

The objective of the bulletin is to report new health events occurring outside and inside EpiSouth area that have potential implications on EpiSouth population. It does not aim to provide an exhaustive review of international alerts. Since 2006, The French public health Institute (InVS) is issuing an online epidemic intelligence bulletin (Bulletin hebdomadaire International - BHI). In order to limit duplication and to make this already verified information available to a larger audience, information relating to health events of interest for EpiSouth population are translated and integrated in the relevant e-web sections. Despite all verifications, WP6 team would not be responsible for potential errors. The recipient is responsible for the cautious use of this information. Neither the European Commission nor any person acting on behalf of the Commission is liable for the use that may be made of the information contained in this report. Data maps and commentary used in this document do not imply any opinion of EpiSouth countries or its partners on the legal status of the countries and territories shown or concerning their borders.

The EpiSouth-Plus Project is cofunded by the European Union DG-SANCO/EAHC and EuropeAid together with the participating national partner Institutions. The financial support of the Italian Ministry of Health and ECDC is also acknowledged. Yet, the contents of this bulletin can in no way be taken to reflect the views of the European Union.

### INDEX e-WEB n°252

- A(H5N1) Avian & human influenza, 2012 update - World, Egypt
- A(H5N1) Avian influenza – Bhutan
- “INSIDE” events: none
- “OUTSIDE” events: Rabies - Slovakia

Location: **World**                      Event: **A(H5N1) – Human**                      Comments

No new event has been reported this week.

Location: **Bhutan**                      Event: **A(H5N1) – Epizootic**                      Comments

- On 8 January 2013, the Ministry of Agriculture in Bhutan reported to [OIE](#) one outbreak of A(H5N1) in domestic poultry in Dagana district, in the South of the country (cf. map 1).
- Control measures including quarantine, movement control and culling of poultry have been implemented.
- The last outbreak was reported in domestic poultry in October 2012 in Chhukha district, bordering Dagana district.

- To date, no human A(H5N1) case has ever been reported in the country.
- The occurrence of A(H5N1) avian influenza epizootic in this area was not unexpected considering that this district is located close to the border with West Bengal, an enzootic state of India (cf. [eWEB 183](#)), and the country is surrounded by China and several other areas in India reported to be enzootic for A(H5N1) avian influenza (cf. map 1, and [eWEB n°198](#)).

Map 1. Dagana district, Bhutan



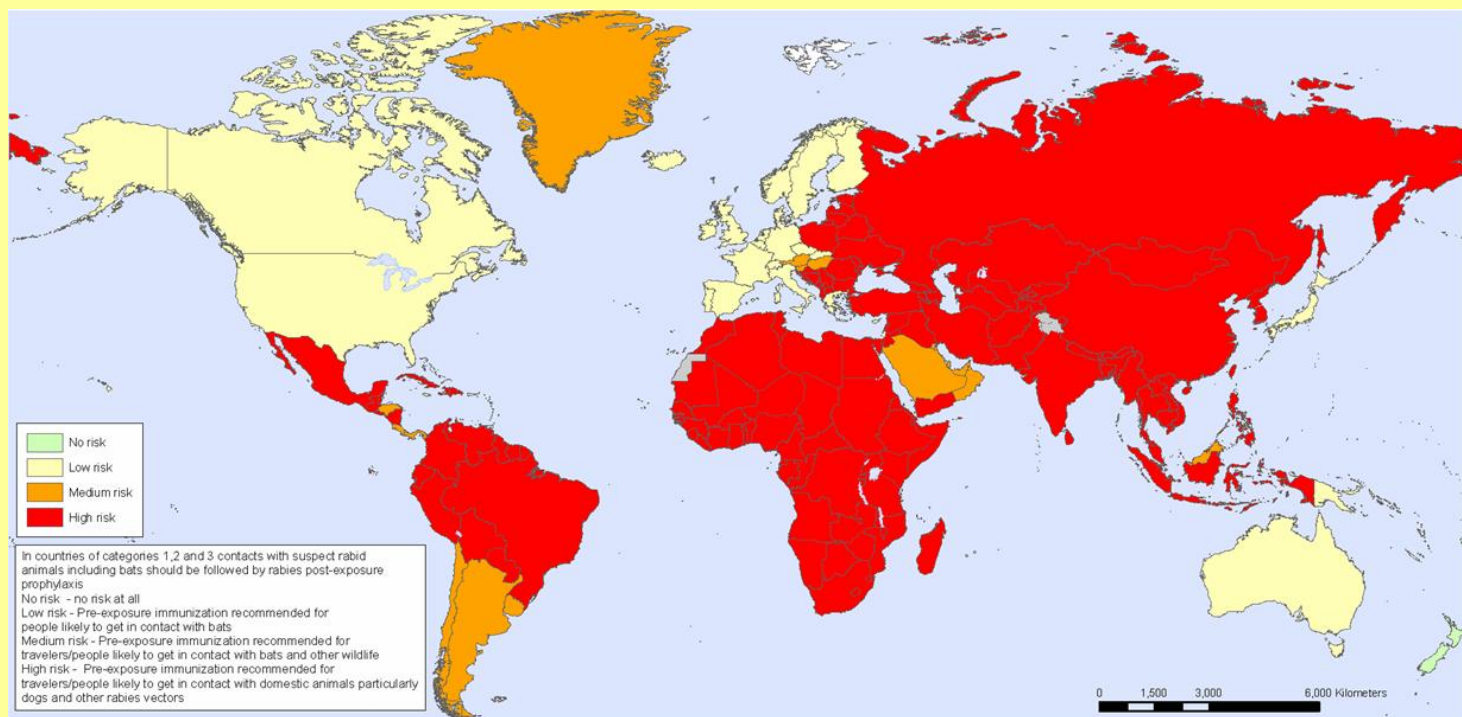
- On 9 January 2013, the Ministry of Agriculture of Slovakia reported **OIE** one case of rabies in a red fox found in Bardejov region, at the border with Poland (cf. map 2).

