

## Preparing PT systems for an avian influenza pandemic (virus H5N1)

*PT systems are extremely vulnerable in the case of an avian influenza pandemic due to the confined spaces in which large amounts of people gather and due to the fact that systems must keep running in such an event.*

*Facing this challenge, both the WHO, national authorities and transport operators are putting together contingency plans in the event of such a pandemic.*

### Background

The hypothesis of an avian influenza pandemic, caused by the H5N1 virus, is likely in case a mutation in the virus results in a new strain, transmissible between humans. Among health experts there are many who believe that it is only a matter of time before this happens.

Facing this possibility both national authorities and the WHO have designed scenarios to predict the effects of an avian influenza pandemic.

A pandemic occurs when a new influenza virus appears against which the human population has no immunity, resulting in several and simultaneous epidemics worldwide with enormous numbers of casualties.

According to the WHO, in the past, new strains have generated pandemics causing high death rates and great social disruption.

In the 20th century, three influenza pandemics occurred:

- 1918-1919 with an estimated number of deaths of 40-50 million worldwide;
- 1957-1958 with an estimated number of deaths of 1-4 million worldwide;
- 1968 with an estimated number of deaths of 1-4 million worldwide.

In recent decades health care has improved. The epidemiological models from the Centers for Disease Control and Prevention, Atlanta, USA, projects that, today, a pandemic is likely to result in 2-7.4 million deaths globally.

The WHO advises that, for instance in Portugal, contingency plans must consider an incidence of the disease affecting close to 25% of the population. As a comparison, according to studies in the UK, in 1918 the disease affected 23% of the population and in 1957 and 1968 17% were affected.

These incidence rates will differ from country to country, but in high income countries alone, accounting for 15% of the population, models project a demand for 134–233 million outpatient visits and 1.5–5.2 million hospital admissions.

However, for low income countries with less health care resources, the impact of the next pandemic is likely to be greater.

The most likely scenario is associated with a pandemic period spreading over 20 weeks and, possibly, in different waves.

With the increase in global transport and communications, as well as urbanization and overcrowded conditions, epidemics due to the new influenza virus are likely to spread quickly worldwide.

If an influenza pandemic occurs, some of the foreseeable consequences are:

- A quick spread of the virus reducing the time to prepare a response;
- The high level of traffic around the world will be the key factor to very fast dissemination;
- Medicines such as antibiotics, antiviral agents or vaccines to fight the disease and its secondary effects will not be available in sufficient quantities and will probably be unequally distributed;
- Health facilities could be overcharged and without capacity to react effectively;

- The hypothesis of prolonged period of pandemic effects;
- Depending of the incidence rate, widespread illness may result in sudden and potentially significant shortages of personnel to provide essential community services;
- The effect of influenza on individual communities will be relatively prolonged when compared to other natural disasters, as it is expected that outbreaks will reoccur.

It is not easy to justify the use of resources in mitigation actions or contingency plans to face an event when we do not know when it will come, how, or even if at all.

There are at least two main reasons for taking precautions:

- 1) Mitigation of the effects over population and economy
- 2) Preparation allows an evaluation of infrastructure in the case of another disaster occurs.

So far, the spread of the H5N1 virus from person to person has been rare, limited and unsustainable. However, since influenza viruses have the ability to change, scientists are concerned that the H5N1 virus could one day be able to infect humans and spread easily from one person to another. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population .

The H5N1 is a new virus for humans (H5N1 viruses have never circulated widely among people), and it has infected more than 190 humans, killing over half of them.

Statistically, according to WHO, the actual figures are represented in the following table:

Country	2003		2004		2005		2006		2007		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	8	5
Cambodia	0	0	0	0	4	4	2	2	1	1	7	7
China	1	1	0	0	8	5	13	8	3	2	25	16
Djibouti	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	19	5	37	15
Indonesia	0	0	0	0	20	13	55	45	27	23	102	81
Iraq	0	0	0	0	0	0	3	2	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	2	2
Nigeria	0	0	0	0	0	0	0	0	1	1	1	1
Thailand	0	0	17	12	5	2	3	3	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	2	0	95	42
Total	4	4	46	32	98	43	115	79	55	34	318	192

## 2. What is the role of transport operators?

The quick spread of the virus around the world and a pandemic situation will be facilitated by public transport. The air transport system will be the key to the spreading of the virus from country to country.

