



EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL

04 - Veterinary control programmes

SANCO10262/2007

REPORT ON THE
TASK FORCE MEETING
OF THE
“RABIES”
SUB-GROUP

VELKY MEDER
Slovak Republic
11-12 May 2007

**REPORT OF THE MEETING OF THE RABIES SUB-GROUP OF THE TASK FORCE ON
MONITORING ANIMAL DISEASE ERADICATION HELD IN VELKY MEDER, SLOVAK
REPUBLIC, 11-12 MAY 2007**

Participants:

- Vilmos Pálfi (HU - Chairman),
- Members of the Rabies Sub-group Drs. Andrea Höflechner (AT), Miia Kristina Jakava Miljanen (FI), Marcin Smreczak (PL), Jedrt Maurer Wernig (SI), Matejcik Roman (SK), Kristina Lambergá (LV), Vaidotas Kiudulas (LT), Jacques Barrat (FR), Thomas Müller (DE)
- S. Idei, V. Piazza, JP. Vermeersch (COM)

Agenda: see Annex

Location: Velky Meder, Slovakia

DAY 1

The Deputy Chief veterinary Officer of the Slovak Republic and Alexander Néveri, Veterinary Officer of Velky Meder welcomed the meeting.

Dr. Miroslav Mojzis, Director of State Veterinary Institute, Zvolen, National Reference Laboratory for Rabies in Slovak Republic presented: “Rabies situation in the Slovak Republic since 2000”. The main parts of the presentation were the following:

1. Occurrence of Rabies in Slovakia during 1993 -2007
2. Oral vaccination of Foxes
3. Fox population in Slovakia
4. Location of the Institutes involved in the Laboratory Diagnosis of Rabies
5. Domestic animals submitted for Rabies investigation
6. Wildlife animals submitted for Rabies investigation in period 2000 – 2007
7. Efficacy of oral vaccination of Foxes (OVF).

From the data presented in Table 1 can be concluded that the rabies eradication program that started in 2000 resulted overall in a considerable reduction of rabies infection in the country. 2003 however shows an epidemiological peak.

Oral vaccination campaigns had been implemented in a few districts of Slovakia in 1992 and 1993, and were extended to the whole territory in 1994. The vaccine contained the Vnukovo 32/107 strain. As the results were very bad the programme was interrupted.

A second programme started in 2000. Two vaccines, Lyspulven (Bioveta) and Lyssavac (Pharmagal) were used. The Slovakian product Lyssavac firstly contained the Vnukovo strain that was replaced later by the SAD VA1 strain. The Czech product Lyspulven contained the SAD Bern strain. The results were not satisfactory however in some periods of the programme. After the 6th campaign for example the situation was comparable to the situation at the start. Considerable improvement in

the rabies situation was seen after the 9th campaign, and during the last 3 campaigns (12th – 14th) the rabies infection practically disappeared in Slovakia.

Year	Occurrence of Rabies		
	Domestic animals	Wild animals	Total
1993	77	470	547
1994	69	498	567
1995	90	236	326
2000	70	305	375
2002	17	97	114
2003	46	308	354
2004	4	60	64
2005	5	43	48
2006	0	4	4
2007	0	0	0

Table 1. - Occurrence of Rabies in Slovakia

The only reservoirs of rabies virus in wildlife in Slovakia are foxes. The occurrence of rabies virus in other species is accidental and self-limiting. Foxes represent 99,5 % of all positive wildlife animals.

In general, the density of fox population in the Western part of the country is higher than in the Eastern part. The number of the yearly hunted foxes varied from 10 201 (1992) to 22 251 (2002) between 1990 and 2006.

Laboratory examination of rabies took place in six institutes, located in Bratislava, Nitra, Dolny Kubin, Zvolen, Kosice and Presov. The State Veterinary Institute in Zvolen is the National Reference Laboratory for Rabies in Slovakia. In the other five Institutes Fluorescein Antibody Test (FAT), Mice Inoculation Test (MIT) and sample collection are carried out.

In the National Reference Laboratory the following tests are performed:

- Virus detection by FAT, isolation in cell culture and MIT
- Detection of viral RNA by RT-PCR methods
- Confirmation of field virus by indirect immunoperoxidase method using a set of monoclonal antibodies, RFLP method and sequencing analysis
- Detection of antibody by FAVN and ELISA methods
- Detection of tetracycline marker

In total 5178 domestic animals have been tested for rabies during the period 2000 – 2007 (see Table 1).

Data of Table 2 show that 93,87 % of the submitted wildlife animals are foxes.

Year	Other than fox	Fox
2000	164	1416
2001	116	1027
2002	130	1452
2003	159	1791
2004	109	1563
2005	125	1767
2006	105	3630
2007	14	1464
Total	922	14.110

Table 2. Number of wild animals submitted for rabies investigation

The bait uptake has been controlled by 3 laboratory methods:

- FAT: the last positive case in fox was found in August 2006.
- Tetracycline marker test: after the third campaign the percentage of TTC positive foxes was about 80. Interestingly after the 5th bait distribution the rate of TTC positive foxes was decreasing with the lowest rate of 55% after the 11th campaign.
- Antibody detection: a considerable decrease of antibody positive foxes were found surprisingly after the 3rd campaign (50 %) with the lowest level of about 20 % after the 12th campaign. In spite of the detected low level immunity in foxes, the incidence of rabies decreased considerably. This might indicate a problem with the method used for the detection of rabies antibodies from hunted fox samples.

