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**Incidences of some zoonoses in the Lublin province
in the years 2000–2010**

Występowanie wybranych zoonoz na terenie województwa
lubelskiego w latach 2000–2010

Summary. The occurrence of some infectious and parasitic zoonotic diseases in the Lublin Province was evaluated in the years 2000–2010. The infectious diseases include salmonellosis, bovine tuberculosis, rabies and bovine spongiform encephalopathy (BSE). The highest number of flocks infected by poultry salmonellosis was seen in 2010 (19). Single cases of bovine tuberculosis were reported only in 2000 and 2007. Rabies occurred most frequently in 2001 in wild animals (482 cases) and domestic ones (59). BSE was recorded in 2004 (1 case), in 2006 (1 case) and 2008 (2 cases). The presence of selected parasitic diseases was also assessed. A higher number of trichinosis cases was reported in wild boars compared to domestic pigs, with the highest count in 2010 (12). The occurrence of the aforementioned zoonotic diseases proves that despite a declining trend, they still pose a threat for human and animal health.

Key words: zoonosis, salmonellosis, bovine tuberculosis, rabies, BSE, trichinosis

INTRODUCTION

Zoonoses, i.e. zoonotic diseases emerged due to close interaction between humans and free-ranging wildlife species that constituted a source of food and then breeding and exotic animals [Gliński and Kostro 2001]. A reservoir of pathogens producing these diseases include animals, their habitat, feedstuffs and products and food of animal origin [Truszczyński 2008]. Zoonoses are communicable to humans through a direct contact of a human with diseased animals, germ carriers or sowers. An infection may be induced by an indirect route, predominantly foods obtained from affected animals and arthropod

vectors that transmit pathogens passively or actively on humans [Gliński and Kostro 2001]. The zoonotic diseases are of a particular concern for at-risk groups, such as veterinary service, workers affiliated to laboratories and zoological gardens, zotechnicians, breeders of animals, poultry and ornamental birds.

An epidemiological situation of the diseases is reflected by a fact that some of them (eg. salmonellosis, tuberculosis, brucellosis, tularemia, listeriosis, scabies, trichinosis and teniases) have still posed a genuine threat for humans despite concerted efforts to eradicate or control them. Some of zoonoses occur occasionally, while the others have just emerged. In 2007, there was published a list of zoonotic diseases and their etiological agents in the Community Zoonoses Report for Food Safety Authority (EFSA). The diseases cause substantial economic losses in the animal production sector and are hazardous for human health [Osek 2007, Report on zoonoses 2007, Truszczyński 2008, Wijaszka and Truszczyński 2006].

Decisions regarding zoonosis prophylaxis consist in providing safe contacts with animals as well as practicing appropriate hygiene at food production, treatment and storage [Gliński and Kostro 2001].

Considering the aforementioned data, the objective of the present research was to trace the occurrence of some zoonoses in the Lublin Province in 2000–2010.

MATERIALS AND METHODS

The research was based on the data supplied by the Provincial Veterinary Inspectorate in Lublin.

The assessment involved a number of chosen microbial zoonoses (poultry salmonellosis, bovine tuberculosis), viral (rabies), prion (bovine spongiform encephalopathy) and parasitic (trichinosis) reported in the Lublin Province region during 2000–2010. Evaluating rabies and trichinosis, there was identified a number of cases reported in wild and domestic animals.

The examinations to control bovine tuberculosis incidence according to the Regulation of Minister of Agriculture and Rural Development of 17.12.2004 were carried out every year with intradermal tuberculization of bovine animals that involved 1/3 of cattle herds in a given area so that all the herds from this area could be examined within the three-year period.

In the case of rabies of free-living foxes, according to the above mentioned Regulation, there were sampled brain tissue, blood serum and lower jaw collected from 8 shot foxes per 100 km² of the area where the animals were covered by the anti-rabies vaccination schedule. In the Lublin Province, a total number of examined foxes is 1791 animals on average.

To eradicate bovine spongiform encephalopathy, the examination must be performed on cattle aged over 30 months intended for slaughter, animals over 24 months of age at emergency slaughter, those aged over 24 months when animal is slaughtered due to infectious animal disease control or animals died at over 24 months of age. Whereas any animal with neurological manifestations must be examined, dead or slaughtered.

All the domestic and wild pigs intended for human consumption were examined for *Trichinella* using the digestion method.

