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Unit G5 – Veterinary Programmes

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REPORT ON THE
**TASK FORCE MEETING OF THE
RABIES SUBGROUP**

Kaliningrad, Russia

28 April 2011

REPORT ON THE MEETING OF THE TASK FORCE
FOR MONITORING ANIMAL DISEASE ERADICATION: RABIES SUBGROUP

Kaliningrad, Russian Federation
28 April 2011

OBJECTIVE	To improve animal disease eradication and the cost-benefit ratio of animal disease eradication by producing conclusions, recommendations and specific action proposals
DATE OF MEETING	28 April, 2011
VENUE	Kaliningrad, Russia
AGENDA	In annex
PARTICIPANTS	
Subgroup Members:	Governmental experts from EU Member States: Enel Niin (EE) – Subgroup chairperson, Miia Kristiina Jakava-Viljanen (FI), Edvīns Oļševskis (LV), Vaidotas Kiudulas (LT), Marcin Smreczak (PL), Miroslav Mojzis (SK)
Observers:	Vladimir Kadochnikov - Head of Veterinary Service of the Kaliningrad Region of the Russian Federation, Svetlana Borisenko, Sergey Folichev, Vladimir Dampilov-Regional Service for Combating Animal Diseases, Kaliningrad
European Commission- Health and Consumers DG (DG SANCO)	James Moynagh, Head of Unit SANCO 04, Panayiotis Demetriou, veterinary administrator, Unit SANCO 04.

The meeting was opened by salutatory speech of Dr. Vladimir Kadochnikov, Head of Veterinary Service of the Kaliningrad Region of the Russian Federation.

After short introduction representatives of participating countries had opportunity to update information about epidemiological situation of rabies:

Estonia: Oral vaccination (OV) of wildlife has been enforced in the whole territory of the country in years 2006-2010. Steep decline in disease incidence followed. Since March 2008 and with the exception of three cases reported in summer 2009 and one case in January 2011 in areas close to the south-eastern borders with Russian Federation (RF), no rabies case have been detected in Estonia. Average bait uptake verified in 2005-2010 was 84% in raccoon dogs and 89% in foxes. Mean immunisation rates evaluated by ELISA test were 48% in raccoon dogs and 47 % in foxes. Since spring 2011, OV will be conducted solely in ~9400 km² buffer-zone with neighbouring infected countries. In case re-emerging rabies cases appear, emergency vaccination will be implemented as soon as feasible.

Finland: Finland is officially rabies-free country as from 1991. Three imported cases and one EBLV-2 positive Daubenton's bat (in 2009) have been diagnosed since then. Around 20% of samples tested in the framework of rabies surveillance originate from rabies-suspected and indicator animals, the rest of material is collected via systematic sampling of hunted foxes and racoon dogs. Within last two decades, OV is implemented in south-east Finland along the border with RF, starting from 2003 vaccination activities have been officiated also in Karelian and Leningrad areas of RF. An average proportion of tetracycline positive animas was 59%; 31% of target animals in vaccination area were antibody positive by RFFIT test in 2010. In this spring, an agreement has been signed between Finland and the Leningrad region of the RF, to create and maintain a rabies buffer zone in the area of the Leningrad region bordering Finland.

Latvia: As a result of OV of wildlife, a remarkable improvement in epidemiological situation can be observed since 2006. In 2010 16 cases of rabies, distributed in different regions of country, were diagnosed. Red foxes constitute majority of infected animals. In the second semester, only three outbreaks were detected, two of them close two south-east border of the Republic. In last autumn, vaccination was carried out by using reduced flight lines distance (from 1000 m to 500 m) in ~50% of Latvian territory focusing to areas with higher rabies incidence. Additional vaccination in 3 km borderland with Russia and Byelorussia was performed using helicopter in collaboration with the Latvian Border Guards.

Among target animals bait uptake was 87% and seroconversion rate 72% in the cause of 2010 years OV. As a rule, flight line interval is 500 m in all areas starting from spring 2011.

Lithuania: Two presentations were given by the representative of Lithuania: the [first](#) one centred on general principles of combating rabies, followed by information concerning rabies situation in recent years, with focus to [areas adjacent to Kaliningrad region](#). In addition to aspects directly connected with OV of wildlife, importance of full coverage of rabies issue was highlighted (including compulsory parenteral vaccination of pet animals,

management of stray animals, identification and registration of cats and dogs, control of foxes and raccoon dogs population, informing of publicity about vaccination activities, improvement of public knowledge about rabies). Until last year, distance between flight lines in use in Lithuania was 1000 km. As from this spring, a reduction of the interval to 500 m in areas bordering Belorussia will be applied. GPS –based computerised database is kept for all flights in addition to paper-format information. As a result of aerial vaccination, number of rabies cases has shown continual decreasing trend. In 2010 from 1234 rabies-suspected cases tested in 33 cases the suspicion was confirmed, only 2 of them occurred in domestic animals. In 2011 until present moment 5 cases of rabies have been diagnosed, all in wild animals.