Map 2. Bardejov district, Presov region Slovakia.



- It has been the first time since 2006 that rabid animal infection was reported in Slovakia. According to WHO, the last rabies human case was reported in 1990.
- In 2008, Slovakia was considered at low risk for rabies by WHO (cf. map 3).
- In Bardejov district (cf. map 2), oral vaccination of wild red foxes is regularly performed since 2000.
- Slovakia is bordered by countries considered at high risk for rabies by WHO in 2008, such as Ukraine and Poland (cf. map 3).

Map 3. Rabies, countries or areas at risk, WHO, 2008.



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

Data Source: WHO Rabnet/CDC  
 Map Production: Public Health Information and Geographic Information Systems (GIS)  
 World Health Organization



© WHO 2008. All rights reserved

WORLD

A(H5N1) epizootics

- A(H5N1) influenza virus is still circulating in Asia and Africa, two continents affected since the beginning of the epidemic in 2003.
- In 2012, 12 countries (among which 6 are enzootic) notified A(H5N1) epizootic foci, versus 15 countries in 2011 (cf. [eWEB n°198](#)), 18 countries in 2010 (cf. [eWEB n° 146](#)) and 12 in 2009 (cf. eWEB n°42).
- 6 countries are considered as enzootic or partially enzootic by [FAO](#) (FAO report, 2011):
  - Bangladesh,
  - China,
  - Egypt,
  - India (most of the far-East part of the country),
  - Indonesia,
  - Vietnam.
- In Asia, epizootic foci were also reported outside enzootic areas:
  - Among poultry in Bhutan, Cambodia, India (in the non-enzootic States), Myanmar, Nepal, Iran, Israel and Taiwan.
  - Among wild birds in China (Tibet and other provinces) and in Hong Kong.
- In Africa, Egypt is still enzootic and is currently the only country of the continent reporting cases.

In most countries, when present, veterinary surveillance is based on poultry monitoring. In the absence of adequate surveillance of wildlife, it cannot be excluded that a higher number of wild birds were affected (including in non reporting areas).

