



EUROPE

# Assessment of health systems' crisis preparedness

---

# Ukraine

# UKR

Supported by



The European Commission



---

May 2009

# Abstract

In 2008, with the support of the European Commission Directorate-General for Health and Consumers, WHO launched the project, “Support to health security, preparedness planning and crises management in 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 objectives of this project was to refine the assessment tool, which had been revised on the basis of the experience gained through the planning and crises management assessments carried out in Armenia, Azerbaijan and the Republic of Moldova under the joint EC–WHO project, “Support to health security and preparedness planning in EU neighbouring countries” (2007–2008). The intention was to apply the updated tool during a second round of assessments before finalizing it in 2010. The countries involved in the second round were Kyrgyzstan, Poland and Ukraine. The WHO health systems’ framework was used as the conceptual basis for describing and analysing the health systems in the countries.

This report describes the level of preparedness of the health system in Ukraine and evaluates the arrangements in place to deal with crises, regardless of cause. It also examines the risk prevention and mitigation initiatives in the country. While the main focus is on the national level, some attention has been paid to crisis management capacity at the regional level and to the links between the various levels of government. In addition, the report considers the topic of mass gatherings and public health.

## **Keywords**

Process assessment (health care)  
Disaster planning  
Emergencies  
Risk management  
Health systems plans  
Delivery of health care - organization and administration  
Ukraine

Address requests about publications of the WHO Regional Office for Europe to:

Publications  
WHO Regional Office for Europe  
Scherfigsvej 8  
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office web site (<http://www.euro.who.int/pubrequest>).

## **© World Health Organization 2010**

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers’ products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

# Contents

	Page
<b>Acknowledgements</b> .....	<b>4</b>
<b>Foreword</b> .....	<b>5</b>
<b>International policy context</b> .....	<b>6</b>
Health security – current issues and trends .....	6
<i>Global health security</i> .....	6
<i>Health security in the World Health Organization European Region</i> .....	7
<i>International Health Regulations</i> .....	7
<i>The European Union and the European Neighbourhood Policy</i> .....	8
<i>EU support to crisis preparedness and response</i> .....	8
The WHO health systems' framework .....	9
Cross-cutting issues related to disaster preparedness and response .....	11
<i>The all-hazard approach</i> .....	11
<i>The multidisciplinary (intrasectoral) approach</i> .....	11
<i>The multisectoral approach</i> .....	11
<i>The comprehensive approach</i> .....	11
<b>Mission objectives and methodology</b> .....	<b>13</b>
<b>Country context</b> .....	<b>17</b>
Country profile .....	17
Past crises and potential threats .....	18
<b>Findings of the assessment</b> .....	<b>19</b>
Stewardship and governance .....	19
Resource generation .....	23
Health financing .....	28
Service delivery .....	29
<b>Mass gatherings</b> .....	<b>33</b>
<b>Evaluation</b> .....	<b>35</b>
Strengths .....	35
Weaknesses .....	36
<b>Recommendations</b> .....	<b>38</b>
<b>References</b> .....	<b>41</b>
<b>Annex 1. Members of the assessment team</b> .....	<b>42</b>
<b>Annex 2. Persons interviewed</b> .....	<b>43</b>
<b>Annex 3. Legal and regulatory framework related to crisis preparedness and response in Ukraine</b> .....	<b>45</b>

# Acknowledgements



The review of the preparedness of the Ukrainian health system for crises was made possible thanks to the efforts and support of the Ministry of Health. Special thanks go to Vitaly Krilyuk, Specialist in Emergency and Disaster Management, Department of Scientific Research Planning, Ukrainian Emergency and Disaster Medicine Centre, and key expert on crisis management, who organized visits to the relevant sectors, provided invaluable information and participated in most of the interviews.

Special thanks are also extended to the staff of the WHO Country Office in Ukraine who assisted throughout the preparation and the implementation of the mission.

We wish also to acknowledge the grant received from the European Commission Directorate-General for Health and Consumers that supported both the implementation of this project and the preparation of the report.

# Foreword



The number of emergencies and disasters and the severity of their impact have increased in recent decades, particularly in low- and middle-income countries, those of the European Region of the World Health Organization (WHO) being no exception. This development emphasizes the importance of the role of health systems in the overall cycle of disaster preparedness, risk mitigation, response and recovery.

Strengthening health systems' preparedness for crises is not a trivial task. Strengthening stewardship, implementing preparedness planning as a continuous process with a multi-hazard approach, establishing sustainable crisis management and health risk reduction programmes, to name a few tasks, requires a clear understanding of the country's situation. Unfortunately, until now, there has been no formally agreed standard methodology for assessing the preparedness of a health system for crises. This is not surprising given the diversity of countries in the WHO European Region.

The assessment in Ukraine was carried out under the WHO project, "Support to health security, preparedness planning and crisis management in EU, EU accession and neighbouring (ENP) countries", which is supported by the European Commission Directorate-General for Health and Consumers. Part of the process was to refine the health systems' crisis preparedness assessment tool developed within the project,

In Ukraine, the focus of the assessment was expanded to cover the issue of public health in mass gatherings with a view to the upcoming 2012 UEFA European Football Championship (UEFA EURO 2012™), part of which will be hosted in the country. Preparation for this important event was the entry-point for looking at the overall preparedness of the health system for any crisis (a multi-hazard approach).

By anticipating the health needs of the population in a crisis and taking the necessary steps to be prepared, a health system would be able to respond effectively should the situation arise and thus save lives and alleviate suffering. This report is an important contribution to the evidence being collected on the preparedness of health systems for crises and to the refinement of the standardized tool for assessing capacity for response at the national level.

# International policy context

## Health security – current issues and trends

### ***Global health security***

The United Nations Commission on Human Security established that good health and human security are inextricably linked and that illness, disability and avoidable death are critical pervasive threats to human security (1). It identified the three main health challenges as: conflict and humanitarian emergencies; infectious diseases; and poverty and inequity.

The statistics show a steady rise in the number of disasters<sup>1</sup> worldwide, many of which are attributed to climate change. In the past 20 years, disasters have killed over three million people and adversely affected over 800 million.

Not only are the established infectious diseases spreading more quickly (for example, multi-drug-resistant tuberculosis (TB) and HIV/AIDS are becoming an increasing threat to health security) but new diseases are also emerging at a faster rate than ever before (one or more per year since the 1970s). Nearly 40 diseases now exist that were unknown a generation ago.

Natural and man-made disasters, depending on their magnitude and the vulnerability of the populations they affect, can have a devastating effect on the health status in both the short and long terms. This is often aggravated by economic loss, which also has a negative impact on the health status and, therefore, on the economic burden in the health sector as a whole.

Increasingly, disaster management is becoming a priority in countries. The reasons for this are the following.

- The economic and political implications of disasters, particularly outbreaks of communicable diseases, and their effect on trade and tourism can be enormous. Low-income countries are clearly the most vulnerable to these negative effects.
- The effects of climate change have serious implications for global health security. In addition to the consequences for the health of individuals, environmental changes may well result in mass population movement and competition for scarce resources, leading in turn to conflict and political instability.
- States Parties to the revised International Health Regulations (IHR 2005), which came into force on 15 June 2007, are legally bound to meet their requirements.

Governments, particularly in low-income countries, are often loath to invest in strategies aimed at disaster prevention and/or risk reduction and there is an overall tendency to underinvest in the health sector. Statistics show (2) that, on average, the lower the Gross Domestic Product (GDP) of any particular country, the smaller the percentage invested in health.

<sup>1</sup> For inclusion in the Centre for Research on the Epidemiology of Disasters (CRED) database, a disaster must have resulted in at least one of the following criteria: 10 or more deaths; 100 or more people affected; a declaration of a state of emergency; a call for international assistance.

### ***Health security in the World Health Organization European Region***

Between 1990 and 2008, 47 million people in the Region were directly affected by natural disasters. Of these, 695 were accidents, 414 floods, 141 events of extreme temperature, 302 windstorms, 110 earthquakes, 36 droughts, 72 wildfires and 59 landslides and avalanches, resulting in over 129 000 deaths. This does not include the wars and violent conflicts that have killed over 300 000 people in the Region over the last 20 years. Other severe events of the recent past include the Chernobyl nuclear power plant accident in 1986, which the United Nations estimates affected several million people, and the Spitak earthquake that killed over 25 000 people in Armenia in 1988.

Since 1990, a series of violent wars and conflicts in the Region have had vast political, social and human consequences. Armed conflict in the Balkans resulted in an estimated 125 000 fatalities and the displacement of up to three million people. The break-up of the former Soviet Union brought about a number of violent episodes in Azerbaijan (Nagorno-Karabakh), Georgia (Abkhazia and South Ossetia), the Republic of Moldova (Transnistria), the Russian Federation (Chechnya, Ingushetia, North Ossetia and Dagestan) and Tajikistan, causing the loss of an estimated 200 000 lives.

A number of serious terrorist attacks have taken place in the Region in the last fifteen years, including those that occurred in France (Paris, 1995), Spain (various ETA bombings; Madrid train attack, 2004), Turkey (various) and the United Kingdom (London, 2005). Reportedly, more than five times as many attacks have been thwarted in Belgium, France, Germany, Italy, the Netherlands, Spain and the United Kingdom, and the list of failed or aborted attempts is probably longer than we may ever know (3).

### ***International Health Regulations***

The need to strengthen capacity for emergency preparedness and response, particularly in low-income countries, is firmly based on current trends and statistics and supported by a wide variety of literature on global warming, environmental hazards, bioterrorism and re-emerging and emerging diseases, particularly severe acute respiratory syndrome and avian influenza. The level of international concern about this need is reflected in an increasing amount of media coverage and the establishment of various commissions, committees and international coordinating bodies (e.g. the United Nations International Strategy for Disaster Reduction, the Commission on Human Security and the WHO Health Action in Crises Programme) to address issues related to emergency preparedness and response.

Growing concern about national, regional and international public health security led to the adoption of the revised International Health Regulations (IHR) by the 58th World Health Assembly in May 2005. These provide a new legal framework for strengthening surveillance and response capacity and protecting the public against acute health threats with the potential to spread internationally, affect human health negatively and interfere with international trade and travel.

The revised IHR have a much broader scope than the first edition (1969), which focused on the international notification of specific communicable diseases. States Parties to the IHR are now obliged to assess and notify WHO of any event of potential international public health concern, irrespective of its cause (whether biological, chemical or radionuclear) and origin (whether accidental or deliberate). The criteria for assessing the international public health implications of any given event are outlined in the algorithm presented in Annex 2 of the IHR. These include health-related events that are unusual or severe, may have a significant impact on public health, may spread across borders, and may affect freedom of movement (of goods or people).

For effective implementation, States Parties (with WHO support) were also required to develop a national IHR implementation plan by June 2009 and to meet national core capacity requirements by June 2012. How this can be achieved, particularly in low- income countries, is not yet fully envisaged.

### ***The European Union and the European Neighbourhood Policy***

At present, 27 of the 53 Member States of the WHO European Region are also members of the European Union (EU). A further three countries are in candidate status (Croatia, the former Yugoslav Republic of Macedonia and Turkey).

Furthermore, in 2004, to avoid the emergence of new dividing lines between the newly enlarged EU and its immediate neighbours, and with a view to strengthening the prosperity, stability and security of all concerned, the EU invited the neighbouring countries to become part of the European Neighbourhood Policy (ENP). This policy builds upon a mutual commitment to common values, such as democracy and human rights, rules of law, good governance, market economy principles and sustainable development, and is distinct from the accession process. ENP countries in the WHO European Region are Armenia, Azerbaijan, Belarus, Georgia, Israel, the Republic of Moldova and Ukraine. They are bound by an agreed action plan, which includes political and economic reforms with short- and medium-term priorities, such as the harmonization of national legislation on communicable disease surveillance and response and environmental health, and the coherence of national public health crisis plans with current EU policies and strategies.

