people and promoting their recovery depends on how closely the strategy for emergency health care reflects the PHC strategy. Humanitarian assistance should be delivered to displaced populations within the PHC framework so that any skills they acquire through community participation, e.g. in the areas of health education, nutrition and preventive health measures, can help them take responsibility for their own health and rebuild their future.

Indicator-related questions

Are there mechanisms in place to ensure:

a. patient access to clinical investigation and treatment and

b. continuity of the referral systems?

Assessors should determine the existence of mechanisms to:

- ensure that emergency health care is implemented within the existing PHC framework so that skills acquired through community participation, health education, nutrition and preventive health measures will enable those affected to take responsibility for their own health and rebuild their future;
- ensure that displaced persons have access to basic clinical examinations and treatment (relating, inter alia, to mental health, maternal-and-child health and reproductive health) at PHC facilities during emergencies (see also essential attributes 41 and 42);
- ensure the continuity of the referral system during emergencies from PHC to the next level of health care (see also essential attributes 34 and 36);
- promote collaboration within the referral system with a view to maximizing the use of resources and labour, and to providing the appropriate level of care;
- strengthen the existing public health infrastructure (basic health facilities, community-health network, local referral system, water supply, disease control, etc.);
- make use of PHC capacities and capabilities to enhance medical surge capacity (see also essential attribute 33).

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

Essential attribute 47 Health services for displaced populations

Keynotes

Within the context of emergencies, displaced people are those who have had to leave their homes as a result of a natural, technological or deliberate event *(33).* They often end up in large camps where environmental health measures are insufficient. Displaced people include IDP (displaced people who remain in their own countries) and refugees (displaced people who have crossed international borders).

A refugee is defined someone who, owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality and is unable to or, owing to such fear, unwilling to avail himself of the protection of that country *(34).*

There is no single universally accepted definition of IDP. The United Nations defines IDP as "…persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters and who have not crossed an internationally recognized state border." *(35).*

Unlike refugees, IDP are not the subject of a specific international convention. Though not specifically referred to therein, they are nevertheless protected by various bodies of law, most notably those related to national law, human rights and, if they are in a country affected by armed conflict, international humanitarian law.

The conditions that characterize displacement can have a profound impact on the health and well-being of individuals and communities. Displacement, combined with a lack of adequate shelter, sanitation, food and safe water, can seriously undermine people's ability to prevent and respond to health-related risks in their environment.

Health-related risks impact people in different ways depending on a range of factors, including age and

gender. Young children, older persons, pregnant women and persons living with disability or serious illness are generally more vulnerable to disease and may face additional difficulty in accessing health care. It is important that differential risks and needs be assessed and taken into account when planning and implementing health-related interventions.

Indicator-related questions

a. ***Are there mechanisms in place to assure displaced populations have access to essential health programmes, including PHC?*** (See also essential attribute 47.)
Assessors should verify that mechanisms are in place to guarantee displaced people access to essential health programmes, such as those for immunization, reproductive health, maternal-and-child health care, mental-health care, emergency care, curative care and rehabilitative care.

Once the crisis is over, the displaced population is likely to return to an environment with limited resources for health care. Therefore, assessors should look into whether humanitarian assistance is being delivered within the PHC framework, allowing displaced populations to gain skills through, for example, community participation and health education that could enable them to take responsibility for their own health and rebuild their future.

b. ***Are there mechanisms in place to establish mobile teams that operate outside the existing health facilities (with displaced populations)?***
Assessors should verify that mobile teams can be deployed from existing health facilities to provide medical care for displaced populations, if needed. However, the focus should be not only on providing them with medical care but also on building their capacity to deal with humanitarian experiences by affording them training and development opportunities in this area. Having sufficient numbers of skilled staff locally would enable displaced populations to better cope with future disasters and reduce long-term dependence on external expertise.

c. ***Are there mechanisms in place to ensure efficient monitoring of the health status of people living in temporary settlements and at ad hoc sites?***
Mortality and malnutrition rates are the most specific indicators of the health status of displaced populations living in temporary settlements and they reflect the adequacy and quality of the overall relief effort. The regular, systematic and reliable collection, collation and analysis of data are prerequisites for effective planning and monitoring. The segregation of data by gender and age is essential.

Assessors should establish which indicators are used for monitoring, and investigate mechanisms of collection, collation and analysis. Provision for ensuring the availability of trained staff and equipment should be in place.

d. ***Are there mechanisms in place to address cultural barriers?***
Assessors should verify that mechanisms exist for ensuring that health-care programmes for displaced populations are culturally appropriate, accessible and affordable. To this end, it is essential to involve the displaced populations in such programmes.

e. ***Are there mechanisms in place to ensure adequate sanitary and personal-hygiene facilities for displaced populations?***
(See also essential attribute 44.)

