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Recommendations for Good Practice in Pandemic Preparedness

Identified through evaluation of the
response to pandemic (H1N1) 2009



The University of
Nottingham



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ABSTRACT

To assist Member States with the revision of their pandemic plans after the 2009 influenza H1N1 pandemic, WHO/Europe performed an evaluation of the usefulness of pandemic plans and preparedness activities (PPA) undertaken by Member States and WHO in the response to the pandemic. Using a systematic approach, more than 200 individuals representing national, regional and local responders in seven Member States were interviewed. Six major themes considered essential to PPA were identified: communication; coordination; capacity; adaptability/flexibility; leadership; and mutual support. Key issues and recommendations for good practice in pandemic preparedness for Member States and WHO were subsequently identified. PPA had generally been successful, with multi-sectoral involvement, political support and dedicated funding emerging as important success factors. However, in future PPA, greater emphasis will need to be placed on these areas, as well as improving planning for: communications; vaccine procurement and logistics; flexibility of response; use of diagnostic tests; and real-time surveillance.

Keywords

DISASTER PLANNING – organization and administration
DISEASE OUTBREAKS – prevention and control
INFLUENZA, HUMAN
INFLUENZA A VIRUS, H1N1 SUBTYPE
EVIDENCE-BASED PRACTICE
PUBLIC HEALTH PRACTICE
GUIDELINES
EUROPE

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Scherfigsvej 8
DK-2100 Copenhagen Ø, Denmark

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Foreword

Here is the report on an evaluation of the response to the 2009/2010 pandemic conducted by the WHO Regional Office for Europe. The results are a testimony to the immense work that was done, the commitment of country authorities and the professional excellence demonstrated by a multitude of institutions. I highly commend all of those who were involved in responding so promptly and carried out their duties with care and consideration.

A principal value of this report is that it applies a standard framework to highlight essential cross-cutting elements of successful pandemic preparedness activities. Moreover, it takes an objective approach to highlight not only the essential elements of successful activities but also the areas on which the pandemic experience suggests future planning must place greater emphasis. The essential elements for individual Member States when revising or reformulating their national pandemic plans are: communication, coordination, capacity, adaptability (flexibility), leadership and mutual support, collectively represented by the acronym CALM.

This evaluation makes clear that the pandemic preparedness activities undertaken in the WHO European Region prior to the 2009 pandemic proved worthwhile, and were indeed appropriate for the response that was made. These findings also highlight some very important future directions for the revision of national pandemic plans, which remains a high-priority activity as novel influenza viruses, including influenza A (H5N1), continue to circulate globally and the likelihood of a future pandemic persists. It is therefore crucial that the experience gained from pandemic (H1N1) 2009 be used to strengthen Member States' response to future pandemics.

Member States, by sharing the experiences gained and lessons learnt throughout the process, have shaped the recommendations in this report, which we at WHO believe is extremely useful for all countries and WHO alike, as we review our pandemic plans.

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Executive summary

Background

Although the 2009-2010 influenza pandemic was of low severity compared with those of the 20th century, this was the first ever opportunity for Member States to implement a 'for-real' pandemic response, drawing on plans made and planning activities undertaken in the preceding few years, notably from 2004 onwards. It is now appropriate to review the degree to which those plans and planning activities proved useful during the 2009-2010 response and to identify areas of planning that require further strengthening.

Methods

We randomly selected seven Member States within the WHO European Region to participate in a detailed qualitative study to review pandemic planning activities (PPA) undertaken before March 2009, in relation to the subsequent pandemic response mounted from May 2009 onwards. WHO teams visited each country and interviewed representatives from health and civil response ministries, national public health authorities, regional authorities, family doctors and hospital physicians. Interviews were conducted using an open-ended, questionnaire-based approach. Forty-nine group interviews, with contributions from more than 200 individuals, were conducted, and 90 ninety hours of recorded material were subsequently transcribed and subjected to detailed content analysis.

Findings

We identified six consistent major themes, considered by respondents to have been essential elements of successful PPA: communication; coordination; capacity; adaptability/flexibility; leadership; and mutual support. PPA had generally been successful, with multi-sectoral involvement, political support and dedicated funding emerging as important success factors. However, in future PPA, greater emphasis still needs to be placed on these areas, as well as improving planning for: communications; vaccine procurement and logistics; flexibility of response; use of diagnostic tests; and real-time surveillance.