Mapping material presented in the second lecture demonstrated that in 2005-2007 rabies infection embraced homogenously all the territory of the country. In recent years, most of the rabies cases are concentrated in the areas bordering Belarus, whereas few cases are located in other parts of country. Since the introduction of vaccination campaigns in Kaliningrad, a favourable effect of these activities to epidemiological situation of Lithuania can be observed as within the last 3 year period, only one case close to Kaliningrad border was detected.

Poland: From Poland two lectures were presented, one on the [rabies situation in the whole country](#), and a second on the OV strategy and situation of disease in the [Warminsko-Mazurskie region](#). Since 2002, when the OV program has been implemented in the whole county, the number of rabies cases has dropped from 2555 in 2001 to 8 in 2009. Unexpected strike-back to the successful program occurred in August 2010, when cases of rabies occurred in Malopolskie region in southern Poland. Out of 151 cases diagnosed in 2010, 118 occurred in this region. Additional emergency vaccination was carried out in autumn 2010 in infected the region. Within the first quarter 2011, 54 cases have been diagnosed, 38 of them in Malopolskie region.

The Warminsko-Mazurskie region is bordering Kaliningrad by land and without any natural barriers to the movement of target animals. OV has been enforced in this region since 2001 using primary aerial distribution method, not less than, 20 baits/km². The ratio of marker –positive animals has ranged between 82-91%, and of seroconverting animals 73-88% (used test RIFFT) between year 2006 and 2010. All virus-isolates genotyped have been confirmed to be field strains, genotype 1. From the geographical distribution data of rabies cases in Poland since 2004 it is obvious, that cases frequently occurred near Kaliningrad border until year 2007. The commencement of OV in Kaliningrad in 2007 gave distinct positive impulse to the epidemiological situation of bordering Poland areas. Since 2008, epidemiological situation showed a rapid improvement, leaving in 2009-2010 Warminsko-Mazurskie region with no diagnosed case, with the exception of an infected bat in 2010. Infection pressure in past three years is higher in the east and south-east areas of Poland.

Slovakia: OV by manual distribution of baits was implemented in limited areas in 1992 and extended nationwide since 1994. As the established objective was not achieved, restart was given to the OV program in 2000. By the new strategy, vaccine baits based on the SAD Bern strain from two different producers were homogenously dispensed mainly using the aerial distribution method. After 6 OV campaigns, numerous of cases still

occurred in the western part of Slovakia whereas, in other areas of the country only isolated cases were diagnosed. Since 2004, the vaccination strategy continued in all territory with one single vaccine leading to in the eradication of disease. Last rabies-positive animal, a fox in Western-Slovakia, was detected in August 2006. OV in the whole area of the country continued until 2009. As from 2010 the approach was changed and the western part of country was excluded from wildlife vaccination area. In 2011 only a buffer zone, covering less, than half of Republic in the east is preserved aiming to provide protection against the reintroduction of rabies from infected neighbouring countries.

Presentations by the host, Veterinary Service of the Kaliningrad Region of the RF:
Epidemiological evolution of rabies in Kaliningrad in the past 5 years and present situation.

The Kaliningrad Region with a total territory of 15 100 km² is situated in the extend of 183 km on the coast of Baltic Sea and is surrounded by Lithuania (border area 285 km) in the north-east to south-east and by Poland in the south (border area 231 km).

The territory of the Kaliningrad region has been invaded with sylvatic rabies for numerous years. The main reservoir of rabies is red fox. Prophylaxis of rabies is based on parenteral vaccination of companion animals. Compulsory vaccination of domestic animals is applied in case of a rabies outbreak. Veterinary personnel and publicity are educated about manners of handling wildlife and ways rabies is transmitted. In case of human contact with infected animal, PEP will follow. Within the last four years ~13 500 dogs, ~2300 cats, ~3100 cattle and ~500 small ruminants were vaccinated per year. Among the abovementioned animals in 2008-2010 annually around 2917 were vaccinated due to rabies outbreak. Remarkable increase in numbers of dogs vaccinated has been achieved in last three years.