In humanitarian emergencies, establishing a sanitation system for displaced populations should be among the first priorities. Epidemiological studies in developing countries have shown that the use of latrines or other excreta-containment facilities provides greater protection against diarrhoeal diseases than any other environmental-health measure.

Assessors should verify that mechanisms exist to ensure adequate sanitation facilities for displaced populations, taking cultural factors, access to and education in the proper use of sanitation facilities, as well as the maintenance and protection of surface-water drainage, into account.

Personal hygiene (e.g. hand-washing, bathing, avoiding contaminated articles and clothing) promotes health and limits the spread of infectious diseases transmitted by direct contact. For cultural reasons, local professionals are best suited to develop and deliver education in personal hygiene, which is ultimately the responsibility of the individual.

Assessors should verify that mechanisms are in place (e.g. educational messages) to promote personal hygiene among displaced populations and provide them with the necessary items (e.g. soap) and facilities.

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

Guiding principles on internal displacement. Geneva, Office for the Coordination of Humanitarian Affairs, 2001 (http://ochanet.unocha.org/p/Documents/GuidingPrinciplesDispl.pdf, accessed 7 May 2011).

Handbook for the protection of internally displaced persons. Geneva, Inter-Agency Standing Committee, 2007 (http://www.unhcr.org/refworld/docid/4790cbc02.html, accessed 7 May 2011).

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Key component 6.5	Logistics and operational support functions in emergencies
Essential attribute 48	Emergency telecommunications

Keynotes

Many emergencies occur in remote areas where telecommunications systems are usually weak. Good communication lies at the heart of an effective response to, and recovery from, an emergency situation (see also essential attribute 36). A well-organized telecommunications system greatly increases the efficiency of relief operations, which makes it essential to set up new telecommunications systems rapidly in an emergency.

Indicator-related questions

a. ***Do guidelines and procedures exist for establishing standardized telecommunications systems across all sectors?***

b. ***Do protocols exist for the use of temporary means of telecommunication?***

Resilient telecommunications are able to absorb or mitigate the effects of disruptions, such as an electrical power failure, on normal life. The causes of such disruptions include natural events or circumstances resulting from human intervention. Assessments of their consequences should result in guidance on planning a framework for testing the resilience of responder communications, which can be adapted to local circumstances.

Assessors should verify that a national telecommunications resilience strategy *(36)* (see key component 1.3) is in place, which aims for:

- collaboration among providers and responders to enhance everyday commercially available resilient telecommunications;
- improvement in the management, adoption and resilience of privileged telecommunications schemes that are accessible only to emergency responders;
- the delivery of a high-integrity telecommunications system that provides connectivity between and services for key responder sites at the national, regional and local levels;
- the provision of a secure means of sharing information between all local, regional and national responders, both in preparing for and responding to emergencies;

At the local level, a plan on enhancing telecommunications between responders and their partners should be drawn up, including:

- an assessment to identify key local responders and resilient communication partners, their communication requirements and their telecommunications arrangements;
- an analysis of the current telecommunications arrangements to identify shortfalls in their resilience in the light of communication requirements and local risks for telecommunications;
- steps to enhance telecommunications resilience and establish a timetable for any remedial action necessary;
- liaison with neighbouring entities with resilient telecommunications arrangements;
- telecommunications testing and exercises.

c. ***Has staff been trained in the use of emergency telecommunications equipment?***

d. ***Are adequate human resources available for emergency telecommunications?***
Assessors should check across all sectors whether staff involved in telecommunications receives adequate training in how to set up and use telecommunications equipment. Trained staff and adequate equipment need to be in place. An updated roster of those trained in setting up the necessary equipment would facilitate rapid deployment in cases of emergency.

Recommended reading

Abdallah S, Burnham G, eds. *The Johns Hopkins and IFRC public health guide for emergencies*. *First edition.* Geneva, International Federation of the Red Cross and Red Crescent Societies, 2004 (http://www.terzomondo.org/library/essentials/IFRC_Public_Health_Guide.pdf, accessed 18 April 2004).

Emergency response and recovery. Non statutory guidance accompanying the Civil Contingencies Act 2004. London, Her Majesty's Government, 2010 (http://interim.cabinetoffice.gov.uk/media/353478/err-guidance-050410.pdf, accessed 7 May 2011).