Mass transport systems will be a privileged way for the spreading of the virus in communities since they are associated with closed spaces, large concentrations of people and the need for systems to continue operation, even in the case of a pandemic.

In such circumstances it is fundamental that transport systems continue to provide a service in cities which will support the economy and guarantee mobility, not least for medical personnel and offering access to medical centres.

The concern is how a transport system can guarantee its obligations, considering that staff will be exposed to the same risk, if not worse.

The questions are:

- In different scenarios of incidence what level of service can transport operators guarantee?
- Which staff are key staff in maintaining operation of a system?
- Which are the priority systems?
- Should all services remain in operation with a reduction in the number of vehicles? Should some lines be closed? Should intervals be reduced?
- Should key personnel be supplied with vaccines?

### 3. How transport operators are facing the problem

To know how transport operators are dealing with this problem, 2 questions were sent to the PT Security Network:

- 1) Is your network preparing or has it already prepared plans to face an aviation influenza pandemic?
- 2) If you have already prepared or are currently preparing plans who, is coordinating these plans?
  - Security Department;
  - Medical Department;
  - External Services (National Health Departments, Civil Protection, others) with network services .

Answers were received from Germany, Spain, Austria, UK, Australia, Japan, USA, Netherlands, Hong Kong, Portugal, Turkey and France.

The answers reveal some common elements to the state of the art:

1. There are National or Regional plans developed by Health Departments to face a pandemic situation and the expected impact concerning the population (Berlin, Madrid, Lisbon, Vienna, Hamburg, London, Sidney, Japan, Paris).
2. At this moment some operators have no special emergency plans to face a pandemic situation. They will apply the recommendations of National Health Departments, but they not exclude the possibility of creating their own (Madrid, Lisbon, Sidney, Japan, Istanbul).
3. Some Operators are already in an advanced phase of planning:
  - Berlin is discussing a plan now with labour unions;
  - Hamburg has a working group that includes Human Resources, Industrial Safety, Hochbahn-Wache

and Operations. Hamburg has received contributions and helpful information from the German Health Association on how to build up its plans;

- APTA is working with the U.S. Department of Homeland Security and Transportation to develop a set of “Pandemic Planning Guidelines”;
  - Istanbul is working on its plan in coordination with the Turkish Ministry of Health;
4. There are also some operators with more developed plans:
    - Wiener Linien’s plan is part of a national plan for transport systems which is coordinated by the Health Department of Vienna;
    - Transport for London has developed a set of Pandemic Planning Guidelines under the normal planning procedure by the Emergency planning team with the assistance of the Occupational Health, Human Resources, Employee Relations and Communications departments. The guidelines have been prepared as part of the process ensuring that those bodies responsible to the Mayor have prepared appropriate plans against the risk of a pandemic.
    - RATP is obliged according to the national government plan to provide a maximum service during a pandemic. RATP has a stock of protective equipment in order to protect staff during such an event and in order to sustain public service through continuity of traffic operations.
    - Hong Kong established a Health & Hygiene Task Force in October 2005, chaired by the Safety & Quality Manager and comprising representatives of all functional

departments and business units. Hong Kong reviewed its preparedness and response planning through systematic processes, which included business impact analysis, business risk assessment, influenza pandemic related policies and procedures review, and crisis management training. It basically uses the 6 phase response system announced by the WHO and the three level system developed by the government. A three-tier planning and response organization includes:

- Influenza Pandemic Project Teams will customize the plans for local use and coordinate implementation;
- The Health and Hygiene Task Force will coordinate the development of preparedness and response plans during the Alert and Serious Response Levels;
- The Influenza Pandemic Command Team, led by the Operations Director, will oversee the day-to-day response during the Emergency Response Level of an influenza pandemic.

#### 4 . Conclusions

From the answers received it can be concluded:

1. An avian pandemic is a general concern and operators are well informed of the risk via the large amount of information made available by the WHO or National Governments.
2. Some Operators follow the general Health Departments' plans and recommendations and have not developed their own plans; they are waiting for developments

from other bodies or instructions from the Health Departments.

3. On a different level, some operators are preparing or have already developed plans.
4. Those plans developed or in preparation tend to follow the guidelines of Health Departments and are normally in coordination with health teams and human resource experts
5. The plans are coordinated with Health departments, local or national authorities.

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