Both the IHR and the ENP are legally-binding agreements. They provide a framework within which countries are required to strengthen national crisis preparedness and response with a view to enhancing health security at both the European and the global levels.

### ***EU support to crisis preparedness and response***

In 2006, the WHO Regional Office for Europe utilized the health systems' framework to develop the document, *A practical tool for the preparation of a hospital crisis preparedness plan, with special focus on pandemic influenza (4)*. It aims to provide a simple tool for planning appropriate measures to be adopted by a hospital and/or, more generally, a health facility in preparation for a critical situation. As this concept was welcomed by the Member States, the Regional Office decided to extend it to developing a similar tool for crises preparedness planning in the health sector as a whole, again based on the WHO health systems' framework. In this connection and in the light of the ENP and the IHR, in March 2007, the Health and Consumer Protection Directorate General of the European Commission (DG SANCO) (under priority 2.2 of its workplan) provided funding to the WHO Regional Office for Europe for the project entitled: "Support to health security and preparedness planning in EU neighbouring countries". The overall objective of the project was to assess available capacity to respond to public health crises in selected ENP countries, including the core capacity required to implement the IHR, and to promote a multisectoral approach to ensuring the interoperability of existing public health emergency plans and their coherence with EU policies and strategies. The specific objectives of the project were:

- to coordinate the development of a feasible and standardized assessment tool for evaluating: (a) the priority health risks; (b) the status of generic emergency preparedness plans; and (c) the interoperability of public health emergency plans in selected countries;
- to conduct assessments in three ENP countries of the WHO European Region, the candidate countries being Armenia, Azerbaijan, Belarus, Georgia, Israel, the Republic of Moldova and Ukraine, and to disseminate the results;

- to produce and submit a final consolidated report, including strategic and operational recommendations on further developing a joint EC–WHO plan of action to improve the level of preparedness in the assessed ENP countries and other EU neighbouring countries.

After negotiation with the relevant Ministries of Health, assessments were conducted in Armenia, Azerbaijan and the Republic of Moldova using the newly developed tool for assessing the preparedness of the health systems in countries. All three countries showed a keen interest in and a high level of political commitment to strengthening the capacity of the health sector for crisis preparedness and response at the national level, as well as to following up on the findings and recommendations of the assessment.

In 2008, the EC and WHO launched the joint project, “Support to health security, preparedness planning and crises management in EU, EU accession and neighbouring (ENP) countries”, the aim of which was to improve preparedness for public health emergencies in EU Member States and selected EU accession and ENP countries in the WHO European Region. One of the objectives of the project was to refine the assessment tool, which had been revised during the Expert Consultation on Health Systems’ Crisis Preparedness, Dubrovnik, Croatia, 21–23 April 2009, on the basis of the experience gained through the assessments carried out in Armenia, Azerbaijan and the Republic of Moldova. The intention was to apply the updated tool during a second round of planning and crises management assessments before finalizing it in 2010. The countries involved in the second round were Kyrgyzstan, Poland and Ukraine.

The Ministry of Health of Ukraine kindly agreed to host the assessment of the preparedness of its health system in May 2009. The Ministry specifically requested that the topic of public health in mass gatherings be included in the assessment in the light of the upcoming UEFA EURO 2012™ event in Ukraine. This report presents the findings of the assessment.

## **The WHO health systems’ framework**

Health systems are defined by WHO as comprising all the resources, organizations and institutions that are devoted to taking interdependent action aimed principally at improving, maintaining or restoring health. It is generally recognized that health systems vary widely in performance and that the achievement of crucial health goals can differ among countries with similar levels of income, education and health expenditure. This is mainly attributable to differences in the design, content and management strategies of the health systems that are often complex and difficult to assess when viewed as a whole.

By transforming crucial health goals into a number of measurable objectives and assessing these on the basis of four key functions needed by all health systems to fulfil their purpose, the WHO Regional Office for Europe is focusing on improving the performance of the health systems of all countries in the Region. Working within this health systems’ framework, WHO can help decision-makers at all levels to analyse variations in health-care performance, identify factors that influence it and establish policies aimed at achieving better results. The following four key functions make up the WHO health systems’ framework: (1) stewardship and governance; (2) creating resources; (3) health financing; and (4) service delivery (Fig. 1).

**Fig. 1. The WHO health systems' framework**



Stewardship and governance of the health system are achieved through careful and responsible management that results in influencing all sectors with regards to policy on and action for population health. In connection with preparedness planning, this means ensuring the existence of national policy that makes provision for the preparedness of the health system for crises. It also means having effective coordination structures and partnerships in place and involves advocacy, risk assessment, information management and monitoring and evaluation.

Resource generation includes engaging all health workers primarily involved in protecting and improving population health. It also encompasses health technologies, infrastructure and pharmaceuticals. In terms of crisis management, preparedness planning ensures that, given the available resources and circumstances, there would be a sufficient number of qualified staff to respond to a crisis. Education and training, the collection, analysis and reporting of data, and management of the supplies and equipment needed to respond to a crisis, also fall under this heading.

The health financing function ensures the collection of revenues, their subsequent pooling and, finally, the purchase of health services from providers. In terms of crisis management, a good health financing system ensures that there are adequate funds for health system activities related to risk prevention and mitigation, preparedness and response. It also provides financial protection in case of a crisis and ensures that crisis victims have access to essential services and that health facilities and equipment are adequately insured for damage or loss.

Service delivery relates to a service production process that, when needed, combines the input of various providers into health interventions that are effective, safe and of high quality, and ensures their delivery to relevant individuals or communities in an equitable manner and with a minimum waste of resources. The organization and management of services are reviewed through a health system crisis management process to ensure access to, and the quality, safety and continuity of care across health conditions and health facilities during a crisis.

Health system performance is measured not only by how well each function in the framework is carried out but also by the relationship between the functions. Good interaction is crucial to attaining better health outcomes.

Further information on health systems can be found in: *The world health report 2000* (5), *Strengthened health systems save more lives. An insight into WHO's European Health Strategy* (6) and *Everybody's business: strengthening health systems to improve health outcomes* (7), as well as in the report on the WHO European Ministerial Conference on Health Systems "Health Systems, Health and Wealth", Tallinn, Estonia 25–27 June 2008 (8).

## **Cross-cutting issues related to disaster preparedness and response**

Effective crisis preparedness and response is governed by a number of cross-cutting (strategic) principles that WHO encourages Member States to adopt. These relate to the all-hazard approach, the multidisciplinary (intrasectoral) approach, the multisectoral approach and the comprehensive approach.

### ***The all-hazard approach***

Different crises invariably result in similar problems and responses requiring similar systems and types of capacity. During a crisis, the need to manage information and resources (including human resources), as well as to maintain effective communication strategies, is in essence the same whether the crisis is the result of an earthquake, a flood or a terrorist attack. Hence, WHO promotes a generic, all-hazard approach, actively discouraging the establishment of vertical planning mechanisms while recognizing that each type of crisis requires a specific area of technical expertise.

### ***The multidisciplinary (intrasectoral) approach***

Health systems are defined as comprising all the organizations, institutions and resources that are devoted to improving, maintaining or restoring health. This includes public and private initiatives (for example, by nongovernmental organizations (NGOs) and international agencies) and action at the central, local, population and military levels – from tertiary care to community health care – all of which may have a role to play during a crisis. WHO, therefore, encourages transparency and interoperability in the planning process and promotes the involvement of all disciplines and all levels of the health system to ensure a coordinated and effective response, making the best use of often scant resources and ensuring that plans are appropriate and feasible.

### ***The multisectoral approach***

Health sector plans also need to be linked to and interfaced with national disaster preparedness and response plans to avoid confusion, prevent duplication of effort and make the best use of resources. This is important not only during a crisis but also as part of prevention, reduction and mitigation strategies. Other governmental departments, private enterprises and commercial organizations can play an important role in reducing the negative health effects of, for example, inappropriate urban development and use of land, poor agricultural practices and inadequate legislative procedures. Although not directly responsible, the Ministry of Health needs to ensure that health is not overlooked in the push for greater profits and economic growth and to advocate a multisectoral approach in dealing with health issues. However, multisectoral planning continues to be a challenge in many countries as governmental departments often prefer to develop their own individual plans, in parallel with other key partners.

### ***The comprehensive approach***

The economic consequences of a crisis can be enormous and the reduction, prevention and mitigation of the related risks are priority areas that increasingly need to be taken into consideration when planning national crisis preparedness and response. Therefore, WHO encourages Member States to develop and implement strategies for the different aspects of crisis preparedness planning, bearing in mind that they are not separate entities but overlap with each other in scope and timeframe. They can be summarized as follows.

- *Prevention, reduction and mitigation.* Activities that address these aspects aim to reduce the likelihood or impact of a disaster and, in the health sector, are devoted mainly to ensuring the functionality of the health facilities and key installations in the aftermath of a disaster.
- *Preparedness.* This requires a multidisciplinary, multisectoral planning process to strengthen the capacity and capability of systems, organizations and communities so that they can better cope with emergencies.
- *Response and recovery.* Action related to this aspect covers a wide range of activities implemented during and after an emergency, which have specific humanitarian and social objectives linked to long-term strategic goals and sustainable development.

# Mission objectives and methodology

The Ministry of Health of Ukraine kindly agreed to host the assessment in May 2009 and to cooperate with WHO in piloting the revised assessment tool. In connection with the upcoming UEFA European Football Championship (UEFA EURO 2012™), which will be partly hosted by Ukraine, the Ministry specifically requested that the assessment include the issue of public health in mass gatherings.

## Objectives

The objectives of the assessment were to support the Ministry of Health in identifying the strengths, weaknesses and gaps in the current preparedness of the health system for crises; to support the Ministry of Health in evaluating the preparedness of the health sector for a large-scale international mass gathering; and to further refine the standardized health systems' crisis preparedness assessment tool.

## Methodology

A multidisciplinary team of five international experts carried out the assessment in Ukraine from 18 to 29 May 2009 in cooperation with local counterparts from the WHO Country Office (Annex 1). One of the experts was nominated to write the report with contributions from the other experts on, in particular, the sections related to mass gathering and disease surveillance.

The areas of expertise of the team members included generic disaster preparedness planning and response, mass gathering and public health, and communicable diseases surveillance and response.

The team adopted an all-hazard, multisectoral approach to the assessment, using the standardized tool for assessing the preparedness of the health system for crisis.

Structured and/or informal interviews were held with key stakeholders, including:

- representatives of the Ministry of Health, including the State Sanitary Epidemiological Service of Ukraine (SES);
- representatives of the Ministry of Emergencies and Affairs of Population Protection from the Consequences of the Chernobyl Catastrophe of Ukraine (Ministry of Emergencies);
- representatives of local government;
- managers of selected health facilities;
- public health focal points for UEFA EURO 2012™
  - at the national level
  - at the oblast (regional) level;
- representatives of the Ukrainian Red Cross Society;
- representatives of the International Federation of Red Cross and Red Crescent Societies (IFRC);
- representatives of donor organizations: the EC and the United States Agency for International Development (USAID).