RESULTS

The occurrence of some infectious zoonoses in the Lublin Province in 2000–2010 was presented in Table 1. In the year 2000 Salmonella was detected in 10 poultry flocks. The highest number of poultry flocks infected by salmonellosis (19) was noted in 2010. In 2007 not a single salmonella incidence in birds was recorded.

The research material showed the presence of bovine tuberculosis only in 2000 (1 case) and 2007 (1 case). In the other years, no bovine tubercle bacillus-produced infection was recorded.

Table 1. Some infectious zoonoses reported in the Lublin Province
Tabela 1. Niektóre odzwierzęce choroby zakaźne występujące w województwie lubelskim

Year Rok	Diseases – Choroby				
	poultry salmonellosis salmonelloza drobiu	bovine tuberculosis gruźlica bydła	rabies wścieklizna		bovine spongiform encephalopathy gąbczasta encefalopatia bydła
	number of poultry flocks liczba stad drobiu		wildlife animals zwierzęta dzikie	domestic animals zwierzęta domowe	
2000	10	1	225	21	0
2001	5	0	482	59	0
2002	2	0	281	23	2
2003	9	0	29	10	0
2004	4	0	21	5	1
2005	2	0	3	0	0
2006	3	0	12	0	1
2007	0	1	10	0	0
2008	3	0	7	1	2
2009	1	0	4	0	0
2010	19	0	10	2	0

Table 2. Some parasitic zoonoses reported in the Lublin Province
Tabela 2. Niektóre odzwierzęce choroby pasożytnicze w województwie lubelskim

Year – Rok	Diseases – Choroby	
	trichinosis of wild boars włośnica świń dzikich	trichinosis of domestic pigs włośnica świń domowych
2000	7	0
2001	8	0
2002	0	1
2003	1	1
2004	3	0
2005	0	0
2006	3	0
2007	3	2
2008	6	0
2009	11	0
2010	12	1

The highest number of rabies cases (541) was detected in 2001 in both wild animals (482) and domestic (59). Substantial, yet lower counts were also observed in 2002–281 cases in free-ranging animals and 23 in domestic ones. The least number of the disease was noted in 2005–only 3 cases of infected wild animals.

A prion disease, BSE, was identified in the Lublin Province as follows: in 2002 (2 cases), 2004 (1 case), 2006 (1 case) and 2008 (2 cases). In 2000–2006 in the Lublin Province, there were also reported parasitic zoonoses (Tab. 2).

The highest number of trichinoses was noted in 2010, with 12 cases in wild boars and 1 in pigs. In pigs trichinose was detected only in 2002, 2003, 2007 and 2010.

DISCUSSION

On the grounds of the Report for the European Food Safety Authority (EFSA), salmonellosis was included into the most common zoonoses [Osek 2007, 2008, Report on zoonoses 2007]. It was stated that the main source of infections produced by *Salmonella* rods are eggs, poultry and pork [Hald *et al.* 2004, Osek 2007, Roy *et al.* 2002]. Recently, the EU countries have shown a significant declining trend in salmonellosis incidence rate in hen layers and parent flocks [Report on zoonoses 2007].

Evaluation of the *Salmonella* rod presence in poultry revealed the highest infection rate in 2010.

The increased salmonella infection rate noted in poultry flocks in 2010 resulted from the changes in the sanitary requirements laid down in the Regulation of the Council of Ministers targeted for the Polish control programme of certain salmonella serotypes in breeding flocks of *Gallus gallus* [Rozporządzenie... 2008]. According to the above Regulation, the sampling frequency has increased and sampling procedure changed (cloacal swabs were substituted by litter and brood samples). The year 2010 was marked with a substantial rise of the examined flocks and hence, a higher rate of salmonellosis incidence in that year was observed.

Mituniewicz *et al.* [2007] who also observed the highest percentage of salmonella infections in 2002, yet followed by its increase in 2005. In this year, 8.8% of infected laying hen flocks was detected in Poland, whereas Finland and Norway were stated to be free from any infection (0%) [Osek 2007]. These diseases have been still a worldwide human health concern [Biendo *et al.* 2003, Roy *et al.* 2002]. During that period, the highest human salmonellosis prevalence was recorded in Germany (52 245 cases) [Osek *et al.* 2007]. In 2005 in the Lublin area, 7.91% of *Salmonella* rod infections was noted with a marked downwards tendency as compared to 1995 (12.72%) [Tietze *et al.* 2007].

