Chapter 13

TBE in Belarus

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E-CDC risk status: endemic *(last edited: date 01.04.2024)*

History and current situation

Tick-borne encephalitis is endemic in Belarus. The Tick-Borne Encephalitis Virus (TBEV) was first isolated in the country from *Ixodes ricinus* ticks in 1939 and from humans in 1954.[1,2] According to the multi-year follow-up data (2014-2023), a rise in TBE incidence among the national population has been recorded since 2022 (2.8 cases per 100,000 population) and reached its current peak with 4.1 cases per 100,000 population in 2023 (Figure 1).

From 2020 to 2023, a total of 844 TBE cases were registered in Belarus. During this period, there was a tendency for an incidence increase in all administrative territories of the country, except for the Gomel region. TBE incidence rates in the Grodno and Brest regions were the highest and exceeded the national average in all the years of observation (Figures 2 and 3). The age structure of patients was dominated by people over 18 years old (802 out of 844 [95.0%]). Gender structure was dominated by males (526 out of 844 [62.3%]). In the vast majority of cases transmission mode was by the bite of infected ticks (766 out of 844 [90.8%]), whereas for 33 (3.9%) of patients it was by consumption of infected raw goat milk. For 45 patients (5.3%) the transmission route was not identified. With regard to seasonality, the share of those who fell ill in July and August accounted for 24.5% (207/844) and 22.9% (193/844), respectively.

Overview of TBE in Belarus

Table 1: TBE in Belarus	
Virus subtypes isolated	Regional circulation of the European (TBEV-Eu) virus subtype has been established; single natural isolates have been identified as the Far Eastern (TBEV-FE) subtype[3,4].
Reservoir animals	Epidemiologically significant *Ixodidae* ticks is presented by two mass species: *Ixodes ricinus* and *Dermacentor reticulatus*. Their parasitization has been observed on more than 65 species of vertebrates living in forests, as well as on cattle and domestic animals[2]. Some few isolates from natural reservoirs have been characterized as *Ixodes persulcatus*[2,5].
Percentage of infected ticks	The detection of TBEV in *Ixodes ricinus* and *Dermacentor reticulatus* ticks was 0,27% in 2022 and 0,37% in 2021 out of the total number of specimens examined in those years, 3978 and 3741, respectively[6].
Dairy product transmission	Documented for 3.9% of cases
Case definition used by authorities	None specified
Completeness of case detection and reporting	Unknown
Type of reporting	Mandatory
Other TBE surveillance	None
Special clinical features	Out of 844 patients, 79 patients (9,4%) had a severe clinical form of the disease; 3 cases had a fatal outcome (case fatality rate: 0,4%). Fatal cases were registered in highly endemic areas of the country (Grodno and Brest regions).
Licensed vaccines	TBE vaccines registered in Belarus[7]: TICOVAC, TICOVAC JUNIOR, Tick-E-Vak, Encevir
Vaccine Recommendations	Risk groups: employees of forest managing organizations working in the territories of: the National Park "Belovezhskaya Pushcha"; the Berezinski Biosphere Reserve; other enzootic areas[8]. Vaccination is also recommended for all the people travelling to or living in endemic areas[9]
Vaccine Uptake	Unknown
National reference center for TBE	None

Figure 1: Yearly notification rate of tick-borne encephalitis cases per 100 000 population, Belarus, 2014–2023

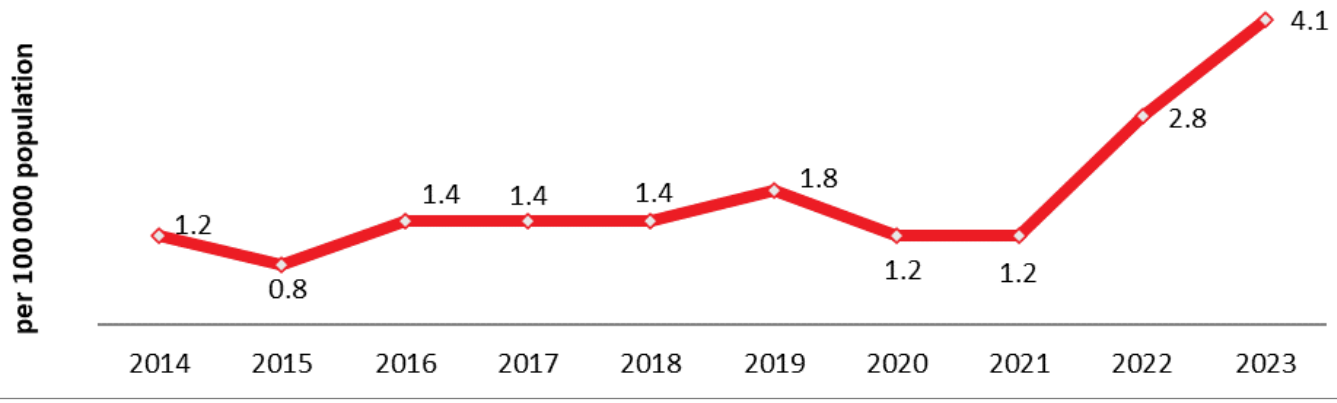


Figure 3: Map of TBE cases per 100 000 population in the administrative territories of Belarus in 2023

