

West Nile Fever in Türkiye



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Serological Evidence of WNV Infection in Türkiye



A serologic survey, 2009 in the Mesopotamia region of Turkey. ELISA (Euroimmune™), and the positive samples were tested by immunofluorescent assay (IFA; Euroimmune™). As confirmation, neutralizing antibodies against WNV were tested by **microneutralization assay (MNTA)**.

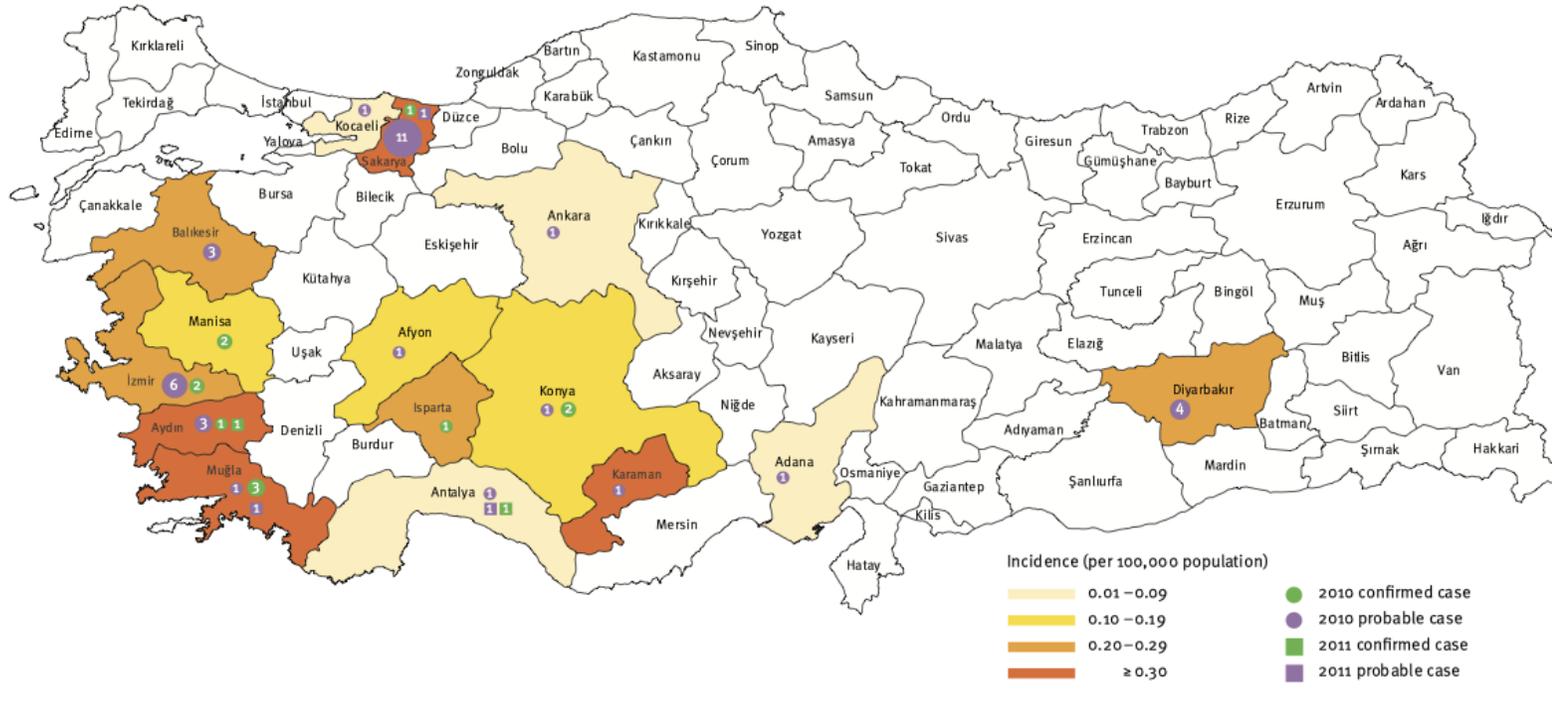
In total, 307 individuals were included. The MNTA test was found to be positive among **52 individuals out of 307 (17%)**

Karakoç ZÇ, Tüzüner BM, Ergonul O, Pierro A, Di Fonzo E, Koruk İ, Sambri V. West Nile virus infection in the Mesopotamia region, Syria border of Turkey. Vector Borne Zoonotic Dis. 2013



The First Human Cases of West Nile Fever in Türkiye

Number of West Nile virus cases in 2010 (n=47) and 2011 (n=5) and incidence in 2010 according to province of residence in Turkey, 2010–2011