The next 2 presentations on the “National Programme of Rabies Eradication in the Slovak Republic” were given by Michaela Novakova and Matejcik Roman.

The legal basis of the programme was clarified by detailed information on the following themes:

1. Measures implemented under the programme
2. Measures and terms of legislation of holdings
3. Measures and terms of legislation of the identification of animals
4. Measures and terms of legislation of the notification of the disease
5. Measures and terms of legislation in case of positive result
6. Measures and terms of legislation of the different qualifications of animals and herds
7. Measures and terms of legislation of the control of the disease
8. Measures and terms of legislation of the compensation for the owners of killed animals.

Dr. Matejcik Roman presented detailed information on the organization of OVF in Slovakia. The current OVF programme started in 2000 using 3 vaccines (see above). Distribution of vaccination baits has been done both by aircraft and by hand. For aircraft distribution the number of baits has varied between 22 and 27 baits per km².

At present the density of 26 baits per km² is applied. The main parameters were the following:

- Flight distance-500 meters
- Flight altitude - 150 meters
- Speed - 150 km/hour

The number of baits by hand distribution is 18 baits per km². The Official Veterinarian checks the package and the amount of baits before bait distribution. The poor quality of vaccine was suspected to be a possible reason for the bad results of the programme in 2003.

In the afternoon session a presentation on “Involvement of Hunters in the Rabies Eradication Programme“ was made by Dr. Vilém Kopriva.

The Slovak Hunting Association and its territorial organizations are involved in the rabies control program in wildlife in compliance with the instructions of the SVFA of the Slovak Republic. The most important points of this cooperation are the following:

- Distribution of vaccination baits by hand
- Shooting of foxes intended for the control of the efficacy of the vaccination campaigns

The activities are ensured by users of hunting grounds. The number of hunting grounds in Slovakia in 2006 was 1.818 with 48.000 registered hunters. Hunters are trained by the official veterinarians who explain and discuss the issued instructions. The hunters' role as regards the vaccination area, the monitoring of the efficacy of the vaccination and the timetable are the main topics of discussion. The optimal temperature to distribute the baits is between 2° and 20 °C.

For the bait distribution by hand a map has to be prepared at a scale of 1:10.000 - 15.000 for the control of the vaccination area. The distribution places are precisely plotted on this map in order to check the uptake of baits by foxes.

Hand distribution as additional measure has been used in urban and suburban regions of towns (industrial areas, dumps, city parks, etc...).

Efficacy of oral vaccination is controlled by the following methods:

- In case of by hand distribution, on the 3rd, 8th and 14th day, the control of bait uptake is performed in selected areas (during the last campaign in Kosice and in Bratislava 3x1 km² field)
- Between day 45 and 90 the users of hunting grounds carry out shooting of foxes (1 fox per hunting unit - 1 fox per 25 km²). Since 2007 the foxes submitted for laboratory examination must be older than 1 year of age.

The number of hunted foxes in 2006 was 17 845, based on data published by the Slovakian Forest Research Institute. The yearly number of hunted foxes between 1990 and 2005 varied between 10 201 (1994) and 22 251 (2002).

The next presentation was given by Roman Matejcik on “Control of efficiency of the oral vaccination campaigns in the Slovak Republic”.

The efficiency control of OVF includes the following elements:

1. Incidence of Rabies
2. Vaccination bait quality
3. Rabies virus detection
4. TTC marker and antibody detection in fox population
5. Rabies virus typing.

The control of vaccination bait quality has been introduced in 2005 by determining the virus titer in the baits. 2600 foxes, representing 1 fox per 25 km², are tested in between the campaigns for controlling the bait uptake and efficacy of the vaccination. In 2006, 3630 virological, 3098 serological and 3289 TTC marker tests were carried out in the country.

Dr. Oldrich Matouch (National Reference Laboratory for Rabies, SVI, Liberec) gave a presentation on the organization of the vaccination campaigns and the rabies monitoring in the Czech Republic.

Based on experiences in the Czech Republic it can be concluded that elimination of rabies is not possible without the use of aerial distribution of the baits. No considerable difference could be detected between the TTC marker positivity after aerial (86,53%) and after by hand (79,54%) distribution.

The management system of the program includes the following elements at central level:

1. Design of the overall programme
2. Communication with the relevant organizations
3. Tender for vaccination bait and logistics
4. Tender for bait distribution
5. Selection and training of regional coordinators
6. Financing

The management of the program at local level was also introduced. Regional meetings are held 30 days before the start of the campaigns to discuss the technical details of the distribution.

The control examinations after the campaigns include the test of bait uptake, TTC marker, sero-conversion, identification of isolated strains and epidemiological monitoring.

