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**Key changes to pandemic plans by Member States of
the WHO European Region based on lessons learnt
from the 2009 pandemic**

“Good practice dictates that we do not simply identify lessons learnt from pandemic preparedness evaluations; we must use these lessons to enhance preparedness. We commend the countries of the European Region for their commitment to incorporating these lessons into revised preparedness plans.”

-ECDC Director Marc Sprenger and WHO Regional Director for Europe Zsuzsanna Jakab



ABSTRACT

More than 30 Member States in the WHO European Region are in the process of revising their pandemic plans, with two already published. Changes are being made based on lessons learnt from the response to the 2009 pandemic and these follow recommendations from numerous national, regional and global evaluations. The main changes aim to create: 1) more flexible plans that will facilitate the response to pandemics of differing severity 2) strengthened capacity to perform risk assessment and risk communication 3) improved strategies for pandemic vaccine procurement and deployment 4) strengthened surveillance for severe disease associated with influenza and 5) improved communication with front-line responders and the general public. In the area of coordination and leadership, clearer delineation of the roles and responsibilities of national versus local authorities and improvements to intersectoral collaboration are being sought. Many countries reported that they were making such changes but they needed help to sustain momentum and to ensure that plan updates are reflected in improved preparedness at the local level and in generic preparedness.

In these four workshops organized by the European Centre for Disease Prevention and Control and the WHO Regional Office for Europe, Member States emphasized the continued need for joint-working and intercountry cooperation in the area of pandemic preparedness, in support of the International Health Regulations (2005) (IHR) and the new Cross Border Threats Initiative proposed by the European Commission. The capacities built as part of pandemic preparedness should benefit preparedness for other public health threats and the core capacities required under IHR, and should be maintained. At the same time it was emphasized that pandemic preparedness needs to be built on stronger responses to seasonal influenza.

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Introduction

In the aftermath of the 2009 influenza (H1N1) pandemic, Member States and international organizations alike have evaluated their response and started to revise their pandemic plans based on the lessons learnt. The WHO Regional Office for Europe (WHO/Europe) and the European Centre for Disease Control (ECDC) jointly organized four workshops on pandemic preparedness in September and November 2011, in order to review the status of this work. A total of 45 Member States participated in the workshops.

The main purposes of the workshops were to summarize the key changes that Member States are making to their pandemic plans and to learn from each others' experience.

In addition, participants discussed areas in which future intercountry collaboration is needed and how WHO/Europe and ECDC could provide support. This included a discussion of the external review of the International Health Regulations (2005) (IHR) and the recommendation that WHO revise the global pandemic guidance (1), as well as the revision of the Joint European Pandemic Preparedness Self-Assessment Indicators (2). Generic preparedness and the implementation of the IHR were discussed with respect to utilizing the capacities built as part of pandemic preparedness. Lastly, developments under the new Cross-Border Threats Initiative of the European Commission for the European Union were presented (3).

Conclusions and recommendations

The workshops highlighted the importance Member States attribute to learning from the experience of the 2009 (H1N1) pandemic and to revising their national pandemic plans.

During the workshops, 28 of the participating 45 countries reported that they had evaluated their response to the pandemic and at least 12 of the evaluations have been published on national web sites (4). In addition, 32 countries reported that they were in the process of revising their national pandemic plans and the revised reports have been published for two countries (5). As most European countries are still in the process of reviewing their plans, the workshops enabled the sharing of good practices among Member States and will provide input to the revision of global and regional pandemic guidance.