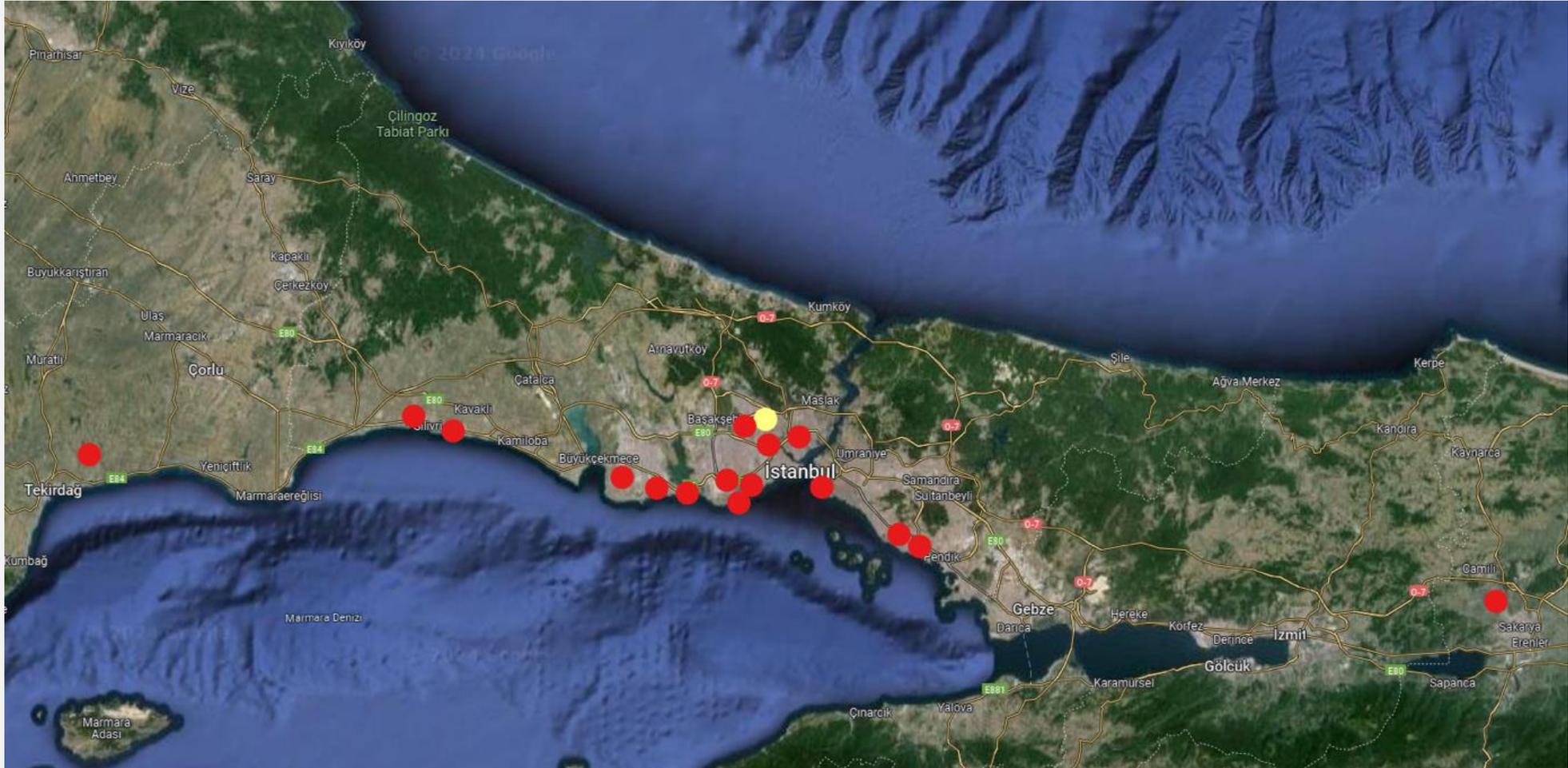
47 cases, 12 lab confirmed

Case Fatality Rate: 21% (10/47)

Kalaycioglu H, et al. Emergence of West Nile virus infections in humans in Turkey, 2010 to 2011. Euro Surveill. 2012



West Nile Fever, 2019, İstanbul: 16 cases



Kapmaz M, et al. The first outbreak of neuroinvasive West Nile virus infection in İstanbul area within 2019. BMC Infect Dis. 2026