The data presented on surveillance and monitoring showed that between 1999 and 2006 8.8 – 13,6 foxes per 100 km² were examined in laboratory for controlling the OVF. The results showed that the TTC marker positivity on average was 68% and the rabies antibody positivity 66,8%. No rabies case was found during this period in the country.

As regards the plan for 2007, 800.000 vaccination baits will be distributed twice in a territory of 26.054 km² during spring and autumn campaigns. The vaccination will take place along the Polish and Slovakian border as a belt vaccination.

DAY 2

Jacques Barrat presented "Available vaccines: best choices for the middle European climate at different stages of eradication." The main points of this presentation are the following:

1. Oral animal vaccines
2. Storage of oral rabies vaccines
3. Quality criteria for oral vaccines
4. Control of quality before releasing in the fields
5. Efficacy of oral vaccines in the fields

The conclusion of the presentation is that the elimination of rabies in Europe has been achieved in a number of countries using oral vaccination of wildlife with all available commercialized vaccines (Lyspulven, SADB19 and SADP5/88, SAG2 and VRG). However, at a time where environmental issues are raised, (i.e. the use of tetracycline is not allowed in Germany) concerns remain about the residual pathogenicity of certain vaccines that are dropped in large quantities near human settlements.

Dr. Thomas Müller (co-author Thomas Selhorst) gave a presentation on "Principles of rabies eradication". Information was presented on vaccination efficiency, rabies surveillance, oral rabies vaccination monitoring and how freedom of rabies can be proved.

From this presentation it seems worth to be emphasize that rabies can persist on a low level for a long time during vaccination. The risk of low level persistence does not depend on the duration of vaccination. The freedom from rabies can only be proven after vaccination has been stopped. Vaccination (4 campaigns) is recommended to be used until 2 years after the last positive case.

CONCLUSIONS AND RECOMMENDATIONS

1. Slovak Republic

Conclusions

1. Slovakia has established a well defined rabies eradication programme.
2. During the rabies eradication programme some shortcomings were identified by Slovakia, and corrective measures have been taken that apparently have led to significant improvement of the rabies situation.
3. Surveillance and monitoring is considered to be appropriate, well organised, and at a sufficient level.

4. Payment of premiums to the hunters has led to significant increase in submitting of samples for laboratory diagnosis.
5. Laboratory expertise for control of monitoring programme is of high quality and well organised.
6. Permanent threat of reintroduction of rabies from some neighbouring countries exists.

Recommendations

1. Oral vaccination of foxes should be continued until the freedom of the disease is reached and well demonstrated. Anyhow the vaccination belt should be kept in place in order to prevent reintroduction of rabies from still infected neighbouring countries and necessary provisions for emergency vaccination should be foreseen.
2. Frequent exchange of information and coordination of programmes should be formally established with the neighbouring Member States.
3. Overlapping of vaccination areas in border regions of Member States should be organised. The necessary political, administrative steps of other relevant (bodies) institutes should be taken in this respect.
4. An appropriate communication and co-ordination, if possible, should be established with neighbouring third countries.
5. Titer of all batches of rabies virus baits before and during release into the field should be monitored.

2. Czech Republic

Conclusion

The Czech rabies eradication programme proved to be very efficient. As a result, in 2004 the rabies free status according to OIE provisions was achieved.

Recommendations

1. Preventive oral vaccination of foxes along the border with Poland and Slovakia should be maintained according to EU recommendations until rabies elimination in common border regions of those countries is achieved.
2. The sample size for rabies surveillance can be reduced in the whole country (except for vaccination areas)

AGENDA

10 May 2007 – Day 1

Time	Item	Speaker
9:30 – 10:30	Registration and coffee	
10:30	Welcome by SVFA	Deputy CVO
10:45	Situation of rabies in the Slovak Republic since 2000	Dr. Miroslav Mojzis
11:15	National rabies eradication programme of the Slovak Republic	Dr. Michaela Novakova
12:00	Organization of the oral antirabic vaccination campaign	Dr. Roman Matejcik
12:45	Discussion on presentations of the morning session	
13:00	Lunch	
14:30	Involvement of stakeholders: hunters	Dr. Vilém Kopriva
14:45	Control of efficiency of the oral vaccination campaigns in the Slovak Republic	Dr. Roman Matejcik
15:45	Coffee break	
16:15	Organization of the vaccination campaign and rabies monitoring in the Czech republic	Dr Oldrich Matouch
17:15	Discussion on presentations of the afternoon session	
18:00	Closing of day 1	
20:00	Dinner	

11 May 2007 – Day 2

Time	Item	Speaker
9:00	Available vaccines: best choice for the middle European climate at different stages of eradication	Dr. Jacques Barrat
10:00	Principles of rabies eradication – principles of rabies surveillance and freedom of rabies	Dr. Thomas Müller
10:20	Coffee break	
11:10	General discussion on recommendations for further cooperation	
12:00	Conclusions and closing of the meeting	Task Force
12:30	Lunch	