

12th ISW-TBE Newsletter

March 2010

Dear colleague,

We are very proud to present to you the 12th edition of our international TBE Newsletter, which you will hopefully enjoy reading. The newsletter covers an update on the latest activities of the International Scientific Working Group on Tick-Borne Encephalitis (ISW-TBE).

This edition brings to you reports on:

- 1) 12th annual ISW-TBE Meeting**
- 2) International Surveys**
- 3) Vaccination recommendation**
- 4) The epidemiology of TBE – an elusive phenomenon**
- 5) New foci in Northern Europe**
- 6) Vaccination fatigue**
- 7) Congresses – Announcements**

Please feel free to come back to us in case of comments, further suggestions and ideas regarding our newsletter; we will try to incorporate these in one of our next editions.

Best regards,



Prof. Dr. Ursula Kunze
Institute for Social Medicine,
Center for Public Health, Medical University of Vienna
Publisher of the ISW-TBE
Rooseveltplatz 3
1090 Vienna, Austria
Tel: ++43/1/4277-64660
Fax: ++43/1/4277-9646
Email: Ursula.kunze@meduniwien.ac.at

1 12th Annual ISW-TBE Meeting

From 28-29 January 2010, the International Scientific Working Group on Tick-Borne Encephalitis held its 12th Annual Meeting entitled with “TBE – Awareness and Protection: The Impact of Epidemiology, Changing Lifestyle, and Environmental Factors” for the second time in the Hotel Schloss Wilhelminenberg in Vienna.

Professor Michael Kunze, Head of the Institute of Social Medicine at the University of Vienna and Chairman of the ISW-TBE, opened the meeting asking why, at a time when influenza viruses are rampant outside, more than 100 experts should convene to talk about a virus that did not currently pose a threat. However, it will only be a few weeks before temperatures will begin to rise to around 5°C and yet another tick season will start.

In recent years, the number of countries participating in the ISW-TBE Annual Meeting has been rising steadily. Whereas last year marked the first time that the working group welcomed a representative from the European Center for Disease Prevention and Control (ECDC) in their midst, this year’s meeting was attended by a representative of the World Health Organization (WHO), highlighting that TBE is now also on the international agenda.



Figure 1: Hotel Schloss Wilhelminenberg and Group of International Experts

2 International Surveys

VENICE II – TBE survey sponsored by ECDC

On behalf of the VENICE consortium, Dr Fortunato Paolo D’Ancona from the Istituto Superiore di Sanità, Italy, presented preliminary results from VENICE II, a web-based survey supported by a grant from ECDC and performed to collect information on national and sub-national immunization programs through a network of gatekeepers from 27 EU member states and 2 members of the European Economic Area (EEA).



However, 18 countries (62%) reported evidence of TBE risk in their territory. The highest incidence rates in this survey reported Estonia and Slovenia. Also 17 countries reported having surveillance systems for TBE in place, with reporting mandatory in 15 countries.

Also, the threat of TBE which is concentrated in specific foci that do not cover the entire geographical area of the EU, TBE is not included on the list of notifiable diseases at EU-level.

According to the survey, only 3 countries – Belgium, Czech Republic, and Poland – had implemented a standardized case definition for TBE. Other 16 countries reported endemic areas, but only Germany has a standard definition of what an endemic area is, and only 2 countries – Austria and Czech Republic – have a national TBE vaccination recommendation as well as 9 countries having a national recommendation for groups at high risk areas. A detailed report of the VENICE II survey will be disseminated through the website of the consortium by April 2010, accompanied by a scientific publication.

Survey to improve diagnosis and monitoring of encephalitis viruses in Europe

The results of this survey were presented by Dr Oliver Donoso Mantke from the German Consultant Laboratory for TBE, Robert Koch Institute, Berlin. This survey was carried out as part of a project initiated by the Directorate General for Health and Consumer Affairs (DG SANCO) of the European Commission (EC) to improve the diagnosis and monitoring of encephalitis viruses in Europe with the support of the European Network for Diagnostics of Imported Viral Diseases (ENIVD).