On-site assessments of selected facilities were conducted at:

- tertiary medical care referral centres;
- primary-health-care facilities;
- emergency medical services
  - pre-hospital
  - hospital;
- reference laboratories;
- a warehouse that stockpiles pharmaceuticals, medical supplies and equipment for health crises.

A planned visit to a stadium had to be cancelled due to ongoing construction.

Two round-table meetings were held with all stakeholders at the beginning of the mission to develop a common understanding of its objectives and expected outputs, and at the end of the mission to present the results and gain consensus on the conclusions and recommendations.

### **Deliverables**

*To the Ministry of Health*

- A report highlighting the strengths and weaknesses of and the gaps in the preparedness of the health system in Ukraine for crises with a focus on public health in relation to large-scale international mass gatherings (UEFA EURO 2012™ football championship).

*To the WHO Regional Office for Europe*

- A revised tool for assessing the preparedness of health systems for crises.

### **Standardized tool for the assessment of health systems' crisis preparedness**

The assessment was carried out using the assessment tool that was piloted in Armenia, Azerbaijan and the Republic of Moldova and revised during the Expert consultation on health systems' crisis preparedness, Dubrovnik, Croatia, 21–23 April 2009, on the basis of the experience gained in these countries.

The tool is sectioned according to the four functions of the WHO health systems' framework. Each function has main components, which are divided into the key elements required to develop a preparedness plan (Table 1). In the tool, each key element is presented in a separate table with a general description of the element and a list of the attributes considered essential for its success.

**Table 1. Health systems' crisis preparedness assessment tool**

Functions							
Stewardship and governance		Resource generation		Health financing		Service delivery	
Main components	Key elements	Main components	Key elements	Main components	Key elements	Main components	Key elements
<b>Policy and legislation</b>	National crisis management and legislation Health sector crisis management policy and legislation	<b>Human resources</b>	Human resources strategy and planning for health crisis Capacity-building for health crisis management	<b>Preparedness financing</b>	Budget for health crisis management Budget for vulnerability analysis and risk reduction of critical health facilities	<b>Mass casualty management</b>	Capacity and ability to respond to health consequences of mass casualty incidents Surge capacity for health system response Emergency medical services (pre-hospital and hospital) Medical evacuation (role of the health sector)
<b>Institutional framework</b>	Multisectoral high-level crisis management committee Multisectoral operational crisis management body Health sector multidisciplinary crisis management committee Health sector crisis management entity	<b>Pharmaceuticals, medical supplies, equipment, infrastructure</b>	Essential pharmaceuticals, medical supplies and equipment strategies Disaster-resilient health facilities Service-delivery support functions, logistics and infrastructure	<b>Contingency funding</b>	National contingency fund International contingency fund	<b>Management of health-care facilities</b>	Preparedness of health-care facilities Hospital crisis management
<b>Health sector risk reduction and crisis management programme</b>	Risk-reduction initiatives Crisis-preparedness planning Coordination and partnerships Health education, public information and communication Evidence-based guidance and monitoring and evaluation	<b>Health information management</b>	Continuous health risk assessment, surveillance and early warning Rapid health needs assessment			<b>Continuity of essential medical services</b>	Essential health programmes, including primary care Assurance of health services for displaced populations

### Review of documents and reports

The following national documentation (some of which had been translated into English) was reviewed for background information and with the aim of triangulating and supplementing information collected during interviews.

- The health sector's plan for disaster preparedness at the national level.
- The hospital preparedness plan.
- Documents relating to Ukrainian law on public health and emergency situations.
- The annual report of the Ministry of Emergencies for 2008.

- The Ukrainian Red Cross Society's plan for disaster preparedness at the national level.
- The Ministry of Health's paper on preparedness for the UEFA EURO 2012™ event.

## **Recording and analysis of results**

### ***Accuracy of the facts***

Transcripts were prepared as soon as possible after the interviews and on-site assessments and shared with the other interviewers present to allow for additions and corrections and ensure a common understanding of the facts. The WHO Country Office in Ukraine was asked to clarify, where possible, any contradictory information and to provide additional information where necessary.

### ***Feedback***

The team met when possible at the end of each day to share information, discuss the findings of the day and plan future interviews.

### ***Triangulation and report writing***

A further analysis of the information was carried out following the mission, when all the transcripts had been received by the report writer. Using a triangulation system, the responses were compared for differences in the viewpoints of those interviewed on the key issues of the WHO health systems' framework, as well as in the interviewers' interpretation of the information received. It should be noted that qualitative research techniques, such as textual analysis of the transcripts or transactional analysis of the interviews themselves, were not used.

# Country context

## Country profile



Source: Map No. 3773, Rev. 5, United Nations, Department of Field Support, Cartographic Section, September 2008.

Ukraine is the second-largest country in Europe with an area of 603 700 km<sup>2</sup>, bordering Belarus, Hungary, Poland, the Republic of Moldova, Romania, the Russian Federation and the Slovak Republic. The climate is predominantly moderate-continental, Mediterranean only on the coast of the Black Sea. Precipitation is disproportionately distributed, the highest level found in the west and north with lower levels in the east and south-east. Ukraine is rich in natural resources and has a number of well-developed industries for, among others, metallurgy (Dnepropetrovsk, Donetsk, Zaporozhye, Krivoi Rog and Mariupol), machine engineering, hydro-electric and nuclear power generation and coal-mining (Donetsk, Lvov-Volynsky, Dnieper-area basins).

Ukraine's economy was buoyant until mid-2008. Real GDP growth reached roughly 7% in 2006–2007, fuelled by high global prices for steel – Ukraine's top export – and strong domestic consumption spurred by rising pensions and wages. The drop in steel prices and Ukraine's exposure to the global financial crisis due to aggressive foreign loans lowered growth in 2008. It was probable that the economy would contract in 2009.

Ukraine was hit heavily by the recession; the World Bank expected the country's economy to shrink by 15% in 2009 with inflation at 16.4%. The Ukrainian Government predicted a GDP growth of 0.4% in 2009 and a slowdown in inflation to 9.5%, although the overwhelming majority of economists considered this forecast to be excessively optimistic.

The population declined from over 51 million in 1995 to less than 46 million in 2009 (9). This is mainly due to low birth rates and increased death rates. Cardiovascular diseases (CVD), malignant tumours, accidents, poisonings and injuries are the leading causes of death.

Ukraine is at the epicentre of the HIV/AIDS epidemic in eastern Europe with an incidence nearly twice as high as that in western Europe and an increasing spread beyond the main risk group of injecting drug users.

The health-care system is fully controlled by the State and financed through state and local government budgets. It is managed and coordinated by the Ministry of Health of Ukraine, the Ministry of Health of the Autonomous Republic of Crimea, which is part of the Government of the Autonomous Republic of Crimea, as well as through the health-care departments of the 24 regional (oblast) administrations and the Kyiv and Sevastopol city administrations. While these last-mentioned health-care departments are structural units of the city administrations, they are also functionally subordinate to the Ministry of Health of Ukraine.

At the national level, the Ministry of Health is responsible for the implementation of state health policies and for administering a few state-owned specialized health facilities. At the oblast level, the health administrations are responsible for the implementation of state health policies in the relevant jurisdictions and health facilities under the ownership of the state and territorial communities. At the subregional level, primary-care facilities and hospitals are owned by councils in the various tiers of local government (district, municipal (city), village and rural) (9).

### **Past crises and potential threats**

In the past two decades, since the nuclear power plant accident in Chernobyl in 1986, nearly three million people in Ukraine have been affected by natural disasters, such as floods caused by extreme weather conditions, and man-made disasters, including gas explosions, toxic emissions and mining-shaft accidents. Environmental vulnerabilities include inadequate supplies of potable water, air and water pollution, deforestation and radiation contamination (from the Chernobyl radio-nuclear accident) (10).

According to its annual report for 2008, the Ministry of Health responded to eleven major emergency events that year: six at the national level, two at the oblast level and three at the local level: forest fires in several locations were counted as one incident, three events were related to marine and aviation disasters, four to domestic or industrial gas explosions, two to extreme weather conditions (flooding and fires); one to chemical contamination (oil and gas) and one (in January 2008) to the culling of birds contaminated with avian flu.

The crisis prediction for 2009 related to three main areas: extreme weather conditions (floods and fires), industry (explosions) and transport (road traffic accidents, spill of hazardous material).

# Findings of the assessment

The findings of the assessment are presented according to the four core functions of the WHO health systems' framework essential to a comprehensive and effective crises planning process. The complexity and interdependency of the components have been taken into account. Overlapping and repetition have been accepted for reasons of clarification.

## **Stewardship and governance**

In planning crisis preparedness, the stewardship and management pillar of the health systems' framework seeks to ensure the incorporation in national policy of health systems' crisis preparedness and effective coordination structures. It includes three building blocks: (1) policy and legislation; (2) institutional framework; and (3) health sector risk reduction and crisis management.

### **Policy and legislation**

The Constitution of Ukraine, national laws, presidential decrees, resolutions of the Cabinet of Ministers, government orders and guidelines describe and regulate the structure, roles and responsibilities and managerial authority relating to most aspects of crisis management at the national and regional (oblast) levels. There are laws defining a state of emergency, civil defence, rescue services, the classification of extraordinary situations, contingency planning, protection of the population, etc.

The law, "On the protection of the population and territories from manmade and natural emergencies" (June 2000), defines the national and subnational management structure, line of command and protection requirements for the population in emergencies arising from extreme weather conditions and from seismic, chemical, biological and nuclear events.

The Ministry of Emergencies was established in 1996 by presidential decree. As the national crisis management structure, it acts as the "...central executive body that facilitates implementation of national policy relating to civil defence, the protection of the population and territory from emergencies, and the prevention of and response to natural and man-made disasters, and to minimizing the consequences of these emergencies and of the Chernobyl accident..." (11). Emergencies caused by terrorists fall under the jurisdiction of the antiterrorist unit of the Office of the President and the Ministry of Internal Affairs.

The duties of the Ministry of Emergencies include coordinating the efforts of other ministries and higher authorities at the national and territorial levels (e.g. the Council of Ministers of the Autonomous Republic of Crimea, local administrations, enterprises and institutions) – during an emergency – under the guidance of the Cabinet of Ministers. There are memoranda of understanding between the Ministry of Emergencies and the Ministry of Health and Ministry of Defence. The Ministry of Health is currently developing a document together with the Veterinary Department of the Ministry of Agriculture defining the procedures to be followed in the disaster and alert phases. Joint government orders regulate collaboration in this area between the Ministry of Emergencies and almost all other ministries, including the Ministry of Health.

Response to health-related emergencies is organized through the Ministry of Health and – depending on the administrative level – the Ukrainian Emergency and Disaster Medicine Centre (UEDMC). A legal framework clarifies areas of authority, roles and responsibilities, procedures

relating to transport and logistics, contingency, flow of information, interaction within governmental structures, etc., and even includes relevant telephone numbers. This framework is replicated at the lower administrative levels. The Ministry of Health operates according to legislation specific to emergency situations, such as Presidential Decree No. 1431 “On ways of protecting the population and territories in case of threat and in extraordinary situations” and to more generic laws that partly apply to emergencies, such as those “ On the fundamental principles of health-care legislation of Ukraine “ and “On the maintenance of the sanitary and epidemiological well-being of the population”.

The main SES is a division of the Ministry of Health and deals mainly with communicable disease control, food and water safety, environmental health (including air and soil) and sanitary hygiene. SES responsible for epidemiological and public health interventions during a crisis are located in the oblasts, municipalities and districts. In cases of emergency, they report to the Ministry of Health keeping the UEDMC informed.

