



TECHNICAL REPORT

PANDEMIC INFLUENZA PREPAREDNESS IN THE EU

**Status Report as of Autumn 2006
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MESSAGE FROM COMMISSIONER KYPRIANOU

As early as 2001, the European Commission initiated discussions with experts from all over Europe on ways to improve preparedness for an influenza pandemic at EU level. Since then, considerable progress has been made by the EU and its Member States in strengthening their preparedness against pandemic influenza.

Triggered by the worldwide spread of the avian H5N1 virus, the last two years have seen an intensification of action and all Member States have now developed their preparedness plans. During this period, ECDC, the Commission and the WHO Regional Office for Europe have been working closely together in assessing national pandemic preparedness plans through country visits and in organising regional workshops. In November 2005, the Commission updated its EU pandemic preparedness plan from March 2004, to take into account the WHO's revision of pandemic phases and ECDC becoming operational.

This report, prepared by ECDC, is a first preparedness review in which 27 countries (25 EU Member States plus Iceland and Norway) participated. A second status report will be delivered following completion of the assessment of all EU countries (including Bulgaria and Romania) in 2007. This first report is based on many sources including country assessment visits, the simulation exercise 'Common Ground', the different workshops that have been held and a questionnaire on the level of preparedness. The report illustrates the substantial progress made in preparing for a possible pandemic influenza, but at the same time, it highlights a number of important areas where further work needs to be done.

The Commission is committed to foster a continued political drive, so that the necessary time and resources are invested to tackle the outstanding issues identified in this report. This report is instrumental in underpinning the importance of sustained efforts at all operational levels and across all government policies. Only after recognising the task ahead and giving it the necessary priority, can we reach an adequate level of pandemic preparedness throughout Europe.

Markos Kyprianou
Commissioner for Health and Consumer Protection





1. FOREWORD

The European Commission and Member States had already been working together on pandemic preparedness for several years prior to 2005. However, during the course of that year a growing perception among policy makers that a pandemic could be nearer than previously imagined led to a step change in preparedness efforts in Europe, and indeed internationally. This perception was largely, though not exclusively, driven by the spread of H5N1 avian influenza in the world's bird population and the growing number of human cases of H5N1.

Following the template of WHO's 2005 pandemic plan, ECDC, together with WHO EURO, had already developed a methodology for preparedness assessment reviews, which was tested during joint missions to both EU and non-EU countries and then used to help EU countries assess their preparedness during 2005 and 2006 by ECDC missions supported by the European Commission. These country visits have been complemented by regional workshops of EU and EEA/EFTA countries, a 'Command post' exercise conducted by the Commission and similar national exercises conducted by Member States. The results have been used to keep Markos Kryprianou, European Commissioner for Health and Consumer Protection, fully and regularly updated on the EU's state of preparedness.

This report is the first formal documentation of the EU's pandemic preparedness status. It describes the situation as of October 2006. A second status report will be delivered following completion of all EU countries in 2007. The current report shows that the EU countries have made great progress in preparing for a possible influenza pandemic. However, we cannot be complacent, as it is clear that there is still much to do. In this regard, the report also highlights areas where further progress needs to be made.

It is a question of 'when' not 'if' a pandemic will occur. The cycle of pandemics is over decades, whereas that for seasonal influenza is every winter and needs to be tackled, year in year out. It is also clear that efforts to combat each are both complementary and inter-related.

ECDC will continue to monitor the worldwide influenza situation and react promptly to any threat to human health in the EU. At the same time we will continue with our efforts, together with Member States, the Commission and WHO, to strengthen the EU capacities to deal with a potential influenza pandemic. However, as winter approaches, the current priority is to increase all our efforts to mitigate the effects of the yearly outbreak of seasonal influenza. This regular health threat causes much illness and thousands of deaths each year on our continent. Tackling seasonal influenza must therefore continue to be a major priority for ECDC. We will continue to support the efforts of the Commission and Member States to cope with this problem and through this to further strengthen the overall European preparedness.



Zsuzsanna Jakab
Director ECDC

2. EXECUTIVE SUMMARY

Since 2005, the EU and all its Member States have made considerable progress in strengthening their preparedness against pandemic influenza. The health sectors in all countries have developed preparedness plans and, at national level, much is being done to make these plans operational. The challenge now lies in maintaining the momentum and further engaging with non-health sector issues, locally and across governments. This report identifies a number of other important areas where more work needs to be done. We estimate that a further two to three years of sustained effort and investment are needed by the EU and its Member States to achieve the level of preparedness needed to respond well to a pandemic. This means reaching a level of preparedness where one can be confident that:

- the primary care system will be able to deliver treatment to most of those who need it;
- the hospital system will be able to deliver acute care to influenza patients as well as continuing to provide essential treatment for non-influenza related conditions;
- essential services like power, food and fuel supplies will continue to function at the local level;
- pandemic vaccine will arrive in the hands of primary care services within six months of the start of the pandemic.

Twenty-seven countries participated in the preparedness review on which this report is based. Those countries are the first 25 EU Member States, plus Iceland and Norway. A full description of the methodology used is given in Section 5.

The major developments in EU preparedness since 2005 identified by the report are as follows:

- All Member States have national health sector preparedness plans.
- All have moved on from the stage of preparing plans to making them operational.
- There is currently a high level of political commitment to the pandemic preparedness process across the EU.
- Officials involved in improving preparedness are aware of the threat and highly motivated.
- There has been considerable investment in influenza research at both EU and national level.
- Some Member States have, or are in the process of building, large stockpiles of antiviral drugs and all countries have at least some antivirals available.
- There are systems in place to detect and investigate initial cases of pandemic influenza in most EU countries.
- There is a growing body of EU-level guidance on pandemic preparedness.
- A standardised method to enable Member States to assess their preparedness has been developed by the EU in collaboration with WHO.
- The EU and WHO have held regular Europe-wide pandemic preparedness workshops.
- An EU-wide pandemic simulation exercise was held in November 2005 involving all Member States.



- Many Member States have developed innovative approaches that other countries can learn from.
- Arrangements for a certain level of coordination and prior information on communications to the press and the general public have been agreed.

The key areas where further work is needed include:

- **Integrated planning across governments.** A pandemic will impact on the whole of government and society, yet there are hardly any published examples of government-wide pandemic plans in EU countries. Most have essentially health sector plans and many countries report not yet having business continuity plans for essential public services outside the health sector during the sustained stress of a pandemic (e.g. transport, utilities, police, etc).
- **Making plans operational at the local level.** Most countries are starting to prepare local primary care and hospital services, since national preparedness efforts will not be effective unless the frontline responders are properly prepared. Further work is needed, though, in all countries. Specific issues that need to be addressed include reconfiguring hospitals so they can deliver essential services at the height of a severe pandemic and the logistics of rapidly distributing antiviral drugs to those who need them, when they need them.
- **Interoperability at the national level** making sure that national plans and actions work well together between counties and within countries, undertaking more joint planning and exercises between neighbouring countries and EU-wide exercises.
- **Stepping up prevention efforts against seasonal influenza.** Immunisation and a number of other public health measures planned for use against pandemic influenza can also be used against seasonal influenza. The more effective we are in preventing seasonal influenza – and the more used we are to using vaccines and antivirals – the better prepared we will be to deal with a pandemic. Just as importantly, better prevention against seasonal influenza can save thousands of lives each year across the EU.
- **Extending influenza research** from basic science to include more operational research into how seasonal influenza spreads and can be prevented as well as more work developing better seasonal and prototype pandemic vaccines. This will all help us to be better prepared for a pandemic.

By acting together, Member States and the European Commission, supported by EU Agencies like ECDC, have made great progress in preparing Europe for a pandemic. A further two to three years of intense work are needed to finish the job.

3. SUMMARY OF POLICY OPTIONS FOR FURTHER STRENGTHENING OF PREPAREDNESS ¹

(See also Section 6 for more detail.)