Essential attribute 49 Temporary health facilities

Keynotes

Natural and complex emergencies can cause a dramatic increase in the demand for emergency medical care. Local health services can be overwhelmed and damage to clinics and hospitals can render them useless. Temporary health facilities, such as field hospitals, may be used to substitute or complement medical systems in the aftermath of emergencies. A field hospital is defined as "a mobile, self-contained, self-sufficient health-care facility capable of rapid deployment and expansion or contraction to meet immediate emergency requirements for a specified period of time" *(37)*.

According to the Pan American Health Organization (PAHO) and WHO, the essential requirements for field hospitals are that:

- they can be operational on site within 24 hours after the impact of a disaster;
- they can be fully operational within 3–5 days;
- they are entirely self-sufficient;
- they offer comparable or higher standards of medical care than were available in the affected country prior to the precipitating event;
- they have minimal need for support from the local communities;
- they have staff with a basic knowledge of the health situation and language of the country and who respect its culture;
- they include selected specialties;
- they are sustainable (have the appropriate technology);
- there is a lack of other more cost-effective alternatives;
- they can be installed and maintained at no cost to the affected country.

The operational criteria defined by PAHO and WHO include a broad range of medical disciplines and require that staff in field hospitals is familiar with the health situation and culture of the affected country *(37).*

Indicator-related questions

a. ***Do guidelines and procedures exist for the establishment of temporary health facilities?***
Assessors should verify that mechanisms exist for establishing temporary health facilities. Guidelines on field-hospital inventories should be in place. Mechanisms for mobilizing additional resources from the local, regional and national levels should include the integration of all available assets from field hospitals (see also essential attribute 33).

b. ***Are the roles of field hospitals and mobile hospitals clearly defined?***
The roles of field and mobile hospitals in emergencies can vary. They may be used to substitute or complement medical systems in the aftermath of sudden-impact events. Assessors should verify the existence of guidelines and procedures that clearly define the roles of field and mobile hospitals in different situations.

c. ***Are adequate resources available for establishing temporary basic health facilities?***
Assessors should verify that adequately trained staff, equipment and financial resources are available for establishing mobile and field hospitals.

Recommended reading

Mass casualty management hospital emergency response plan. Regional training course on mass casualty management and hospital preparedness. Manila, WHO Regional Office for the Western Pacific, 2008 (http://acilafet.org/upload/dosyalar/Hospital_emergency_response_plan_Toolkit_.pdf, accessed 2 May 2011).

WHO-PAHO Guidelines for the use of foreign field hospitals in the aftermath of sudden-impact disasters. Washington, DC, Pan American Health Organization, 2003 (http://new.paho.org/disasters/index.php?option=com_docman&task=doc_download&gid=30&Itemid, accessed 8 May 2011).

Essential attribute 50 Logistics

Keynotes

Logistics is a set of systems, which provide the necessary means of delivering the right amount of resources of the right quality at the right price to the right place at the right time. Logistics and supply cannot be improvised when an emergency occurs and should, therefore, be one of the corner-stones of emergency planning and preparedness. Logistics should be an active component of the national emergency-response plan, individual subnational plans and plans of key institutions. Logistics must be closely linked to all operational response activities.

Indicator-related questions

a. ***Do guidelines and procedures exist for the management and use of logistics systems in emergency situations?***
There should be procedures in place for assessing needs vis-à-vis logistics and supply in an emergency (needs of the population; availability of local capacity and resources; complementary capabilities and resources required to meet the needs).

Assessors should verify the availability of guidelines on requesting international assistance. Such requests should only be made if a needs assessment has clearly identified the insufficiency of local resources to deal with the situation. Ideally, such assessments should help in screening offers of assistance, reducing the number of inappropriate donations and ensuring the delivery of appropriate supplies when and where they are most needed (see also essential attribute 5).

b. ***Is there a logistics system in place that includes tracking, monitoring and reporting components?***
Managing logistics also involves maintaining records and updating registries of supplies, medicines, consumables and other materials on a regular basis.

Asssessors should verify that logistics systems include tracking, monitoring and reporting components.

c. ***Has staff been trained in the use of logistics systems in emergencies?***

d. ***Are adequate resources available to ensure logistics support in emergencies?***
Assessors should ensure that all components of the logistics and supply chain (procurement, transport, storage, distribution and human resources) have been taken into consideration and are closely linked.

e. ***Are agreements in place with partners and/or private companies for the provision of logistics services to ensure continuity of essential functions?***
Logistics plans must define procedures, responsibilities and timetables for implementation. Actors in relief operations are diverse, as are their mandates and working methods.