At the oblast level, under the authority of the governor, the health administration represents the Ministry of Health in carrying out legislative and executive functions. The legal framework, “About the protection of the population and territories against extreme situations of a technological and natural character”, clearly defines the services, departments and representatives that belong to the “operative group of emergency situations”. It does not seem to include nongovernmental organizations (NGO) but does make provision for volunteers.

### ***Institutional framework***

In a national emergency, the Cabinet of Ministers activates a multisectoral high-level crisis management committee comprising representatives of the Ministry of Emergencies and other relevant ministries. Government Decision No. 1099 (15 July 1998) “On the procedure of classifying emergency situations” defines the composition of the committee. Usually, the Ministry of Emergencies is the coordinating body and provides the secretariat. The Government has also established a commission for pandemic (H1N1) 2009 and an extraordinary anti-epidemic committee chaired by the Ministry of Social Affairs (Resolution No. 22 of 15 September 2009 “On the provision of measures for the prevention of influenza and acute viral respiratory infections in the epidemiologic season 2009–2010 and prevention of avian A(H5N1) and pandemic A(H1N1) influenza in Ukraine”). The Chief Sanitary Doctor heads the secretariat (which prepares agendas, drafts resolutions, etc.). There is also an extraordinary anti-zoonotic committee, which is chaired by the Ministry of Agriculture. Here, the Chief Veterinarian is head of the secretariat.

Twenty-three ministries and state departments are represented in these committees, including the Ministry of Emergencies, the Ministry of Health, the Ministry of Finance, the Ministry of Transport, the Ministry of Education, the Ministry of the Environment, the Ministry of Defence, the Veterinary Services and local authorities. The committees convene whenever there is an emergency. Similar committees exist at the lower government levels and are chaired by the respective governors. In health-related emergencies, the Ministry of Health may be tasked with taking the lead through its Emergency Department, the SES and the UEDMC.

An emergency situation is dealt with at the lowest possible administrative level (oblast or municipal), the response being led by the person in charge at that level who may transfer his authority to a representative of the Ministry of Emergencies or the Ministry of Health. Whereas the Ministry of Health is the legal authority, the head of the local administration is in charge of the budget and all the auxiliary support services (police, emergency medical care, etc.). Informal mechanisms seem to define the executive functions of the multiple actors involved in emergency response at both the oblast and the municipal levels.

Health sector crisis management at national level is performed by the UEDMC and the SES. Both report functionally to the Ministry of Health. However, administratively, the UEDMC is formally under the jurisdiction of the local (oblast) authority, not the Ministry of Health. In addition, the Ministry of Health has an emergency unit within its Department for Development of Medicare. The role of this unit is primarily preparedness planning and organization of the integrated emergency system.

Current jurisdiction does not provide a legal framework for coordination between the various emergency medical services (hospitals, ambulance providers, etc.) in major emergencies. Nevertheless, a regulation involving the Ministry of Emergencies, the Ministry of Health and the local authorities requires the UEDMC to gather – within eight hours – up to 150 medical staff from the municipal hospitals for national or international relief operations of up to 30 days and to cover the costs involved. It also provides for a 24/7 medical emergency call centre and supports the local EMS with fully equipped ambulances.

At the sub-national level, management entities to deal with health crises are usually organized on an ad hoc basis within the local health administration. The local authorities play the overall coordinating role and are responsible for providing logistical support and developing the necessary contacts with other sectors and private companies for sharing resources.

### ***Health sector risk reduction and crisis management***

A think tank in the Ministry of Emergencies is responsible for the overall crisis preparedness planning and risk reduction initiatives. It collects and analyses data and prepares annual reports on projections, risk assessments and potentially catastrophic scenarios. Relevant information received from other ministries is also included in the reports.

It seems that each sector (or even each entity) develops its own preparedness and response plan and its own strategy and that a multidisciplinary process is rarely involved. For example, the central SES include action plans for outbreaks of infectious diseases – both institutional and departmental – in their monthly, quarterly and annual workplans. However, there are no emergency plans per se for the various emergency scenarios. On the other hand, the Kyiv City branch of the SES, in addition to its regular work, has developed a comprehensive plan for preventing the importation and spread of communicable diseases (plague, cholera, haemorrhagic fever, anthrax, SARS and avian influenza), which is regulated by various health directives. This is a participatory process involving technical people from other sectors (e.g. those dealing with agriculture, veterinary health, emergencies, transport, etc.). Based on different scenarios, the plan defines roles and responsibilities (including those concerning the deceased) and covers issues, such as hospital designation by disease, bed capacity, staffing, drugs, quarantine procedures, laboratory equipment and rules for personal protection. It also includes contact details for consultant specialists. There is a similar plan for chemical safety.

In response to the pandemic (H1N1) 2009, and by order of the Ministry of Health, the Extraordinary Epizootic Multidisciplinary Committee of Kyiv developed a generic plan, which was distributed to all oblasts, as well as to stakeholders at the city level (Ministries of Agriculture, Transport, etc.). All sectors and institutions, including hospitals and the local transport system, were tasked with developing their own plans based on the generic. Various plans describe the main duties and key functions of a hospital in the case of a disaster but do not differentiate between an everyday (common) emergency and a disaster. Neither of the two hospitals visited had an overall hospital emergency response and contingency plan for either internal or external emergencies; the key components of such a plan were scattered among different documents.

Ukraine was one of the first countries in the Commonwealth of Independent States (CIS) to introduce standard operating procedures (SOPs) for emergencies. These were developed by the

UEDMC and are quite extensive, covering subjects such as BCRN (biological, chemical, radio-nuclear), toxicology, data management, classification of emergencies, and health sector planning for medical and public health emergencies. The Centre is currently working on harmonizing the Ukrainian procedures with the IHR. However, several interviewees were of the opinion that command and control are the key elements in dealing with emergencies and that detailed plans do not necessarily guarantee success. Hurricane Katrina (United States of America, 2005) was given as an example.

Mechanisms for coordination and partnership-building in crisis management, involving all stakeholders, are partially formalized through various orders and memoranda of understanding (e.g. between the Ukrainian Red Cross Society, the Ministry of Health and the Ministry of Emergencies). However, informal channels (such as the network of the senior staff from each department of the health authorities) are frequently used, especially to convene meetings, exchange information, assign tasks or plan joint action.

The Ministry of Emergencies has established SOP for communicating and disseminating information to all relevant sectors of the population during an emergency situation. A brief is prepared by the emergency committee for the Office of the President that communicates the information to the public. At the oblast level, this action applies to the Office of the Governor and, at the municipal level, to the head of the administration. The local emergency committees usually decide the content of the message and nominate an appropriate person to deliver it to the public.

The Press Centre of the Ministry of Health produces media releases in line with normative documents. TV time is readily available and frequently used at all levels of administration. In addition to regular TV time for public health education, the Centre for Public Health Information in Donetsk has its own newspaper that reports on special issues, such as HIV or TB. They have prepared templates for the local media.

Generally, health education and health promotion are the responsibility of the SES at each level of administration. These use the media to raise awareness about issues, such as food safety, disease agents, seasonal dangers (such as mushroom poisoning, drought, etc.) and have regular TV time. Usually, TV broadcasts take the form of question-and-answer sessions for which the press provides lists of questions in advance. The SES also produces publications and posters for public-awareness campaigns based on guidance or instructions from the Ministry of Health.

The Ministry of Emergencies, in collaboration with the Ministry of Health, joins in international simulation exercises (e.g. Sea Breeze, Rough and Ready<sup>2</sup>, etc.) and monitors the compulsory multisectoral simulation exercises in the oblasts, which are carried out every five years. Recent simulation scenarios have been on outbreaks of avian influenza and anthrax and an explosion at a military plant. At the municipal level, simulation exercises are on a smaller scale. The health authorities participate in the multisectoral drills run by the Ministry of Emergencies but actual emergency incidents were reported to be frequent enough to render the drills redundant.

The SES runs two to three drills a year at oblast or municipal level where sanitary and epidemiology teams simulate outbreaks of communicable diseases in the field. The drills include cooperation with the health facilities and the ambulance and disinfection teams.

The UEDMC, in coordination with the Health Department of the Ministry of Emergencies, is responsible for the deployment of the national mobile hospital and participates in regular national

---

<sup>2</sup> Information about these drills can be found at [http://www.navy.mil/search/display.asp?story\\_id=38799](http://www.navy.mil/search/display.asp?story_id=38799) and <http://www.niss.gov.ua/cacds/archive/may/0517d.html> (accessed on 24 January 2010).

and international drills. The mobile hospital has been deployed to the sites of major earthquakes in India, Iran, Pakistan and Turkey.

## **Resource generation**

Resource generation for emergency preparedness comprises three building blocks: (1) human resources; (2) pharmaceuticals, medical supplies, equipment and infrastructure; and (3) health information management. These ensure sufficient qualified staff, supplies and equipment, a knowledge base resulting from the collection, analyses and reporting of data (including those from hazard and vulnerability assessments), early warning systems, and the overall management of information.

### ***Human resources***

The human resources strategy for health crises is based on existing regulations for medical education and continuing professional development, though it is not defined as such. Staff availability is generally not a problem. One of the strengths of the system is its mechanism for reallocating and deploying staff from areas that are not affected by a crisis.

Emergency medical teams can be made available at short notice and there is also a large capacity for deploying them to other countries. For example, Ukraine has provided assistance in India, Iran, Pakistan and Turkey. The UEDMC in Kyiv is able to mobilize emergency response teams that work in cooperation with the Ministry of Emergencies, the Ministry of the Interior and other key stakeholders. Emergency response teams include first-response teams consisting of UEDMC staff and second-response teams consisting of specialists. Decisions on deployment are based on the type and magnitude of the crisis and on the overall needs but, if necessary, several teams can be called on at the same time. The teams have at their disposal four tents, a number of vehicles, pharmaceuticals and medical equipment. Fifteen members of staff are permanently on stand-by. Emergency response teams can be mobilized throughout the country by the disaster medicine centres at the oblast level.

The SES in the Kyiv and Donetsk Oblasts have expert staff on stand-by that can be dispatched within three hours. The composition of an emergency response team depends on the nature and size of the incident but personnel who are experts in epidemiology, sanitary hygiene and laboratory diagnostics are always available. Mobile laboratories for use in detecting radiation and providing bacteriological and virological diagnoses were also available in the two SES visited. However, there was some indication of transport problems, particularly at the district level where the local authorities may not be able to provide logistical support.

However, for certain specialty areas, the health system was reported to be chronically understaffed, the reason being poor pay and fewer university openings. For example, the SES reported that 30% of their current positions throughout the country were vacant and that 30% of the payroll staff was past retirement age. The staff are frequently required to work overtime to investigate potential health threats but there is no provision for payment, according to the SES.

In the event of a problem, the key institutions receive instructions from the Ministry of Health on action to be taken. A variety of regulations and SOP clearly define the lines of authority and many of these documents contain information on the institutions, departments and personnel to be contacted, including their areas of responsibility and contact details. Expertise is always available as people within the system maintain a network of personal contacts.

Staff safety and security are given high priority: personal protective equipment (PPE) was said to be available in all the institutions visited; infection control measures had been implemented in the hospitals; and the safety standards in the Public Health Reference Laboratories were found to be

high. However, some PPE equipment, such as respirators, seemed outdated and unlikely to meet the current safety standards; for example, gauze masks were being widely used instead of the WHO-recommended surgical/medical masks.