3.1. Seasonal influenza

- Adopt EU-wide coverage standards based on the goals agreed at the WHO's World Health Assembly for immunisation in target groups.
- Ensure that the jointly adopted EU standards for vaccine uptake are met and establish regular monitoring of effectiveness of the vaccine.
- Adopt communication messages and educational materials concerning seasonal influenza for the public and health care workers based on the best examples in Member States (MS).
- Undertake research to improve vaccines, and on mechanisms of influenza transmission, infection control and the effectiveness of public health measures and antivirals.

3.2. Pandemic preparedness

Planning, coordination and maintaining essential services

- Develop scientifically-based estimates of the numbers of people likely to be affected by pandemic influenza needing medical and social care in the EU.
- Improve the exchange of planning presumptions between MS.
- Extend planning and preparations down to regional and local levels and front line staff within the MS.
- Define key target groups for specific preventive messages and protection such as health and emergency personnel within the MS.
- Develop plans for providing surge capacity and coping with staff absenteeism over months within the MS.
- Develop preparedness and business continuity plans across the non-health sectors at national and regional levels within the MS.
- Federalised countries to consider how they can best ensure preparedness and interoperability at regional level where health is a devolved responsibility.

Surveillance, situation monitoring and assessment

- Continued development, by ECDC and MS, of a schematic plan for surveillance in a pandemic, including specific plans for each of the WHO-defined pandemic phases and with particular attention to pandemic phase 6 including lists of critical information that will be needed early in a pandemic.

¹ Recommendations from workshops of Member State representatives and their subsequent comments.



- Consideration of how best to set up systems for monitoring health and non-health sectors within the MS in order to know how these are functioning and whether they are coping or need more resources.

Prevention and reduction of transmission

- Production of background documentation for inclusion within the menu of personal and public health measures that might be expected to reduce transmission in a pandemic.
- Development of background guidance on the approach to human H5N1 vaccines.
- Finalised plans for acquiring and delivering pandemic vaccines within the MS.

Health service response

- Integration of pandemic preparedness within primary and secondary health care systems, training of all health care workers as needed and prioritisation of which core health care functions are to continue during a pandemic.
- Development of practical plans within the MS for maintaining essential hospital services in a pandemic including strategies for supplies of antibiotics and other medication.

Antivirals for therapy and public health purposes

- Provision, by ECDC, of background scientific information on the use of antivirals for public health purposes.
- Development and comparison of documentation on the principle of antiviral delivery and some of the alternative models of delivery being developed in MS.
- Consideration, by MS together with EMEA and ECDC, of mechanisms to monitor effectiveness, side-effects and resistance through real time surveillance.

Communication

- Continue the network of EU and Member State communication officers dealing with influenza and test the systems with exercises as and when issues arise.
- Foster the development of coordinated messages on seasonal and pandemic influenza.
- Develop background documentation on preparing material for health care workers.
- Review communication 'surge capacity' for a pandemic within MS.
- Develop and continue to refine pre-agreed pandemic messages and materials within countries and between countries where possible, and consider how best to reach minority populations and foreign nationals, including addressing language barriers.

Interoperability between countries

- More systematic discussions between working level policy officials in the MS in order to share information and learn from each other on planning and policy development.
- Determine the legal implications of travel restrictions and other interoperability issues.
- Improved interaction by MS with bordering countries in and outside the EU to discuss and agree on a list of issues such as compatible arrangements for primary and secondary care, common communication strategies and messages, to share triggering mechanisms and conduct cross-border exercises.

3.3. Avian influenza

- Continue the joint CMO and CVO meetings but expand discussions to include other zoonoses as well as avian influenza.
- Prepare or strengthen common health and veterinary plans or linked plans to develop mechanisms in the animal and human health sectors of the MS to timely and efficiently share human-avian data.

4. INTRODUCTION

4.1. Purpose of this document

This status report was prepared by the European Centre for Disease Prevention and Control (ECDC) at the request of Health and Protection Commissioner Markos Kyprianou, member of the European Commission (EC). The objectives of the report are to:

- describe the process of strengthening pandemic preparedness in the European Union (EU);
- summarise the pandemic preparedness status within the EU as at October 2006.

This is done by collaboration between the European Commission (EC), other relevant Agencies and the European Centre for Disease Prevention and Control (ECDC), EU Member States as well as the European Economic Area countries (EEA) and, where applicable, the WHO Regional Office for Europe (WHO EURO).

4.2. Enhancing preparedness in Europe – the process

Most European Union (EU) countries have had pandemic plans for many years² and as early as 2001 the European Commission (EC) organised an EU conference on pandemic preparedness.³ The European Influenza Surveillance Scheme (EISS) has been in place since 1999 as one of the EU Communicable Disease Networks following on from an earlier surveillance scheme^{4,5}. However, pandemic planning and preparedness moved up a gear during the last two years led personally by Commissioner Kyprianou and it has become one of the central items on the agenda of the EU EPSCO (Employment, Social Policy, Health and Consumer Affairs) Council meetings between Member State Ministers, as well as in the bilateral discussions with the Ministers. This has been supported by extensive preparatory and follow up work by the Directorate of Health and Consumer Protection (DG SANCO) in the Commission. The issue took on a new impetus in 2005 when, following initiatives underway

² http://www.ecdc.eu.int/Health_topics/Pandemic_Influenza/Pandemic_Planning.htmlhttp://www.ecdc.eu.int/Influenza/National_Influenza_Pandemic_Plans.php.

³ Conference Preparedness planning in the community: Influenza & other health threats. Brussels, 27 november 2001 http://ec.europa.eu/health/ph_threats/com/Influenza/influenza_conference_1.htm.

⁴ http://ec.europa.eu/health/ph_threats/com/comm_diseases_networks_en.htm.

⁵ European Influenza Surveillance Scheme at <http://www.eiss.org/html/introduction.html>.



by the World Health Assembly, the EC, in collaboration with WHO EURO, organised the first European pandemic preparedness workshop for all EU, EEA and WHO EURO Member States in Luxembourg in March of that year.

After ECDC was established in May 2005, the development of pandemic preparedness activities represented a major investment for ECDC given its limited resources. Initially, ECDC gave priority to the development of strategies to strengthen preparedness at the Member State and EU levels that went beyond simply reviewing preparedness plans. Drawing on the framework and checklist for pandemic plans published by WHO in early 2005⁶, which were then supported and supplemented by EU guidelines, ECDC's strategies included the development of an assessment tool and indicators to review and monitor the state of preparedness, and undertake joint country assessment visits with Member States⁷. Country assessment visits, each investing a number of days, were conducted in 2005 and 2006. Another key part of ECDC's strategy was to identify and share among countries the innovative approaches to influenza preparedness in Member States (see section 5.3). During a meeting of the Joint Coordinating Group between ECDC and WHO EURO an agreement was reached that ECDC and the Commission would assess pandemic plans within the EU while WHO EURO would do the same outside the EU using the same or similar methodology and assessment tools. A joint group working on indicators was established, supported by the Commission (see Section 8).

In addition to the close collaboration between the EC and ECDC and in some aspects of the work with WHO EURO, partnerships with other stakeholders were established, including the European Medicines Agency (EMA) and the European Food Safety Authority (EFSA).

In November 2005, the European Commission published an important communication on pandemic influenza preparedness and response planning in the European Community⁸, as a revision of a previous EU pandemic influenza preparedness and response plan. The Commission also developed the concept of a partnership between the public sector and manufacturers on vaccine development and availability⁹, and in November 2005 the Commission conducted an EU-wide 'command post' simulation exercise on pandemic influenza (Exercise 'Common Ground') to test communications and preparedness plans and coordination between the Member States, the EC and Community Agencies such as ECDC and EMA, as well as with WHO^{10,11}. Through this period the European Commission has

⁶ http://www.who.int/csr/resources/publications/influenza/WHO_CDS_CSR_GIP_2005_5.pdf.

http://www.who.int/csr/resources/publications/influenza/CDS_CSR_GIP_2005_4.pdf.