Assessors should verify the existence of coordination mechanisms (guidelines and procedures) for linking actors in the field. The following action should be considered:

- identification of the specialties and fields of action of all national, international, governmental and non-profit organizations present in the country;
- organization of frequent meetings and carrying out coordination activities to decide on (and even rehearse) action to be taken before, during and after an emergency;
- development of joint plans and collaborative agreements with various organizations on action to be taken before, during and after an emergency;

establishment and maintenance of an up-to-date inventory (at the national, regional or institutional level, as the case may be) of resources and contacts that would prove useful in the event of an emergency;

- information-exchange among actors about resources that may be useful in the event of an emergency;
- establishment and maintenance of a directory of suppliers and manufacturers (including contact details and information about manufacturing capacity and production and delivery times).

Recommended reading

Humanitarian supply management and logistics in the health sector. Washington, DC, Pan American Health Organization, 2001 (http://www.paho.org/english/ped/HumanitarianSupply-part1.pdf, accessed 8 May 2011).

SUMA. The WHO/PAHO supply management system. Washington, DC, Pan American Health Organization, 2001 (http://www.paho.org/english/ped/suma.pdf, accessed 8 May 2011).

World Health Organization et al. *The interagency emergency health kit 2006. Medicines and medical devices for 10 000 people for approximately 3 months. An interagency document.* Geneva, World Health Organization, 2006 (WHO/PSM/PAR/2006.4) (http://apps.who.int/medicinedocs/en/d/Js13486e/6.10.5.html, accessed 8 May 2011).

Essential attribute 51 Service-delivery support function

Indicator-related questions

a. Is the security of health-care facilities guaranteed during an emergency?

It is vital that health-care facilities are protected and secure. This is a complex issue, which not only involves the security of the facilities but also that of the staff, patients, visitors and various areas around the facilities.

Assessors should check whether:

- the security and protection of health-care facilities, and the use of specific protective measures, such as PPE, vaccination and prophylactic medication are included in preparedness and response plans;
- the characteristics of possible emergencies and how they may threaten health-care facilities have been identified;
- heads of security have been appointed within the health-care facilities and are part of their incident-command groups;
- procedures, job action sheets, forms and logs have been prepared for the management of security;
- the roads to and from the heath-care facilities are open and protected and whether procedures for identifying hospital personnel are in place;
- pre-established arrangements, guidelines and procedures exist for collaborating with both internal security personnel and outside security services, such as the police and fire brigades;
- the necessary equipment (vests, arrows, ropes) is available for marking access roads, cordoning off areas and delineating restricted zones;
- joint exercises and drills are carried out in conjunction with the security services (police, fire brigades, etc.).

b. Is continuity of lifelines in health-care facilities planned for in case of an emergency?

Health-care facilities are often directly affected by emergencies with serious consequences, including the death of staff members and patients, the destruction of buildings and the loss of lifelines. Therefore, the restoration of lifelines and critical equipment is of vital importance. Activities, for example, to maintain essential equipment, ensure electrical power and water supplies, assess damage (in cooperation with the security services) and restore lifelines, are the key to the continuity of business operations and the delivery of essential services (see also essential attribute 39).

Assessors should check whether:

- continuity of lifelines is included in preparedness and response plans;
- working contacts have been established with stakeholders and suppliers who could contribute to the efficient operation of critical equipment or action to restore lifelines;
- external technical assistance (e.g. community-relevant services) has been identified and can be deployed rapidly, if necessary;
- constraints have been considered, such as the protection of technicians while they are

working in the heath-care facility (e.g. by supplying PPE in case of a pandemic);

- mechanisms exist for setting up a monitoring system to anticipate problems, such as shortage or overuse;
- technical expertise is available for assessing damage to buildings and the safety and sustainability of lifelines (power and water);
- back-up systems for water supply, power supply, fuel for transport, etc., are in place and regularly tested;
- the main stakeholders inside the health-care facilities and partners outside the health-care facilities participate in exercises and drills.

c. ***Have transportation and fuel requirements for emergencies been taken into consideration in planning?***
Assessors should verify that mechanisms and procedures exist for ensuring that, in emergencies, transportation and fuel requirements can be met. Emergency fuel stocks are essential for the additional interfacility transport and referral involved. Furthermore, fuel is needed for back-up systems (generators) in health-care facilities. Agreements with local transport and fuel providers might be considered.

Recommended reading

Hospital safety index. Guide for evaluators. Washington, DC, Pan American Health Organization, 2008 (http://www.preventionweb.net/files/8974_SafeHosEvaluatorGuideEng1.pdf, accessed 8 May 2011).