Influenza virus clades

- The mutation of circulating influenza viruses results from the regular emergence of new clades. In recent years, a new variant belonging to clade 2.3.2.1 emerged in Asia: Bangladesh, Bhutan, China, India, Korea, Japan, Myanmar and Nepal. It seems that this clade has not questioned the vaccine strategy used so far.
- In 2012, the Indonesian Ministry of Health reported a new A(H5N1) clade in dead ducks in the provinces of Central Java, East Java and West Java. This new variant belongs to clade 2.3.2 (whereas the previous circulating virus belonged to clade 2.1, cf. [FAO](#)). This emergence is part of the natural virus evolution but may impact vaccine strategy, including the development of new vaccines.
- The regular emergence of A(H5N1) virus new clades in poultry has no direct impact on human infection. However, the emergence of new clades may complexify control measures for epizootics. In consequence, this may contribute to the persistence of epizootic and maintain risks of infection for persons in contact with infected poultry.

## A(H5N1) avian influenza infections in Human

- **From 2003 to 2012:**
  - A total of 610 human cases of A(H5N1) infections including 360 deaths (observed CFR: 59%) were reported in 15 countries by ministries of health or WHO (cf. table 1).
  - Indonesia and Egypt are the 2 countries reporting the highest number of cases (31% and 28% of the total respectively).
- **In 2012:**
  - A total of 32 human cases of A(H5N1) infections including 20 deaths were reported in 6 countries: Bangladesh, Cambodia, China, Egypt, Indonesia and Vietnam (cf. map 4).
  - This year, there were 2 times less reported human infections compared with 2011: 32 cases versus 62 respectively (cf. [eWEB n°198](#)).
  - The overall observed CFR was 62%. It largely varied according to countries: 45% in Egypt, 50% in China and Vietnam, and 100% in Cambodia and Indonesia (all reported cases died).

These differences in observed CFR probably reflect differences in detection systems, access to health care and diagnostic capacities, as well as early case management, being more efficient in Egypt compared to other countries which mainly detected and reported severe cases.

- **From 2003 to 2012**, the epidemic's dynamic evolved:
  - In 2003 – 2005, all cases were reported in Asia (mainly Vietnam and Thailand).
  - In 2006, there was an extension to Europe and Africa (Azerbaijan, Turkey, Iraq and Djibouti).
  - From 2006 to 2008, Indonesia reported the highest number of cases.
  - From 2009 to 2012, Egypt reported the highest number of cases (cf. figure 1 & table 1).
- These data should be interpreted with caution due to :
  - Limited access to health care and diagnostic in several affected countries.
  - A weakening of surveillance efforts due to the epidemic's duration.
  - A possible under-notification of the cases.
- It is worth mentioning that regardless of the extension of the enzootic area, no increase of human infection was detected in several enzootic Asian countries, hence questioning the quality of surveillance systems.
- Despite these limits mentioned above and the fact that in 2012 there was half less reported human infections compared to 2011, no major change has been observed in the epidemic's dynamic:
  - Affected areas and seasonality are similar (highest number of cases from November to March, cf. figure 2).
  - Low avian viral circulation is documented outside these areas.
  - No significant modification of the virus: except research works there is no significant elements in favour of a virus adaptation to a human to human transmission.
  - The risk of transmission from animal to human is still real in areas affected by epizootics.

Table 1. Number of A(H5N1) human case by country and year, from 2003 to 2012, source: WHO

	2003-2007	2008	2009	2010	2011	2012	Total
Azerbaijan	8	0	0	0	0	0	8
Bangladesh	0	1	0	0	2	3	6
Cambodia	7	1	1	1	8	3	21
China	27	4	7	2	1	2	43
Djibouti	1	0	0	0	0	0	1
Egypt	43	8	39	29	39	11	169
Indonesia	117	24	21	9	12	9	192
Irak	3	0	0	0	0	0	3
Laos	2	0	0	0	0	0	2
Myanmar	1	0	0	0	0	0	1
Nigeria	1	0	0	0	0	0	1
Pakistan	3	0	0	0	0	0	3
Thailand	25	0	0	0	0	0	25
Turkey	12	0	0	0	0	0	12
Vietnam	101	6	5	7	0	4	123
<b>Total</b>	<b>351</b>	<b>44</b>	<b>73</b>	<b>48</b>	<b>62</b>	<b>32</b>	<b>610</b>

Figure 1. Proportion A(H5N1) human cases by country and by year, from 2003 to 2012, source: WHO / EpiSouth