The workshops also concluded that future pandemic preparedness planning would be facilitated by:

- the exchange of information and best practices among Member States on changes that are being implemented in planning, which should be continued through intercountry meetings and the establishment of networks supported by WHO/Europe and ECDC;
- developing combined approaches, such as the Pandemic Influenza Preparedness Framework for the sharing of influenza viruses and access to vaccines and other benefits ("PIP Framework") (6), and the European Commission work on the joint procurement of pandemic vaccine;
- the revision of the WHO global pandemic guidance, particularly concerning the phases and severity assessment;
- the revision of the Joint European Pandemic Preparedness Self-Assessment Indicators;
- strengthening of the response to interpandemic (seasonal) influenza through improved surveillance, laboratory capacity, immunization and communication as a basis for a stronger pandemic response; and
- the use of the experience gained in pandemic planning and response for other public health threats, as part of generic preparedness and IHR implementation.

The above is described in more detail in the following sections.

Key changes to national pandemic preparedness plans

The changes being made to pandemic plans follow to a large extent the findings from some evaluations performed by countries, as well as the two EU-wide assessments (TOR1 and TOR2) (7), the WHO/Europe evaluation of pandemic preparedness (8), the external review of the IHR (1) and of ECDC's response to the pandemic (9). The changes address primarily the following areas:

- intersectoral cooperation, collaboration and leadership
- flexibility and adaptability of plans
- strategies for vaccines and antivirals
- disease surveillance and monitoring of countermeasures
- strategies for exchanging information and communicating risk
- evaluation of the pandemic response and the transition to seasonal influenza.

Intersectoral cooperation, collaboration and leadership

Intersectoral and interinstitutional commitment (including the health sector) proved to be useful and supported interministerial crisis management. However, there is a need for a broader participatory approach within the health care sector between public and private health care and across governmental sectors. Pandemic plans did not always identify the correct person to coordinate the overall response or there was doubt about roles and responsibilities of governmental actors, at national and subnational levels, leading to duplication and waste of resources.

Changes to pandemic plans will address the following issues:

- Improved intersectoral cooperation and coordination in the pandemic planning process will take place at national and subnational levels. This may include reviewing legislation related to private versus public health care. Coordination will be improved by the sharing of pandemic preparedness plans with relevant sectors at different administrative levels within countries.
- More effective ways of communicating technical issues to decision-makers will be adopted, allowing them to make appropriate decisions on response measures to be taken. This may take the form of a pandemic preparedness and response plan developed specifically for decision-makers.
- Epidemic laws will be evaluated to identify and address gaps within and across sectors, with respect to decisions that need to be taken during a pandemic.
- Representation from other governmental sectors (energy, law enforcement, etc.) will be increased in the decision-making process.
- A clearer delineation will be made of the roles and responsibilities of national versus local authorities, with respect to decisions that are being integrated within plans (this includes governance and accountability arrangements). Some countries are considering whether a ministry other than health should lead the response to a pandemic.
- Transparency of the decision-making process will be increased, especially in relation to vaccine procurement.

The flexibility and adaptability of plans

National pandemic plans were usually based on a single scenario that was more severe than the actual 2009 pandemic, and that was extrapolated from the severity of previous pandemics and the

possibility that H5N1 would cause the next pandemic. Plans that include a range of scenarios would be more flexible. With respect to triggers for implementing response measures, countries relied largely on the declaration by WHO of the phases, rather than the actual severity. However, the six phases describe the spread of the pandemic at a global level and did not relate well to national and local variability in the progression or severity of the pandemic. Plans did not take into account the need to respond locally according to the actual situation, which was not uniform within or between countries.

Changes to pandemic plans will address the following issues:

- Plans will include a range of planning scenarios (e.g. unknown, mild, moderate and severe) and be less prescriptive in the actual response measures to be implemented. The goal is to **increase flexibility** by addressing the response needed for pandemics of differing severity.
- The triggers to respond at national or subnational levels will not necessarily follow the declaration of phases by WHO at the global level.
- Country-level, risk assessment-based approaches will be developed and applied on an ongoing basis during the pandemic to determine the severity and impact of the pandemic over time, with respect to the international situation and also within country. This approach allows a continuous review of response measures and will facilitate decisions on their escalation and de-escalation. It envisages different phases of action within a country. For example the revised United Kingdom Influenza Pandemic Preparedness Strategy 2011 describes five phases: detection, assessment, treatment, escalation, recovery (5).
- Response management plans will recognize the potential need to apply different response measures at different times, and to a different extent, within a country, according to the local situation. This will **increase the adaptability** of pandemic plans and the response, allow for better planning for capacities and thus make better use of resources.
- The response strategy will be based on existing capacity (human and material resources) and guidance will be developed for better local response management (e.g. vaccination campaigns at local level and strategies for storage and delivery of medicines).
- Real-time electronic data collection will be established, as will reporting systems for rapid dissemination of information across sectors on early assessment, severity, spread of the pandemic, etc.