West Nile Fever, 2019, İstanbul: 17 cases

	Total (n=17) (%)	Encephalitis (n = 14) (%)	Meningitis (n = 2) (%)	Acute Flaccid Paralysis (n =1) (%)
Fever	15 (88.2)	12 (85.7)	2 (100)	1 (100)
Nausea and/or vomiting	7 (41.2)	6 (42.9)	-	1 (100)
Rash	2 (11.8)	1 (7.1)	1 (50)	-
Difficulty in speech	8 (47)	8 (57.1)	-	-
Visual impairment	2 (11.8)	2 (14.3)	-	-
Headache	10 (66.7)	8 (57.1)	2 (100)	-
Confusion	6 (35.3)	6 (42.9)	-	-
Altered Mental status	4 (23.5)	4 (28.6)	-	-
Generalized weakness	4 (23.5)	3 (21.4)	1 (50)	-
Tremor	3 (17.7)	3 (21.4)	-	-
Dizziness	4 (23.5)	3 (21.4)	1 (50)	-
Meningeal irritation	8 (47)	6 (42.9)	2 (100)	-
Ataxic gait	7 (41.2)	6 (42.9)	-	1 (100)
Aphasia/Dysarthria	5 (29.4)	5 (35.7)	-	-
Nystagmus	1 (5.9)	1 (7.1)	-	-
Convulsion	-	-	-	-
MRI findings as some irrelevant contrast enhancements	3 (17.7)	2 (14.3)	1 (50)	-
Clinical and neurological sequelae	7 (41.2)	6 (42.9) 2 cases of paresis in the lower extremities, 1 parkinsonian gait, 1 aphasia, 1 sensorineural hearing loss, 1 retinitis		1 (100) 1 case of paresis in the lower extremities

Kapmaz M, et al. The first outbreak of neuroinvasive West Nile virus infection in İstanbul area within 2019. BMC Infect Dis. 2026



West Nile virus Infections in Türkiye, 2024: 51 cases



The mean age: 63

72.5% male.