Material from rabies-suspected animals is investigated in State Veterinary Laboratory of Kaliningrad Region by using immunofluorescence test (IFT). In case of negative result, bio-assay is used as secondary investigation method.

An overview of carried out laboratory investigations and positive results in years 2006-2010 is presented in chart 1.

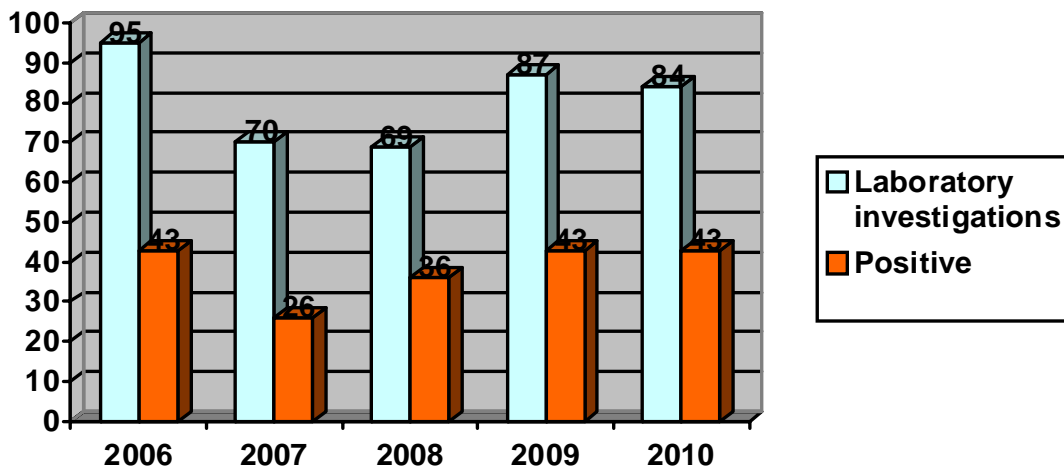


Chart 1 Rabies laboratory investigations/positive cases 2006 - 2010

The species that is predominantly affected is fox constituting the 52% of all cases, followed by dogs (23%), cats (10%) and cattle (8%). The ratio of infected wild animals is showing a decreasing trend since the year 2010 whereas the number of infected domestic animals detected has increased. Cases of rabies are spread homogenously over the Region, with the majority of infected animals detected in rural and forest areas.

Within first quarter of year 2011, only 6 cases of rabies have been diagnosed.

Procedures in the case of a rabies outbreak include epidemiological investigation, based on outcome of which the endangered area and the methodology for the interruption of infection-chain are determined. Primary measures include establishment of quarantine in endangered area, compulsory vaccination of domestic animals, isolation and supervision of suspected animals, enhanced surveillance, information of the public and suppression of fox population. In case of necessity, prohibitions of pet movements (shows, trade, hunting with dogs) and pasturing of animals in endangered area are conducted. Quarantine measures are implemented until 2 months following from last positive case.

The fox population is estimated to be 2352 – 2650 individuals and racoon dogs 980 - 1233 animals in years 2006-2010. A number of 1140-1280 foxes and 140-250 raccoons is incorporated annual hunting –bag in years 2008-2010. An increase of rabies outbreaks can be observed in period with higher density of reservoir animals. Related to the reproductive behaviour of foxes, numerous cases occur usually between April-May and October- December.

Last case of rabies in humans was diagnosed in year 1974.

Stray animal situation and management in Kaliningrad

There is a special institution dealing with the management of stray animals in the Kaliningrad city. Around 2000-3000 dogs are collected from the streets yearly. As a result of call, vagabond animals are captured and placed into shelter up to 5 days. Diseased, aggressive and infection-suspect dogs are euthanized. Dogs not falling under abovementioned categories and when possible, animals is returned to rightful owner or given away to new owner. A new legal act dealing with pet animal identification, handling of accompanying animals and management of stray animals is under debate.

Organisation/implementation of oral vaccination campaigns in Kaliningrad

Kaliningrad has elaborated nine-year program with objective to eradicate rabies from its territory by the year 2015. Main principals of the program are: enhance rabies surveillance among wild fauna, carry out OV of wildlife followed by monitoring of effectiveness of OV. Wildlife OV program, co-financed by European Commission (EC), has been implemented in the entire territory of Kaliningrad since autumn year 2007. The oral vaccination area excludes residential areas and water-bodies and constitutes a total of 11 293 km².