Strategies for vaccines and antivirals

Countries experienced numerous difficulties in relation to the procurement, prioritization, delivery and communication of the risk versus benefits of pandemic vaccine. Although national plans for pandemic vaccine existed, these had to be adjusted, due to the mildness of the pandemic, from targeting the whole population to vaccination of risk groups only. Countries had to reassess the risk groups for vaccination, as not all had considered pregnant women. As a result, the responsibility for the vaccination campaign, as well as the mode of delivery and logistics (e.g. national mass vaccination campaign versus local delivery using existing mechanisms for seasonal influenza vaccination), had to be rethought. There was a delay in delivery of vaccines, especially in countries dependent on WHO donations, which complicated the prioritization of vaccine delivery. In general, there was insufficient planning of the detailed logistics of vaccine delivery according to different scenarios. In light of these difficulties, communicating the risk versus benefits of pandemic vaccine was considered extremely difficult and some countries reported a loss of public confidence in vaccination, in general.

With respect to antivirals (oseltamivir), in some countries stockpiles were under-utilized and plans were not in place for rotational use. National Regulatory Authorities in some countries did not approve the extension of the shelf-life of oseltamivir and stocks had to be destroyed. Although optimal use of oseltamivir requires rapid treatment (within 48 hours after symptom onset), in some countries their use by clinicians required laboratory confirmation, which delayed their administration.

Changes to pandemic plans will address the following issues:

- To ensure there is capacity to conduct mass pandemic vaccination campaigns and other large scale interventions, such as the distribution of antivirals and essential medicines, preparedness and capacities should be built into all systems, down to the local level.
- Operational vaccine deployment plans will be established as part of pandemic preparedness planning. These plans will include communication strategies for pandemic vaccines.
- Vaccination strategies will take into account the need to adapt according to the severity of the pandemic, the actual situation in the country and the availability of vaccine, in order to better target at-risk populations in a timely and equitable fashion and to increase vaccine coverage. These strategies will include targeted communications to increase public confidence and trust in influenza vaccination.
- More timely vaccine procurement will be facilitated through flexible contracts and joint vaccine procurement, e.g. among EU Member States, and possibly between other groups of countries in the WHO European Region.
- Countries in which the decisions on pandemic vaccination lie with local rather than national governments are reviewing this system in order to avoid the implementation of different vaccination programmes within one country.
- To optimize the use of existing antiviral stockpiles and ensure continuous availability, countries will develop a strategic antiviral reserve for the treatment and prophylaxis of seasonal influenza.
- Countries will reconsider pre-pandemic antiviral stockpiling targets.
- Countries will improve the application of influenza diagnostics, with the goal of not delaying early antiviral treatment.
- Monitoring of vaccine policies, up-take and adverse-events should be improved through the establishment of national vaccine registries.
- National vaccine registries should be linked with systems monitoring vaccine effectiveness at both national and local levels.

Disease surveillance and monitoring of countermeasures

While routine surveillance exists in the majority of countries in the European Region for mild disease associated with influenza (acute respiratory infections or ARI and influenza-like illness or ILI), countries had to rely on national notifications of laboratory confirmed cases for estimates of hospitalized cases and deaths. This led to an underestimation of the true burden of disease caused by the pandemic. In addition, more effective ways of communicating technical issues to decision-makers, such as surveillance and monitoring data and severity must be identified.