51% confirmed,

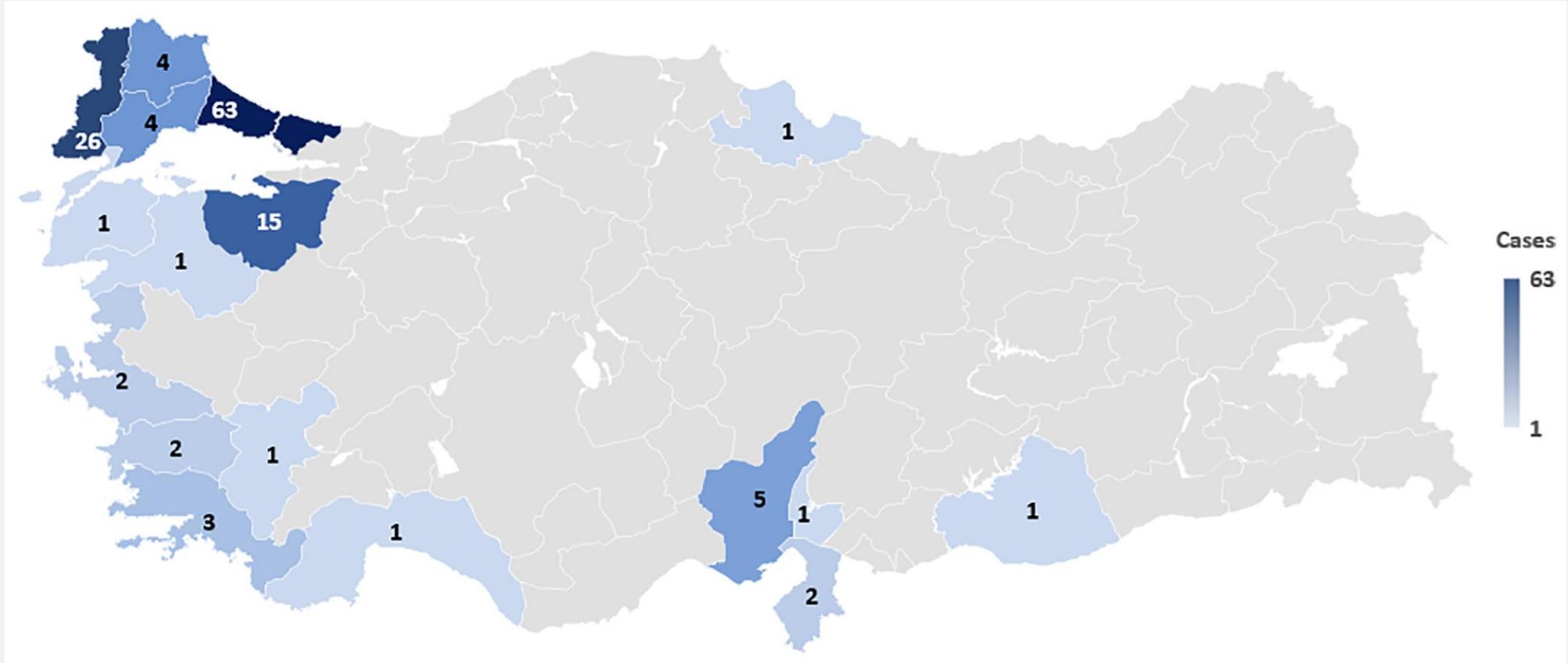
94.1% WNV neuroinvasive disease

The case fatality rate was 17.6%.

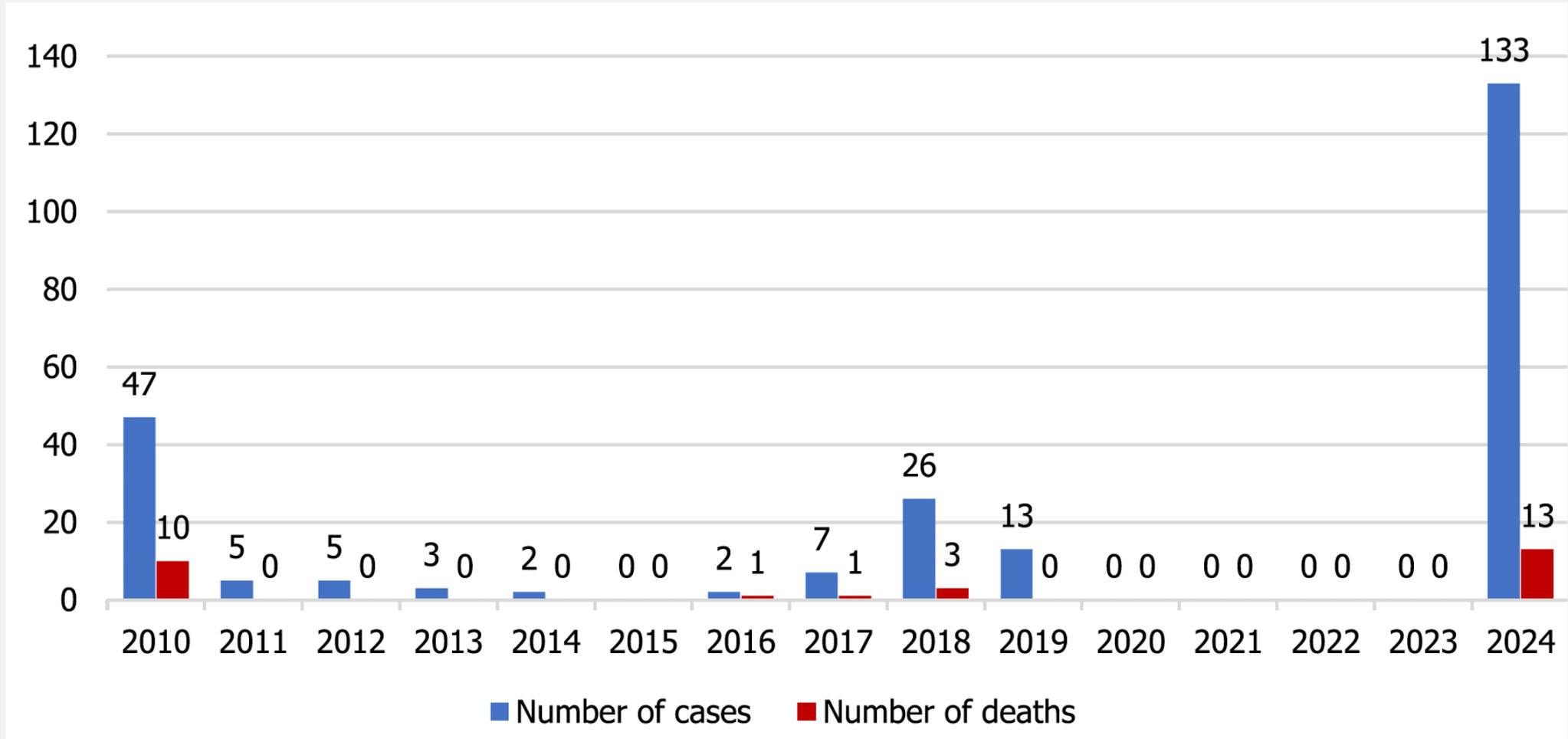
In multivariate analysis, older age (OR: 1.09, CI: 1.03-1.19, $p = 0.042$) secondary bacterial infection during hospitalization (OR: 10, CI: 1.55-64.95, $p = 0.015$) were associated with fatality.