Wildlife vaccination, co-financed by EC via the rabies eradication program of Lithuanian Republic, was carried out once a year, in autumn way from year 2007 to 2008. The bait distribution was done manually.

In summer 2009 a Commission Decision concerning approval and financing of 3-years rabies elimination plan in the Kaliningrad Region was adopted. Starting from fall year 2009 distribution of baits has been carried out by airplanes. Since 2010 OV activities are executed twice a year: in spring and autumn.

The aerial distribution of baits is committed by using small-scale airplanes of Sintal type. The technical parameters of flight are: dropping lines interval -500 m, altitude form ground 100- 200 m, maximum free weight inside of plane for baits- 80 kg, GPS device for navigation, registration of tracks and dropped baits, baits dropped manually every 80-100 m. As a rule, the number of baits distributed per km² is 25, total need of baits for one vaccination campaign is 282 322 pieces. In defined areas unfit for aerial dropping or where flight prohibitions apply, manual distribution is implemented. Live attenuated vaccine produced by PZB, Pokrov from rabies virus strain RV-97 is in use. Vaccine baits are obtained via open tender, primary condition for participation in tender is registration of vaccine in Agency of Medicine of RF. Until latest months Oralrabivac was the only vaccine fulfilling this provision.

Supervision over vaccination documentation and OV procedures is under the full responsibility of the Veterinary Service of the Kaliningrad Region. Superintendence of financial and legal aspects of the program is laid on Competition Agency of Kaliningrad Region. In accordance with agreement between EC and Veterinary Service of the Kaliningrad Region, annual reports are prepared about rabies eradication activities enforced and the results of monitoring of effectiveness of OV procedures.

Organisation/implementation of monitoring for the effectiveness of oral vaccination since 2007 and results

The efficacy of OV is verified via laboratory investigation of wild animals hunted exclusively for monitoring vaccination procedures. Investigations concerning rabies virus, detection of tetracycline marker and titration of rabies antibodies are conducted.

In 2007 and 2008, 50 foxes and raccoon dogs were shot annually for investigations of bait-uptake and immune response. Number of foxes tested after each campaign has been increased (150 animals hunted following each campaign, 300 annually) since autumn 2009. The collection of samples starts 30 days from end of OV campaign and lasts for up to two months. Sample collection is more intense at the time of winter hunting-period.

The percentage of samples where tetracycline was detected was in 2008 -53 %, in 2009 - 39% and in 2010 after spring campaign -37%. The proportion of animals seroconverting according to RFFIT-test were 47% in 2008, 37% in 2009 and 37% in 2010. In some occasions, rabies –infected animals have been detected among hunting –bag.

Outcome of laboratory investigations done for monitoring the effectiveness of oral vaccination since 2007 can be followed in chart 2.

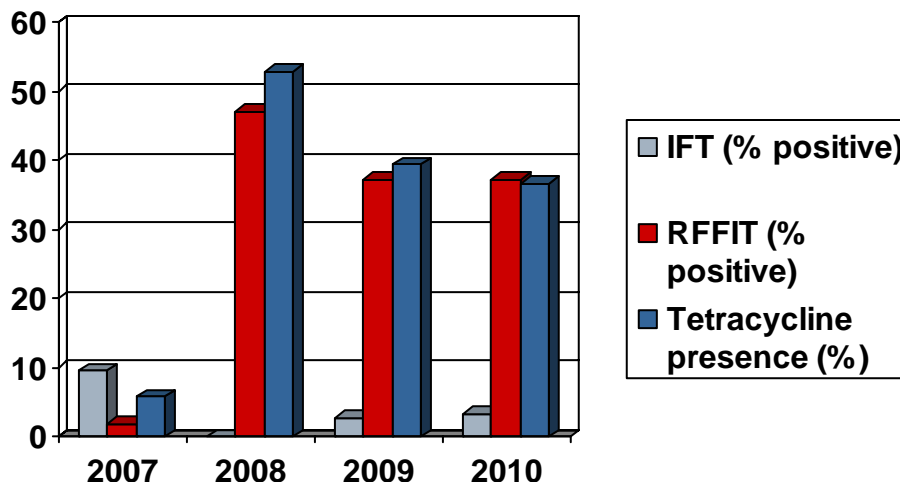


Chart 2 Rabies OV monitoring results in years 2007 - 2010

Sampling is primarily targeted to adult animals, especially after spring vaccination campaign. Age division of sampled animal is not done. Rabies-positive cases have not been investigated to differentiate of field strain from vaccine strain until present moment. Efforts have been made since 2009 to ensure homogenous collection of samples. Due to the fact, that voluntary hunting of red foxes is unpopular, increase of population density of foxes is expected.