Regarding the monitoring of countermeasures, systems exist for monitoring vaccine uptake, detecting potential adverse events following immunization and estimating vaccine effectiveness. However, all these systems exhibited significant gaps. Additionally, measures implemented by some countries to slow the spread of the pandemic, such as contact tracing, provision of antiviral chemoprophylaxis and school closures, were not always considered effective.

Changes to pandemic plans will address the following issues:

- Countries are in the process of improving their surveillance systems for severe disease associated with influenza by introducing routine surveillance in hospitals. This will allow for better assessment of disease burden and determination of risk factors for severe disease, which will support the ongoing risk assessment needed in a pandemic.
- The role of laboratory networks in diagnostics and surveillance in a pandemic must be more clearly defined to better prioritize testing and resources in a pandemic.
- Clinicians networks for severe respiratory infections should be established, in order to enhance the sharing of clinical, virological and epidemiological data to improve the clinical management of patients and to better define pandemic severity over time.
- The capacity to perform seroepidemiological studies should be strengthened to predict the impact of a pandemic.
- Improvements should be made to mortality monitoring through more timely availability, access and analysis of national mortality statistics, and through participation in intercountry projects such as the European Mortality Monitoring Project (EuroMOMO) (10).
- Some countries will not include a containment phase in their plan, nor will they consider school closures.
- Review and update legislation related to strengthening surveillance (e.g. mandatory notification of cases), monitoring systems and the primary health care level-related death report, as an important pandemic countermeasure.

Strategies for exchanging information and communicating risk

Member States identified a strong need to improve communication and information sharing with professionals involved in the pandemic response, with the general public and the media. There was a lack of awareness among policy and decision-makers of the opinions and beliefs about the pandemic among the public and health care professionals, as well as a lack of coordinated communication with the media in some countries. There was a lack of awareness and engagement to counteract misinformation or disinformation spread through new and social media.

Changes to pandemic plans will address the following issues:

- Approaches to communication and information strategies will be centralized, including the use of telephone hot-lines (24/7) in order to provide consistent messages. This will facilitate the exchange of information and communication of risk to front-line responders and the general public in a way that will avoid anxiety and promote informed decisions.
- Representatives of health care workers and professional organizations will be included in the plan revision process to ensure that their view on communication and the information they will require will be taken into account.
- Communication with primary health care workers will be improved through both established and new channels (e.g. disease specific networks, forums and meetings).
- The use of social media will be incorporated into communications strategies for advocacy work and reaching risk groups (i.e. for vaccine campaigns), particularly young people.
- Communication between national and local authorities will be improved through selective channels during the planning and response phases, promoting message uniformity and consistency, and avoiding overload.
- More active management of information will take place through advance identification of key information requirements, pre-pandemic briefings with the media (to better use them

as tool to communicate with and pass messages to the public) and designation of spokespersons.

- Information sharing and communication will be a two-way process with feedback loops in place and methods developed to monitor the opinions and beliefs of groups targeted for communication and information. These changes will be made with input from social scientists experienced in risk communication and behaviour change.
- The management of information at the hospital level will be improved using a national electronic situational awareness tool and by providing regular feedback to health care professionals on the local (and global) situation.
- Communication strategies for the public will be more open, clear and convincing, with an important focus being to strengthen population knowledge on vaccines, immunization and immunity.

Evaluation of the pandemic response and the transition to seasonal influenza

Countries reported that evaluations of response measures implemented during the 2009 pandemic were hindered by the lack of planning for this work, political sensitivities and legal issues. Additionally, too little attention was paid to the recovery phase and to the transition to seasonal influenza. In some countries, the first post-pandemic season in 2011-2012 was similar in severity to the pandemic itself.

