

13th ISW-TBE Newsletter

June 2010

Dear colleague,

We are very proud to present to you the 13th edition of the international TBE Newsletter, which you will hopefully enjoy reading. The newsletter covers an update on the latest activities in the field of TBE.

This edition brings to you reports on:

- 1) the Annual Meeting of the European Society for Pediatric Infectious Diseases (ESPID)**
- 2) the 3rd Northern Conference on Travel Medicine (NECTM)**
- 3) an Englishman's "Grand Tour" of Europe**
- 4) ECDC's Spotlight on TBE**
- 5) Vaccination Fatigue: Out of Sight, Out of Mind?**

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,



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1 ESPID

From 4–8 May 2010, the 28th Annual Meeting of the European Society for Pediatric Infectious Diseases (ESPID) took place in Nice, France. The main focus of this year’s conference was on immunization in special circumstances: **From Guideline to Patient Care – Better Diagnosis of Pediatric Infectious Diseases**. Overall, more than 2,900 participants attended the congress to bring themselves up to date with innovative news on protecting children against infection.

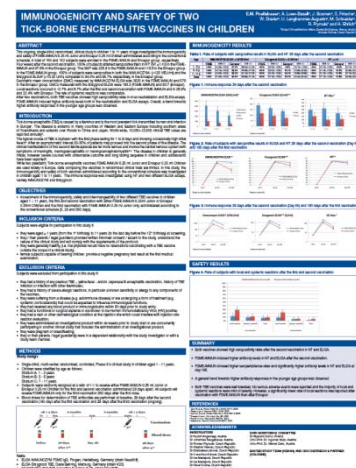
On the first day, a Satellite Symposium on **New Challenges for Established and Innovative Vaccines in the 21st Century** was chaired by Professor John Oxford, UK. Professor Roman Prymula, Director of the University Hospital Hradec Králová, Czech Republic, gave a talk on **Tick-Borne Encephalitis – Disease and Vaccination in Childhood**, explaining that the general public still knows dangerously little about the severity of TBE and it’s the long-term sequelae. The manifestations of TBE range from meningitis to encephalitis and radiculomyelitis. Although the course of TBE is generally milder in children than in adults, children can also be severely affected and suffer permanent neurological damage. Because no causal treatment is available, immunization against TBE is recommended for infants and children living in or traveling to endemic areas. TBE vaccination has been shown to be highly immunogenic and effective in the field.

ESPID: TBE Poster Presentations

Immunogenicity and Safety of two Tick-Borne Encephalitis Vaccines in Children

E.M. Pöllabauer, A. Loew-Baselli, J. Bosman, S. Fritscha, W. Draxler, U. Langhammer-Augustin, M. Schneider, R. Prymula and H. Ehrlich.

This ongoing, single-blind, randomized, clinical study in children 1 to 11 years of age investigated the immunogenicity and safety of FSME-IMMUN 0.25 ml Junior and Encepur 0.25 ml Children administered according to the conventional schedule. A total of 150 and 152 subjects were enrolled in the FSME-IMMUN and Encepur groups, respectively. After 2 doses, both TBE vaccines showed high seropositivity rates in the virus neutralization assay and ELISA. Overall, a trend towards higher antibody responses in the younger age groups was observed. On day 180 after the first vaccination, FSME-IMMUN showed higher seropersistence rates and significantly higher antibody levels in NT and ELISA than the comparator. Both TBE vaccines were well tolerated. No serious adverse events were reported, and the majority of local and systemic reactions were mild in severity. A significantly lower rate of local reactions was reported after vaccination with FSME-IMMUN than after Encepur.



Changing Patterns of Tick-Borne Encephalitis Occurrence during the last three Decades in the Czech Republic

B. Kriz, M. Daniel, C. Benes, M. Maly.

National Institute of Public Health, Praha, Czech Republic

The 1980s appeared to be a period of a low incidence of TBE and little annual variability. Since 1993, a steep rise in cases and rather pronounced annual variations has been registered. An extraordinarily high case number (n=745) was noted in 1995, and an all-time high was reached in 2009, with a total of 1029 cases.

The increase seen since the early 1990s has coincided with important meteorological changes. The age distribution of TBE patients was found to differ between each of the three 9-year periods analyzed. The shift in morbidity to older age groups was not apparent until the 9-year period starting in 2000. In this period, morbidity in adults increased from 30 to up to 65–69 years in men and to 60–64 years in women. Sociologically, this shift to older age groups has been closely related with lifestyle changes among the elderly, who have come to actively enjoy old age and spend more time doing sports or pursuing recreational activities out in nature.