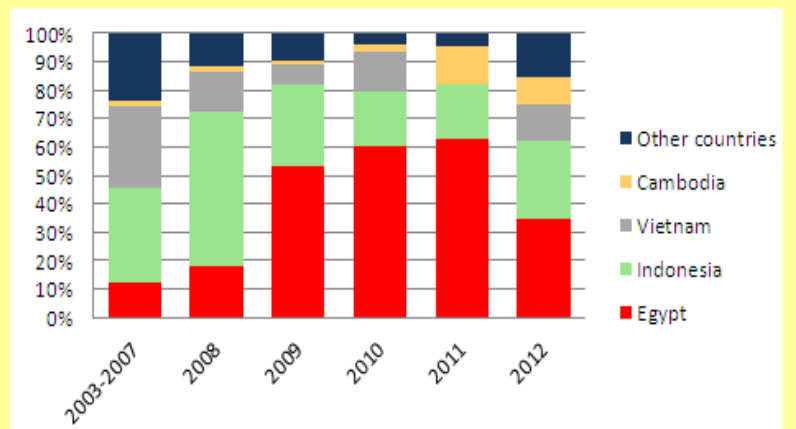
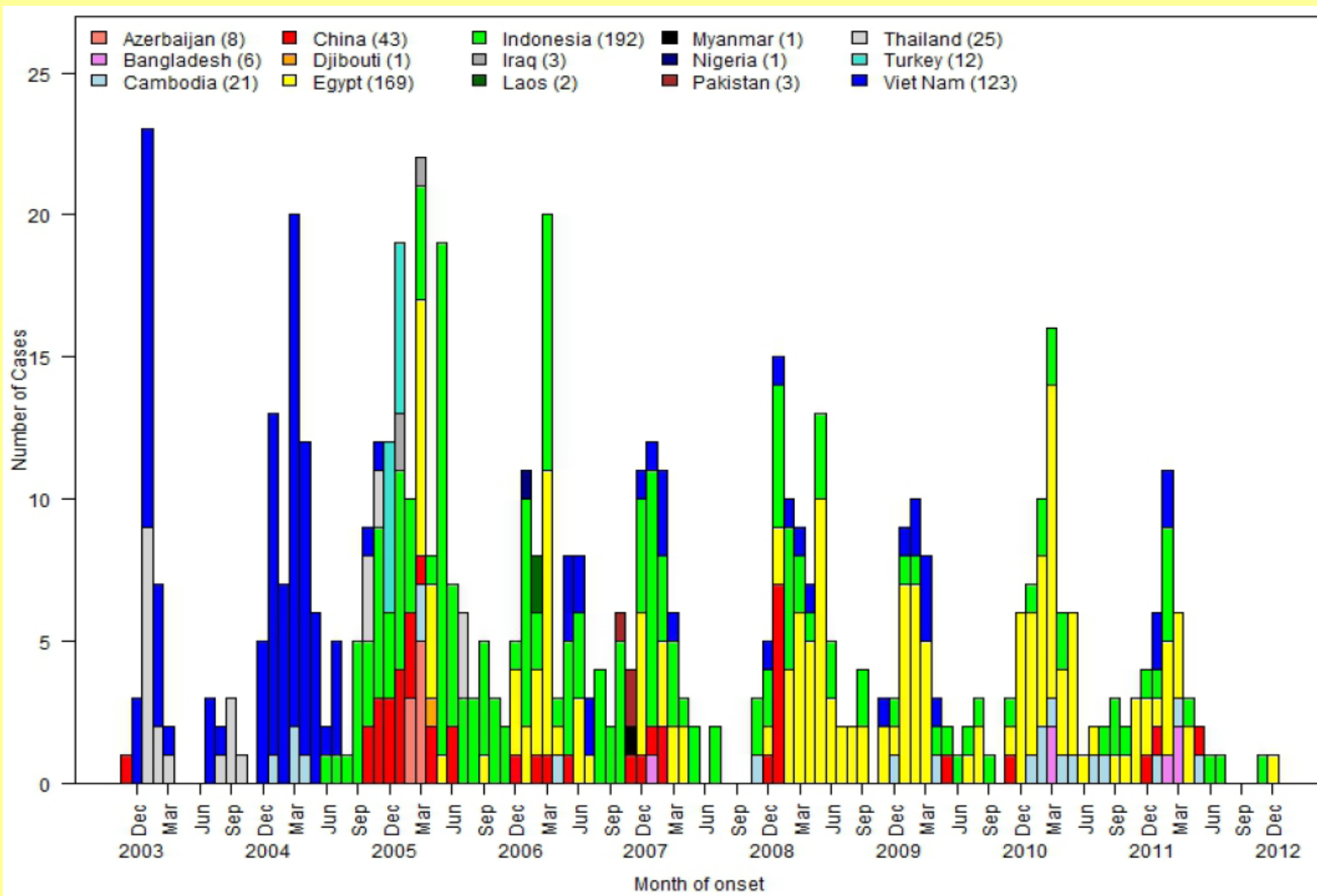