Safe hospitals in emergencies and disasters. Structural, non-structural and functional indicators. Manila, WHO Regional Office for the Western Pacific, 2009 (http://www.wpro.who.int/NR/rdonlyres/390133EC-089F-4C77-902D-DFEE8532F558/0/SafeHospitalsinEmergenciesandDisasters160709.pdf, accessed 8 May 2011).

Back

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3. *Health sector self-assessment tool for disaster risk reduction*. Washington, DC, Pan American Health Organization, 2010 (http://new.paho.org/disasters/index.php?option=com_content&task=view&id=1375&Itemid=1&lang=en, accessed 1 July 2010).
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5. Resolution WHA58.1. Health action in relation to crises and disasters, with particular emphasis on the earthquakes and tsunamis of 26 December 2004. In: *Fifty-eighth World Health Assembly, Geneva, 16–25 May 2005. Resolutions and decisions. Annex.* Geneva, World Health Organization, 2005 (http://apps.who.int/gb/ebwha/pdf_files/WHA58-REC1/english/Resolutions.pdf, accessed 31 July 2011).
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Back

Annex 1. Glossary

All-hazards concept	"All-hazards" entails developing and implementing emergency-management strategies for the full range of likely risks and emergencies (natural, biological, technological and societal). Different hazards and emergencies can cause similar problems in a community and measures, such as planning, early warning, intersectoral and intrasectoral coordination, evacuation, health services and community recovery are usually implemented along the same model adopted by the community regardless of cause *(1)*.
Contingency	A management process that analyses specific potential events or emerging situations that might threaten society or the environment, and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations *(2)*.
Crisis	An event or series of events representing a critical threat to the health, safety, security or well-being of a community, usually over a wide area. Armed conflicts, epidemics, famine, natural disasters, environmental emergencies and other major harmful events may involve or lead to a humanitarian crisis *(1)*.
Disaster	A serious disruption of the functioning of a community or society involving widespread human, material, economic or environmental losses and impacts, which exceed the ability of the affected community or society to cope with using its own resources *(2)*.
Disaster risk management	The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster *(2)*.
Disaster risk reduction	The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters through, for example, reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events *(2)*.
Early-warning system	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare for it and to act appropriately and in sufficient time to reduce the possibility of harm or loss *(2)*.
Emergency	A sudden and usually unforeseen event that calls for immediate measures to minimize its adverse consequences *(3)*.
Emergency management	The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular, preparedness, response and initial recovery steps *(2)*.
Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage *(2)*.

International Health Regulations (2005) (IHR or the Regulations)	A legally binding instrument of international law, which has its origin in the International Sanitary Conventions of 1851, concluded in response to increasing concern about the links between international trade and the spread of disease (cross-border health risks) *(4)*.
Mitigation	The lessening or limitation of the adverse impacts of hazards and related disasters *(2)*.
National health information system	A population- and health-facility-based data source using, for example, censuses, household surveys, (sample) vital registration systems, public health surveillance, health-services data and health-system monitoring data characterized by six components: (1) resources; (2) indicators; (3) data sources; (4) data management; (5) information products; (6) dissemination and use *(5)*.
Preparedness	The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current hazard events or conditions *(2)*.
Prevention	The outright avoidance of adverse impacts of hazards and related disasters *(2)*.
Public awareness	The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards *(2)*.
Recovery	The restoration and improvement, where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors *(2)*.
Resilience	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner through, for example, the preservation and restoration of its essential basic structures and functions *(2)*.
Response	The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected *(2)*.
Retrofitting	Reinforcement or upgrading of existing structures to render them more resilient and resistant to the damaging effects of hazards *(2)*.
Risk	The combination of the probability of an event and its negative consequences *(2)*.
Risk assessment	A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend *(2)*.
Risk communication	Risk communication for public health emergencies includes the range of communication capacities required in the preparedness, response and recovery phases of a serious public health event to encourage informed decision-making, positive behavioural change and the maintenance of trust *(4)*.
Risk management	The systematic approach to and practice of managing uncertainty to minimize potential harm and loss *(2)*.

Surveillance	The systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response, as necessary *(4)*.
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard *(2)*.