Analysis of Vaccination in Children against Tick-Borne Encephalitis in the Slovak Republic

H. Hudeckova, V. Svihrova, L. Murajda, M. Avdicova

Martin, Slovak Republic

This study analyzed the TBE vaccination coverage among children in the Slovak Republic between 1997–2008. The vaccination coverage in children aged 1–15 years was found to be as low as 0.69%. Although the percentage of vaccinated children is on the rise, coverage among children in 2008 was still as low as 1.83%. Age-related morbidity decreased from 1.41/100,000 in 1997 to 0.60/100,000 in 2008.

2 NECTM

Overall, more than 700 participants joined the 3rd Northern Conference on Travel Medicine (NECTM) held in Hamburg, Germany, from 26–29 May 2010. The goal of the conference was to share advances in the science of travel medicine. The main scientific program also included a workshop on tick-borne diseases in Europe, which opened with a general overview of ticks and the diseases they transmit, followed by a presentation by Professor Jochen Süss on the epidemiology of TBE. Finally, Professor Stanczak from Poland talked about borreliosis in his country and the risks it poses to tourists and the local population.

One highlight of the workshop was a discussion about the pros and cons of TBE vaccination. Professor von Sonnenburg from Germany summarized a number of decisive reasons in favor of getting vaccinated against TBE, supported by Professor Lindquist from Sweden, who put light on

the con side of getting vaccinated. The final conclusion of the audience was that people who are travelling to endemic areas and are at risk should be vaccinated.

3 TBE Acquired During a “Grand Tour” of Europe

A 56-year-old retired Englishman set off on a bicycle tour of Europe with his 53-year-old wife. They had carefully planned their itinerary, both logistically and healthwise. Thus, they had bought a full insurance package that would enable them to get healthcare throughout Europe and would even repatriate them, if required. They carried with them a first-aid kit and a selection of over-the-counter drugs.

Yet, as they later recalled, they had not received any specific recommendations regarding health risks and preventive measures from either their family doctor or their insurance company. Even though they had thoroughly searched the internet for suggestions for bicycle tourists in the countries they were planning to travel through, they had not come across any recommendations for TBE vaccination strong or clear enough to actually motivate them to seek vaccination.

Throughout their trip, the Englishman experienced a number of tick bites, starting in the woods of Southern Sweden, then in Finland, Russia, Estonia, Lithuania, Poland, Germany, Austria, and, finally, Slovenia. Despite these tick bites, the English couple remained as fit as a fiddle—until crossing the border between Slovenia and Italy.

On that day, the husband developed fever and a severe headache. Throughout the following days, the patient reported recovery alternating with fever and headache. 15 days after the first bout of fever, he was admitted to an infectious disease unit with fever up to 39.1°C, but without any alteration of consciousness or confusion and oriented in time, space, and person; full neurological examination was negative, with the exception of intense weakness of the legs.

A blood test was sent to an Italian laboratory, and the neutralization test showed positivity for TBE only. After experiencing a clinical course typical of TBE, the patient ultimately recovered from his infection.

This case highlights the importance of getting vaccinated against TBE when traveling to endemic areas and planning to spend time hiking, trekking, cycling, or just relaxing out in nature. It should, however, be remembered to plan well in advance, because no last-minute vaccination is possible against TBE.¹

¹ E. Pontali, et al; Journal of Travel Medicine; 17; P. 143-145 (2010); Tick-Borne Encephalitis (TBE) During a “Grand-Tour” of Europe Clinically Manifesting in a TBE-Free Region

4 ECDC – Spotlight on TBE

The European Centre for Disease Prevention and Control (ECDC) has just moved the spotlight on tick-borne diseases, providing information and addressing three key messages to the general public:

- 1) Ticks can carry diseases.
- 2) Tick-borne diseases are preventable.
- 3) Tick-borne diseases are present in certain geographical areas in Europe.

More specifically, ticks are abundant across Europe from early spring to late autumn and may transmit diseases as they bite. In terms of tick-borne encephalitis, immunization is recommended for people living in or frequently visiting forests and grasslands in TBE risk areas.

Also, the ECDC provides fact sheets for professionals on four tick-borne diseases:

- Tick-borne encephalitis (TBE)
- Lyme disease
- Crimean-Congo hemorrhagic fever (CCHF)
- Tick-borne relapsing fever (TBRF)

ECDC has also launched a communication toolkit on tick-borne diseases aimed at assisting public health authorities in the Member States to develop their communication strategies and materials to raise awareness of the prevention and control of tick-borne diseases. The toolkit includes templates (e.g., for posters or leaflets) for different target audiences that can be adapted according to national strategies and needs.

The spotlight page can be accessed via the ECDC homepage

www.ecdc.europa.eu

by clicking on the banner



or by going straight to

http://ecdc.europa.eu/en/healthtopics/spotlight/spotlight_tickborne/Pages/home.aspx.