⁷ ECDC Pandemic preparedness assessment tool. Version September 2006
http://www.ecdc.eu.int/Health_topics/Pandemic_Influenza/Assessment_tool.html
http://www.ecdc.eu.int/Health_topics/Pandemic_Influenza/pdf/Assessment_Tool_060913.pdf.

⁸ Communication from the Commission to the Council, the European Parliament, the European economic and social committee and the committee of the regions on pandemic influenza preparedness and response planning in the European Community, at
http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2005/com2005_0607en01.pdf.

⁹ http://ec.europa.eu/health/ph_threats/com/Influenza/influenza_key03_en.pdf.

¹⁰ http://ec.europa.eu/health/ph_threats/com/common.pdf.

committed large funds to undertaking human and animal research especially aiming at the technical level and vaccines¹².

Further European pandemic preparedness workshops were held in October 2005 in Copenhagen and May 2006 in Uppsala^{13,14}. Alternating with the European level workshops, ECDC with the European Commission has started organising smaller, regional level and topic-based workshops in September 2006 to address specific operational issues within and among Member States. The first two regional preparedness workshops were held in Stockholm in September 2006 for all countries that had not previously been visited by assessment teams, and a communications workshop was held in Athens the same month. The latter leading to the publication of a communications checklist.¹⁵ (See Section 8 for participants).

The assessment tool, the mechanism and the preparedness indicators themselves have evolved considerably during their first year in use. The tool is now used more in a partnership between ECDC and the Member States, rather than an external assessment process. A revised version of September 2006 is now on the ECDC website.⁶ The tool includes more detailed and 'SMART'¹⁶ key indicators that were developed by the working group led by WHO EURO with financial support from the EC (see Section 8 for members). As Member States have improved their preparedness, the tool has moved ahead in its level of detail to guide the next steps. Sections have been expanded on seasonal influenza immunisation and virological services, interoperability, local preparedness, antiviral strategies, exercises, and avian influenza.

5. PREPAREDNESS STATUS

This report on EU preparedness status uses information drawn from many sources including the country assessment visits, the conclusions of the exercise 'Common Ground', the workshops in September 2006, the Uppsala Workshop and a questionnaire that was sent to the EU countries¹⁷ in September 2006, including the set of 20 preparedness indicators used in the revised assessment tool⁶. The country reports are joint products between the EU and the

¹¹ The main issues identified during the exercise as requiring further work included better addressing the international dimension of national preparedness plans, a further development of the EC generic preparedness plan, improving existing communication tools, especially for crisis management and situational awareness, decision support capacity and analytical tools, and to establish adequate command and control centres with liaison systems linking countries and the European level agencies.

¹² EU Influenza Research http://ec.europa.eu/research/health/influenza/projects_en.html.

¹³ <http://www.eurosurveillance.org/ew/2005/051117.asp>.

¹⁴ http://www.ecdc.eu.int/documents/Uppsala060516/Conclusions_Uppsala.pdf.

¹⁵ Outbreak communications during a pandemic: preparedness checklist Sept 2006
<http://www.ecdc.eu.int/Press/pdf/Checklist.pdf>.

¹⁶ *SMART* Indicators – indicators that are Specific, Measurable, Achievable, Realistic and Timely.

¹⁷ The European Economic Area countries Iceland and Norway were also included in the assessment.



Member States and therefore they can only be released with the agreements of both parties. The individual questionnaires distributed before the regional workshops will not be released.

5.1. Preparedness at the EU level

5.1.1. Key findings

Pandemic preparedness across Europe has considerably strengthened since March 2005, with the following main achievements and landmarks:

- The Commission has published background statements on pandemic and generic preparedness, providing frameworks for EU Member States.
- EC/ECDC are collaborating with WHO to support avian and pandemic preparedness in countries bordering the EU.
- EC/ECDC/WHO European pandemic preparedness workshops for the 52 countries of the WHO EURO region are regularly held, now complemented by more focused regional EU meetings held by ECDC in collaboration with the Commission.
- In 2005, the Commission successfully held an EU-wide pandemic influenza exercise in the area of communication that provided important lessons and contributed to strengthening pandemic preparedness in the EU.
- National exercises have followed in various countries.
- ECDC, in collaboration with the Commission and WHO EURO, has developed, tested and improved a tool and procedure for joint national assessments with countries.
- By the end of 2006, 15 EU Member States¹⁸ had been visited, as well as three countries outside the EU,¹⁹ by ECDC teams with input from the Commission and EU Member States (in some cases joined by WHO EURO).
- By the end of 2007, all 27 EU Member States (including the new members Bulgaria and Romania) wishing a joint assessment will have been visited by ECDC teams with input from the Commission and EU Member States.
- A set of 20 key preparedness indicators have been established for Member States, accompanied by guiding subsidiary indicators.
- Countries increasingly have interoperability meetings with their neighbours.
- Research at the EU level on influenza has been reinforced and is becoming more related to public health needs, for example ECDC has recommended more fundamental studies on how influenza transmits and the effectiveness of personal protection and public health interventions.
- Regular teleconferences are held between ECDC, EC, EFSA and EMEA on avian influenza.
- Joint meetings between the Chief Medical Officers (CMO) and the Chief Veterinarian Officers (CVO) of the EU countries started in 2005 and provide a potential EU platform for working on other emerging zoonoses.

¹⁸ Austria, Belgium, the Czech Republic, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Slovakia, Spain and the United Kingdom.

¹⁹ Kazakhstan, Turkey and the Ukraine.

- Training packages for the management of avian influenza outbreaks in humans are being developed with WHO.
- A portfolio of guidelines and other documents regarding the human health aspects of H5N1 avian influenza have been developed by ECDC and published.²⁰
- A tool kit for investigation of outbreaks of avian influenza in humans has been developed by ECDC and could be adapted for other emerging zoonoses.
- Development of EU-wide guidance to improve the prevention and control of seasonal influenza has been started by ECDC.
- A European network of Communication Officers has been put in place, and regular meetings take place in order to harmonise communication activities on avian influenza/ flu pandemic between Member States, and to agree on best practices.
- An informal network has been created of press officers from health ministries or flu coordination cells to exchange experience on communications and agree coordination/mutual information mechanisms within the EU and EEC countries, jointly led by the Commission and ECDC.
- The EC supports the efforts of the international organisations (FAO, OIE, UNDP, WHO, the World Bank, etc) to prevent the emergence of a pandemic virus and to strengthen capacities of developing countries to deal with influenza virus both in animal and human beings.
- EU legislation related to avian influenza has been updated and completed with provisions regarding wild birds.
- EMEA has published guidance on requirements for marketing authorisation applications for pandemic influenza vaccines and has developed and published draft guidance on dossier requirements for pre-pandemic vaccines. EMEA has received applications for pandemic influenza vaccines (mock-up vaccine applications).
- EMEA has developed their pandemic influenza crisis management plan for the evaluation and post-marketing follow-up of pandemic influenza vaccines and for the post-authorisation follow-up of centrally authorised antivirals for use during an influenza pandemic.

5.2. Preparedness at Member State level

5.2.1. Key findings

- All EU countries have national health sector pandemic plans, most of which are publicly available on the internet and are usually being regularly updated or added to.
- All countries have moved on from phase of writing plans to improving operational preparedness – this continues at great pace and generally includes the commitment of additional funds.
- Additions are being made to the national plans to meet specific needs, to cover specific topics (e.g. communications, avian influenza, virological services, etc) and to start more cross-sectoral planning.

²⁰ ECDC Avian Influenza, Scientific and technical guidance
http://www.ecdc.eu.int/Health_topics/Avian_Influenza/Guidance.html.