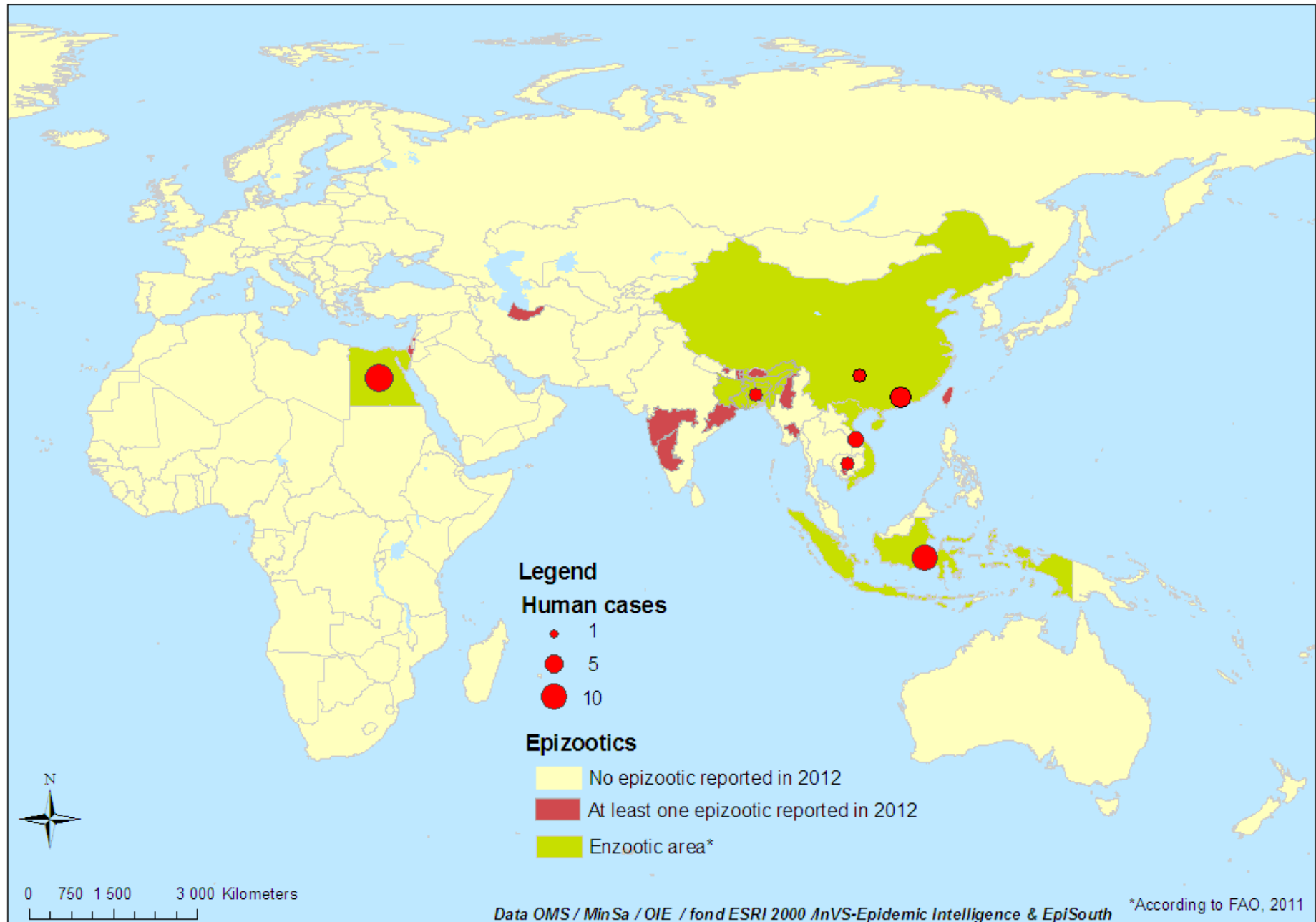