5 Vaccination Fatigue: Out of Sight, Out of Mind?

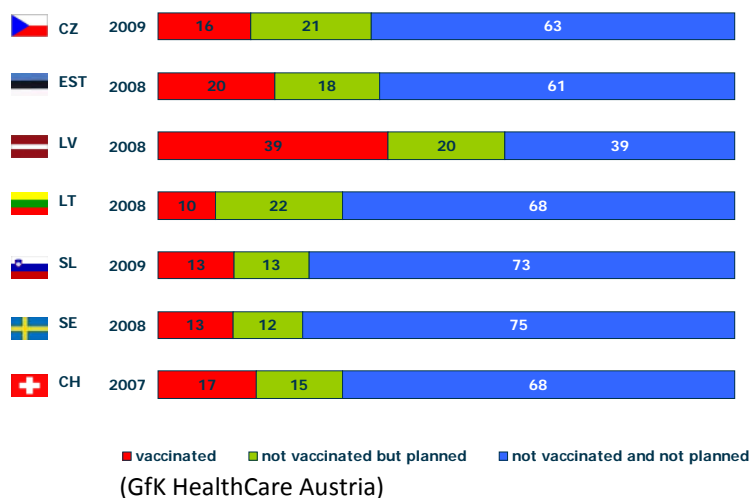
Although vaccination did not come into routine use until the 20th century, it has already successfully controlled a wide range of infectious diseases, including smallpox, measles, diphtheria, tetanus, poliomyelitis, or typhoid. Smallpox has disappeared from the earth, and polio has been reduced by 99%. Next to clean water, no other aspect of life has had such an enormous impact on the reduction of disease, disability, and death.

While some infectious pathogens are rampant across the globe, others are limited to specific geographical areas. One of these is the tick-borne encephalitis (TBE) virus. The TBE virus is among the most important human pathogenic flaviviruses, leading to permanent neurological sequelae in up to 46% of patients.¹ However, a highly effective vaccination has been available since the early 1980s and has been shown to have a field effectiveness of 99%.²

Before the introduction of TBE vaccination, Austria was the country with the highest recorded morbidity of TBE, with up to 700 cases reported annually.³ Meanwhile, vaccination rates in Austria have increased to close to 90%, and the disease incidence has come down by more than 90%.

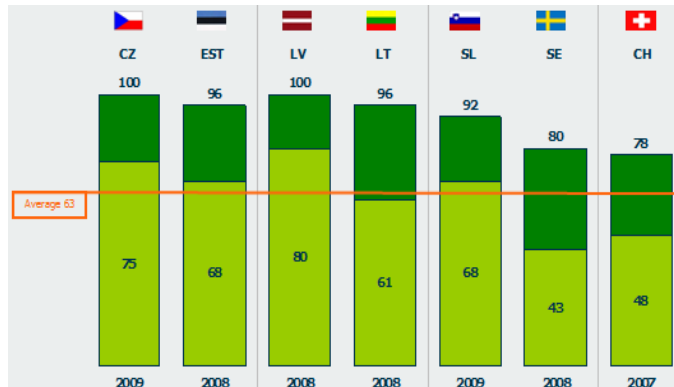
Unfortunately, this increase in vaccination rates has not been paralleled in other European countries with a similarly high risk of acquiring TBE. Figure 1 gives an overview of the vaccination rates in selected European countries. In addition to the proportions of those vaccinated, the figure also illustrates proportions of respondents not yet vaccinated, but planning to do so.

Figure 1 TBE vaccination rates in Europe (last available year) based on representative surveys



Interestingly, the proportion of respondents vaccinated or planning to get vaccinated as shown in Figure 1 was substantially lower than the proportion of respondents reporting being aware of TBE, as shown in Figure 2.

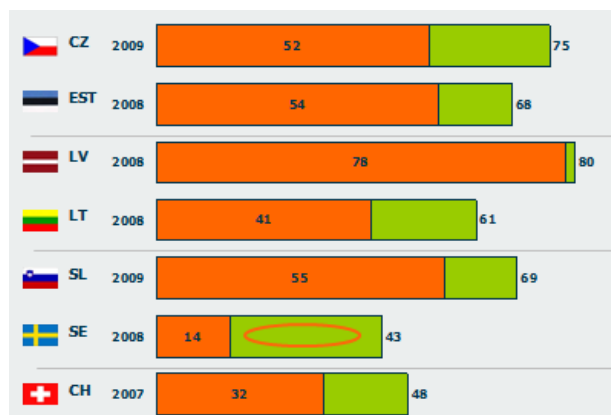
Figure 2 Awareness of TBE in endemic countries



Light green: top of mind; dark green: prompted (GfK HealthCare Austria)

With the notable exception of Sweden, a high proportion of respondents in the countries surveyed were also aware of the availability of TBE vaccines (Figure 3). Again, however, actual vaccination coverage was substantially lower (Figure 1) than disease awareness.