- Decision makers and those holding budgets are generally aware and committed to the preparedness process.
- Personnel involved in planning and preparations are aware of the threat, highly motivated and dedicated, though sometimes they remain few in number.
- Countries are beginning to address the issue of the need for surge capacity, both in making these preparations and for during pandemics themselves.
- Preparedness work has considerably strengthened networks between institutions and across sectors in most countries.
- Many countries have developed innovative approaches which ECDC is drawing to the attention of other Member States as it becomes aware of them.
- Countries are starting the difficult process of advancing preparedness from the national to the regional (within country) and local level, including the challenges of involving front line staff, preparing hospitals, developing communication networks, community-level services, and the formidable logistics of distributing essential goods in a timely manner to those who need them (e.g. antivirals).
- Countries have made varying progress in broadening preparedness from the health to other sectors, and much more remains to be done in this area.
- To varying extents countries have started to further operationalise their plans through exercises and training of personnel.
- Countries have realised the importance of harmonising preparedness between regions and across borders, resulting in the initiation of consultations between some countries and cross-border exercises.
- Countries at the edges of the EU are increasingly concerned about the need for preparedness in countries neighbouring the EU, and more work on this is needed with WHO regional offices.
- All EU countries have some form of contingency plans and surveillance programmes for avian influenza, both in poultry farms and wild birds.

5.3. Innovative approaches to preparedness

During the country visits, regional meetings and subsequent communications, ECDC staff identified, or had drawn to their attention, successful innovative approaches to preparedness that should be shared with countries. Examples include:

- Using churches to communicate preparedness messages to poorer communities on avian influenza.
- Formal published inspections of regional and local plans and preparedness by a national inspection service.
- Nominating pandemic preparedness representatives in minority populations, e.g. to cross language and cultural barriers.
- Computerised hospital systems that can readily give age-specific mortality data in real time.
- Development of a nation-wide influenza guidance 'intranet' for health authorities by a federalised country.

- Development and use of a joint microbiology and epidemiology 'Alert' unit to investigate novel infections (such as a pandemic virus) that can also provide microbiological 'surge capacity'.
- A national web-based database that can capture case-specific data from the first few hundred cases of a pandemic strain.
- Bilateral interoperability workshops between Member States drawing in bordering regions of neighbouring countries.
- Development of training of trainers approaches for instructing health care workers in pandemic preparedness.
- Explicit standardised national educational materials for all health care workers.
- Production of eye-catching television videos for the public and then making this available to other EU countries.
- General low-key public hygiene campaigns to highlight the personal public health measures during normal influenza seasons.
- A specific campaign promoting rational mask-wearing by the public, and greater availability of masks in commercial outlets during the influenza season.
- An attractive educational section of a national website designed to educate children about influenza.
- Research that is planned to address some of the lack of knowledge about how influenza transmission can be reduced by personal protective measures.
- Development of educational films suitable for use if and when schools are closed during a pandemic.
- Preparing a list of medicinal products whose supply has to be secured for a pandemic so as to prevent over-mortality caused by diseases (not necessary related to influenza).
- Organisation of discussions on the ethical aspects of responding to pandemic influenza (prioritisation for treatment, dealing with isolated populations and the disabled).
- Development of an electronic system specifically for pandemic influenza that allows the patient-by-patient control of antiviral prescription and distribution and the centralised real-time management of an antiviral stockpile.
- Development of an information system which integrates data from several sources (health and non-health) including rumours, clinical data (from ambulatory services and hospitals), laboratory data, mortality data, labour and school absenteeism, among others, to be made available at national, regional and local levels.
- A newsletter providing a regular update of what is being implemented and planned at national level, with an associated service which encourages input in order to establish a continuing and productive dialogue with the key players at other levels.
- Provision is being made by some countries for ensuring the protection of citizens living abroad from avian influenza, especially those living in Asian countries.

5.4. Preparedness indicators

This section summarises the interpretation and discussion of the survey of Member States conducted before the regional meetings in September 2006, using key indicators and complemented by discussions held during the meetings. The questionnaires were completed by the then 25 Member States, Iceland and Norway. The denominators are



sometimes less than 27 because of missing responses. The summary table of the results can be found in the Annex (Section 9).

5.4.1. Seasonal influenza and virology (indicators 1–3)

Almost all countries have epidemiological and laboratory surveillance systems in place (26/27 responses). Most of them are sentinel systems based on reporting by general practitioners (family doctors). While surveillance data are published at the national level in almost all countries, this is less the case at more local (regional) levels (20/25 responses). This is important because the levels of influenza can vary considerably from place to place and there is a need to inform the public and health services about what is happening in their locality in a timely manner. Some countries reported concerns over the representativeness of their system. When questioned, many countries were unsure that their sentinel systems could continue to report in a timely manner or at all in a moderate or severe pandemic, when primary care services would come under strain.

All the national laboratories have typing capacity (27/27 responses) and most can also do subtyping of influenza strains (24/27 responses). All the laboratories participate in the WHO global influenza network. One country reported only having laboratory-based surveillance (i.e. no clinical data were collected from primary care). In discussions and on assessment visits some countries stated that they did not yet have surge capacity plans for laboratory staffing for responding to the additional strain a pandemic would bring.

Seasonal influenza vaccine uptake was stated to be published annually in 19/26 countries. However, not all the countries have information on coverage for >65 year olds (which is required for monitoring progress towards the WHO target of 75% by 2010²¹). In a survey undertaken by ECDC in April 2006, annual uptake was found to vary 30 to 40 fold by country with a range of between 2% and 75% and a significant minority of countries were seemingly unable to provide routine or even survey data to show uptake in the elderly.

5.4.2. Pandemic planning and coordination (indicators 4–7)

Almost all the countries have a national plan and most also have a structure for coordinating pandemic preparedness (23/26 responses). The plans are, however, essentially health sector plans though most now have some cross-sectoral components (22/24 responses). There is no published EU example of a cross-government plan as yet. Most pandemic plans were either updated in 2006 or are currently being updated (20/25); the remaining five were updated in 2005 (5/25). However, a number of countries have stopped updating whole plans as such and are adding subsidiary modules covering additional aspects, local preparedness, avian influenza, communications, etc. All except five countries provided websites or web addresses where the plans can be easily found by professionals and the public.

All countries had central units working on developing further health plans and preparedness, though assessment visits suggest that frequently these units are 'underpowered' (having insufficient personnel). This is especially the case in the more federal countries where health

²¹ Resolution of the Executive Board of WHO 2003. Prevention and Control of Influenza Pandemics and Annual Epidemics. Executive Board 111th Session Agenda item 5.8. January 2003.

is a devolved responsibility and central units have to work particularly hard to create consensus with regional authorities. A number of countries are now engaging pre-existing units that deal with national emergencies and crises not specifically linked to influenza. The plans were stated to be consistent with international (WHO, UNDP) guidance in all of the countries.

National command and control structures were reported to be in place in almost all of the countries (for health services only: 26/27 responses; cross-sectorial command and control structure: 24/26 responses), though discussions at the workshops indicated that these varied in the strength of the links according to the degree of devolution of responsibility for health planning and health service control. For some of the countries that stated 'yes' to this question it appeared that the control links between national and regional or regional and local were not always clear, or may not have been tested. Only half of the countries (13/26 responses) reported having contingency plans for the non-health essential services. Four of these gave websites where those plans are published though other countries reported that they had plans under development under ministries other than Ministries of Health, so the situation may be better than the simple questionnaire responses suggest.