19 EU member states and 3 non-EU countries participated. TBE is notifiable in 16 of the 22 participating countries, and 8 of these 16 countries reported having a case definition based on clinical criteria and laboratory confirmation. The results of this study were published in 2008.¹

¹ Donoso Mantke, Schädler, Niedrig; A survey on cases of tick-borne encephalitis in European countries. Euro Surveillances 2008; 13:pii=18848

3 Vaccination Recommendation

WHO planning to develop TBE vaccination recommendation

Dr. Joachim Hombach from the WHO Initiative for Vaccine Research introduced the activities of the Strategic Advisory Group of Experts (SAGE). SAGE gives advice on strategic issues and major policy recommendations on vaccination and issues recommendations on the use of vaccines released by WHO in the form of position papers.



As the position papers are developed, the information contained converges with that of other WHO documents, such as documents on International Travel and Health, Essential Drugs List, or the WHO Model Formulary, and are finally published in the Weekly Epidemiological Record (WER).²



Figure 2: Weekly epidemiological record, 11 Dezember 2009; Meeting of the SAGE

Currently a TBE position paper is developed covering both Western and Eastern virus subtypes and their related vaccines. In addition to assessing the disease epidemiology, WHO will review the quality and relevance of available data, evidence of immunization schedules and immunization strategies, vaccine safety records, and health economic studies. Ultimately, the TBE position paper should provide elements for decision making in a local context.

² Weekly Epidemiological Record (WER) of the World Health Organization (WHO). Available from: <http://www.who.int/wer/en/>.

4 The epidemiology of TBE

Among the members of the TBE virus serocomplex, three subtypes play an important role, i.e., the European, the Far Eastern, and the Siberian subtype. While *Ixodes ricinus* is the most important transmitter of the European virus subtype, *Ixodes persulcatus* is the main vector of the Far Eastern and Siberian subtypes. Russia spans an area vast enough to host both tick species and all three virus subtypes.

Regarding their distribution, however, Professor Alexander Platonov presented data that may require some endemicity maps to be revised. Thus, the Siberian serotype is by far the most prevalent in both the western and central parts of Russia (Figure 3). It is still quite prevalent in the far eastern parts of Russia, even though this is where the Far Eastern subtype prevails.

