

(US) in March 2004 [1]. Due to the international character of the outbreak and because we assumed that some of the children had been infectious during their journey from China to Norway, an early warning was issued through European Union Public Health Information Network Health Surveillance System for Communicable Diseases (EUPHIN HSSCD) on 14 April. A response from Spain reported one possible case of measles in an adoptee from Hunan province in China.

Our epidemiological investigation, which included an internet search and contact with the parents of the adoptees, found that the Norwegian adoptees came from the same orphanage in Hunan province as the American adoptees with measles.

The children were all 11-12 months old at the time of the outbreak, with the exception of one who was 16 months old. The orphanage staff had informed the adopting parents that the children had not been vaccinated against measles. The parents were not officially informed, but some of them reported having heard rumours, of an outbreak in the orphanage (there are around 400 children in the orphanage, of all ages).

The Norwegian parents travelled to China as a single group. They collected their children from the orphanage on 22 March, and left Beijing by plane, arriving in Norway via Copenhagen on 31 March. Before the flight, one child was admitted to hospital in Beijing due to illness with a rash and her journey to Norway was delayed by a few days. The hospital diagnosed pneumonia, but measles was not confirmed.

Three children came down with fever and a rash shortly after their arrival in Norway and two of them were admitted to hospital. One case was laboratory confirmed as measles in the hospital, one was clinically diagnosed as a typical case of measles, and the third was initially regarded as not measles. Later, laboratory testing at the reference laboratory at the Folkehelseinstitutt (serum and saliva) confirmed measles in all four children who had developed a rash, including the child who had been admitted to hospital in Beijing.

The children who went to the US and developed measles had an onset of illness between March 22 and April 6. The Norwegian cases had onsets between 24 March and 2 April. The Spanish case became ill during the flight to Spain on 1 May.

The four uninfected children were not tested for susceptibility. Two of the four children who stayed well during the outbreak were given immunoglobulin on 6 April. At least one of the measles patients admitted to hospital in Norway was malnourished, but all the children with measles are reported to have recovered fully. There have been no reports of secondary cases in Norway during this outbreak.

The vaccination programme in Norway includes one dose of measles, mumps, and rubella vaccine (MMR) at the age of 15 months and one at the age of 13 years. The coverage of MMR in children aged two years has been slightly below the coverage of the other programme vaccines, and has been approximately 90% in recent years (it has been slightly below this since 2001).

Over the last four years, 0-8 cases of measles have been notified per year in Norway, all either imported or linked to importation, and seldom resulted in any secondary cases in the country. Many of the measles cases in recent years have been in refugee children who have fallen sick shortly after arrival in Norway.

At present we regard Norway as free from endemic measles, but with MMR coverage somewhat below the desired level, we must be prepared for outbreaks in connection with imported cases. This outbreak is a reminder that children adopted abroad may bring diseases into their new home country. Adoption agencies should work with the authorities in the country of origin to make sure that adoptees receive the necessary vaccines and that vaccinations are properly documented. In situations of outbreaks, such as measles, particular care should be taken in the country of origin that children are not brought to their new country before possible risk of communicable disease is clarified and controlled.

The World Health Organization (WHO) has ambitious objectives of reducing measles in the world, and of eventual eradication. The WHO European Region has specifically targeted elimination of measles by 2010 [2]. For Norway, the challenges are to maintain and improve

MMR coverage and to vigilantly maintain surveillance, adequate diagnosis and timely implementation of necessary actions when cases appear.

## References

1. CDC. Update: Multistate Investigation of Measles Among Adoptees from China April 16, 2004. *Morbidity and Mortality Weekly Report* MMWR 2004; 53(15): 323-4. (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5315a7.htm>)
2. WHO. *Strategic Plan for Measles and Congenital Rubella Infection in the European Region of WHO*. Geneva: WHO; 2004. (<http://www.who.dk/document/e81567.pdf>).