5.4.3. Situation monitoring and assessment (indicators 8–9)

Most of the countries reported having surveillance systems and information plans to detect initial cases and monitor the spread of the pandemic (24/27 responses). However, according to the discussions in the workshops, 'information plan' may have been understood as 'communication plan' by some countries. Furthermore, a number of the situation assessment and monitoring plans were those developed for seasonal influenza or for ordinary outbreaks. It was agreed at the regional workshops that, as they depended on routine reporting, they would probably not work well during the height of a moderate or severe pandemic when those reporting would come under severe stress. It was also noted in the discussions and during the country assessments that many of the surveillance and monitoring plans were not yet tied to explicit objectives and decisions, but were often too process-orientated. These surveillance and monitoring plans are limited to routine surveillance data collection rather than gathering information to answer a specific question that would be needed to determine action in a pandemic. For example, what is the case fatality rate? (so that the severity of the response can be tailored to scale the threat) and among which groups is transmission occurring? (to determine priority groups for prevention).

Discussions also indicated that specialists thought their decision makers sometimes had unrealistic expectations concerning the data that would be available in a pandemic. All countries reported having outbreak investigation capacity (27/27 responses) though it was not always clear that the personnel would be available to undertake the needed investigations in a pandemic when there would be many pressures on their time.

5.4.4. Prevention, mitigation and treatment (includes health system response) (indicators 10–13)

All countries stated that they had educational material available on personal (non-pharmacological) protective health measures for seasonal influenza. However, specific educational material for pandemic influenza was reported to be ready in only two thirds of



the countries (17/26 responses). A group had been established to develop a national strategy for community non-pharmacological public health measures (school closures, travel restrictions, etc) in 21/27 countries, though discussions and assessment visits suggested that few of these groups had many outputs as yet. It was agreed that an EU-wide 'menu' approach would be needed though there was scepticism that a single universal EU approach would be desirable or possible given the variable circumstances in different countries, and even within some countries.

Antiviral strategies have been developed in most countries (23/27 responses) or are under development (4/27). From the questionnaire, it was not possible to state to what extent these are comprehensive strategies and systems, including all steps from stockpiling to distribution and application. Discussions at the workshops and the assessment visits highlighted that a number of countries are trying to establish robust mechanisms for timely delivery of antivirals to the public, though this was not proving easy. Some countries are exploring alternative ways for distribution of antivirals than the primary health care system. Most strategies for antivirals have been updated in 2006. Reported current antiviral stockpiles ranged between coverage of 5% and 50% of the population (one country is still in the planning phase). Some of the differences in size are explained by the differing aims of individual country strategies (treating alone, treatment and prophylaxis). However, stockpiles in many countries are being further increased in 2006 and 2007.

All countries reported either having a pandemic vaccination strategy (18/24 responses) or to have one under development. Most countries that have strategies have updated or added to them in 2006. Not all countries reported having firm arrangements with vaccine manufacturers though all were in the process of negotiation. The role and value of human H5N1 vaccines is starting to be considered in some EU countries and ECDC is convening two expert groups to look at the scientific and operational issues arising from these.^{22,23}

5.4.5. Regional and local arrangements and communication (indicators 14–16)

Most of the countries reported having regional/local planning/coordination structures (24/27 responses), which are mostly cross-sectoral (20/25 responses). Planning documents with nationally agreed parameters were reported to have been produced by 21 of 27 responding countries. However, the meaning of 'parameters' was not clear for all countries and detailed discussions revealed that some countries answering 'yes' had not yet given out explicit planning instructions or assumptions (the numbers of cases requiring care). Almost all planning documents have been updated in 2006.

A communication strategy is in place in only 19 of 27 countries who responded, also mostly updated in 2006. Discussions with communication officers at the Athens workshop indicated that these strategies were sometimes rather basic. However, four of the countries without a

²² ECDC Human H5N1 vaccines – WHO produces guidance on virus composition. Eurosurveillance September 21st 2006 <http://www.eurosurveillance.org/ew/2006/060921.asp#3>.

²³ At the request of its Advisory Forum, ECDC has convened two expert groups to prepare reports on the scientific and practical applications of these vaccines.

current communication plan stated that such a plan is under development and would be finalised in 2006 or early 2007. The European Commission and ECDC have recently published guidance on how to assess communication plans²⁴. An informal network of communication staff from EU health ministries have met several times, allowing valuable exchange of experience.

5.4.6. International interoperability (indicator 17)

Interoperability in this context means work between Member States to determine how well they would work together in the event of a pandemic. To an extent this is a new area and one of the objectives of the regional meetings was to stimulate more of this happening by inviting people to each workshop from neighbouring countries and determining what items should be on an interoperability meeting agenda. Joint work undertaken with neighbouring countries was reported by 14/27 countries. Meetings were conducted mostly in 2006 and items discussed included listing joint problems, establishing an inter-country consultation, discussing vaccine production or antiviral stockpiling and work on public information. A number of the meetings appeared to have been at the ministerial level, but local level meetings were also reported by two countries. Following the regional workshops, a number of countries are now planning meetings with their neighbouring countries. Discussions with Member States also indicated that there were needs within some of the more federal countries where health care and public health are devolved to regions to ensure that there is also good interoperability within countries.

5.4.7. Pandemic exercises (indicator 18)

The majority of countries have undertaken or will undertake simulation exercises in the near future (15/26 responses). However, not all countries are undertaking regular exercises and a few to date have seemingly been relying entirely on EU-wide exercises like 'Common Ground'.

5.4.8. Avian influenza (indicators 19–20)

All responding countries reported a national system for influenza surveillance in animals in place (25/25 responses). Countries stated that they report animal surveillance data regularly as required by EU legislation and several countries provided details of websites where the data are published. Most countries reported to have complementary human and veterinary health plans (23/26 responses). Discussions at the workshops and during country visits indicated that more work is needed on practical and proportionate public health responses to outbreaks where it is unlikely that highly pathogenic avian influenza is involved, and outbreaks of H5N1 in wild birds (apart from one unusual outbreak in Azerbaijan²⁵ no human cases associated with exposure to wild birds have been reported).

²⁴ <http://ecdc.europa.eu/Press/pdf/Checklist.pdf>.

²⁵ <http://www.eurosurveillance.org/em/v11n05/1105-222.asp>.



6. POLICY OPTIONS FOR FURTHER STRENGTHENING OF PREPAREDNESS

All the indicators with a current status of less than 80% (highlighted in Section 9, Annex) were considered to require specific attention across Europe. Four topics that were especially considered at the workshops were health service response, antivirals for public health purposes, communications (the subject of the Communication Officers' workshop in Athens) and interoperability between countries. However, further work was identified by representatives across almost every area encompassed in preparedness. This indicated that the representatives knew that although the EU was well on its way to being the best prepared part of the world, a further two or three years of intense work are required to achieve the level of preparedness needed to respond well to a pandemic. This means reaching a level of preparedness where one can be confident that:

- the primary care system will be able to deliver treatment to most of those who need it;
- the hospital system will be able to deliver acute care to influenza patients as well as continuing to provide essential treatment for non-influenza related conditions;
- essential services like power, food and fuel supplies will continue to function at the local level;
- pandemic vaccine will arrive in the hands of primary care services within six months of the start of the pandemic.

6.1. Seasonal influenza

Tackling seasonal influenza, including improving vaccine uptake and use of antivirals, would reduce the morbidity and mortality that occurs each year among EU citizens^{26,27} and strengthen pandemic preparedness, because:

- increasing use of seasonal vaccine will strengthen industrial capacity for production of a pandemic vaccine;
- the personal measures used against seasonal influenza are essentially the same as for a pandemic – publicity about them, and their increased use, would better prepare the public for a pandemic;
- a research agenda on seasonal influenza, the effectiveness of public health measures, vaccines, and the use of antivirals, will strengthen the knowledge base underpinning the effectiveness of countermeasures in a pandemic.

Finally, it needs to be appreciated that the pandemic may be years away and the potential threat from H5N1 may stay a potential threat while seasonal influenza has to be tackled this and every winter. Epidemics of seasonal influenza cause many preventable episodes of illness,

²⁶ The elderly, those who are at increased risk because they have other respiratory or cardiovascular disease, and health care workers.