Zoonotic diseases include bovine tuberculosis as well. This disorder was not identified in Lublin province during the years 2001–2010. In 2007 only one case was recorded. Over 2005–2006, no data is available on the occurrence of tuberculosis as a zoonosis in humans [Mituniewicz *et al.* 2007, Polak and Żmudziński 2001]. In 2005 in 13 countries qualified as officially not free from tuberculosis, 0.6% of cattle was recognized positively responding [Osek 2007].

The rabies cases in animals were far more frequently reported in wild than in domestic animals. In 2006, the disease was diagnosed in 82 animals. The highest number of cases was identified in foxes (43) [Mól 2007]. In the years 2001–2005 in the Lublin

Province, there was observed a declining trend of the disease incidence in wildlife species and domestic ones. However, in 2006 rabies occurrence increased, especially in foxes (12) as compared to 2005 (3). According to Mól [2007], a decrease in number of foxes affected by rabies in 2002–2003 resulted from the fox vaccination campaign conducted in Poland then. In the years 2004–2006, a drop of the disease incidence was shown to be seriously smaller.

In Poland, there also appeared BSE and 35 cases were reported from late May 2002 till the end of July 2005 [Polak and Żmudziński 2005].

Only 6 BSE cases were recorded throughout the years 2000–2010 in the Lublin Province. It was proven that the occurrence of a new variant of Creutzfeld-Jakob disease (n v CJD) is directly associated with consumption of products from the cattle affected with CJD. Therefore, this disorder was classified into zoonoses [Polak and Żmudziński 2001, 2005 Polak *et al.* 2002, Zeidler and Ironside 2000]. Polak and Żmudziński [2001, 2005] and Polak *et al.* [2002] state that despite a declining incidence rate in humans the risk for human BSE-contamination has still existed. Bearing that in mind, monitoring of BSE occurrence in both, Poland and EU is performed and serves as the basis to control the disease.

Parasitic disease – trichinosis, was also recognized among zoonoses. In the Lublin Province, a higher number of that disorder was reported in wild boars than in domestic and the highest count in 2010 (12 cases). In 2006 in Poland, Italy and Spain the records showed a very low percentage of domestic pigs infected by trichinosis (< 0.001%). Only in Bulgaria and Romania a higher positive sample percentage was noted (Report on zoonoses 2007). However in Poland, the year 2005 was marked with a notable decrease of trichinosis cases as compared to 2004 (172 cases in 2004; 70 cases in 2005).

CONCLUSIONS

1. Zoonotic diseases still remain hazardous to human health, despite the declining tendency of some of them.

2. In order to limit and eradicate the sources of infection, transmission and reservoirs, a strategic approach has to be taken to ensure good personal hygiene and work safety as well as tightening supervision over the whole process of food production. The establishment of better co-operation between human and veterinary sciences in order to combat zoonoses proves to be equally important.

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Streszczenie. Oceniano występowanie niektórych chorób odzwierzęcych zakaźnych i pasożytniczych w województwie lubelskim w latach 2000–2010. Do chorób zakaźnych zaliczono salmonellozę drobiu, gruźlicę bydła, wściekliznę i gąbczastą encefalopatię bydła (BSE). Najwięcej zakażonych salmonellozą stad drobiu wykazano w 2010 r. (19). Pojedyncze przypadki gruźlicy bydła stwierdzono jedynie w 2000 i 2007 r. Wścieklizna występowała najczęściej w 2001 r. u zwierząt dzikich (482 przypadki) oraz u domowych (59). BSE zarejestrowano w 2004 r. (1 przypadek), w 2006 r. (1 przypadek) i w 2008 r. (2 przypadki). Oceniano również obecność wybranych chorób pasożytniczych. Większą liczbę przypadków włośnicy zarejestrowano u świń dzikich niż u domowych, w tym najwięcej w 2010 r. (12). Toksoplazmozę zaobserwowano tylko u kotów (3 przypadki) w 2000 r. Występowanie wymienionych chorób odzwierzęcych świadczy o tym, że chociaż obserwuje się tendencję spadkową, stanowią one w dalszym ciągu zagrożenie dla zdrowia ludzi i zwierząt.

Słowa kluczowe: salmonelloza drobiu, gruźlica, bydła, wścieklizna, gąbczasta encefalopatia, włośnica