Conclusion

PPA were successfully undertaken in the WHO European Region prior to the 2009 pandemic. These activities proved worthwhile and were generally appropriate for the response made. There was general consensus regarding essential elements of PPA. However, consistent themes also emerged regarding specific areas of "under-planning" common to most countries surveyed. These should now be rectified in the post-pandemic recovery phase.

Background

In the aftermath of the 2009 pandemic, Member States, WHO and other organizations have a unique opportunity to benefit from the experience and lessons learned and to strengthen their preparedness for future pandemics, as well as for other major health threats.

Prior to the pandemic, Member States invested considerable resources into pandemic preparedness by developing and exercising pandemic plans and implementing preparedness activities aimed at reducing morbidity and mortality, as well as the socio/economic effects of a possible pandemic. In the European Region, this work was supported by the WHO Regional Office for Europe in collaboration with the European Commission, the European Centre for Disease Prevention and Control (ECDC) and other key partners, through the provision of guidance, training and the organization of meetings to exchange experiences and good practice.¹

Both individual countries,² as well as WHO,³ are in the process of evaluating their responses to the pandemic. An important component is to determine how pandemic preparedness activities (PPA) undertaken by countries and WHO aided the response. The Regional Office, in collaboration with the WHO collaborating centre for pandemic influenza and research, University of Nottingham, United Kingdom, therefore evaluated how PPA aided the response to the pandemic. The outcome of the evaluation is a set of recommendations for good practices in pandemic preparedness and is expected to assist Member States, as well as WHO, in the revision of their pandemic plans.

Objectives

The aim of this research was to evaluate how PPA aided the response to pandemic (H1N1) 2009 by:

- o describing the process of Member States' pandemic planning and how it aided their response to pandemic (H1N1) 2009;
- o describing the appropriateness of the PPA in relation to areas where an effective response was needed on the ground;
- o determining how PPA could have been performed differently in the pre-pandemic period to improve the overall response to the pandemic; and
- o obtaining a set of good practices for future pandemic planning, as well as defining areas where WHO support is needed.

Methodology and analysis

The evaluation was performed in seven countries, identified through a stratified random selection procedure in order to provide a good representation of the diversity of countries in the WHO European Region. These were Armenia, Bosnia and Herzegovina, Denmark,⁴ Germany, Portugal, Switzerland and Uzbekistan. Information was obtained in two stages and was aimed at obtaining detailed information from a group of stakeholders as diverse as practically feasible. In the first stage, WHO teams visited each country and interviewed key national, regional and local stakeholders including Ministries of Health and Civil Response, national Public Health authorities, regional authorities, family doctors⁵ and hospital physicians. Interviews were conducted using questionnaires with open-ended questions that covered the

¹ Influenza [web site]. Copenhagen, WHO Regional Office for Europe, 2010 (<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/influenza/activities>, accessed 8 December 2010).

² Evaluation of the response to pandemic (H1N1) 2009 in the European Region [web site]. Copenhagen, WHO Regional Office for Europe, 2010 (<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/influenza/pandemic-h1n1-2009/evaluation-of-the-response-to-pandemic-h1n1-2009-in-the-european-region/country-evaluations-of-the-response-to-pandemic-h1n1-2009-in-the-european-region>, accessed 8 December 2010).

³ External review of pandemic response [web site]. Geneva, World Health Organization, 2010 (http://www.who.int/ihr/review_committee/en/index.html, accessed 8 December 2010).

⁴ Pilot country for the methodology.

⁵ These may be general practitioners or doctors in outpatient health care facilities.

objectives described above. In total, 49 interviews were conducted constituting 90 hours of recorded material transcribed into approximately 600 pages of information. Analysis of this material was aggregated across stakeholder groups from the seven Member States, and six themes in pandemic preparedness were identified. The PPA that worked well or did not do so were categorized under these six themes: communication; coordination; capacity; mutual support; leadership; and adaptability/flexibility.

A summary table for each stakeholder group was generated and formed the basis for discussion during the second stage of the evaluation: a workshop for participants from the seven countries held at our Office on 20-22 October, 2010⁶. Participants from the seven countries worked in stakeholder groups and identified from the relevant summary table a list of priority issues and recommendations. These have been supplemented with additional information obtained from the interviews, as well as key themes presented by the participating countries during the workshop.