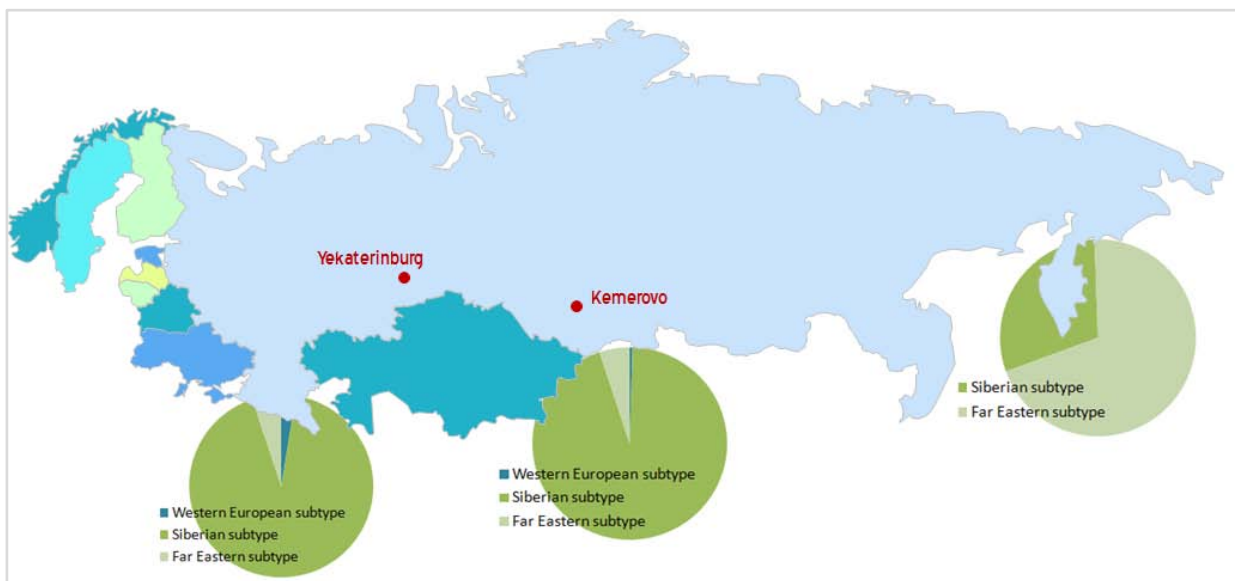


Figure 3: Distribution of TBE virus subtypes in the Russian Federation

European and German data on the epidemiology of TBE were presented by Professor Jochen Süss from the National Reference Laboratory for Tick-Borne Diseases, Friedrich-Löffler-Institute, Jena, Germany.

The epidemiology of TBE in Europe is characterized – beside expansion of risk areas – by the fluctuations in case numbers. The case numbers have been subject of major annual fluctuations that have not followed a uniform trend throughout endemic areas.

In Switzerland, Slovenia, Germany, and the Czech Republic, the incidence of TBE rose steadily from 2004 onwards, culminating in 2006 in the highest numbers of registered cases. Even in these countries, however, case numbers decreased drastically in 2007.

Not so in Sweden: As in other countries, the incidence increased almost continuously since 2000. Unlike in other countries, however, no decrease occurred in 2007.

In Denmark, first cases of TBE were reported from regions outside the known hotspots on the island of Bornholm. The northward spread of TBE risk areas is most evident in Finland, where a number of severe infections have occurred in Simo in an area approximately 100 km south of the polar circle—the northernmost area of circulation of the TBE virus to date.

Number of reported cases of TBE from various European countries and Russia³

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Austria ^m	41	60	54	60	82	54	100	84	45	86	79	*
Croatia	26	18	27	30	36	38	28	20	12	0	0	*
Czech Republic ^m	490	719	411	647	606	500	652	1.029	542	630	816	*
Denmark	4	3	1	1	4	8	4	0	2	0	1	*
Estonia ^m	185	272	215	90	237	182	164	171	140	90	179	*
Finland	12	41	33	38	16	31	17	18	20	24	26	*
France	5	0	0	2	6	7	0	6	6	10	0	*
Germany ^m	115	133	253	226	278	274	431	546	238	285	311	*
Hungary ^m	51	45	76	80	114	59	90	115	170	53	55	*
Italy	5	15	19	6	14	23	22	14	4	3	32	*
Latvia ^m	350	544	303	153	365	251	142	170	171	181	328	*
Lithuania ^m	171	419	298	168	763	425	242	462	234	204	617	*
Norway ^m	1	2	1	2	1	3	0	5	12	12	8	*
Poland ^m	101	170	205	126	339	262	174	316	233	193	335	*
Russia ^m	9.955	5.931	6.339	5.150	4.770	4.235	4.551	3.510	3.098	2.798	3.632	*
Slovak Republic ^m	57	92	76	62	74	70	28	91	46	77	66	*
Slovenia ^m	150	190	260	262	275	204	297	445	196	246	307	*
Sweden ^m	53	133	128	105	105	160	130	163	190	224	211	*
Switzerland ^m	112	91	107	53	116	138	206	259	113	127	118	*

* preliminary data

m=mandatory

Table 1: Number of reported cases of TBE from various European countries and Russia

Barry Atkinson from the Epidemiology Group of the UK Health Protection Agency (HPA) presented results of research done by the agency in a small country southeast of Kazakhstan, Kyrgyzstan.

The study performed by Barry Atkinson and his team involved trapping more than 100 small mammals and harvesting 4 organs from each, i.e., the spleen, liver, lung, and salivary gland.

Overall, 3.8% of samples tested positive for TBE by qRT-PCR. 11.5% of the mammals tested positive for TBE in at least one organ. Only 2 mammals tested positive for TBE in more than one organ.