Changes to pandemic plans will address the following issues:

- High-level agreement on the need to evaluate the response to a pandemic will be obtained during the pandemic planning process. This evaluation will address cost-effectiveness and timeliness, and it should preferably be an external evaluation.
- Pandemic plans will include methods to evaluate the impact and cost-effectiveness of response measures.
- Staff will be designated and time-limited milestones set as part of the pandemic preparedness plan revision and the involvement of persons at the operational level will be outlined during the revision process.
- A technical team will be established to monitor and evaluate the pandemic influenza preparedness plan within the existing resources. The team will use standardized methodology.
- Pandemic plans will include a section describing the management of the recovery phase and the preparations for the transition to seasonal influenza.

Influenza pandemic preparedness as a tool to strengthen generic preparedness

In the aftermath of the 2009 pandemic, countries are applying the lessons learnt and the capacities built to strengthen generic preparedness (12) and the implementation of IHR core capacities. Some countries will no longer have a national pandemic plan but rather a pandemic-specific section attached to a generic preparedness plan. Other countries are developing preparedness plans for influenza prevention and control programmes that encompass seasonal as well as pandemic influenza. These are necessary steps at a time of economic crisis and the concomitant reduction of available resources and political commitment after the experience of a relatively mild pandemic. Response operations and structures developed as part of pandemic preparedness can be applied to generic preparedness. This would be facilitated by the establishment of a formal and cross-sectoral

emergency response coordination committee, with clearly defined roles and responsibilities. For example, some countries are working on a public security plan that involves Ministries of Health and Foreign Affairs, as well as hospital services. Others are integrating their pandemic preparedness plan within a Ministry of Health platform for Civil Emergencies.

National early warning platforms established for epidemic intelligence and for case-based data that were used to coordinate between the public health sector, health care systems and specialist groups during the pandemic can be applied to other health threats. Cross-sectional crisis and coordination groups and information channels established at national, regional and local levels for the pandemic, creating a network where regular meetings and decision-making take place, can be used to strengthen generic preparedness. The development of a pandemic risk and crisis communication plan sustainable for short- to long-term crisis management can be extended towards generic preparedness. Laboratory capacity and surveillance systems strengthened for early identification of new influenza viruses can serve to detect other emerging communicable disease threats. Operational guidance developed for better local response management (e.g. pandemic vaccination campaigns at local level, plans for surge capacity for health care in a pandemic and essential medicines stockpiling/use) can be applied beyond influenza pandemics.

National legislation can further help pandemic preparedness move towards a generic preparedness approach, e.g. by requiring every hospital to have a general crisis plan in place. Mandatory quarantine laws used in the 2009 pandemic can also be applied to other health threats.

Regarding seasonal influenza prevention and control programmes, increasing seasonal vaccination coverage is important, as it will increase the understanding of influenza vaccinations in general and should also increase influenza vaccine production capacity. Application of a risk assessment-methodology to each influenza season will strengthen the capacity to perform an assessment during a pandemic.

Intercountry Collaboration and Interoperability

Member States' experience from the 2009 (H1N1) pandemic shows that cross-border collaboration in pandemic preparedness and response was extremely useful, as it allowed countries to share information and enhance their interoperability. Indeed, sharing information is explicit in the International Health Regulations (2005) (1) and current EU legislation (11).

Activities that promoted intercountry collaboration and interoperability in Europe before and during the pandemic include: cross-border exercises, intercountry pandemic planning meetings and country assessment visits supported by ECDC, WHO/Europe and the European Commission; the establishment of cross-border networks, such as the early warning response system (EWRS) network, informal networks and expert advice (e.g. WHO networks and the Flu section of the Health Security Committee of the European Union); and formal working groups established between similar language-speaking countries among which pandemic plans and best practices were shared. Collaboration with countries outside of Europe contributed to the development of an early risk assessment with respect to transmission, severity and impact.