For a detailed description of the methodology and results, please contact the Regional Office (influenza@euro.who.int).

Priority issues and recommendations for good practice in pandemic preparedness

The following section describes the issues considered important for good pandemic preparedness and response, recommendations for good practice and areas in which WHO support is needed by Member States at the national, regional and local (primary and secondary health care workers) levels. These are specific requests for WHO support needed in addition to the overall continued support of WHO in pandemic preparedness planning and activities.

National level⁷

Issues important for good pandemic preparedness and response:

1. strong leadership and government engagement in conducting PPA
2. appropriate government funding of PPA
3. effectiveness of the planning process and development of the pandemic plan
4. effective communication among health care professionals, the public and other stakeholders
5. effective strategies for implementing pandemic interventions
6. development of professional capacity for successful implementation of PPA

Recommendations for good practice

1. Strong leadership and government engagement in conducting PPA

To undertake PPA, effective political leadership that can engage health and other relevant ministries is needed. This requires the following.

- (a) Leadership should be based on strong political engagement.
- (b) Multi-stakeholder and multi-sectoral coordination, command and control (between ministry of health/national public health authorities and non-health sectors) should be based on established infrastructure and should be continually strengthened during the planning process.
- (c) A task force or crisis group needs to be established at appropriate levels, which clearly identifies and documents agency and individual roles (e.g. who makes which decisions), thereby setting a pandemic action mandate.

⁶ New collaborating centre studies pandemic preparedness [web site]. Copenhagen, WHO Regional Office for Europe, 2010 (<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/influenza/news2/news/2010/11/new-collaborating-centre-studies-pandemic-preparedness>, accessed 8 December 2010).

⁷ As determined by health ministries, ministries responsible for civil response and national public health authorities

- (d) The roles and responsibilities of the task force/crisis groups should be described in a clear flow chart of responsibilities as part of the contingency plan or framework and shared with all relevant stakeholders.

WHO is requested to assist Member States in the development of responsibility flow charts, according to organizational structures and possible pandemic scenarios.

2. Appropriate government funding of PPA

In order to sustain activities required for good pandemic preparedness and response, routine funding for PPA is necessary **and** additional funding needs to be identified and then made accessible for implementation of activities both before a pandemic and during the event itself.

Multi-resource capacity (i.e. finance, hospital resources, preparation of advance vaccine purchase agreements, technology, surveillance, ability to assess risk dynamically and define pandemic severity, ability to develop guidance) is a requirement for a good planning and response.

WHO is requested to recommend in its pandemic guidance that Member States have dedicated budget lines for pandemic preparedness and response and, where requested and where feasible, assist in identifying sponsors to cover costly interventions (e.g. vaccine).

3. Effectiveness of the planning process and development of the pandemic plan

For an effective planning process and development of the pandemic plan and PPA at all levels.

- (a) Broad and multi-sectoral/-level stakeholder representation and support in the planning process and response is required and can be provided by ensuring that the following.
- i. All stakeholders are represented during pandemic preparedness meetings, which should occur at different levels with the presence of overarching coordinating teams.
 - ii. Stakeholders are from all levels (national, regional and local) for both health and non-health sectors.
 - iii. There are effective communication channels across sectors and among stakeholder levels (intra/intersectoral cooperation and coordination).
 - iv. Stakeholders include national professional medical organizations, health insurance companies, nongovernmental organizations (NGOs) and international organizations.
 - v. A communication plan is incorporated **within** the national pandemic plan.
 - vi. Planning incorporates experience from previous outbreaks (corporate memory) and input from independent experts.
 - vii. There are multiple plan revisions and adaptations, and intersectoral cooperation.
 - viii. There is international planning and interoperability between countries and regions.
 - ix. Guidance is sought from international organizations and from other countries' plans.
 - x. Information about the planning process, as well as the people/organizations involved, is communicated to the public and other stakeholders to emphasize broad involvement.
- (b) Pandemic plans are considered most useful under the following conditions.
- i. They offer a framework for planning, rather than consisting of copious documents.
 - ii. Preparedness planning tools are not over-specified, proving to be unrealistic during the response.
 - iii. For the management of the response, tools such as checklists concentrate on priority actions to be carried out during the response operations.
 - iv. Pandemic preparedness planning activities are not only based on worst case scenarios.
 - v. They are flexible and adaptable providing that:
 - o flexibility can be enhanced by developing a plan that describes different indicative or illustrative scenarios of varying impact (but not in detail), includes a portfolio of