²⁷ <http://www.who.int/mediacentre/news/notes/2005/np05/en/index.html>.

hospitalisation and premature deaths.²⁸ These epidemics vary year on year but they are always the source of individual misery and major economic loss.²⁹

Policy options

At EU level:

- Adopt EU-wide coverage standards based on the World Health Assembly goals for immunisation in target groups.
- Increase immunisation coverage for the target groups defined by World Health Assembly (the elderly, those who are at increased risk because they have chronic diseases, and health care workers).
- Establish regular monitoring of effectiveness of the vaccine.
- Undertake research on improved vaccines, how influenza transmits, infection control and the effectiveness of public health measures and antivirals.

At Member State level:

- Ensure that the jointly adopted coverage standards and other goals are met.
- Adopt communication messages and educational materials for the public and health care workers based on the best examples in Member States.
- Collect data on vaccination coverage, preferably through routine returns, and publish them annually.
- Undertake relevant research complementing that undertaken at international level.

6.2. Planning, coordination and maintaining essential services

In order to address the agreed need for high level, cross-sectoral and national to local preparedness for pandemics, it was considered that countries that have not already done so should consider establishing command and control or coordination structures above the health sector level alone (e.g. 'Prime Minister's offices'). Experience of MS was that such offices were very useful but they needed to have the necessary authority, capacity and experience. Local planning would gain from more explicit planning estimates.

In countries with a federal structure, ensuring quality and harmonisation of plans between regions remains a challenge and would gain from more input centrally than in a unified state because of the demanding needs of coordination work. There is consensus that in all countries cross-sectoral preparedness needs to be as broad as possible, including business, private health care providers, trade unions, civil society and other stakeholders in the society as well as non-health ministries. An important part of the pandemic preparedness planning is to minimise the disruption of social and economic life and planning should include for measures that allow continuity of economic activity and essential services during pandemics.

²⁸ Fleming DM. The contribution of influenza to combined acute respiratory infections, hospital admissions, and deaths in winter. *Commun Dis Public Health*. 2000;3:32-8.

²⁹ Meijer A, Paget WJ, Meerhoff, Brown CS, Meuwissen LE, van der Velden J, European Influenza Surveillance Scheme Epidemiological and virological assessment of influenza activity in Europe, during the 2004-2005 winter *Eurosurveillance* 2006; 11: 111-8 <http://www.eurosurveillance.org/em/v11n05/1105-225.asp>.



More work would assist those needing to make decisions on the main target groups for interventions intended to protect against pandemic influenza. These decision makers are currently facing the dilemma of either making the interventions potentially too highly restrictive (health personnel only) or too broad but potentially unfeasible (e.g. prophylactic use of antivirals for all 'key workers' – which are often hard to define). Representatives from MS in the workshops felt that surge capacity planning needs to be strengthened with explicit plans accepted by management that identify how additional and replacement staff will be found to sustain a pandemic response over some months and in the face of significant staff sickness. The same was considered to be the case by those responsible for maintaining essential services. It was pointed out that while most commercial companies were quite used to adapting to 10% or 20% staff absences during holiday periods, this may not be the case during a pandemic that can last for 2–3 months in any locality and 6–8 months nationally. MS representatives emphasised that plans are needed on how to care for isolated, handicapped or homeless persons, and for different types of visitors in the country. EU citizens have access to health care in other EU countries, but plans need to address non-EU citizens (with and without health insurance where that is an issue). It was observed that there could be no common or simple solutions on how to care for EU citizens in diverse settings in many foreign countries though some principles and alternative models could be established.

Policy options

At EU level:

- Develop EU ranges for numeric planning assumptions (numbers likely to be requiring care).
- MS to exchange their planning presumptions.
- Prepare background guidance on advice that countries might give to EU citizens abroad.

At Member State level:

- Consider how best to integrate preparedness across the non-health sectors at national and regional levels.
- Extend planning and preparations down to regional and local levels and front line staff.
- Define key target groups for specific preventive messages and protection such as health personnel and emergency personnel.
- Develop plans for providing surge capacity and coping with staff absenteeism over months.
- Federalised countries consider how they can best ensure preparedness and interoperability at regional level where health is a devolved responsibility.

6.3. Surveillance, situation monitoring and assessment

Surveillance plans need to adapt to the phase of the pandemic. Sentinel surveillance systems and influenza laboratories need to be prepared for this. This will probably include different mechanisms for the height of a pandemic (WHO Phase 6) when MS representatives agreed it will be difficult in moderate or severe pandemics for health care systems to provide data. Such special surveillance mechanisms need to be pre-planned and orientated towards objectives of gathering the data needed for specific decisions and monitoring the

effectiveness of interventions. More information will probably be gathered by focused investigations than is routinely the case. Plans should include rapidly collecting relevant information at the beginning of a pandemic for triggering and implementation of components of crisis plans and interventions. The initial data collection needs to be functioning wherever cases occur in a country with well planned solutions, such as 'one stop shop' web-based portals as have been developed by some countries, or through pre-planned outbreak investigations.

MS representatives pointed out that essential services³⁰, including health services, will require monitoring in Phase 6 to provide information for resource planning and about the impact of interventions. Ideally, these systems will be complemented by real time modeling arrangements at national and EU level. Service monitoring and surveillance mechanisms require separate consideration.

Policy options

At EU level:

- ECDC to continue to develop a schematic plan for surveillance in a pandemic, specific to the phases and with particular attention to pandemic phase 6.
- Develop a list of mission critical information that is needed early on in a pandemic (e.g. attack rates by age and locality, strain type, likely antiviral sensitivity, response to antivirals and public health measures, etc).

At Member State level:

- Consider how best to set up a system for monitoring health and non-health sectors in order to know how these are functioning and whether they are coping or need more resources.
- Be prepared to undertake or cooperate in focused work that will be required for all the EU but can only be carried out in individual Member States.

6.4. Prevention and reduction of transmission

Most countries have started work on a national strategy for community non-pharmacological public health measures.³¹ However, these plans are not always well advanced. Further work is needed at EU level on a menu of measures (parameters for each: costs, benefits, acceptability, etc) to prepare options on packages of strategies and where possible to coordinate these across countries. These scenarios should be discussed between the countries before a pandemic (see section 6.8 on interoperability). Some measures, such as reactive school closing, require careful cross-sectoral planning with agreement on triggers and, for all measures, exit strategies. Recognising the limited evidence for the effectiveness of masks during a pandemic, representatives emphasised the need for recommendations on

³⁰ Power supplies and other utilities, communications, fuel supplies, travel services, public order, emergency services, food and water distribution, social care, etc.

³¹ School closures, cancellation of public meetings, home working, etc.



how to use masks safely if they are used at all by the public. The question was raised whether wearing masks could be a legal obligation or voluntary, depending also on the use by persons with symptoms or the general public. Pandemic vaccine strategies need to be finalised where they are under development, and be refined, including storage and distribution channels and a more common approach to the expensive human H5N1 vaccines, which is desirable but may not be achievable. Some MS emphasised the need to look at the ethical background to decisions on interventions during pandemics, including those for pandemic vaccines

Policy options

At EU level:

- Produce background documentation on the use of antivirals and vaccines for public health purposes.
- Develop background guidance on the menu of personal and public health measures that might be expected to reduce transmission in a pandemic and recommended packages.
- Develop background guidance on the approach to human H5N1 vaccines.
- More discussion on the ethical aspects of applying limited supplies of antivirals and vaccines during a pandemic.

At Member State level:

- Finalise planning for acquiring and delivering pandemic vaccines.
- Ensure that any interventions proposed have exit strategies.

6.5. Health service response

The different health care economies and systems in EU Member States were noted and it was considered that it would be difficult to generalise an approach across the EU. Also, it was appreciated that delivering health care was a MS rather than EU responsibility. However, it was agreed that it would be possible for MS to learn from each other, that some general points could be made and joint work initiated. It was also noted that having very different approaches in neighbouring countries could bring problems especially with free movement in the EU (see Section 6.8).