---

## DEATH OF A CHILD FROM RABIES IN LITHUANIA AND UPDATE ON THE LITHUANIAN RABIES SITUATION

D Razmuviene, Uzkrečiamuju ligų profilaktikos ir kontrolės centras (Centre for Communicable Diseases Prevention and Control), Vilnius, Lithuania

Published online 15 April 2004

(<http://www.eurosurveillance.org/ew/2004/040415.asp>)

In March 2004, a five year old boy died from rabies in Lithuania. The boy originated from the district of Prienai (southern Lithuania) but had lived in the city of Alytus, also in the south of the country, since November 2003. On 21 February he fell ill with chills. The next day he had a fever (40°C). On 23 February the boy was admitted to Alytus city hospital, where he was diagnosed with an acute viral respiratory infection, acute nasopharyngitis and hyperthermia. On 24 February, he was admitted to the Respublikine Vilniaus universitetinė vaiku ligoninė (Vilnius University children's hospital) where he was diagnosed with acute viral respiratory infection, acute nasopharyngitis, acute encephalitis and neurotoxicosis. He became aggressive, anxious and was hypersalivating. All investigations (blood analysis, blood electrolytes and glucose, cerebrospinal fluid analysis, herpes virus test, blood culture, and a brain magnetic resonance scan) were negative or did not show any pathology. At a meeting of neurologists and infectious disease specialists, it was agreed that symptomatic treatment for the acute progressive encephalitis was having no effect, and so a diagnosis of rabies was not excluded. The boy died on 10 March. Final diagnosis was: rabies, not specified; complication: CNS activity deficiency. On 12 March, laboratory results were received: rabies had been detected by immunofluorescence. The case was reported beyond Lithuania [1].

Specialists from Vilnius and the regional public health centres undertook an epidemiological investigation to try to detect possible contacts of the patient with domestic and wild animals. The Alytus County department of the State Food and Veterinary Service (<http://www.vet.lt>) reported that between October and December 2003, there had been 11 animal rabies cases detected in the city of Alytus and surrounding county: one case in the city and 10 cases in the county (three foxes, five mongooses and three cows). In 2004 so far, there have been seven registered animal cases in Alytus county (two foxes, five mongooses, a dog and a cat).

Prienai district State Food and Veterinary Service reported that between October and December 2003, there were two detected animal rabies cases: in a dog and a mongoose and these cases were registered at 8-9 km distance from the place where the boy had been living. In 2004, no animal rabies cases have so far been detected in Prienai district. According to the patient's parents, in November 2003 in Prienai, a piglet died from unknown causes. It was not examined by a vet, and was buried.

TABLE 1

## Rabies immunoprophylaxis distributed in 1996-2003, Lithuania.

YEAR	1996	1997	1998	1999	2000	2001	2002	2003
Number of people who sought medical advice after injuries caused by animals	9078	8866	8754	9794	12 800	10 966	10 944	11797
Number of people who underwent post-exposure immunoprophylaxis	4470	4461	4409	5310	8021	6306	6064	7016
%	42.2	50.3	50.4	54.2	62.6	57.5	55.4	59.5
Costs (in Litass)	602 195	507 235	476 520	570 359	867 679	747 312	899 771	781 874

The patient's parents reported no contact between the patient and domestic or wild animals, and no injury.

In recent years, the epidemiological and epizootiological rabies situation in Lithuania has worsened. Rabies cases in wild and domestic animals have been notified in all regions. Every year, a great number of people are injured by various wild and domestic animals, and the widespread rabies virus has increased the threat to humans [TABLE 1].

Many people are bitten by healthy and by infected dogs. Six per cent of people seeking medical advice following animal injuries in 2003 had been bitten by dogs infected with rabies (with a laboratory confirmed diagnosis) [TABLE 2]. Since 1994, the procedure for post-exposure vaccination in Lithuania has been rabies vaccine and human immunoglobulin.