- measures to be implemented according to the local situation (impact) and acknowledges that the capacities need to be in place to respond accordingly;
- o adaptability needs to be inbuilt so that regional and local level players can more easily adjust plans to suit the immediate situation on the ground;
 - o different indicative scenarios (of varying impact) can be considered to evaluate capacities and required surge; and
 - o Member State guidelines and protocols developed during a pandemic should not be changed too often and should be of an appropriate complexity for end-users.
- (c) Exercises and simulations need to be incorporated as an integral part of planning activities, and include subnational levels, to achieve inter-organizational familiarity. Cross-border planning and exercises support the development of an effective pandemic plan.
- (d) Business continuity plans (BCP) need to be in place before the pandemic. National decrees/orders, regular meetings, public awareness, human resource and financial support are all useful in developing and implementing BCP.

WHO is requested to:

- provide support in the development of regional as well as national pandemic plans; and
- revise the WHO pandemic guidance with respect to the phases in order to take into account both spread and other epidemiological indicators (such as severity) and the need for countries to develop flexible plans based on practical thresholds for action within countries (for escalation AND de-escalation).

4. Effective communication among health care professionals and the public

This can be achieved by integrating communication aspects into all planning, preparedness and response activities, including effective communication to the public.

- (a) Key spokespersons for disseminating information to the public need to be identified prior to the pandemic and they need to give clear, consistent and balanced messages. Establishing solid structures/organizations to handle extra pressure that is placed on communications targeting the public, doctors, hotlines, etc. during the pandemic is recommended.
- (b) It is important for national (and other) stakeholders to be ready to change communication strategies when new information is provided/ updated.
- (c) Platforms and tools for internal and inter-country communications (e.g. use of the IHR platform) need to be established and tailored to the different types of information being communicated to different stakeholders.
- (d) Follow-up and evaluation need to be performed on how information is received and perceived by health care providers, the public and other stakeholders.

In addition to the above, effective communication with health professionals is developed by:

- (a) establishing ways to inform hospital doctors, family doctors and other health professionals using existing channels that are effective and trusted (e.g. via medical professional societies); and
- (b) making information more concise, clear, and customized to different health care worker audiences (e.g. nurses, paediatricians, staff of intensive care units (ICU), family doctors, etc.) and more balanced, in that it addresses issues such as public health gain versus individual health gain of implemented measures.

WHO is requested to support the facilitation of effective communication strategies by:

- providing guidance on strategies for effective communication to the public, which include training needs of ministry spokespersons; and
- developing indicators to monitor the extent to which the information received by health care professionals is appropriate and useful.

5. Effective strategies for implementing pandemic interventions

For all interventions that may be implemented during a pandemic (including the use of antiviral drugs and vaccines, prevention measures at schools, travel advice/ border control measures and essential service protection) a strategy that includes communication aspects needs to be developed. Strategies are considered effective if they:

- (a) are flexible: for example, the lack of flexibility in advance procurement contracts for pandemic vaccine is a major issue that needs to be addressed;
- (b) include a range of pandemic preparedness approaches/strategies applicable to different situations;
- (c) include logistics and distribution plans (e.g. vaccines);
- (d) include risk assessment strategies in the plan based on more than just case numbers (e.g. health care services capacities, especially ICU);
- (e) include communication aspects and are transparent (e.g. the process for selection of vaccines for procurement); and
- (f) include advance stockpiling, e.g. for drugs and equipment.

WHO is requested to provide examples of models for pandemic planning in:

- communication strategies; and
- public health measures (e.g. vaccine deployment plans).

6. Capacities required for successful implementation of PPA

The capacities required for effective pandemic response are built by:

- (a) strengthening routine surveillance for severe disease in hospitals (sentinel SARI surveillance);
- (b) developing monitoring systems for influenza vaccine uptake;
- (c) having capacity to perform risk assessment including severity at the local/ regional/ national level;
- (d) using established and tested information systems rather than having to develop new ones during the pandemic;
- (e) having an effective health care worker-force, in which issues related to carer-absenteeism and health care worker risks have been addressed.