Figure 2. Number of A(H5N1) human cases by country and month of onset, between 2003 and 2012, world.

source: [WHO](#)



Map 4. Overview of A(H5N1) in the world, human cases and epizootics reported in 2012.



Geographical distribution

- Egypt is the country reporting the highest number of cases in 2012 (34%) and constitutes, with Indonesia, one of the 2 main epicentres of the epidemic (cf. figure 3). The majority of the cases occurred in the North of the country (cf. map 5). In 2012, 8 governorates reported A(H5N1) infections in human.
- According to FAO, Egypt is considered as enzootic for A(H5N1) avian influenza (cf. [FAO report, 2011](#)).

Seasonality

- From March 2006 to December 2012, most of the cases occurred during the first quarter of the year (from January to March), except in 2009 where most of the cases occurred during the second quarter (cf. figure 3).

According to a study made by the US CDC on [Microevolution of highly pathogenic avian influenza A\(H5N1\) viruses isolated from humans, Egypt, 2007-2011](#) the following conclusions were made:

- In Egypt, virus was first detected in poultry in February 2006 and in human in March 2006.
- Phylogenetic analysis indicated that H5N1 was probably introduced to Egypt by wild birds migrating from China in 2005.
- For nearly all human cases, exposure to sick or dead poultry has been reported as the likely source of infection. Most of these exposures occurred in backyard poultry settings, very common in Egypt.

Map 5. Overview of A(H5N1) in Egypt, human cases and deaths reported in 2012.