Figure 3 Unprompted awareness of TBE and TBE vaccination



Orange: vaccination awareness; green: disease awareness (GfK HealthCare Austria)

In the Czech Republic, for example, vaccination coverage was only 16% (Figure 1), although 100% of respondents stated being aware of the risk of TBE in their country (Figure 2) and 52% said they knew that vaccines were available to prevent it (Figure 3). Here, the challenge will be to motivate people to act on what they know, i.e., to get vaccinated.

The situation is somewhat different in Sweden, with a vaccination rate of 13% (Figure 1) and a level of awareness of the TBE vaccine of 14% (Figure 3). In terms of TBE, therefore, almost all

Swedes knowing about TBE vaccination are actually vaccinated. Unfortunately, both proportions are rather low—even though almost half of the Swedish respondents stated being aware that TBE existed. In Sweden, therefore, the future focus will have to be on better informing the public about the availability of TBE vaccination.

On the credit side, therefore, the overall level of knowledge of TBE among the populations of many endemic countries is quite high. Unfortunately, however, actual vaccination coverage is not keeping pace.

The general acceptance of vaccination and other public health measures depends largely on the way people perceive a threat.⁴ For example, prepandemic avian flu and post-SARS studies have found a correlation between the severity of the pandemic and the response of the public.^{5, 6}

In the early 1900s, infectious diseases were highly prevalent and exacted an enormous toll on the population. Between 1900 and 1904, an annual mean of 48,164 cases and 1528 deaths caused by smallpox were reported in the United States.⁷ Today, smallpox is the only disease worldwide that has been eradicated thanks only to widespread vaccination.

In the 1970s, measles was a common childhood disease, infecting 3–4 million individuals and causing some 50,000 hospitalizations in the United States each year. The measles vaccine introduced in 1963 had an immediate effect, significantly reducing the incidence and mortality of the disease in industrialized countries. In 2000, the United States was declared free of endemic measles. In Europe, however, the target of being measles-free by 2010 has not been reached, and measles is making a comeback, causing increasing numbers of outbreaks over the past years. In 2003, for example, an estimated 4,850 deaths were caused by measles in Europe.⁸ Measles is highly contagious, and a vaccination rate of approximately 95% is required to effectively contain the disease.^{9, 10} With a vaccination coverage below 80% in some European countries, a measles epidemic may not be far away.

Unlike smallpox or measles, TBE is not transferred among humans, the only vectors being infected ticks occurring in natural foci, i.e., in specific risk or endemic areas. One such endemic area is Austria, and the risk for an unvaccinated tourist staying in a highly endemic province of Austria to acquire TBE is 1 to 10,000 person-months of exposure. Based on the number of tourist overnight stays in Austria during the summer, about 60 travel-associated cases of clinical TBE may be expected to occur among visitors to Austria.¹¹ However, one must not be deceived by the low incidence of TBE prevailing in Austria, where the high vaccination coverage of almost 90% masks the true risk of infection with TBE.

Thanks only to vaccines, diseases that once killed many have become invisible. As a result, some people may no longer perceive them as a threat. Out of sight, out of mind. Yet, their causative pathogens—now effectively contained through vaccination—could easily resume taking their toll if vaccination morale continued to laxen.

There are several ways of increasing the level of vaccination in the general population. For some diseases, vaccination is mandatory—as is the case with a number of national childhood immunization programs. In others, vaccination is left to the informed decision of individuals. For people to be able to make informed decisions about vaccination, they need complete and accurate information. Vaccines should be recognized as a means of mobilizing the body's natural defenses; health-care professionals need to stay abreast with the latest developments; research must resolve increasingly complex questions about safety and efficacy; and information technology, such as the internet, social media, or sms services, should be harnessed more effectively to improve compliance with vaccination schedules.⁷ Finally, for those who are undecided about vaccination, there is an urgent need for accessible and unequivocal information about both the potential risks of infection and the safety and effectiveness of available vaccines.

In terms of TBE, a field study performed in Austria has shown that the field effectiveness of TBE vaccination is an impressive 99%—among the highest for vaccination against viral infection. Between 2000 and 2006, no fewer than 2800 cases of TBE—20 of them fatal—were prevented through vaccination.² For those living in or traveling to areas endemic for TBE this summer—this may be essential information helping the undecided opt in favor of getting vaccinated.

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