Regarding data requirements for risk assessment and response during the pandemic, it is desirable to:

- (a) have defined a minimum national data set and have access early on to external data from countries first affected for decision-making;
- (b) achieve this by making internal data collection procedures feasible and accessible (e.g. hospital data that is not normally provided to public health authorities) while making data available in real-time;
- (c) increase awareness among persons responsible for risk assessment on the availability of external data.

Regarding guidance for health care professionals on the clinical management of patients, this should preferably be developed by frontline professionals to ensure that guidance is practical, readily understandable, specific, and trusted.

WHO is requested to provide:

- guidance on performing risk assessment and in defining the minimum set of (internal) data required for effective decision-making in pandemic preparedness and response; and
- a checklist to support countries in understanding the pandemic situation and what is needed for an effective response.

WHO is requested to facilitate:

- collection and sharing of surveillance data as well as other country-relevant information and indicators from Member States in a coordinated and standardized manner.

Regional level⁸

In order to ensure good pandemic preparedness and response by the Member States, specific issues needing to be addressed were identified at the regional level. These issues are related to:

1. planning and implementation/response
2. risk communication
3. health care workers' adherence to vaccination
4. vaccine supply and procurement strategies.

Recommendations for good practice

1. Planning and implementation/response

In order to ensure effective response at the regional (and local) level, the following should be considered.

- (a) National plans and related guidelines are essential to provide a framework to ensure that regional plans, as well as local and hospital plans, are well developed.
- (b) To ensure that regional plans are adaptable to the local situation, there needs to be more community involvement, development of local plans and better coordination between health care specialists and disaster planning groups.
- (c) Coordination activities and meetings should be held on a regular basis with support and follow up from the national level, facilitated by effective communication channels for feedback.
- (d) The same communication channels should be used for feedback during the response and are especially important to convey changes in reporting requirements.
- (e) Planning should include detailed scenarios for vaccine logistics including distribution, reimbursement and monitoring vaccine uptake.
- (f) Planning must identify and provide resources for sufficient hospital capacity (especially paediatric care), stockpiles (e.g. diagnostics, personal protective equipment, antivirals and vaccines), clinical specimen referral and resources to take containment measures. In this respect, over-reaction or automatic reaction to pandemic phase changes at the national and international levels should be avoided and each development considered in its regional context.
- (g) The resources required for containment activities and contact tracing that are both time and resource intensive need to be identified beforehand.
- (h) A good planning process should increase public health awareness among the public.

WHO is requested to provide:

- training and education for stakeholders at the regional level; and
- support in revising plans.

2. Risk communication

Specific issues related to risk communication must be addressed for an effective planning process and pandemic response.

Regarding risk communication capacity:

- (a) general strengthening of risk communication capacity and capability at the national, regional and local levels is needed;
- (b) the communication on the criteria for the transition between the phases (e.g. geographical spread versus the severity of disease) needs to be improved;
- (c) there needs to be rapid information flow from national to regional levels, including outbreak investigation findings, surveillance data, etc. to ensure a timely response.

Regarding pandemic vaccines:

- (a) it is important to communicate in a unified and effective way to health care workers and the public the efficacy and safety of vaccines in countries that have access to the vaccine;

⁸ As determined by regional government authorities and regional public health authorities.

- (b) campaigns on vaccine efficacy and safety need to be more aggressive and run in a timely manner, e.g. before vaccine arrival;
- (c) awareness and effective use of new information technologies and media (e.g. social media) through the provision of training, guidelines and research is essential.

WHO is requested to:

- support the development and reinforcement of risk communication networks;
- revise the WHO pandemic guidance with respect to the phases; and
- improve flexibility of guidance by providing multiple scenarios for planning (e.g. mild/severe situations) and clearer guidance on actions that are required and are dependent upon possible different situations faced at the regional level.

Regarding the need for information from international organizations:

- (a) WHO, ECDC and other international organizations should provide frequent, clear and concise information that is necessary for an effective pandemic response (e.g. impact assessment);
- (b) there needs to be better coordination developed between WHO, ECDC, and other partners on key messages and communication channels used to disseminate information to the countries and regions;
- (c) it is vital to raise visibility, broaden dissemination of WHO information and increase accessibility of pandemic information.

WHO is requested to:

- translate WHO documents and guidance within a short time frame;
- better convey Region-wide information e.g. by making EuroFlu more accessible beyond the ministries of health;
- provide more concise, clear and frequent information (e.g. impact assessment) necessary for an effective pandemic response; and
- coordinate more closely with EU partners (ECDC) with regard to information provided.