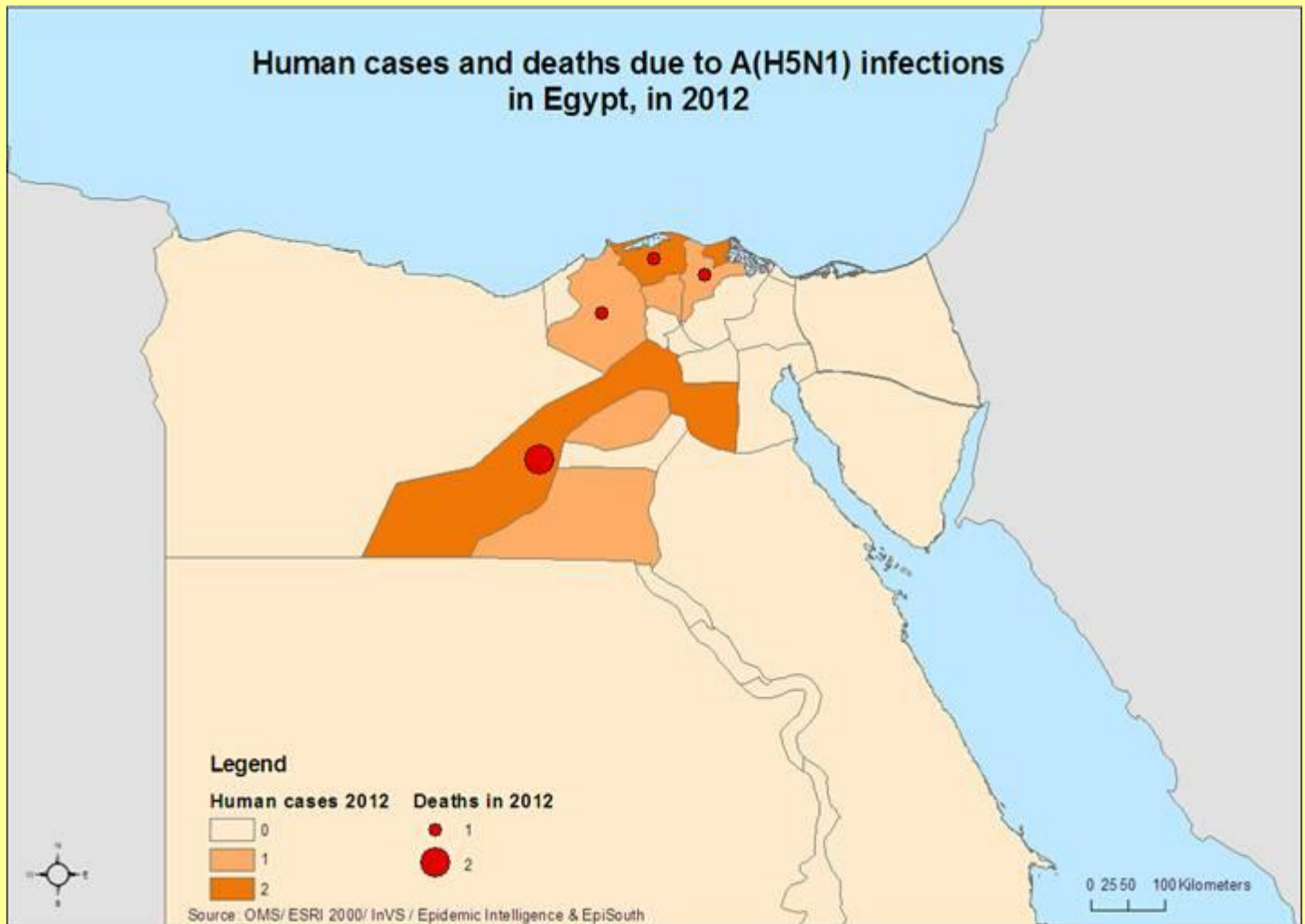
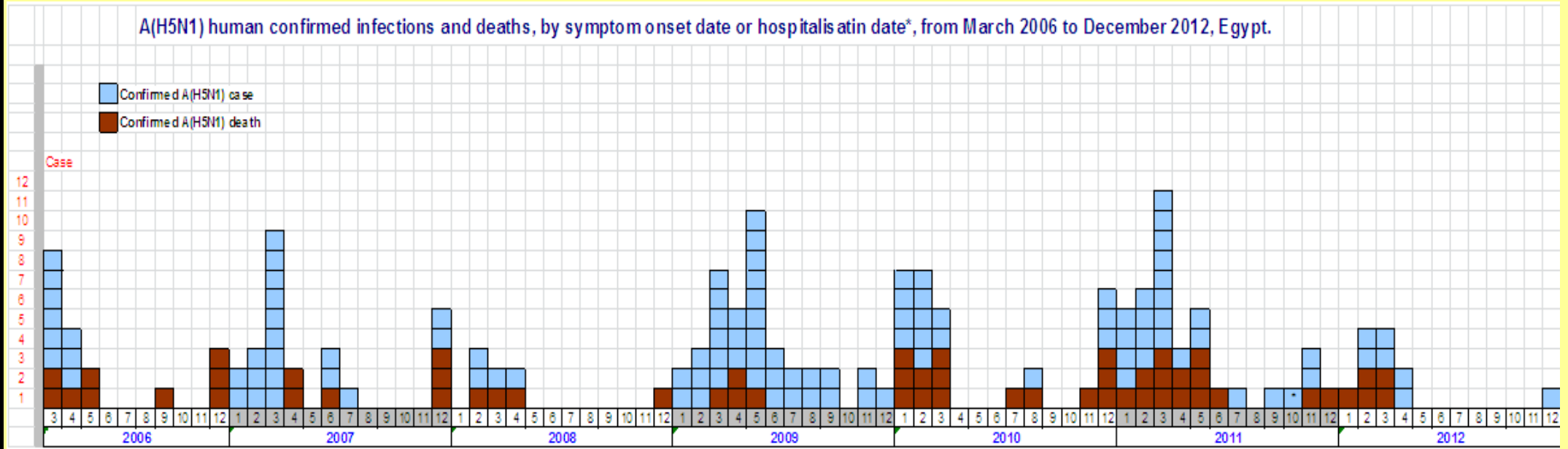


Figure 3. Epidemic curve: A(H5N1) human confirmed infections and deaths, by date of onset of symptom or hospitalisation\*, from March 2006 to December 2012, Egypt. (Source: Egyptian MoH and EpiSouth data)



\* When the symptom onset date was not available, the date of hospitalisation has been considered.