Member States requested that intercountry collaboration continue in the following areas, supported by ECDC and WHO/Europe:

- continued sharing of pandemic preparedness plans, best practices and experience between countries, through the organization of meetings and/or working groups focused on specific topics, and through networks of experts;
- development of a combined approach for increasing vaccine access both within country and cross-border; and
- creation of an inventory of medicines and equipment by countries, which can be shared with other countries during a pandemic, in order to provide support when possible.

In addition, Member States requested that WHO and ECDC continue to provide guidance for

pandemic preparedness planning. The revision of the 2009 WHO pandemic guidance is urgently awaited by European countries to ensure that national plans are not divergent from global standards. This revision is planned as part of the implementation of the recommendations of the independent review of the IHR. For Member States of the WHO European Region, guidance and agreement on the following aspects is particularly critical:

- key definitions of a pandemic (what is meant by severity, containment, early assessment, etc.);
- defining the role of early assessment, containment and mitigation once a pandemic is spreading worldwide;
- the application of methodologies to pandemics for the annual risk assessment of seasonal influenza epidemics;
- intercountry research activities on antivirals and vaccines, population immunity and individual level immune responses to different subtypes of influenza, and the acceptance and effectiveness of non-pharmaceutical interventions; and
- improving Member States' accessibility to international data on human cases infected with zoonotic influenza viruses.

At the EU-level, the new Cross Border Threats Initiative proposed by the European Commission will play a leading role in determining intercountry cooperation and obligations with respect to cross-border health threats, while taking into account existing public health structures, in particular the IHR. The Cross Border Threats Initiative aims to:

- close existing gaps through a multisectoral coordinated approach;
- coordinate EU Member States' activities for implementation of IHR core capacities (sharing experiences and resources, interoperability of national preparedness plans);
- develop indicators to monitor national implementation;
- institute joint procurement of medical countermeasures; and
- provide for risk assessment and management of serious cross border health threats.

Once adopted, the Cross Border Threats Initiative will include updating of the EU pandemic preparedness plan, which describes the roles and responsibilities of the EU Member States, the European Commission and community agencies during a pandemic, as well as in the case of other threats such as biological, chemical, environmental, etc.

WHO/Europe and ECDC are working jointly to help EU Member States implement the IHR through identifying country needs and providing technical support.

Revision of the “Joint European Pandemic Preparedness Self-Assessment Indicators”

Member States agreed that the “Joint European Pandemic Preparedness Self-Assessment Indicators” should be reviewed. The indicators were developed prior to the 2009 pandemic by a Member States' experts group, WHO/Europe, ECDC and the European Commission. They were intended mainly as a self-assessment tool for Member States to identify gaps in national pandemic plans, but with a component to provide information to ECDC and WHO/Europe regarding progress being made. This would then enable support to Member States to be tailored to their needs. An earlier version of the indicators was used extensively to inform country visits by ECDC and WHO/Europe to externally assess pandemic preparedness.

In the light of the lessons learnt from the pandemic, it was agreed that the indicators were mainly useful as a national planning guide and to identify gaps, which could be shared with ECDC and WHO/Europe to prioritize support and inform country visits. Participants also considered that having an agreed list of indicators at the European level was useful, as knowing what other countries were planning for helped them to advocate for resources in their own country.

The participants considered the indicators to be less useful as a tool to measure and compare the level of preparedness between countries, as different countries have different administrative structures and health care systems (e.g. centrally versus locally funded and led). However, it would be useful to define and share at the European level certain indicators, good practice or policies, so that countries would be forewarned about differences, e.g. with respect to vaccination strategies. Countries could then consider coordinating their communications on such issues.

The participants agreed that instead of indicators, it would be more useful to develop a tool describing the main areas for consideration in pandemic preparedness planning. Each country may then add its own criteria, indicators or outcomes for determining whether something is in place. The tool should be applicable to local as well as national preparedness and should indicate where pandemic preparedness overlaps with generic preparedness and with IHR core capacities. As requested by the Member States during the workshops, the indicators are currently being revised by a working group of Member States' experts, supported by ECDC and WHO/Europe.

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