

# ZOONOTIC INFECTIONS IN EUROPE IN 2007: A SUMMARY OF THE EFSA-ECDC ANNUAL REPORT

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The European Food Safety Authority and the European Centre for Disease Prevention and Control have just published their Community Zoonoses Report for 2007, analysing the occurrence of infectious diseases transmittable from animals to humans. *Campylobacter* infections still topped the list of zoonotic diseases in the European Union and the number of *Salmonella* infections in humans decreased for the fourth year in a row. Cases of listeriosis remained at the same level as in 2006, but due to the severity of the disease, more studies on transmission routes are warranted. The report highlights the importance of continued co-operation between veterinarians and public health specialists, both at the EU level and within Member States.

### Introduction

The 2007 annual Community Summary Report by the European Food Safety Authority (EFSA) and the European Centre for Disease Prevention and Control (ECDC) was released this week with the latest trends and figures on the occurrence of zoonoses and zoonotic agents in humans, animals and foodstuffs in the 27 European Union (EU) Member States and the four European Free Trade Association (EFTA) countries (Iceland, Liechtenstein, Norway and Switzerland) [1].

Zoonoses are infections and diseases that are transmissible between animals and humans. The infection can be acquired directly from animals, through the ingestion of contaminated food, or from other environmental sources. The severity of these diseases in humans can vary from mild symptoms to life-threatening conditions.

In order to prevent and control zoonoses, it is important to identify which animals and foodstuffs are the main sources of infections. For this purpose and to monitor the progress on food safety in the European Union, information aimed at protecting human health is collected and analysed from all European Union Member States according to the Zoonoses Directive 2003/99/EC [2].

Assisted by its Zoonoses Collaboration Centre, EFSA and ECDC jointly analysed the data, and the main findings are presented in this article. The trends described below include only EU Member States.

### Main zoonoses trends in 2007

#### **Campylobacter**

In 2007, as in the previous two years, campylobacteriosis was the most commonly reported zoonotic disease in humans in the EU, with 200,507 confirmed cases reported. This was a 12% overall increase compared to 2006 (including the new Member States Bulgaria and Romania for 2006 to facilitate comparison) with most Member States reporting an increase, some as high as 27%, compared to 2006.

In foodstuffs, *Campylobacter* was most commonly detected in fresh broiler (poultry) meat where on average 26.0% of samples were found positive at the EU level. *Campylobacter* was also frequently found in animals and most often in poultry flocks and pigs. In the broiler flocks tested in the EU, 25.2% were positive for *Campylobacter*. Although a high prevalence (56.1%) was also reported in pig herds, *Campylobacter* rates in pig (and bovine) meat typically decrease sharply following slaughter and remain low at retail.

#### **Salmonella**

Salmonellosis was the second most commonly reported zoonotic infection in the EU in 2007, with 151,995 human cases and a statistically significant decreasing trend in the notification rate in the EU over the past four years. A seasonal peak in the number of cases during late summer and autumn was generally observed in all Member States, though *S. Enteritidis* exhibited a much more prominent peak than the other serovars.

In food, *Salmonella* was most commonly found in fresh broiler meat and in pig meat, where 5.5% and 1.1% of samples, respectively, were found positive. The bacterium was very rarely detected in vegetables and fruit or in dairy products (although outbreaks involving such vehicles are known to occur).

In animals, *Salmonella* was most frequently detected in poultry flocks but at lower levels than *Campylobacter*. A total of 4.3% of the tested laying hen flocks were found infected in the reporting Member States in 2007, slightly more than in the two previous years. For broilers, the observed proportion of *Salmonella*-positive flocks in 2007 remained approximately at the same level as in 2006 (3.7% versus 3.4%) in Member States with control or monitoring programmes. Of the tested flocks of turkeys, ducks and geese, 7.8%, 10.6% and 9.3%, respectively, of the flocks were reported infected. 2007 was the first year when Member States implemented

new *Salmonella* control programmes in breeding flocks of fowl, and already 15 Member States reported prevalences that were below the *Salmonella* target for these flocks (1%) that is to be met by the end of 2009.