3. Health care workers' adherence to vaccination

Health care workers are at the frontline in caring for patients with pandemic influenza. Thus, they play an important role in promoting the use of vaccines as a preventive measure among the public. Efforts need to be undertaken to maintain levels of acceptance in countries where it is high and to improve acceptance of pandemic vaccination among health care workers in countries where it is low. It is therefore recommended that:

- (a) more training and educational activities (e.g. workshops, seminars, etc.) be made available for health care workers;
- (b) authorities and medical professional associations address uptake, including a discussion on the leadership role of health care workers and their moral/professional obligation to accept vaccination and support public health prevention efforts;
- (c) authorities are empowered within the health care settings, e.g. by using best practice examples from hospital directors and health care centre directors where a high vaccine uptake was achieved.

4. Vaccine supply and procurement strategies

Issues related to vaccine supply and procurement faced by the regional tier included delays in vaccine supply and limited dissemination of important information that should have been provided to all levels (e.g. vaccine delivery time, quantity and format).

In order to improve the procurement and supply of vaccine at the regional level:

- (a) national pandemic plans should take into consideration inputs received from the contracted vaccine supplier(s);
- (b) important information on vaccines (e.g. vaccine delivery time, quantity and format) should be conveyed to the regional tier from the national level.

WHO is requested to:

- review the timeliness with which pandemic vaccines were made available to countries eligible for a donation from the WHO stockpile; and
- continue to pursue the regulation of vaccine distribution in terms of need rather than market interests (through establishing a global stockpile and/or mechanism for tiered pricing) to enhance the equity of access to vaccines in future pandemics.

Primary and secondary health care⁹

In order to ensure good pandemic preparedness and response by the Member States, specific issues of importance to primary and secondary health care workers need to be addressed.

Issues include:

1. planning process effectiveness
2. rational use of limited diagnostic capacity
3. role of family doctors in PPA
4. communication effectiveness within the health care system
5. need for ICU capacity building
6. delivery and acceptance of vaccines

Recommendations for good practice

1. Planning process effectiveness

To improve planning process effectiveness:

- (a) national and regional plans, with related clinical management guidelines, infection control and operational guidelines, provide a good basis for the planning stages in hospitals and are required during the response;
- (b) it is beneficial for local level/hospitals to have an obligation to prepare their own plans. also, hospital plans should include options for different scenarios (mild/severe);
- (c) training of hospital staff and the establishment of stockpiles for treatment, personal protective equipment etc., are crucial.

2. Rational use of limited diagnostic capacity

To ensure the rational use of diagnostic capacity, the prioritization of testing for surveillance versus clinical purposes, especially within a limited resource environment, should be determined according to the different stages that might occur during a pandemic (e.g. period of detection of first cases, period of trying to delay spread, period when there is widespread community transmission), and depending on the severity, through:

- (a) addressing these issues within the national pandemic plan, laboratory contingency plans and guidance for frontline health care workers on appropriate use of testing;
- (b) assessment of resource availability before the pandemic;
- (c) authorities communicating changes in diagnostic priorities to clinicians and the different laboratories in a timely fashion.

WHO is requested to provide a set of guiding principles to assist the development of national solutions to the prioritization of testing.

⁹ As determined by primary and secondary health care clinicians and laboratory experts

3. Role of family doctors in PPA

To increase the involvement of family doctors in PPA:

- (a) bottom-up as well as top-down approaches should be used during the planning process;
- (b) family doctor views should be given more weight when PPA are undertaken;
- (c) strategies for testing and validating the efficacy of the pandemic plan at the family doctor level need to be implemented;
- (d) improving the access to and dissemination of plans within the general practice context is needed;
- (e) the need for information and feedback of family doctors during a pandemic should be met, for example, by developing a web site where family doctors can ask questions and get answers.

WHO is requested to encourage Member States to increase the involvement of family doctors in PPA.

4. Communication effectiveness within the health care system

The following are needed to improve communication effectiveness within the health care system.