Representatives emphasised that primary and secondary health care systems should be as integrated as possible in order to prevent patients simply being passed from one system to another. Practical and credible plans need to be developed for hospitals by those used to running them that cover issues including surge capacity for personnel and resources, personal protective equipment, increasing intensive care capacity (specifically ventilators) and prioritisation over which services will continue during a pandemic. No country as yet had seemingly finalised a vision or plan for how a hospital would look at the height of a pandemic, though some interesting models are developing. Representatives agreed such plans need to be finalised, developed, tested and exchanged. Communication with and training of health care workers is essential to prepare for changing roles and increased work loads, and exercising personnel protection. Public health decision makers need to strategise especially on the roles of the primary care systems during a pandemic, examining some of the options that

are being considered. Home-based care provides an important component of pandemic care, but it was felt to be difficult for professionals to support this in a practical way, other than by encouraging and supporting family care including delivery of drugs and food. The concept of 'local influenza centres'³² from some countries may be helpful to coordinate the primary and home-based care systems, distribute antivirals and give advice by telephone or arrange home visits. The role of the private primary health care systems needs to be better defined. The representatives emphasised the need for strategies for prioritisation, rapid use and maintaining supplies of antibiotics (and other medical drugs) along with the potential roles of human H5N1 vaccines and pneumococcal vaccination. A particular request was for careful consideration of the case for these vaccines rather than making premature 'snap' judgements.

Policy options

At EU level:

- Consider the potential role of pneumococcal and human avian influenza vaccines in a pandemic.

At Member State level:

- Integrate preparedness of primary and secondary health care systems.
- Prioritise which core health care functions to continue during a pandemic.
- Train health care workers for seasonal influenza and a pandemic.
- Define roles of:
 - secondary v primary care;
 - home-based care;
 - local influenza centres;
 - the private sector.
- Develop strategies for antibiotics and other medications.

6.6. Antivirals for therapy and public health purposes

The discussions among representatives revealed that there are probably considerable variations in the size of national stockpile in relation to national populations. To an extent differences reflected the purposes for which the stockpiles have been prepared, the types of antivirals, preparation (bulk and/or capsules), the populations covered for treatment, and whether or not target groups are being considered for prophylaxis. However, most of the discussions were on ways of making antivirals available to people who need them and in time (to be effective the sooner that antivirals are given to a person with influenza or exposed to influenza the better). This depends on functioning local distribution channels (e.g. pharmacies, local influenza centres, primary health care systems including private practices), and the time to convert from bulk to capsule, deliver and give to eligible persons. Countries are developing different approaches to this, even within individual countries and undertaking operational 'modelling' to see if they are likely to be practical. This diversity is inevitable as it reflects the different primary health care systems in the EU. Representatives also found the different

³² Places within primary care that would only see people with suspected influenza.



developments were desirable as they allow creative comparisons between systems and countries. However, some countries have health care systems that will presently find it difficult to deliver antivirals in a timely manner and in ways that citizens expect, even though those countries do have stockpiles. This may be the case, for example, in systems that are based on independent private physicians. Systems also need to be implemented to monitor effectiveness, side effects and resistance of antivirals during the pandemic as well as monitoring remaining stocks. The same systems can be adapted for pandemic vaccines when these start becoming available.

Policy options

At EU level:

- Provide background scientific information on the use of antivirals for public health purposes.
- Develop documentation on the principle of antiviral delivery and some of the alternative models of delivery being developed.

At Member State level:

- Develop criteria for the types and amounts of antivirals:
 - prioritise types of antivirals and preparation;
 - consider drug combinations;
 - decide on the proportion of the population that may need treatment;
 - target groups for prophylaxis.
- Strengthen local distribution channels and explore different delivery models, e.g. telephone lines for requests and local influenza centres to deliver.
- Consider mechanisms to monitor effectiveness, side-effects and resistance through real time surveillance.

6.7. Communication

Representatives agreed that communication plans need to be developed or finalised in those countries that currently do not have any specific plans in place. In some other countries plans need to be further structured and made more detailed. The preparedness checklist developed by ECDC and endorsed at the 28–29 September communicators workshop in Athens³³ is a tool to help countries achieve this. Simulation exercises, learning from real events and outbreak communication training can also help test and strengthen Member State and EU level capacity in this area. Key issues for all countries include: having the necessary 'surge capacity' to deal with a pandemic (i.e. having enough personnel capacity to deal with the considerably increased media attention that will occur over some months and sufficiently resilient communication systems such as health hotlines or websites to avoid these breaking down due to high demand) coordinating communications across government; being able to rapidly produce authoritative messages. It was suggested that the ECDC and Commission websites could be a useful resource for national communicators in developing coherent messages. Developing in advance some public communication materials such as leaflets, web

³³ <http://ecdc.europa.eu/Press/pdf/Checklist.pdf>.

pages and TV spots that could be used in a pandemic was considered a wise investment, and some countries have already made substantial progress in doing this. These materials may need to be adapted and revised during the pandemic, but representatives pointed out this will be quicker and easier than starting from zero. Pre-agreed pandemic messages within countries and between countries (see also section 6.8 on interoperability) will facilitate communication processes during a pandemic. However, it was pointed out that coherence of message between countries depends on their policies being mutually coherent. Where there are major policy differences on highly visible measures (e.g. distribution of antivirals, use of face masks) this will be difficult to achieve. Target audiences include not only the public and the media, but also professionals, e.g. health care workers who need to be kept informed on how they should protect their own health and that of their families in order to continue working. Engagement with employers, trade unions and occupational health agencies should be considered when addressing the issue of communication to professional groups. Consideration should be given as to how to communicate with migrant and minority communities, foreign nationals, and how to deal with any language barriers that may exist.

Policy options

At EU level:

- Continue the network of EU and Member State communication officers dealing with influenza.
- Further develop the system for information exchange between communication officers, and test the systems with an exercise.
- Continue to foster the development of coordinated messages on seasonal and pandemic influenza.
- Develop background documentation on preparing material for health care workers.

At Member State level:

- Further develop operational strategies and plans.
- Test national outbreak communication capacities using exercises.
- Review 'surge capacity' for a pandemic:
 - personnel;
 - back-up communication channels.
- Develop/continue to refine pre-agreed pandemic messages within countries and between countries where possible.
- Develop/continue to refine materials (e.g. leaflets, posters, TV spots) that can be used in a pandemic.
- Consider how to reach minorities, address language barriers.

6.8. Interoperability between countries

It was pointed out by representatives that during a pandemic, links with adjoining regions in two countries may be as important as those between the capitals. This will include collaboration for preparedness with neighbouring countries outside the EU (e.g. Russia and the North African countries). It was noted that for large federalised countries some of the



interoperability agenda also applied between regions inside one country. During the regional workshops there was complete consensus that border closure would not be helpful for health reasons, and commuting of personnel across borders should continue as much as possible. This was also the conclusion of the 'Common Ground' exercise. However, the situation varies across Europe, and participants in the regional workshops could also envisage circumstances where temporary internal or external border restrictions might be needed for maintenance of public order (e.g. if numbers of people were seeking care across borders). It was felt that only some simple travel restrictions would be justified (e.g. notably persuading persons with acute influenza-like symptoms to go home and self-isolate rather than board an airplane). The participants agreed that countries need to be prepared to care for visitors present at the beginning of a pandemic (see section 6.2 on planning and coordination) and potential population movements during a pandemic between countries that have different policies, preparedness status or standards of care. To limit those movements, strategies for primary and secondary care and delivery of antivirals should be compatible between countries, and trigger mechanisms for measures should be shared. Pandemic strategies and messages also need to be shared between countries (see section 6.7 on communication). The participants emphasised the need to help neighbouring countries with essential items to maintain day-to-day living. Cross-border exercises were considered essential to test how operational is the preparedness between neighbouring countries.