Although sequence analysis has been difficult because of limited quantities of RNA remaining, the available material showed homology to the Kokkola or Vasilchenko strains of TBE. Both sequences suggest the Siberian serotype of TBE. There were no European TBE isolates detected.

³Süss J.; TBE in Europe and beyond the epidemiological situations as of 2007, Euro Surveillance 2008; 13; Number of reported TBE cases 2008 and 2009: Personal communication; Prof Süss J.

First TBE cases outside of Bornholm

Dr Claus Bohn Christiansen from the Department of Clinical Microbiology, State University Hospital, recounted the disease histories of two TBE patients, marking the first time the TBE virus has been found on Zealand. The first patient was a 46-year-old male patient presenting with fever, influenza-like symptoms, headache, myalgia, and arthralgia. Some two weeks later after the patient appeared to have recovered, however, he was hospitalized with fever and headache. After three days of hospitalization, the patient was transferred to another hospital with persisting signs of meningoencephalitis and severe headache, being unable to eat and drink. Overall, this patient's TBE infection had taken a text book course. Once recovered, he told Dr Christiansen that he remembered a similar story a year back when a person who had worked less than 1 km away had also been hospitalized with signs of meningoencephalitis.

An initiated flagging caught 50 nymphs, 30 adult females, and 25 adult males and 9 pools from 3 other locations (219 larvae and 62 nymphs). The pool of nymphs was strongly positive. Virus sequencing showed the virus to be of the European subtype.

The forests in northern Zealand are visited by more than 2.3 million people annually. Following these 2 cases of TBE, all forest workers have been offered vaccination against TBEV. Future plans include flagging in other locations in Denmark to determine the geographical distribution of TBEV in Zealand and other parts of the country.

I. ricinus vs. *I. persulcatus*

Dr Anu Jääskeläinen and her colleagues from the Finnish Institute for Health and Welfare collected ticks from rodents at 2 sites where TBE infections had occurred in 2009. The virus was found to be of the European subtype, and its vector was *Ixodes persulcatus*—a finding that had been made previously along the Finnish coast and has been puzzling researchers ever since, because the European subtype of the TBE virus is generally transmitted by *Ixodes ricinus*, whose distribution is illustrated in Figure 14.



Figure 4: Distribution of *I. ricinus* and *I. persulcatus* in Finland and along its borders

6 Vaccination fatigue

The last presentation of the conference, given by Astrid Eßl, GfK HealthCare Austria, summarized vaccination data in a number of countries endemic for TBE. Based on these data—are there any signs of TBE vaccination fatigue?

Overall, the level of knowledge of TBE among patients in endemic countries is quite high, but actual vaccination coverage has not kept pace. Also, with a rather high proportion of persons having received 1, 2 or even a complete primary immunization but not sticking to the recommended vaccination schedule, there appears to be a lack of awareness of when and how many vaccinations are required to guarantee adequate protection.

An additional challenge will be to mobilize the fairly high proportion of respondents planning to get vaccinated, but not yet having gotten around doing so.

7 Congresses

14th International Congress on Infectious Diseases (ICID)
March 9-12, 2010 Miami, US

28th Annual Meeting of the European Society of Pediatric Infectious Diseases (ESPID)
May 04-08, 2010 Nice, France

3rd Northern European Conference Travel Medicine (NECTM 2010)
May 26-29, 2010 Hamburg, Germany

12th International Conference on Lyme Borreliosis and other tick-borne diseases
September 26–29, 2010 Ljubljana, Slovenia

This email is intended merely to highlight issues and not to be comprehensive, nor to provide medical advice. Should you have any questions on issues reported here please contact Prof. Ursula Kunze (ursula.kunze@meduniwien.ac.at). We hold your email address, which we use to send you this electronic news update on TBE and on the activities of the ISW - TBE group. We use your details for our own internal purposes only. If any of your details are incorrect or if you no longer wish to receive emails from us, please let us know by emailing us at ursula.kunze@meduniwien.ac.at.