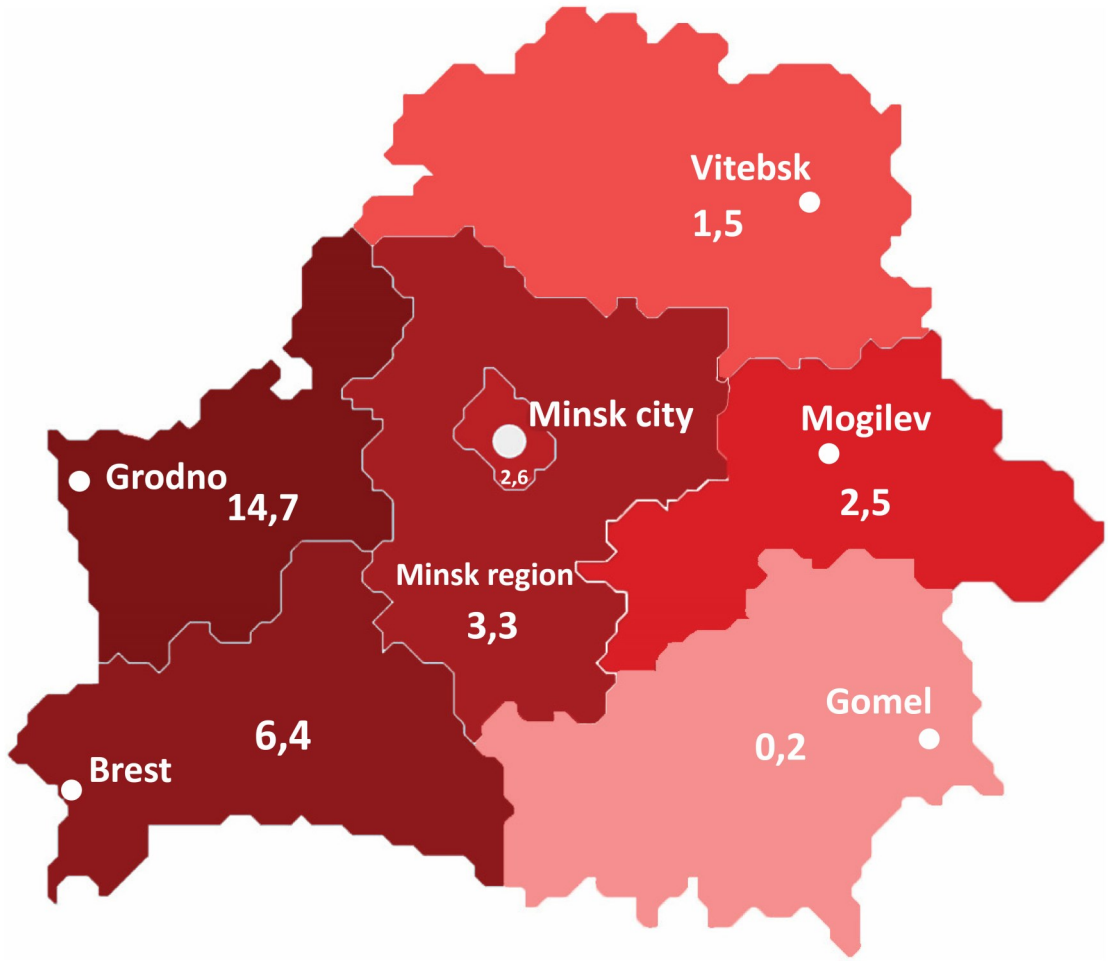
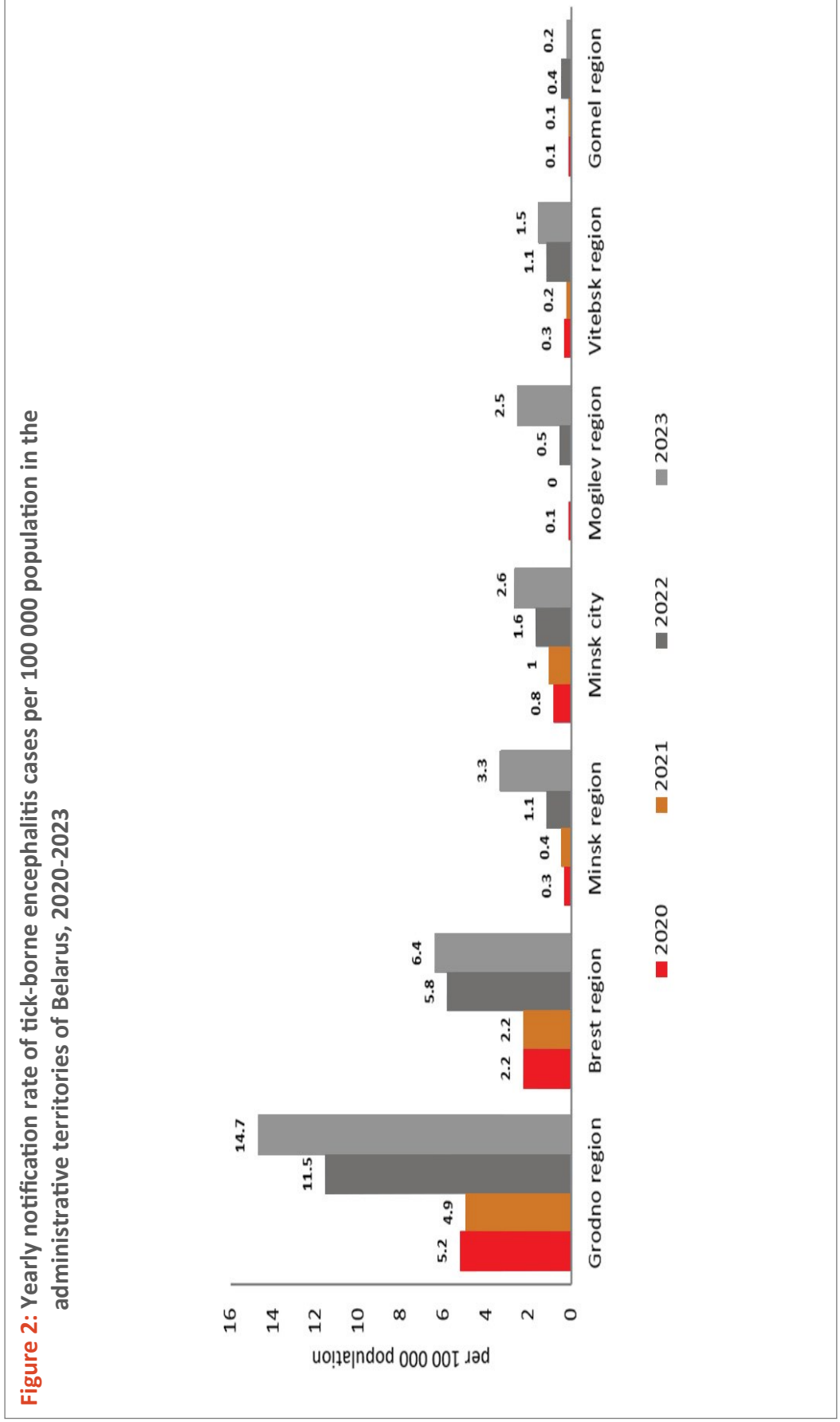