The integration of volunteers in health crisis management is not a priority due to the sufficient availability of qualified staff. Nevertheless, for international events (e.g. UEFA EURO 2012™), multilingual students and other non-medical volunteers will be trained in first aid. Also, there is a formal agreement between the Ukrainian Red Cross and the Ministry of Health, the Ministry of Emergencies and regional authorities on cooperation in the field of emergency preparedness and response. The Ukrainian Red Cross was planning to establish community-training centres at the oblast level as part of their regular programme: 900 first-aid posts with trained non-medical staff are already established in remote areas of the country.

The National Academy of Postgraduate Medicine in Kyiv and its branches in the oblasts are responsible for providing postgraduate training in emergency medicine. Capacity-building for health crisis management is one of the training components for staff working in emergency medicine. Doctors working in hospitals or in the ambulance service receive 156 hours of training in emergency medicine and are required to attend follow-up courses at five-year intervals. The topics covered include: emergency medicine, trauma and polytrauma, trauma care in mass casualty incidents, the use of PPE equipment, and a topic of choice.

General clinicians receive two days' basic training; for other categories of personnel, such as the police, volunteers and rescue team members, training varies in length (either 12, 48 or 120 hours). The curricula are being adapted to bring them in line with those of international programmes.

The training modules focus mainly on emergency medicine. For the most part, training in the overall management of disasters or public health issues, such as rapid health needs assessment, mental health, nutrition, preparedness for pandemics, chronic diseases in emergencies, communication with the public, etc., is not included in the existing programmes.

The SES has an annual in-service training plan according to which the staff from all the stations rotate through the central SES in Kyiv to update their skills and improve overall performance. Epidemiologists also take part in hospital meetings where they encourage data collection and analysis.

The SES provides rather extensive ad hoc training for doctors dealing with infectious diseases, paediatricians and any other health staff that are interested. The system works like a cascade whereby the central station in Kyiv provides training in the epidemiology, diagnosis and treatment of a variety of infectious diseases to the key health staff in the oblasts and these in turn provide training at the local level (training the trainers – approximately 100 per year). Lectures on and algorithms for diagnosis are also available on CD and through the electronic media.

The Ministry of Emergencies provides on-the-job training to the emergency response team on the correct use of PPE equipment, timeframes for exposure, etc.

### ***Pharmaceuticals, medical supplies, equipment, infrastructure***

The generic instructions for emergency procurement and the countrywide distribution of essential pharmaceuticals and medical supplies are regulated through a government order. Every institution is required by this order to stock supplies of essential pharmaceuticals, medical items, equipment, and construction material to last at least three days. Vaccines are procured centrally by the Ministry of Health.

The UEDMC at the central and local levels maintains stockpiles of pharmaceuticals and equipment for rapid deployment with mobile teams. The medical staff decide on what drugs are essential based on budget, local priorities and risks. These stocks are adequate for 30 days and 10 000 victims and are not intended for hospitals that have their own systems. The cold chain is assured by plastic bags containing crushed ice. Drugs nearing expiry are integrated in the normal hospital supplies three months before the due date and replenished by the Ministry of Health through an accelerated procedure. Although the hospital supplies' lists are computerized, checking expiry dates seemed to be a manual process. Procedures for the disposal of expired drugs were unclear.

The hospital directors, civil protection authorities, local authorities and the Ministry of Health are responsible for ensuring the resilience of hospitals and public buildings in the face of disasters. The Ministry of Health monitors retrofitting and non-structural improvements. State construction standards are applied to all new buildings. An in-depth assessment of the current status of the structural, non-structural and functional safety of health facilities, especially in the earthquake-prone Autonomous Republic of Crimea, has not yet taken place.

Mobile hospitals are provided by three entities: the Ministry of Emergencies, the Ministry of Health and the Ministry of Defence. Based on a government decision in 1994, the Ministry of Health – in cooperation with the Ministry of Emergencies – may provide comprehensive mobile (temporary) health services both at home and abroad. A mobile hospital consists of 26 units (tents) equipped to provide a full range of services, including surgical procedures, intensive care, maternal and child health care, treatment of infectious diseases, laboratory diagnostics, X-ray examinations, vaccinations and inpatient care (40 beds). The various units can be deployed nationally or internationally within 24 hours and, when fully functioning, can provide services for approximately 400 patients per day. The mobile hospital accredited by the Ministry of Health until 2011 is maintained in working order by nine permanent staff. Preselected teams of medical professionals (up to 150 persons) working within the routine health system are on permanent stand-by and automatically released from their normal duties in the event of an emergency. In order to maintain efficiency, they undergo regular drills (e.g. multilateral exercises, such as Sea Breeze and Rough and Ready<sup>3</sup>). Ukrainian medical teams have been deployed to the sites of major earthquakes in India, Iran, Pakistan and Turkey.

The UEDMC in Kyiv has a small mobile hospital comprising four tents, various vehicles, stocks of pharmaceuticals and medical equipment, and a number of staff on constant stand-by for immediate deployment.

The Ministry of Defence also has mobile hospitals that participate in some of the drills and, though they have a very different remit, could be deployed.

No formal policy document exists for sharing resources with internal partners but there is a generic order, which allows stakeholders within the health sector, e.g. hospitals, emergency medical services, etc., to contact each other directly with requests for additional material resources. In practice, this procedure is rarely implemented and extra resources come from a central reserve rather than from another health facility.

Procedures are in place for requesting and receiving international support and technical assistance. The Council of Ministers is responsible for accepting and managing this support, also in the event of a disaster, and distributes the funds to the ministries dealing with the task on hand, as appropriate. Technical assistance and grants are provided, for example, by the EC and the Centers

---

<sup>3</sup> Information about these drills can be found at [http://www.navy.mil/search/display.asp?story\\_id=38799](http://www.navy.mil/search/display.asp?story_id=38799) and <http://www.niss.gov.ua/cacds/archivee/may/0517d.html> (accessed on 24 January 2010).

for Disease Control and Prevention (CDC), Atlanta, USA. In 2005, a joint agreement on biological safety was signed with the CDC and the Particularly Dangerous Diseases Laboratory at the central SES was renovated through a co-funding mechanism and approved as a biosafety level 3 laboratory. In addition, CDC is funding a technical support plan involving laboratories in 25 oblasts, two cities and three scientific research institutes. The SES and its laboratories participate in the global polio and salmonella networks. Since 1993, they have been working with the Health Protection Agency in Collingdale, United Kingdom, on diphtheria and haemophilus influenzae type B (HIB) and, more recently, on influenza surveillance.

A unique way of sharing resources is illustrated by the Centre for Emergency Medical Consulting and Medical Assistance in Donetsk, which is one of five similar centres in the country. The Centre houses 400 specialists covering 30 fields who can be deployed to various hospitals on request. This replaces the more generally accepted structure whereby specialists, for example, in cardiac surgery, neurosurgery and neonatology, are grouped in specialized hospitals or units to which patients are sent for treatment. The Centre does not provide for in-patients and cannot be accessed directly by the public. However, it does have a number of advantages in an emergency, such as a pool of 35 doctors on permanent stand-by that can easily be mobilized to back up the EMS and a fleet of 28 ambulances (some of which are equipped for resuscitation) that can be made available to increase surge capacity. It can also provide special equipment. Approximately 8000 patients are treated at the Centre each year.

The local authorities are overall responsible for coordinating service delivery and logistics support in their areas. They develop the necessary contacts and agreements with other sectors and private companies with a view to sharing resources. This was said to work well in the oblasts, whereas this kind of managerial capacity is not always assured in the districts. The institutionalized services (Ministry of Emergencies, UEDMC, EMS, etc.) have a huge capacity for managing logistics and appear to coordinate well.

In Donetsk, Order No. 473/1507 of 26 December 2007 (issued jointly by the Health Department and the Department of Internal Affairs of Donetsk Oblast) provides guidance on the transport of patients but does not specify who does what and how. Transport capacity is quite high at both the municipal and the oblast levels; the EMS, in particular, is able to provide large numbers of vehicles.

Telecommunication in the health sector is reliant on landlines, mobile telephones and telefax machines. Ambulances are equipped with radios and have their own wavelengths but there is no back-up system within the health sector. E-mail is still a luxury in many parts of Ukraine. The Ministry of Emergencies has radio links but these are not accessible countrywide.

### ***Health information management***

The coordination of multisectoral surveillance and early warning is the responsibility of the Ministry of Emergencies that houses a fully equipped 24/7 monitoring centre. It also provides the facilities for the national disaster committee during a crisis. The monitoring centre receives information from a variety of sources in the country and globally. The national meteorological service is also located within the Ministry of Emergencies.

Analyses of emergencies that occurred in the previous 12 months are carried out by the Department of Civil Protection of the Ministry of Emergencies. The same department also makes an all-hazard forecast for the year ahead. The Ministry of Emergencies includes risk assessment data generated by other sectors and institutions in its annual report. It also has geographic-information-system (GIS) mapping facilities and issues maps identifying nuclear power stations, gas pipelines, coal mines and areas that are at high risk for fire, floods and earthquakes.

The central SES also produce an annual report collating the communicable diseases and

environmental data received from across the country related to monitoring. The report includes a twelve-month forecast related to these fields.

At the Donetsk Oblast level, the Ministry of Emergencies identifies risks, such as flooding, mine disasters, radiological hazards, communicable diseases and transport incidents in its disaster preparedness plan.

Lines of communication between the Ministry of Health, the Ministry of Emergencies and other stakeholders are legally stipulated. Coordination and information exchange are said to be good.

Communicable diseases surveillance is based on an active reporting system whereby doctors are obliged to complete standard notification forms and submit them to the SES at the oblast level. Of the 55 communicable diseases routinely under surveillance, cases of certain high-risk diseases, such as, tularaemia, anthrax, cholera, shigellosis, typhoid and leptospirosis, must be reported within 24 hours. All other data are reported on a monthly basis.

As well as routine reporting, there is ad hoc reporting of clinically, epidemiologically and laboratory-confirmed data on other unusual events, such as increased numbers of cases and mortality rates that are higher than expected. The SES is responsible for initiating a public health response at all levels, often in consultation with and approved by the highest-level committee. Local governments take the appropriate action, such as the initiation of quarantine procedures, under the supervision of the local SES.

Information is exchanged and notifications made mainly by telephone and telefax while, increasingly, routine statistics are sent by e-mail. Where technically possible, a laboratory website is used for feedback of results.

Other institutions involved in disease surveillance are the toxicology centres at the national and the oblast levels, the reference laboratories and the National Influenza Centre. This Centre was established in 2007 by order of the Ministry of Health and reports direct to the Deputy Minister. Sentinel surveillance is active in ten oblasts that have adequate diagnostic facilities for sub-typing (including rapid tests, virus isolation/culture and polymerase chain reaction (PCR)). If required, samples are sent to the WHO Collaborating Centre for Reference and Research on Influenza in the United Kingdom. The SES is responsible for collecting data and sending them to the National Influenza Centre on a weekly basis (and on a daily basis during the influenza season). It also submits epidemiological reports to the Ministry of Emergencies on a quarterly basis.

The SES is well equipped and houses national reference laboratories for bacteriology (food, water and clinical samples), virology (including influenza), particularly dangerous diseases (tuberculosis, HIV/AIDS, tularaemia, leptospirosis, anthrax, cholera), and chemistry and radiation (food, water, soil, air).

PCR facilities are available in 16 oblasts and at the national reference laboratories for virology, bacteriology and particularly dangerous diseases. The bacteriology laboratory routinely tests for diphtheria and meningococci in cerebrospinal fluid and has started testing for genetic modifications. However, none of the PCR equipment is used to its full capacity because of extremely high testing costs.