### Listeria

The number of confirmed cases of listeriosis was 1,558 in 2007, thus remaining at the same level as in 2006. Listeriosis is an important food-borne zoonosis due to the severity of the disease and high mortality. A high case-fatality rate of 20% was reported in 2007 among the cases for whom the information was available, affecting the elderly in particular. Young children, especially newborns, had the second highest notification rate after the group of over 65 year-olds. The risk groups for listeriosis are the elderly, immunocompromised individuals, pregnant women and neonates younger than four weeks [3].

Ready-to-eat foods, i.e. food that is not cooked before consumption, is the most important source of human listeriosis infections. However, the proportion of food samples exceeding the legal safety limit in 2007 (100 cfu/g) was very low in ready-to-eat foods, and was most often reported in smoked fish, ready-to-eat meat products and various types of cheese.

### Vero-toxin producing E. coli (VTEC)

A total of 2,905 confirmed cases of VTEC were reported in 2007, representing a 13.5% decrease compared to 2006. The notification rate was highest in children aged 0 to 4 years, and this group also accounted for almost 60% of the 103 reported cases with haemolytic uraemic syndrome (HUS). The HUS cases were mainly associated with infections with VTEC serogroup O157.

The data from the animal sector indicated that VTEC was mainly detected in cattle and cattle products such as beef. However, the reported occurrence of VTEC bacteria in foods was generally low, and has remained relatively constant between 2005 and 2007.

### Yersinia

The number of confirmed cases of yersiniosis in humans decreased somewhat from 8,979 in 2006 to 8,792 in 2007. In animals, *Yersinia* bacteria were found mainly in pigs, and at the EU level an average of 2.0% of the tested pig meat samples were reported positive for *Y. enterocolitica*.

### Trends in other zoonoses

EU Member States that are not free of bovine tuberculosis and receive Community co-financing for their eradication programmes [4], reported a statistically significant decreasing trend in the prevalence of bovine tuberculosis. Non-co-financed Member States reported a decreasing prevalence or a prevalence at the same level as in 2006. Reported human cases of tuberculosis due to *Mycobacterium bovis* (120 cases) in the EU remained similar to the levels in previous years. The detection of *M. bovis* in domestic animals other than cattle, as well as in wildlife and zoo animals, indicates that these animal species can serve as a reservoir of bovine tuberculosis.

The prevalence of bovine brucellosis in cattle herds remained largely unchanged in the EU compared to 2006, whereas the prevalence of brucellosis in sheep and goats seemed to be decreasing. The number of notifications of brucellosis cases in humans in 2007 decreased as well, with 542 confirmed reported cases compared to 752 in 2006. Herds infected with brucellosis as well as consumption of cheese appeared to be important sources

of human infections in Member States that are not free of animal brucellosis.

The two parasitic zoonoses, trichinellosis and echinococcosis, caused 779 and 834 human cases, respectively. Both were found in farm animals and wildlife in the EU, and wildlife appears to be the major reservoir of these parasites.

In 2007, three fatal cases of rabies were reported in humans. However, the infection originated in endemic areas outside of the EU [e.g. 5]. In domestic and wild animals, the majority of rabies infections were reported from the Baltic and some eastern Member States where foxes and raccoon dogs account for more than 75% of positive samples. Three Member States reported a marked decrease in the number of rabies cases in wildlife, most likely due to successful vaccination programmes.

### Conclusions

In 2007, as in previous years, campylobacteriosis and salmonellosis were the most commonly reported zoonotic infections in humans in the EU. Nevertheless, it is reassuring that the declining trend of salmonellosis continued, most likely as a result of the intensified control of *Salmonella* in animal populations, in particular in poultry, and better hygiene throughout the food chain. Similarly, it is anticipated that the baseline survey on *Campylobacter* in live broilers and broiler carcasses carried out in EU Member States in 2008 will enable the European Commission and Member States to identify control options that could reduce *Campylobacter* in animals and reverse the upward trend in human *Campylobacter* infections.

The high proportion of deaths amongst older people as a result of *Listeria* infection and the high proportion of newborn babies among listeriosis cases is of particular concern. ECDC is therefore working closely with EFSA to find out more about the transmission of *Listeria* and possible prevention measures that could reduce the number of cases and deaths.

The report shows that zoonoses have a considerable impact on human health and contribute to the overall burden of infectious diseases in humans. The continued surveillance of zoonotic diseases and agents as well as measures aimed at preventing and controlling them remain of importance in the EU.

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