All laboratory investigations are carried out in independent Experimental Institute of Viral and Especially Dangerous Infectious Diseases of Kazan city.

Within last three years in addition to monitoring OV results in the field and besides to the quality control system of vaccine producing company, laboratory tests on 5-6 animals (foxes –raccoon dogs) captured from nature are conducted under control of veterinary services. On these animals checks on attractiveness and effectiveness of each batch of vaccine baits provided are carried through.

Information from DG Sanco: The project in Kaliningrad was the first case of co-operation with third countries on activities to control rabies in areas neighbouring the EU. The Commission is willing to support the creation of oral vaccination zones in other RF regions bordering EU Member States and where rabies risk is present. For the regions other than Kaliningrad, in order to enable EU funding, it is necessary that the activities will have to be included in the EU-financed programme of the bordering EU Member State. This would require the conclusion of agreements between the Member State involved and the relevant Region of RF.

The members of TF group formulated following conclusions and advisory proposals on the rabies eradication program of Kaliningrad Region:

Conclusions

The Kaliningrad Region has implemented rabies eradication activities co-financed by EU since 2007. Over the course of the years these activities have been reinforced and intensified.

Most substantial of improvements have been the implementation of two oral vaccination campaigns per year since 2010 and since autumn 2009 the application of aerial bait distribution and the increase of monitoring samples collected yearly. Also, a more extensive coverage of the pet dog population with parenteral vaccination since 2008 has been applied.

Laboratory investigations carried out on samples collected cover three main aspects: rabies diagnosis, determination of the occurrence of a biomarker and the level of rabies neutralising antibodies in blood of target animals.

Since the implementation of the oral vaccination in wildlife, the number of detected rabies cases in foxes has been decreasing whereas no such trend has been observed in dogs.

Neighbouring EU countries, Poland and Lithuania, report a very significant improvement of the wildlife rabies situation in their regions directly bordering Kaliningrad. This is an indication of the effectiveness of oral vaccination in Kaliningrad in protecting these Member States from reintroductions of the disease.

Recommendations

To obtain a comprehensive overview about present situation and detect changes in it, it is indispensable to collect data on the monitoring and surveillance samples taken that would enable to stratify the results by their location (e.g. municipality) and the age of animal (juvenile or adult).

Effort should be made to further increase the monitoring samples collected.

The titer of each batch of oral vaccine should be verified before and during the distribution activities to perform direct quality control of vaccine-baits.

Rabies –positive isolates from OV area should undergo analysis of nucleotide sequences to identify the virus –strain(s) circulating in the region and distinguish field strain(s) from the vaccine strain.

WHO, OIE, EU reference laboratories situated in EU territory are co-operative to assist and collaborate with Veterinary Services of Kaliningrad Region in the field of genotyping of positive cases and evaluation of vaccinal-titer.

The bases for collaboration and exchange of information between the Kaliningrad Region, Lithuania and Poland have been established. It is appropriate to further expand this co-operation.

Annex

**Task Force Rabies subgroup meeting
28 April 2011, Kaliningrad, Russia**

AGENDA

10:00 – 10:15	Welcome - Short introduction	European Commission
10:15 – 11:30	Short information /update by the participating countries on their rabies situation and eradication activities – 5 - 10 min. per country	Participating Countries
11:30 – 11:45	Coffee break	
11:45 – 12:15	Epidemiological evolution of rabies in Kaliningrad in the past 5 years and present situation (rabies surveillance tests performed in all species and results)	Kaliningrad
12:15- 12:30	Stray animal situation and management in Kaliningrad	Kaliningrad
12:30 – 12:45	Questions and answers, observations, discussion	Subgroup
12:45-14:15	Lunch break	
14:15-14:35	Organisation/implementation of oral vaccination campaigns in Kaliningrad	Kaliningrad
14:35-15:00	Organisation/implementation of monitoring for the effectiveness of oral vaccination since 2007 and results	Kaliningrad
15:00-15:15	Questions and answers, observations, discussion	Subgroup
15:15-15:30	Coffee break	
15:30-16:00	Presentations by Poland and Lithuania on the evolution of the rabies situation in their regions bordering Kaliningrad over the past years	Poland and Lithuania
16:00-16:30	Discussion and exchange of views on the implementation of oral vaccination in other RF areas bordering MS	Subgroup
16:30- 17:30	Conclusions and recommendations of the Subgroup	Subgroup
17:30	End of meeting	