TABLE 2

## Data on animal injuries in 2003

Animals	Number of people injured by animals						
	Total	By healthy animals		By animals with unknown health status		By rabid animals	
	(100%)	Number	%	Number	%	Number	%
Dogs	8058	5257	65.2	2352	29.2	449	5.6
Cats	1493	758	50.8	505	33.9	230	15.4
Rats	98	17	17.3	72	73.5	9	9.2
Cattle	798	107	13.4	48	6	643	80.6
Other domestic animals	175	79	45.1	8	4.6	88	50.3
Wild animals	1175	46	3.9	280	23.8	849	72.3
Total	11797	6264	53.0	3265	27.7	2268	19.3

According to State Food and Veterinary Service data for 2003, 1108 animal cases of rabies were registered in all regions of Lithuania (an increase of 175 cases compared with 2002). There were 796 registered cases in wild animals (71.8%) and 312 cases in domestic animals (28.2%) [TABLE 3].

TABLE 3

## Animal rabies cases 2000-2003

Year	Total	Domestic animals	Wild animals
2000	850	285	565
2001	677	192	485
2002	933	682	251
2003	1108	312	796

Note: there were many cases where a rabid animal bit more than one person, which accounts for the difference between total human injuries from rabid animals and the total number of rabid animals in 2003.

Regional branches of the State Food and Veterinary Service collect data on rabid or suspected animals and send samples to the National Veterinary Laboratory. The National State Food and Veterinary Service is informed by the regions through the monthly return of forms. In wild animals, rabies was detected in foxes (378 cases) racoons (299 cases) martens (81 case) ferrets (18 cases) badgers (11 cases) roes (3 cases)

lynxes (2 cases) mink, beavers, otters, bats, hamsters (1 case). Cases among domestic animals were registered in cows (152 cases) cats (81 case) dogs (65 cases) horses (12 cases) and goats (2 cases).

Cats and dogs are vaccinated regularly whereas cows are only vaccinated in areas where there is a concentration of rabies cases. In 2003, 201 638 dogs, 31 262 cats, 34 670 cows and 1694 other animals received prophylactic vaccination. Between 2000 and 2003, vaccination of foxes using baits was discontinued due to a lack of financial resources.

Cases of deaths from rabies in Lithuania are registered every 3 to 4 years. There were 11 human deaths between 1960 and 2004; seven of these patients had had contact with wild rabid animals and three with domestic rabid animals. The source of infection for the patient in 2004 patient remains unknown (TABLE 4).

TABLE 4

## Human rabies in Lithuania in 1960-2004

Region	Year	Number of cases	Source of virus
Vilnius	1960	1	Dog
Kaiziadoriu distric	1962	1	Fox
Svencioniu district	1965	1	Raccoon-dog
Kedainiu district	1972	1	Badger
Traku district	1979	1	Fox
Joniskio district	1992	1	Raccoon-dog
Traku district	1992	1	Dog
Traku district	1993	1	Cat
Kedainiu district	1997	1	Fox
Pasvalio district	2000	1	Fox
Prienu district	2004	1	Unknown

If a human case of rabies is suspected, an immediate report is sent to the regional public health centre and the Centre for Communicable Diseases Prevention and Control. Epidemiologists from regional public health centres undertake the investigation.

In 2002, a Rabies Epidemiological and Epizootiological Surveillance and Control Programme was approved. According to this programme, wild fauna rabies vaccination will be funded across all regions of Lithuania. Financial support is also promised by Phare management committee (The Phare programme is one of the pre-accession projects financed by European Community. It assists applicant countries in preparing to join the European Union, <http://europa.eu.int/comm/enlargement/pas/phare/>), and this support will be used for oral wild animal vaccination. This programme will also be implemented in the neighbouring countries of Latvia, Poland and Belarus. A rabies surveillance programme will also be set up, and with these measures, the number of rabid wild animals should be reduced.

## Reference

1. RABIES, HUMAN - LITHUANIA: REQUEST FOR INFORMATION. in: *ProMED-mail* [online]. Boston US: International Society for Infectious Diseases, archive no. 20040316.0728, 16 March 2004. (<http://www.promedmail.org>)