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Annex 2. Sources of information required for assessment of essential attributes

a. ***Documents: the constitution; legislation and policy pertaining to emergencies and health care; annual reports; publications; project reports; international conventions and agreements, etc.***
b. ***Health and population databases at the global and regional levels.***
c. ***Interviews at the national and regional levels with representatives of:***

- ministry of health and other relevant ministries (e.g. for agriculture, environmental protection, emergencies, the interior, defence, foreign affairs, transport);
- national institutions (public health institutes, health administrations, research centres, sanitary and epidemiological services, national information centres, academic institutions, etc.);
- United Nations agencies and international organizations (e.g. IFRC, United Nations Children's Fund (UNICEF), United Nations Refugee Agency (UNHCR), World Food Programme (WFP), WHO);
- NGOs involved in response operations;
- donor agencies;
- private-sector agencies;
- key health-care facilities involved in reporting to health authorities;
- hospitals (heads of departments dealing with emergencies and accidents, infectious diseases, internal medicine, occupational health, mental health, obstetrical cases, paediatrics, supplies, logistics; members of hospital planning committees for response and recovery);
- health-care facilities other than hospitals;
- statistical bureaux;
- animal and plant disease-surveillance systems;
- EMS systems;
- the media (including public spokespersons and members of the media communication team);
- health insurance funds;
- religious organizations;
- forensic institutes and mortuaries;
- cancer institutes;
- homes for the elderly;
- security services (police force, fire brigade, civil defence, etc);
- military services;
- dispatch centres and advanced medical posts;
- stakeholders involved in: immunization programmes; maternal and child health care and reproductive health; the provision of mental-health services; refuse collection and waste-disposal; nutrition and food safety; rapid health-needs assessments;
- warehouses;
- laboratories and blood banks.

Annex 3. Outline of essential attributes by WHO health-system function and key component

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
1.	Leadership and governance	1.1	Legal framework for national multisectoral emergency management	1.	Laws, policies, plans and procedures relevant to national multisectoral emergency management
				2.	National structure for multisectoral emergency management and coordination
		1.2	Legal framework for health-sector emergency management	3.	Laws, policies, plans and procedures relevant to health-sector emergency management
				4.	Structure for health-sector emergency management and coordination
				5.	Regulation of external health-related emergency assistance
		1.3	National institutional framework for multisectoral emergency management	6.	National committee for multisectoral emergency management
				7.	National operational entity for multisectoral emergency management
		1.4	National institutional framework for health-sector emergency management	8.	National committee for health-sector emergency management
				9.	National operational entity for health-sector emergency management
				10.	Mechanisms of coordination and partnership-building
		1.5	Components of national programme on health-sector emergency management	11.	National health-sector programme on risk reduction

Back

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
		1.5	Components of national programme on health-sector emergency management	12.	Multisectoral and health-sector programmes on emergency preparedness
				13.	National health-sector plan for emergency response and recovery
				14.	Research and evidence base
2.	Health workforce	2.1	Human resources for health-sector emergency management	15.	Development of human resources
				16.	Training and education
3.	Medical products, vaccines and technology	3.1	Medical supplies and equipment for emergency-response operations	17.	Medical equipment and supplies for prehospital and hospital (including temporary health facilities) activities and other public health interventions
				18.	Pharmaceutical services
				19.	Laboratory services
				20.	Blood services
4.	Health information	4.1	Information-management systems for risk-reduction and emergency-preparedness programmes	21.	Information system for risk assessment and emergency-preparedness planning
				22.	National health information system
				23.	National and international information-sharing
				24.	Surveillance systems
		4.2	Information-management systems for emergency response and recovery	25.	Rapid health-needs assessment
				26.	Multisectoral initial rapid assessment (IRA)
				27.	Emergency reporting system

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
		4.3	Risk communication	28.	Strategies for risk communication with the public and the media
				29.	Strategies for risk communication with staff involved in emergency operations
5.	Health financing	5.1	National and subnational strategies for financing health-sector emergency management	30.	Multisectoral mechanisms of financing emergency preparedness and management
				31	Health-sector financing mechanisms
6.	Service delivery	6.1	Response capacity and capability	32.	Subnational health-sector emergency-response plans
				33.	Surge capacity for subnational health-sector response
				34.	Management of prehospital medical operations
				35.	Management of situations involving mass-fatality and missing persons
		6.2	EMS system and mass-casualty management	36.	Capacity for mass-casualty management
		6.3	Management of hospitals in mass-casualty incidents	37.	Hospital emergency-preparedness programme
				38.	Hospital plans for emergency response and recovery
		6.4	Continuity of essential health programmes and services	39.	Continuous delivery of essential health and hospital services
				40.	Prevention and control of communicable diseases and immunization
				41.	Mother-and-child health care and reproductive health
				42.	Mental health and psychosocial support

Section	WHO health-system functions	No.	Key components	No.	Essential attributes
				43.	Environmental health
				44.	Chronic and noncommunicable diseases
				45.	Nutrition and food safety
				46.	Primary health care
				47.	Health services for displaced populations
		6.5	Logistics and operational support functions in emergencies	48.	Emergency telecommunications
				49.	Temporary health facilities
				50.	Logistics
				51.	Service-delivery support function

Annex 4. Field assessment communication checklist

(Adapted from: *Protocol for assessing national surveillance and response capacities for the International Health Regulations*[18])

Assessment team communication
Identify a team leader.