Figure 2: Yearly notification rate of tick-borne encephalitis cases per 100 000 population in the administrative territories of Belarus, 2020-2023



Appendix

Source data: Figure 1

Year	Cases
2014	113
2015	75
2016	133
2017	136
2018	134
2019	168
2020	108
2021	108
2022	260
2023	368

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References

1. Votyakov VI, Protas II, Zhdanov VM. Western tick-borne encephalitis. 1978.
2. Bychkova EI, Fedorova IA, Yakovich MM. [Ixodid ticks (Ixodidae) in Belarus]. 2015.
3. Samoilova TI, Votyakov VI, Mikhailova AA, et al. Genotyping of tick-borne encephalitis viruses isolated in Belarus using nucleotide sequence sequencing. 2007. (in Russian). Accessed April 9, 2024. https://med.by/dmn/book.php?book=07-7_3.
4. Zlobin VI, Verkhozina MM, Demina TV, et al. [Molecular epidemiology of tick-borne encephalitis]. *Vopr Virusol*. 2007;52 (6):4-13.
5. Bespyatova LA, Bychkova EI, Yakovich MM, Bugmyrin SV. Manifestation peculiarities of natural focuses of tickborne infections on the territory of Karelia and Belarus. Natural resources. 2018;(1):86-91. (in Russian).
6. Ministry of Health of Belarus. On the sanitary and epidemiological situation in Belarus in 2022: report.
7. State register of medicines of the Republic of Belarus. Accessed April 9, 2024. https://www.rceth.by/Refbank/reestr_lekarstvennih_sredstv/results.
8. On preventive vaccinations: by resolution of the Ministry of Health of Belarus 2018;42. Accessed April 9, 2024. https://minzdrav.gov.by/ru/dlya-belorusskikh-grazhdan/vaktsinatsiya/natsionalnyy-kalendar-privivok.php
9. On approval of the Instructions on the tactics of carrying out preventive vaccinations among the population in the Republic of Belarus: Order of the Ministry of Health of Belarus № 191; 2014 (in Russ.). Available at: https://minzdrav.gov.by/ru/dlya-spetsialistov/normativno-pravovaya-baza/baza-npa.php?ELEMENT_ID=331869