Procedures for sending samples abroad are in place and transport boxes that meet the standards of the International Air Transport Association are readily available. The Ministry of Health provides the necessary customs' documentation for urgent specimens.

Quality assurance is generally good. The central SES has its own internal quality assurance scheme and carries out quality control twice yearly. Although there are SOP for health and safety, the

collection, transport and processing of samples are based mainly on guidance in CDC publications. However, there is no internationally recognized quality assurance scheme. Although a national accreditation body exists, it is not yet recognized by the European Cooperation for Accreditation or by the International Laboratory Accreditation Cooperation.

Although, the health sector is involved in chemical safety issues, these relate mainly to the clinical diagnosis and treatment of patients suffering from poisonings and to environmental screening for chemical substances in the air, food, water and soil, based on predetermined standards and norms (for both routine and crisis situations).

The Clinical Toxicology Unit in Kyiv acts as a hotline for clinicians requiring scientific advice and for concerned members of the public who are given the telephone number during public awareness campaigns. The Unit aims to become a toxicology coordination centre responsible for diagnostics and treatment as well as for training and education in this field. It also plans to establish a database on poisonings.

At the time of the assessment, the Institute for Environmental Safety and Toxicology was awaiting accreditation as a national reference laboratory for clinical toxicology.

Surge capacity for disease surveillance in emergencies seems high due to the large number of public health laboratories countrywide and the fact that many tests can be performed at the oblast level. In addition, there is an agreement with the Ministry of Health to utilize expertise available at the scientific research institutes. Many other sectors have laboratory capacity, including the Ministry of the Environment, the Ministry of Agriculture and the Ministry of Defence.

## **Health financing**

In emergency preparedness, the pillar of the WHO health systems' framework entitled "Health financing" aims to ensure adequate contingency funding for the essential services needed during a crisis.

The health-care system is funded mainly from the national and local budgets, according to the regulations set out in the Budget Code of Ukraine (2001). Four billion US dollars, or 3.5% of the GDP, were allocated to health in 2009, as was the case in 2008, but it is expected that the economic crisis will have a serious impact on purchasing power. In 2008, 470 million hryvnias (about 0.05% of the GDP) were allocated to the Ministry of Emergencies from the State Budget.

The process of setting the national budget for health is initiated by the Ministry of Health, which produces a draft budget according to the main areas of activity. These include administration, medical education and research, SES, health facilities under the direct supervision of the Ministry of Health, and national public health programmes. The budget is based on the volume of work carried out in the preceding year, the extent of cost recovery, the indicative needs of the health services, institutional and financial restrictions set by the funding bodies for the budgetary term in question, as well as priorities in the health sector as determined by the Council of Ministers and the Ministry of Health. A draft budget is submitted to the Ministry of Finance for incorporation in the overall draft state budget. This takes national budget policy into account, which is determined by macroeconomic indicators and requests from budget managers at the local level. The State Budget is approved by the Parliament.

Local health budgets are developed in a similar way. Decisions on and amendments to local budgets are made by the oblast administrations, taking socioeconomic trends in the area and estimated interbudgetary transfers into account.

The allocation of budgetary funds, at both the state and local levels, is based on a list of permitted line items (beds, staff, etc.), which in turn is based on the norms set by the Ministry of Health for such items. Resources for maintaining health facilities are allocated through the State Treasury. The Ministry of Health and the local health authorities draft a budget request for the financial authority, taking the requirements of subordinate health facilities into account. They are then allocated quotas according to which they develop their individual budgets.

The routine annual budget of a hospital includes funds for the procurement of stocks (medicine, supplies, etc.) and the deployment of staff in an emergency. Reserve funds for emergencies are available at the level of the Council of Ministers. The SES and the UEDMC are funded by the Ministry of Health. Requests for additional funding from the contingency fund or through reallocation of the budget can be submitted to the Treasury.

## **Service delivery**

The fourth key function of the WHO health systems' framework, "Service delivery" encompasses the equitable delivery of safe and effective health interventions to individuals and communities during an emergency, with a minimum waste of resources. The main components are mass casualty management, management of health-care facilities, and continuity of essential medical services.

### ***Mass casualty management***

Ukraine has adopted a decentralized model of emergency management, devolving operational authority to the lowest possible level of government. This applies especially to the management of mass gatherings and hospital services.

The responsibilities of stakeholders and institutions at the oblast and municipal levels and details regarding resource allocation and information management, etc., are defined in orders issued by the health departments at the oblast level, based on Ministry of Health guidelines. SOP were deemed unnecessary since it was felt that prior experience in and knowledge of emergency response were sufficient and that cooperation between the main first-responders in an emergency was not dependent on a strict plan. First-responders are usually the Ministry of Emergencies, the Ministry of Health, EMS medical staff, SES experts and the police.

The response is managed on the scene. An ad hoc meeting room is provided by the director of the relevant health authority (e.g. the director or civil protection officer of a hospital, the director of the health administration of an oblast, etc.). Dedicated emergency command centres with multilayered communication equipment do not exist at the district and oblast levels. Communication is usually vertical within the entity and based on landlines and mobile telephones. There is no defined command-control structure in the EMS. The medical operations are in fact integrated in the response under the overall command of the Ministry of Emergencies. However, the main stakeholders manage their operations separately, which means that there could be a lack of coordination, for example, with respect to the transfer of patients from the scene to the receiving hospitals. The role of the Ministry of Emergencies' teams is to stabilize the patients so that they can be moved.

Skilled staff triage victims according to their treatment needs, provide advanced life support if required, and send them to the appropriate receiving departments of the hospitals or directly to the relevant department (e.g. neurosurgical) for admission.

The management of the deceased and missing is the responsibility of the communal services and the police; the EMS provides body bags.

The capacity for responding to the health consequences of mass casualty incidents is reliant on three levels of health care: the primary level – health-care stations (feldshers and nurses) and centres (family doctors); the secondary level – municipal and district hospitals; and the tertiary level – specialized hospitals designated for mass casualty events.

It is planned to introduce the concept of a formalized general emergency department into the Ukrainian health-care system by 2012. Currently, each department in a major referral hospital has its own reception area, a department for admission and diagnostics, each with dedicated staff, and the capacity to monitor up to ten patients at a time and carry out diagnoses and treatment interventions. They also have the possibility of isolating patients. A good example is the Emergency Department of the Kyiv Oblast General Hospital. In an emergency situation (e.g. a fire), a person appointed by the Civil Defence (doctor or other professional) automatically takes charge of the response operations and of preparing for emergency procedures (e.g. evacuation of the hospital) but the overall management of the medical aspects remains the responsibility of the hospital medical director. Procedures for emergency situations and algorithms for each department are documented and drills and exercises seem to be organized on a regular basis. Taking the example of the Kyiv Oblast General Hospital, as this is not a referral hospital for communicable diseases, only a limited amount of PPE is available for the staff and there is no decontamination capacity in the reception areas of the various departments of the hospital.

In case of a sudden mass casualty incident, the Ukrainian health system can provide substantial surge capacity for response: in the municipality of Kyiv alone, for example, 2000 of the 19 000 beds are permanently available, as are contingency supplies for three days. An enormous reservoir of highly qualified staff is deployable countrywide, at rather short notice, to work in the national mobile hospital or treatment tents. However, the local EMS systems (in oblasts and cities) are limited with respect to interventions outside their areas of jurisdiction. For medical evacuations at the local level, transport can be provided by the EMS and other stakeholders at short notice; almost every ambulance is staffed with a doctor and has the necessary equipment and supplies. Air-lifting in the civil sector has not yet been introduced in Ukraine.

The EMS system is well developed; each district or municipality has its own, including ambulances and an emergency call centre. The EMS is regulated by several decrees, such as the Ministry of Health Order No. 370 (1 June 2009) “On a single system for emergency medical care” that relates to medical care standards in ambulances and dispatch centres, pharmaceuticals, and staff uniforms (currently red vests).

In tact with the development of the private sector, the Ministry of Justice is preparing a new presidential decree, which relates to the concept of an integrated EMS system consisting of ambulances, a dispatch centre, emergency departments in hospitals, first-aid posts, polyclinics, and the “dial 112” concept. For the time being, the UEDMC is under the authority of Kyiv Municipality but it is anticipated that, as a result of the imminent presidential decree, it will become autonomous and thus able to function as a coordinating body of the EMS.

The EMS also contributes to the management of the surveillance system. It collects data, which are processed on a daily basis, and reports unusual events to the local health authorities.

The management of emergency response is carried out at the lowest possible administrative level: at the oblast level if several municipalities or districts are involved and at the national level if more than one oblast is involved. The on-site management of patients is coordinated by the first ambulance team to arrive that will triage and decide where to send patients (usually to the nearest hospital). There is no designated command-and-control vehicle with communications equipment for on-site medical operations. Communication is based on mobile telephones and the ambulance

radio system. On-site medical operations are carried out under the leadership of the relevant administrative authority that distributes patients according to the bed capacity of the hospitals. The UEDMC may help with patient transfer from its command room (a small room with one person on duty and two telephone lines). Equipment and medicines are said to be easily accessible and replenishable. There are two types of ambulance: those used merely to transfer patients and those (fully equipped) used for advanced life support. Routine emergencies are managed with the assistance of the local EMS and the hospital. If specialist care is required, the oblast hospital sends experts. Inter-hospital cooperation seems to function through informal channels rather than an institutionalized mechanism.

In Kyiv, the UEDMC can also provide up to ten fully equipped ambulances and 25 full-time specialists from a roster of 200 consultants from local hospitals. At the moment only 10 of the 25 positions are filled. The Kyiv State Health Department supervises and finances the Kyiv EMS, which covers a population of four million with 15 sub-stations in different parts of the city (each with ambulances and an emergency call centre) and seven water stations on the Dnepr. The EMS emergency number is 103 or 122, depending on the service provider.

There are 155 ambulances on duty during the day and 97 at night. All ambulances are equipped not only with resuscitation sets and PPE but also with the equipment necessary for obstetrics and epidemiological emergencies. Seventy per cent of them are manned by a doctor, an assistant doctor, a technician and a driver and the remainder by a nurse or feldsher. The central dispatch centre of the EMS includes 15 dispatchers, a senior doctor, a unit responsible for contacting hospitals and monitoring the availability of beds, and a unit responsible for tracing missing persons. By ministerial decree, one ambulance out of every hundred must be designated for the transportation of specialists during emergencies. In Kyiv, up to seven doctors are available 24/7 on a hotline for patients.

The central EMS in Kyiv receives around 500 000 calls per year, which fall into the categories of emergency, urgent and non-urgent. The response time between an urgent call and arrival on the scene is said to be too long at 12–15 minutes, the goal being 10 minutes.

### ***Management of health-care facilities***

Elements of hospital preparedness plans exist to a varying degree. Some of the following were available in the hospitals visited: SOP, a description of the roles and responsibilities of the key hospital staff, an incident command room, regular drills and exercises, and access to contingency stocks. However, there are no formalized preparedness programmes or networking and referral systems. This is due to a preference for informal and personal interaction between professionals at each level and to the fact that back-up resources (qualified staff, vacant beds, medicine and equipment) are readily available. The emergency (disaster) plan of Kyiv City Clinical Hospital No 12 is kept in the reception area and its four folders contain SOP and job action sheets for all units and key staff, as well as instructions on summoning back-up and appointing a crisis manager. Drills are held annually according to this plan. It was reported that up to 500 of the overall 610 beds could be freed during an emergency. Engineers are available on a round-the-clock basis (for example, for troubleshooting failures in electrical or telecommunications systems in emergencies) and this helps safeguard the continuity of hospital business.