Policy options

At EU level:

- Continue to support work on interoperability during country visits, pandemic preparedness workshops and by producing an interoperability agenda for meetings between countries and regions.
- Determine the legal implications of travel restrictions and other interoperability issues.
- More systematic discussions between working level policy officials in the MS in order to share information and learn from each other on planning and policy development.
- Intersectoral regional meetings like those organised by ECDC focusing on specific topics but involving multiple sectors.

At Member State level:

- Interact with bordering countries in and outside EU.
- Discuss border closures and restrictions.
- Discuss cross-border commuting of personnel.
- Be prepared for population movements across borders.
- Consider how to provide health care to visitors.
- Develop compatible arrangements for primary and secondary care.
- Develop compatible arrangements for delivery of antivirals.
- Develop common communication strategies and messages.
- Share triggering mechanisms.
- Share essential items – mutual aid.
- Conduct cross-border exercises.

6.9. Avian influenza

Limited further work on avian influenza is currently needed, e.g. countries that have not experienced outbreaks in wild birds or poultry could ensure they have proportionate public health responses ready for such eventualities.

Policy options At EU level:

- ECDC to provide its 'tool-kit' for use in possible outbreaks of avian influenza in humans.
- Continue the joint CMO and CVO meetings that took place in 2005 but move onto other zoonoses as well as avian influenza.
- Develop guidance for what should be a proportionate response where there are outbreaks of avian influenza in animals that are probably not involving highly pathogenic viruses.

At Member State level:

- Develop a common, proportionate public health approach around poultry outbreaks.
- Apply and field test the ECDC avian influenza tool-kit when needs arise.
- Prepare common health and veterinary plans or linked plans where they do not already exist.
- Develop mechanisms in the animal and human health sectors to timely and efficiently share human-avian data.

7. POSSIBLE NEXT STEPS

The representatives emphasised the need for ECDC to continue working with the countries, other EU bodies and WHO along the lines of the policy options above, and to identify and share innovative approaches to pandemic preparedness. All activities will be undertaken with the Commission under a perspective of strengthening generic preparedness at the European level and in Member States. Particular areas of work needing development, for example during the regional workshop in December, include interoperability, health care services, communications with health care workers, preparing hospitals for working in a pandemic, and delivery systems for antivirals. Countries can usefully present models of care at the local level, e.g. focusing on primary care, influenza centres and hospital services. Documents arising from this will then be shared and discussed with MS and during country visits in 2007. ECDC will complete the country visits in all 27 current Member States, including Romania and Bulgaria, by the end of 2007. It was suggested that public-private partnerships could be used as a model for national initiatives to provide vaccines.

ECDC's strategic direction in 2007 includes:

- Focussing less on avian influenza than in 2006 except as a model for emerging zoonoses.
- Conducting more work on seasonal influenza and pandemic influenza preparedness.
- Wherever possible making influenza developments generic. i.e. fit into or act as a model for other ECDC developments.



- Developing the 'Member State to Member State' approach – if there is a good development in a MS, disseminating it.
- With the European Commission engaging more with the national influenza scientific leads and coordinators.
- Strengthening an integrated approach with WHO EURO to ensure that countries outside the EU are well covered by WHO using the same methodology.

8. CONTRIBUTORS

In addition to the attendees of the various working groups listed below, other colleagues from ECDC, the European Commission, Member State public health authorities and WHO have also contributed to this report, either through participation in the assessment missions or input into earlier drafts.

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9. ANNEX

Preparedness indicators from 25 EU Member States, Norway and Iceland

Goal	Key Indicator	Current Status
Seasonal influenza and virology		
1. An influenza surveillance system in place collecting epidemiological and virological information	1. Surveillance data published during the influenza season for:	
	(a) National Level?	96 % Yes (26 / 27)
	(b) Administrative regional level?	80 % Yes (20 / 25)
2. National laboratory capacity able to provide timely, high quality, validated routine and diagnostic influenza laboratory support with committed budget to facilitate this work	2. National laboratory capacity to perform:	
	Virus isolation?	96 % Yes (26 / 27)
	Influenza typing?	100 % Yes (27 / 27)
	Influenza subtyping?	88 % Yes (24 / 27)
3. National annual seasonal influenza vaccination programme in place achieving >75% uptake in over 65s and increasing uptake in occupational and clinical risk groups	3. Vaccine uptake figures published annually?	
	National annual uptake in persons aged >65 available:	73 % Yes (19 / 26)*
	If yes: %?	See text
Pandemic planning and coordination		
4. National planning committee/structure in place that has a coordinating role for pandemic preparedness	4. List of participating bodies/members?	88 % Yes (24 / 27)
	If yes, % Cross-sectional?	92 % Yes (22 / 24)
5. National pandemic plan consistent with international (WHO and EU) guidance, publicly available	5. National health sector influenza plan?	100 % Yes (27 / 27)

Goal	Key Indicator	Current Status
6. National command and control structure in place for managing an influenza pandemic	6. National command and control structure?	
	Health services command and control structure	96 % Yes (26 / 27)
	Cross-sectoral command and control structure	92 % Yes (24 / 26)
7. National contingency plan for maintenance of non-health essential services, such as power supply, food distribution, etc, publicly available	7. National contingency plan for maintenance of non-health essential services?	50 % Yes (13 / 26)
Situation monitoring and assessment		
8. Ability to detect initial cases, and to monitor the spread and impact during the different phases of a pandemic	8. Pandemic surveillance and information plan?	88 % Yes (24 / 27)
9. Ability to investigate initial cases of a pandemic influenza strain	9. Outbreak investigation capacity?	100 % Yes (27 / 27)
Prevention, mitigation and treatment (includes health system response)		
10. Public education materials as part of a national strategy on personal non-pharmacological public health measures (personal hygiene, self-isolation)	10. Public education materials available?	
	Material on seasonal influenza published	100 % Yes (27 / 27)
	Material on pandemic influenza ready	65 % Yes (17 / 26)
11. National strategy for community non-pharmacological public health measures (travel, mass gatherings, school closures, etc)	11. Group established to develop such a strategy?	77 % Yes (21 / 27)
12. National antiviral strategy developed, including plans for	12. National antiviral strategy developed?	85 % Yes (23 / 27)



Goal	Key Indicator	Current Status
procurement, stockpile and delivery to patients		
13. National pandemic vaccination strategy developed, including procurement, distribution and targeting of pandemic vaccines	13. National pandemic vaccination strategy developed?	75 % Yes (18 / 24)
Regional and local arrangements		
14. Regional/local planning and coordination structure for pandemic preparedness in place	14 Regional/local planning and coordination structure? If yes, % Cross-sectional?	88 % Yes (24 / 27) 80 % Yes (20 / 25)
15. Regional/local health services able to cope with an influenza pandemic and continue to provide other essential health services	15 Planning document issued to local health services which includes the nationally agreed parameters for which local services should plan (expected range of cases and percentage of staff off sick)?	78 % Yes (21 / 27)
Communications		
16. National communication strategy developed and published	16. National communication strategy?	70 % Yes (19 / 27)
International interoperability		
17. Potential impact of measures for neighbouring countries and the EU discussed	17. Joint work undertaken with neighbouring country (ies) on mutually relevant policy areas?	52 % Yes (14 / 27)
Pandemic exercises		
18. Pandemic plan regularly and systematically tested at all levels and across all sectors, including lessons learnt, report published and fed back into planning	18. National level health sector exercise?	58 % Yes (15 / 26)

Goal	Key Indicator	Current Status
Avian influenza		
19. National system in place for influenza surveillance in animals (including wild birds) which meets EU requirements	19. National system for influenza surveillance in animals?	100 % Yes (25 / 25)
20. National capacity for managing an outbreak of HPAI with human health implications, developed in collaboration between health and veterinary authorities	20. Joint health and veterinary plan or complementary plans?	88 % Yes (23 / 26)

*current status below 80% marked in yellow

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