Introduce team members to each other. This is important for enhancing team spirit.

Identify the sites to be assessed and agree the timing and length of each visit.

Identify the roles and responsibilities of each team member before every site visit. These can change according to the site to be visited.

Ensure the availability of the logistic support and supplies needed by the team (including tools for data collection, stationery, etc).

Communicate (team members with the team leader) regularly (preferably on a daily basis). It is especially important to do so before making any changes to tools, field methods or location.

Ensure that each team member receives an official introductory letter from the ministry of health on the objectives, scope, expected outcome and follow-up of the mission.

Meetings with authorities/focal persons in the field
Identify the focal person(s) in the assessment region(s), zone(s) and/or facility(ies).

Plan consultation sessions in good time beforehand.

Introduce the team members and the goals of (i) the briefing meeting and (ii) the mission itself to those concerned.

Emphasize that the aim of the assessment is to strengthen national surveillance and response capacities and make recommendations to facilitate work, not to criticize or judge.

Invite the focal person(s) to provide comments and input.

Explain the method of providing feedback to those concerned on the outcome of the assessment and information on follow-up.

Meetings with health workers
Give health workers a clear description of the mission objectives and of their roles in the assessment, if any.

Discuss with health workers their roles in the assessment (these could, for example, be through participation in interviews, in connection with data collection or by allowing themselves to be observed while carrying out their duties).

If relevant, inform the health workers that they will receive feedback on the outcome of the assessment and explain how this will be communicated to them.

Accessing communities
Select times (convenient to those concerned) for conducting community assessments.

Observe and respect community norms.

Explain the mission objectives clearly and concisely to those concerned.

Answer questions. Be honest; such missions can raise expectations.

18 *Protocol for assessing national surveillance and response capacities for the International Health Regulations (2005) in accordance with Annex 1 of the IHR. A guide for assessment teams.* December 2010. Geneva, World Health Organization, 2010 (http://www.who.int/ihr/publications/who_hse_ihr_201007_en.pdf, accessed 1 July 2011).

Back

Annex 5. Colour-coded overview of assessment

Colour the boxes corresponding to each question according to the results of the assessment: = yes; = partly; = no.

Section 1. Leadership and governance											
1.1 Legal framework for national multisectoral emergency management											
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1. Laws, policies, plans and procedures relevant to national multisectoral emergency management	○	○	○	○	○	○					
2. National structure for multisectoral emergency management	○	○	○	○							
1.2 Legal framework for health-sector emergency management											
3. Laws, policies, plans and procedures relevant to health-sector emergency management	○	○	○	○							
4. Structure for health-sector emergency management and coordination	○	○	○	○	○						
5. Regulation of external health-related emergency assistance	○	○	○								
1.3 National institutional framework for multisectoral emergency management											
6. National committee for multisectoral emergency management	○	○	○	○	○	○					
7. National operational entity for multisectoral emergency management	○	○	○	○							

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1.4 National institutional framework for health-sector emergency management											
8. National committee for health-sector emergency management	○	○	○	○	○	○					
9. National operational entity for health-sector emergency management	○	○	○	○							
10. Mechanisms of coordination and partnership-building	○	○	○	○	○	○					
1.5 Components of national programme on health-sector emergency management											
11. National health-sector programme on risk reduction	○	○	○	○							
12. Multisectoral and health-sector programmes on emergency preparedness	○	○	○	○	○	○	○	○	○	○	○
13. National health-sector plan for emergency response and recovery	○	○	○	○	○	○	○	○			
14. Research and evidence base	○	○	○								
Section 2. Health workforce											
2.1 Human resources for health-sector emergency management											
15. Development of human resources	○	○	○								
16. Training and education	○	○	○	○	○	○	○	○			

Section 3. Medical products, vaccines and technology

3.1 Medical supplies and equipment for emergency-response operations

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
17. Medical equipment and supplies for prehospital and hospital (including temporary health facilities) activities and other public health interventions	○	○	○	○	○	○					
18. Pharmaceutical services	○	○	○	○	○	○					
19. Laboratory services	○	○	○	○	○						
20. Blood services	○	○	○	○	○						