- (a) The development of vertical networks between the ministries of health and health care workers is needed.
- (b) It needs to be ensured that the intended message reaches health care workers by developing and testing for functionality and effectiveness of communication channels for different health care worker groups (especially family doctors) by means of simulation exercises during the pandemic planning stage.
- (c) Greater involvement of communication specialists and consideration of communication theory needs to be undertaken when communicating with health care workers.
- (d) New communication tools (e.g. established through the internet) should be considered, as they have proved to be helpful.
- (e) Member State guidelines and protocols developed during the response phase should not be changed too often and should be of an appropriate complexity for end-users.
- (f) Coordination within a hospital benefits from choosing one person to disseminate information and this is necessary for early identification of cases, as well as during other stages of the response.

WHO is requested to specify to Member States that developing and testing communication channels within the health care system is an essential part of PPA.

5. Need for ICU capacity building

The following are needed to build ICU capacity.

- (a) Coordination of resources between hospitals is needed for an effective response, e.g. bed bureaus and monitoring of ventilator availability, especially in paediatric units.
- (b) Triage tools linked to severity assessment are required.
- (c) Surge capacity needs to be assessed and addressed through training for micro-planning.

To support ICU capacity building, WHO is requested to provide:

- early data on severity to feed planning tools;
- oxygen therapy guidelines; and
- a checklist for ICU capacity planning.

6. Delivery and acceptance of vaccines

As acceptance of vaccine by patients is linked to health care workers' endorsement, it is important to improve acceptance among health care workers and the public as an important pandemic preparedness and response measure by:

- (a) providing supportive and informational material on the benefits and risks of new vaccines to health care workers;
- (b) increasing seasonal flu vaccination uptake among health care workers;

- (c) reaching the public via convinced health care workers and peers;
- (d) promoting vaccination as a social act (among health care workers);
- (e) assessing pandemic severity, availability of resources and cultural context as factors that can influence a population's attitude towards vaccine acceptance.

WHO is requested to:

- o recommend Member States to strengthen communication on vaccination in PPA;
- o provide vaccine information templates which can be adapted at country level; and
- o renew efforts in order to increase seasonal vaccination uptake among health care workers.

Conclusions

Using a scientific methodology, it has been possible to review the extent to which PPA undertaken by Member States in the WHO European Region proved worthwhile and effective in terms of the response to the 2009–2010 influenza A (H1N1) pandemic.

Overall, it is clear that PPA undertaken from 2004 to early 2009, with assistance and leadership from WHO, were considered to have been worthwhile and to have improved the pandemic response in 2009–2010, the broad range of tasks and work streams undertaken as PPA (e.g. exercises, capacity planning) being ultimately more important and influential than the Plan itself. Indeed, specific comments were made that plans in the style of a high quality but broad ranging framework (principles of operation) were more useful than those in the style of densely packed technical manuals which could not be followed to the letter. Political support, dedicated funding for PPA, and multi-sectoral/multi-agency planning were clear strengths in many countries.

The comments of interviewees suggest that there are common thematic elements that should be considered essential considerations by individual Member States when revising, re-formulating or rejuvenating national pandemic plans (and associated preparedness activities) during the post-pandemic evaluation period. These are:

- communication
- coordination
- capacity
- adaptability (flexibility)
- leadership
- mutual support

CALM

In terms of the 2009–2010 response in the European Region, the most problematic areas and those where PPA in the post-pandemic recovery period require stronger emphasis are:

- risk communication in general, especially regarding vaccination;
- vertical communication within the health care system (with greater emphasis on frontline health care workers);
- more involvement of frontline health care workers in PPA;
- vaccine procurement planning;
- operational planning for vaccine distribution/logistics;
- increased flexibility/adaptability in planning across a wider range of impact scenarios (mild to severe), especially at local and regional tiers;
- PPA for improved real-time surveillance/intelligence gathering, especially early on and especially in hospitals (case severity);
- optimization and best use of scarce diagnostic capacity;
- improved acceptance of influenza vaccination by health care workers.¹⁰

The findings from this exercise should be used to strengthen European pandemic planning during the post pandemic recovery period.

“Plans are of little importance, but planning is essential” – Winston Churchill

“Plans are nothing; planning is everything” – Dwight D. Eisenhower

“No battle plan survives contact with the enemy” – Helmuth von Moltke the Elder

¹⁰ This is not technically a pandemic specific issue, relating equally well to seasonal influenza but the two are linked.

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

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Recommendations for Good Practice in Pandemic Preparedness

**Identified through evaluation of the response to pandemic
(H1N1) 2009**

**World Health Organization
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