### ***Essential medical services***

Over the last 15 years, the essential health programmes, including those relating to primary health care and health services for displaced persons, have been proven to function effectively, although the numbers of displaced persons during this period were not high and the displacement periods were short. The management of lifelines for internally displaced persons (shelter, provision of food and water) is under the responsibility of the local authorities.

Sufficient human resources, supplies and equipment are constantly available to cover needs. Activities to prevent and control communicable and noncommunicable diseases continue, as do the immunization services; the surveillance system is active and environmental factors are being monitored.

The SES has the capacity to provide laboratory support through their many sub-stations and the mobile laboratory units, enabling the hospitals to continue their services.

# Mass gatherings

The final stages of UEFA EURO 2012™ will be hosted by several cities in Ukraine. In preparation for this event, and taking advantage of the WHO mission, the Ministry of Health requested further elaboration on the topic of mass gathering.

In a mass casualty incident, the organizational and medical resources and management systems are severely challenged. This challenge is magnified if preparedness for management and response is insufficient. The inability to provide appropriate support could result in increased morbidity and mortality.

The cities hosting the UEFA EURO 2012™ event need to ensure basic health care and EMS for an increased population (local population, visiting fans, football teams, officials, etc.). Crisis management must be coordinated outside the stadium by the municipal and national authorities and inside the stadium and in fan zones by the services providing health care and emergency response and those dealing with public amenities, such as transport services, the airport and port authorities, tourist offices, the media, etc.

Preparedness and mitigation are thus of paramount importance to the Ministry of Health that has, therefore, appointed a national advisory board comprising the heads of all Ministry of Health departments, a national coordinator, and committees in each of the proposed cities and at the respective oblast level, which will have direct contact with the relevant EMS.

The Ministry of Health recently prepared a scheme of the medical service provisions required before and during the events, which has been approved by the Council of Ministers. The scheme covers the overall preparedness for the event, including coordinating mechanisms, anticipated problems (risk assessment), funding for and delivery of health services, and details medical assistance required at the UEFA EURO 2012™ official sites (including stadia and fan zones) and in referral hospitals. The document also describes services for players and VIPs, the roles of local authorities and the procedures for recruitment of language students as translators through the Ministry of Education.

Medical assistance in the stadium will be provided in a minimum of three first-aid rooms (for VIPs, fans and players), each staffed by a doctor and equipped with standardized kits.

Foot patrols (two-person basic life support teams) will operate in groups of four around the stadium. Each group will be linked to a focal point. One of the groups will be responsible for coordinating all medical activities, including transport, and reporting to the city coordination entity. This group will be able to contact the city coordination entity at all times via radio links and mobile telephones.

Outside the stadium, the EMS will provide two ambulance sub-stations at each of the four exits; several ambulances will be on duty as reserves for the EMS in the city. A description will be made available of the colour-coding to be used for organizing the medical triage. This will be based on the four-colour system used at international airports.

The referral hospitals will have to organize their reception areas as emergency departments.

The various departments in charge of the surveillance system at the national and subnational levels

will be responsible for ensuring that all aspects of the UEFA EURO 2012™ are covered, including international reporting and compliance with the IHR. It should be noted that, for the time being, there is no link between the national IHR focal point and national coordinator for UEFA EURO 2012™.

# Evaluation

The capacity for crisis management in the health sector of Ukraine was evaluated against the benchmarks and indicators of the WHO tool for assessing the preparedness of health systems for crisis, which is based on formal research and consultations.

The report is not intended to be judgemental of the comprehensiveness and effectiveness of the current system but rather to revisit it with the WHO health systems' framework in mind and to propose modifications as far as financial and other constraints will permit. Thus – solely in relation to the tool – the strengths and weaknesses perceived by the assessment team are listed and recommendations provided for consideration.

## Strengths

Ukraine has a high level of political commitment to health crisis preparedness and the proven capacity to respond to national and international disasters.

The emergency response system has a strong legal framework; it is adequately staffed and well equipped. Regulations and detailed instructions at the national and regional levels define the coordination bodies, the designation of authority and the contingency requirements.

A legal framework exists for institutions affiliated with the Ministry of Health and the Ministry of Emergencies in health sector crisis response and for undergraduate and postgraduate education requirements.

The chain of command is delineated in national reference documents, leaving room for adaptation to requirement at local level.

Dedicated emergency and contingency funds are available at each administrative level. Some of the funds earmarked for UEFA EURO 2012™ preparedness may be used for the development of the proposed integrated EMS system.

Resources for response and the surge capacity of the health facilities, the SES and the EMS are available at all levels (national, oblast and municipal).

The capacity of hospitals is huge in terms of number of beds, availability of trained staff (including specialists), accessibility to available equipment, contingency supplies and modern medical technology.

The EMS is well resourced with staff, ambulances (many with full resuscitation capacity), contingency supplies, dispatch centres, etc.

The SES has a well-developed health and environmental surveillance system with relevant reference laboratories in place.

Preparedness activities, such as community and staff training, are ongoing.

An emergency communication strategy is in place.

Health-promotion activities at the community level include training in emergency response and awareness-raising.

Clinical and managerial guidelines and SOP are available.

The concept of an integrated EMS system is under consideration.

## **Weaknesses**

The system for mobilizing, coordinating and integrating all available resources into an overall response is not fully coherent at all levels (horizontal and vertical). For example, the Ministry of Emergencies is overall responsible for an emergency response, except if the emergency is due to a terror attack, in which case the Office of the Prime Minister is in charge. However, as almost all of the resources at the local level are under the authority of the local administration, it is possible that these resources will not be available for response activities.

The concepts of an integrated EMS system (out-of-hospital and in-hospital) and emergency departments in hospitals are not fully developed.

The networking and referral system between hospitals and the ambulance systems have not been formalized.

The concept of an incident command system (integrated command, control and coordination of human and other resources, logistics and information) in the health sector is not yet sufficiently recognized.

The triage concept has not been formally defined and lacks colour coding and categorization. No special garments and vests (to identify the various functions) are available for medical staff during an emergency.

There is no formalized system for the dispatch of patients in mass casualty incidents.

The communication system is fragile being based mainly on mobile telephones, landlines and the ambulance radio system, without back-up in the central structures.

The air evacuation system is not fully developed.

Hospitals and other health institutions, e.g. the central SES, lack a formal generic plan for mass casualty response in an emergency. The health-care facilities have no human resources development plan based on needs assessments. There is no preparedness plan in place for pandemics.

Assessments to determine the structural, non-structural and functional vulnerability of critical health facilities are not conducted regularly nor are follow-up measures taken to improve structurally unsafe health facilities.

Interdisciplinary indicator-based drills led by the health sector to test, for example, the treatment capacity of hospitals are not taking place. (It was said that each hospital could receive up to 500 patients without problem and this capacity may be overestimated.) Drills such as these, as well as scenario-testing, might also reveal overlaps in the ambulance system and help to alleviate the lack of coordination between the ambulance services and the receiving hospitals.

An overall human resources strategy for managing emergency situations seems to be lacking. Whereas it was reported that there was sufficient staff in emergency medicine, there seemed to be understaffing in other specialties (e.g. epidemiology) and many of the present staff are nearing retirement age.

Little training seems to take place in public health issues, e.g. disaster management, rapid health needs assessment, hospital crisis preparedness planning, mental health and nutrition.

# Recommendations

The Ministry of Health could consider issuing policy and implementation guidelines on developing an integrated EMS system to ensure continuity of care, strengthening the hospital emergency preparedness programme, and facilitating the development of human resources for crises management.

## **Development of an integrated EMS system**

There are several possible models on which to base the development of an integrated EMS system, which should provide for integrated pre-hospital and in-hospital activities in connection with which the roles, responsibilities and financial obligations at the municipal or higher levels of the system are clearly defined. It should ensure the dispatch of patients to receiving hospitals by EMS dispatch centres, and participation in the air evacuation system.

Many components of an integrated EMS system already exist in Ukraine. The Ministry of Health might consider:

- taking the lead in further developing the existing system at the local level with a view to contributing to the overall command system and especially to the development of an emergency operating centre;
- contributing to the development of an advanced medical post responsible for organizing on-the-scene operations, including a well-defined triage system;
- contributing to the development of an evacuation centre (jointly with other stakeholders that could provide logistics, such as air transport, etc.);
- ensuring the development of emergency departments in hospitals that cater primarily for routine emergencies but that would be part of the integrated system in a mass casualty event.

## **Emergency preparedness programmes for hospitals**

More attention could be given to developing emergency preparedness programmes for hospitals, including the production of emergency response plans and contingency plans for hospitals. Such programmes should also include:

- regulations and legislation on the management and organization of the hospital and its role and responsibilities regarding the admission of patients and the provision of other essential services during a health crisis;
- an assessment of the hospital's vulnerabilities, health risks and hazards;
- a risk-reduction plan;
- a plan for mass casualty response, including a description of the hospital incident command and the procedures relating to staff on call, hospital evacuation, organization of the reception of victims, management of the various units or departments, etc.;
- contingency plans (pandemic, chemical incident, etc.) unless these are integrated in the generic emergency response plan as contingency procedures.

The hospital emergency response plan and the contingency plans must be validated, tested,

exercised, maintained, shared with the other stakeholders (especially first-responders) and integrated in the disaster response plans at the municipal and oblast levels.

Hospital emergency plans are an important component of a health sector's preparedness for emergencies. Therefore, as part of quality control and assurance, the Ministry of Health could develop a mechanism for accrediting health-care facilities with relevant and regularly drilled emergency response plans.

The emergency preparedness plans of all facilities and related regulations could be collected in a single document for each oblast, thus creating mass casualty and contingency programmes for the health sector at the oblast level.

In addition to hospital emergency plans, the emergency preparedness programme should include:

- regular assessments of preparedness for major epidemic or pandemic situations;
- the development of a health sector contingency plan for providing health services to internally displaced persons;
- information about the role of the health sector in the management of the dead and missing in a mass casualty event;
- guidance about psychosocial support for both staff and victims.

## **Human resource development for crisis preparedness and response**

The Ministry of Health may consider revising the training needs by carrying out an assessment, combined with an audit, of all health personnel (public and private) with the aim of detailing their skills and experience and their current and potential involvement in crisis preparedness and response. The assessment should include doctors, nurses, paramedics, technicians, laboratory staff, drivers, communications experts, etc., as well as the SES, ministries, NGO and international organizations.

Training programmes should cover a broad range of topics, including disaster management, public health issues (such as climate change), emergency medicine and mass casualty management. These topics should also be included progressively in the undergraduate and postgraduate training curricula.

The Ministry of Health may wish to invest in supporting the participation of key managerial staff in English-language training courses with a view to enabling them to attend international courses and seminars, access relevant literature and download information from the Internet.

Consideration could be given to reviewing and further developing the Infection Prevention and Control Programme, to strengthening its training component and to introducing national standards for PPE equipment.

The Ministry of Health may also wish to consider establishing a comprehensive health sector vulnerability and risk analysis and mapping platform (VRAM) to address some of the identified weaknesses. A first step might be to ascertain vulnerabilities in the health facilities and the human resources capacity with a view to addressing gaps in a systematic manner. Doing so could also contribute to informed decision-making in health crises.

## National action plan on crisis preparedness

In connection with the development of the national action plan on crisis preparedness, it may be useful for the Ministry of Health, jointly with the WHO Regional Office for Europe, to organize a national workshop covering the main topics of a crisis preparedness programme. With a view to developing the training material needed by hospitals to elaborate vulnerability reduction plans and emergency response plans, apart from policy-makers from the Ministry of Health, participants might include a core group of managers of hospital emergency departments.