Section 4. Health information

4.1 Information-management systems for risk-reduction and emergency-preparedness programmes

21. Information system for risk-assessment and emergency-preparedness planning	○	○	○	○							
22. National health information system	○	○									
23. National and international information- sharing	○	○									
24. Surveillance systems	○	○	○	○	○	○	○				

4.2 Information-management systems for emergency response and recovery

25. Rapid health-needs assessment	○	○	○	○							

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
26. Multisectoral initial rapid assessment (IRA)	○	○	○								
27. Emergency reporting system	○	○	○	○							
4.3 Risk communication											
28. Strategies for risk communication with the public and the media	○	○	○	○	○	○					
29. Strategies for risk communicating with staff involved in emergency operations	○	○	○								
Section 5. Health financing											
5.1 National and subnational financing strategies for health-sector emergency management											
30. Multisectoral mechanisms for financing emergency preparedness and management	○	○	○								
31. Health-sector financing mechanisms	○	○	○	○							
Section 6. Service delivery											
6.1 Response capacity and capability											
32. Subnational health-sector emergency-response plans	○	○	○	○	○	○	○				
33. Surge capacity for subnational health-sector response	○	○	○	○							
34. Management of prehospital medical operations	○	○	○	○	○						

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
35. Management of situations involving mass-fatality and missing persons	○	○	○	○	○						
6.2 EMS system and mass-casualty management											
36. Capacity for mass-casualty management	○	○	○	○	○						
6.3 Management of hospitals in mass-casualty incidents											
37. Hospital emergency-preparedness programme	○	○	○	○	○						
38. Hospital plans for emergency response and recovery	○	○	○	○	○	○	○	○	○	○	
6.4 Continuity of essential health programmes and services											
39. Continuous delivery of essential health and hospital services	○	○	○								
40. Prevention and control of communicable diseases and immunization	○	○									
41. Mother-and-child health care and reproductive health	○	○									
42. Mental health and psychosocial support	○	○									
43. Environmental health	○	○	○	○							
44. Chronic and noncommunicable diseases	○	○									

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
45. Nutrition and food safety	○	○									
46. Primary health care	○	○									
47. Health services for displaced populations	○	○	○	○	○						
6.5 Logistics and operational support functions in emergencies											
48. Emergency telecommunications	○	○	○	○							
49.Temporary health facilities	○	○	○								
50.Logistics	○	○	○	○	○						
51.Service-delivery support function	○	○	○								

Back

Annex 6. Template for plan of action

Function	Main findings	Goals	Objectives	Expected results	Activities	Milestones (targets)	Timeline		Implementers	Resources	Obstacles (risk and assumption)	Performance indicators
							Start	End				
Leadership and governance												
Health workforce												
Medical products, vaccines and technology												
Health information												
Health financing												
Service delivery												

Back

Annex 7. Outline of assessment report

- Acknowledgements
- Acronyms
- Executive summary
- Introduction
- Country overview
  - Geography
  - Demography
  - Socioeconomic and health-status indicators
  - Main hazards and health threats
- Objectives of the assessment
- Methodology
  - Assessment design (site visits, interviews, desk review, etc.)
  - Recording and analysis of data
  - Debriefing and feedback
- Leadership and governance
  - Legal framework for national multisectoral emergency management
  - Legal framework for health-sector emergency management
  - National institutional framework for multisectoral emergency management
  - National institutional framework for health-sector emergency management
  - Components of national programme on health-sector emergency management
- Health workforce
  - Human resources for health-sector emergency management
- Medical products, vaccines and technology
  - Medical supplies and equipment for emergency-response operations
- Health information
  - Information-management systems for risk-reduction and emergency-preparedness programmes
  - Information-management systems for emergency response and recovery
  - Risk communication
- Health financing
  - National and subnational financing strategies for health-sector emergency management
- Service delivery
  - Response capacity and capability
  - EMS system and mass-casualty management
  - Management of hospitals in mass-casualty incidents
  - Continuity of essential health programmes and services
  - Logistics and operational support functions in emergencies
- Priority action
- Next steps and draft action plan
- References
- Annexes
  - Assessment team members, interviewees and sites visited

Back

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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"New diseases are global threats to health that also cause shocks to economies and societies. Defence against these threats enhances our collective security. Communities also need health security. This means provision of the fundamental prerequisites for health: enough food, safe water, shelter, and access to essential health care and medicines. These essential needs must also be met when emergencies or disasters occur."

– Dr Margaret Chan
WHO Director-General

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