Consideration might also be given to developing a training package for use by the health authorities at the oblast and municipal levels in assisting the local hospitals to develop their own plans.

## UEFA EURO 2012™

The strengths, weaknesses and recommendations outlined above also apply to preparedness for the UEFA EURO 2012™ event. Overall, Ukraine has a strong and frequently tested crisis response system with a large surge capacity. Nevertheless, in addition to the recommendations above, the following action is also proposed.

- Translation, as early as possible, of the Ministry of Health's concept of medical maintenance during the preparation and conduct of the UEFA EURO 2012™ in Ukraine into operational activities (the what, where and by whom in the host cities).
- Inclusion of staff designated for the UEFA EURO 2012™ (stakeholders at the municipal and oblast levels) in existing medical committees, and provision to the committees of information on the roles and responsibilities of these staff.
- Enhancement of the medical, rescue and epidemiological services at airports and in fan zones.
- Provision of medical information and translation support to the EMS, hospitals and medical teams at the official sites.
- Development of the coordination mechanisms that must be in place in the health sector and of coordination between the health and other sectors (under the responsibility of the municipal administration).
- Provision of guidelines on the type of mass gathering drills and exercises that must be developed and implemented.
- Definition of the role of the UEDMC if it is appointed as national EMS system coordinator (which is possible since it hosts the crisis command room and can provide mobile teams, expertise, etc.).
- Utilization of the window of opportunity offered by this event to pilot the concept of hospital emergency departments and, stepwise, implement an integrated EMS system, thus creating a functional link between in-hospital and out-of-hospital components.
- Further development of the coordination between the technical counterparts of the two countries (Poland and Ukraine) that will host the UEFA EURO 2012™ event.
- Review of the WHO document, *Communicable disease alert and response for mass gatherings* (12).

# References

1. *Human security now*. New York, Commission on Human Security, 2003 (<http://www.humansecurity-chs.org/finalreport/English/FinalReport.pdf>, accessed on 16 January 2010).
2. European Health for All Database (HFA-DB). Copenhagen, WHO Regional Office for Europe, 2009 (<http://www.euro.who.int/hfad>, accessed on 16 January 2010).
3. de Vreij H. *At least 15 foiled terrorist attacks in Europe since 9/11*. Hilversum, Radio Netherlands Worldwide, 2005 (<http://static.rnw.nl/migratie/www.radionetherlands.nl/currentaffairs/region/westerneurope/ter050218-redirected>, accessed on 24 January 2010).
4. *A practical tool for the preparation of a hospital crisis preparedness plan, with special focus on pandemic influenza (second edition)*. Copenhagen, WHO Regional Office for Europe, 2007 (<http://www.euro.who.int/Document/e89763.pdf>, accessed on 16 January 2010).
5. *The world health report 2000. Health systems: improving performance*. Geneva, World Health Organization, 2000 (<http://www.who.int/whr/2000/en/>, accessed on 21 January 2010).
6. *Strengthened health systems save more lives. An insight into WHO's European Health Strategy*. Copenhagen, WHO Regional Office for Europe, 2005 ([http://www.euro.who.int/Document/HSM/healthsys\\_savelives.pdf](http://www.euro.who.int/Document/HSM/healthsys_savelives.pdf), accessed on 24 January 2010).
7. *Everybody's business: strengthening health systems to improve health outcomes*. Geneva, World Health Organization, 2007 ([http://www.who.int/healthsystems/strategy/everybodys\\_business.pdf](http://www.who.int/healthsystems/strategy/everybodys_business.pdf), accessed on 21 January 2010).
8. *WHO European Ministerial Conference on Health Systems "Health Systems, Health and Wealth", Tallinn, Estonia, 25–27 June 2008. Report*. Copenhagen, WHO Regional Office for Europe, 2009 (<http://www.euro.who.int/Document/E92150.pdf>, accessed on 21 January 2010).
9. The World Fact Book. Washington, Central Intelligence Agency, 2009 (<https://www.cia.gov/library/publications/the-world-factbook/geos/up.html>, accessed 24 January 2010).
10. EM-DAT The International Disaster Database [online database]. Brussels, Centre for Research on Epidemiology of Disasters (CRED), 2009 (<http://www.emdat.be/country-profile>, accessed on 21 January 2010).
11. *Постанова N 1539 про затвердження Положення про Міністерство України з питань надзвичайних ситуацій та у справах захисту населення від наслідків Чорнобильської катастрофи [Ministerial decree "On approval of the Ministry of Emergencies of Ukraine and Affairs of Population Protection from Consequences of Chernobyl Catastrophe"]*. Kyiv, Office of the Minister of Health of Ukraine, 2006 (<http://www.mns.gov.ua/content/law.html> accessed on 24 January 2010).
12. *Communicable disease alert and response for mass gatherings: key considerations*. Geneva, World Health Organization, 2008 ([http://www.who.int/entity/csr/Mass\\_gatherings2.pdf](http://www.who.int/entity/csr/Mass_gatherings2.pdf), accessed on 21 January 2010).

# Annex 1

## Members of the assessment team



### **WHO Regional Office for Europe**

Marcel Dubouloz  
Consultant

Gabit Ismailov  
Programme Officer, Disaster Preparedness and Response

Vitaly Krilyuk  
Consultant, Disaster Preparedness and Response  
WHO Country Office in Ukraine, Kyiv

Elzbieta Lipska  
Consultant

Barbara Percy  
Consultant

Corinna Reinicke (Team leader)  
Senior Public Health Consultant

Gerald Rockenschaub  
Regional Adviser  
Disaster Preparedness and Response

# Annex 2

## Persons interviewed



### **Kyiv**

#### **Ministry of Health**

Volodymyr Yurchenko, Deputy Minister of Health  
Lyudmyla Mukharska, Deputy Director, Sanitary Epidemiological Service Department  
Mykhailo Strelnykov, Director, Department of Emergency Medicine  
Oleksandra Levytska, Deputy Director, Department of Finance  
Svitlana Synelnyc, Deputy Director, Department for EURO 2012  
Borys Sheyman, Head, Toxicology Department

#### **Ministry of Emergency**

Oleksiy Gromasin, Director, Medical-Biological Department  
Petro Volganskyi, Head, Mobile Hospital  
Serhiy Kirin, Chief Officer, Department of Microbiological Protection in Disaster Medicine

#### **Sanitary Epidemiological Service (SES)**

Victor Svyta, Deputy Director, Central SES  
Larysa Kolos, Deputy Chief Sanitary Physician, SES, Kyiv City  
Tetyana Glushkevych, Head, Bacteriology Reference Laboratory, Central SES  
Natalya Malyuk, Head, Chemical Reference Laboratory, Central SES  
Natalya Vydaiko, Head, Particularly Dangerous Infections Reference Laboratory, Central SES

#### **Ukrainian Emergency and Disaster Medicine Centre**

Georgiy Roshchyn, Director of the Centre  
Mykola Natsiuk, Director, Training Department  
Iryna Aleksenko, Pharmaceutical Department

#### **Ukrainian Red Cross**

Ivan Gnatovysh, President

#### ***International Federation of Red Cross and Red Crescent Societies (IFRC)***

Mykola Semenovych, Executive Director  
Mykola Nagorny, Programme Coordinator

#### **Donor organizations**

##### **USAID**

Leslie Perry, Director, Office of Health and Social Transition  
Ananta Cook, Acting Programme Officer, Mission Disaster Response Officer

##### **European Commission**

Serhiy Polyuk, Sector Manager, Welfare and Health Care Sectors

**Donetsk**

Borys Reznikov, Chief Specialist on Emergencies, Health Administration of the Oblast

Tamara Tsyganok, Head, Department of Health

Serhiy Popov, Deputy Head, Department of Health

Valeriy Kuznezov, Chief Doctor, Referral Trauma Hospital of the Oblast

Volodymyr Chrystenکو, Chief Doctor, EMS Services Centre of the Municipality

Andriy Bondarenko Chief of the department for emergencies

Mykhaylo Kushnaryov, Acting Chief Sanitary Doctor for Donetsk Oblast, Sanitary and Epidemiology Institute

Natalya Beuz-Mikusheva , Head of the Department for emergency consulting and medical help centre

**World Health Organization**

Igor Pokanevych, Head of WHO Country Office in Ukraine

# Annex 3

## Legal and regulatory framework related to crisis preparedness and response in Ukraine



### **Laws of Ukraine**

“On the legal regime of a state of emergency” (No. 2974–XII dated 3 February 1993).

“On state stockpiles” (No. 51/97–BP dated 24 January 1997).

“On the civil defence of Ukraine” (No. 1281–XIV dated 14 December 1999).

“On the fundamental principles of health care legislation of Ukraine” (No. 1550–III dated 16 March 2000).

“On the search and rescue services of Ukraine” (No. 1281–XIV dated 14 December 1999).

“On the protection of the population and territories from manmade and natural emergencies” (No. 1809–III dated 8 June 2000).

“On the area of environmental emergency” (No. 1908–III dated 13 July 2000).

### **Decrees of the President of Ukraine**

“On the concept of population and environmental protection in the threat of emergencies” (No. 431 dated 3 September 1999).

“On emergencies and population protection from the consequences of the Chernobyl catastrophe” (No. 539 dated 2 November 2006).

### **Resolutions of the Cabinet of Ministers of Ukraine**

“On cooperation between the medical services of the Armed Forces and other military organizations and the state health care system and on the establishment of the national system of emergency medicine” (No. 819 dated 16 October 1995).

“On the establishment of the State Service of Emergency Medicine” (No. 343 dated 14 April 1997).

“On the State Commission for Technogenic and Ecological Safety and Emergencies” (No. 174 dated 16 February 1998).

“On the procedure for classifying emergency situations” (No. 1099 dated 15 July 1998).

“On the adoption of the Programme on the prevention of and response to manmade or natural emergencies for 2000–2005” (No. 1313 dated 22 August 2000).

“On adoption of the concept of establishing a unified state system for preventing and managing the consequences of catastrophes and emergencies” (No. 122 dated 7 February 2001).

“On a single system for emergency medical care” (No. 370 dated 1 June 2009).





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.

#### Member States

Albania  
Andorra  
Armenia  
Austria  
Azerbaijan  
Belarus  
Belgium  
Bosnia and Herzegovina  
Bulgaria  
Croatia  
Cyprus  
Czech Republic (the)  
Denmark  
Estonia  
Finland  
France  
Georgia  
Germany  
Greece  
Hungary  
Iceland  
Ireland  
Israel  
Italy  
Kazakhstan  
Kyrgyzstan  
Latvia  
Lithuania  
Luxembourg  
Malta  
Monaco  
Montenegro  
Netherlands  
Norway  
Poland  
Portugal  
Republic of Moldova  
Romania  
Russian Federation (the)  
San Marino  
Serbia  
Slovakia  
Slovenia  
Spain  
Sweden  
Switzerland  
Tajikistan  
The former Yugoslav  
Republic of Macedonia  
Turkey  
Turkmenistan  
Ukraine  
United Kingdom (the)  
Uzbekistan

“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  
Director-General, WHO

World Health Organization  
Regional Office for Europe  
Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark  
Tel.: +45 39 17 17 17. Fax: +45 39 17 18 18.  
E-mail: [postmaster@euro.who.int](mailto:postmaster@euro.who.int)  
Web site: [www.euro.who.int](http://www.euro.who.int)