West Nile Fever in Türkiye, 2024: Ministry of Health Data Distribution of 133 cases

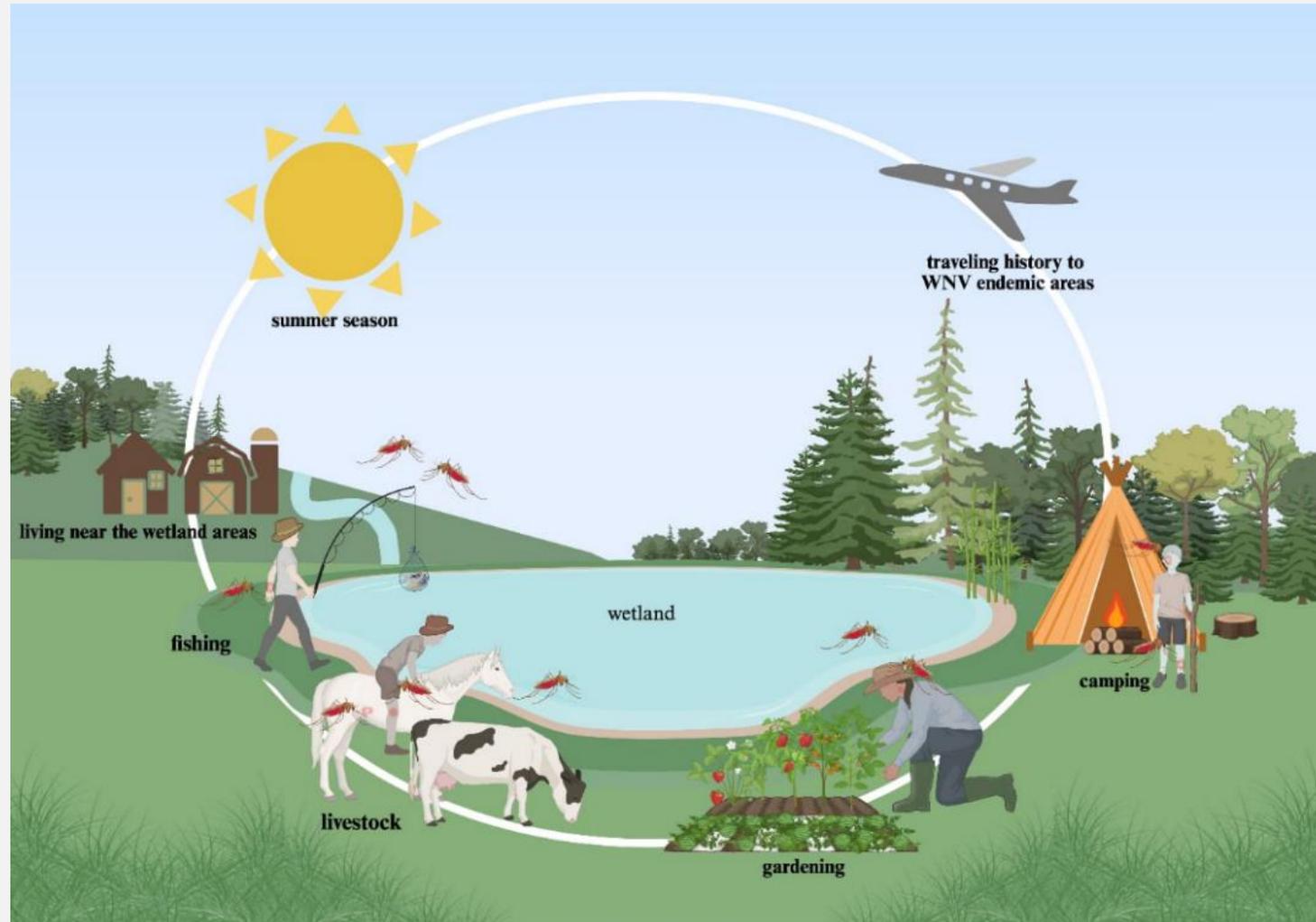


Coban SC, Topluoglu S, Avcı E, Öz E, Demirkol ME, Birinci S.
West Nile Virus human cases in Türkiye in 2024. *Acta Trop.* 2026





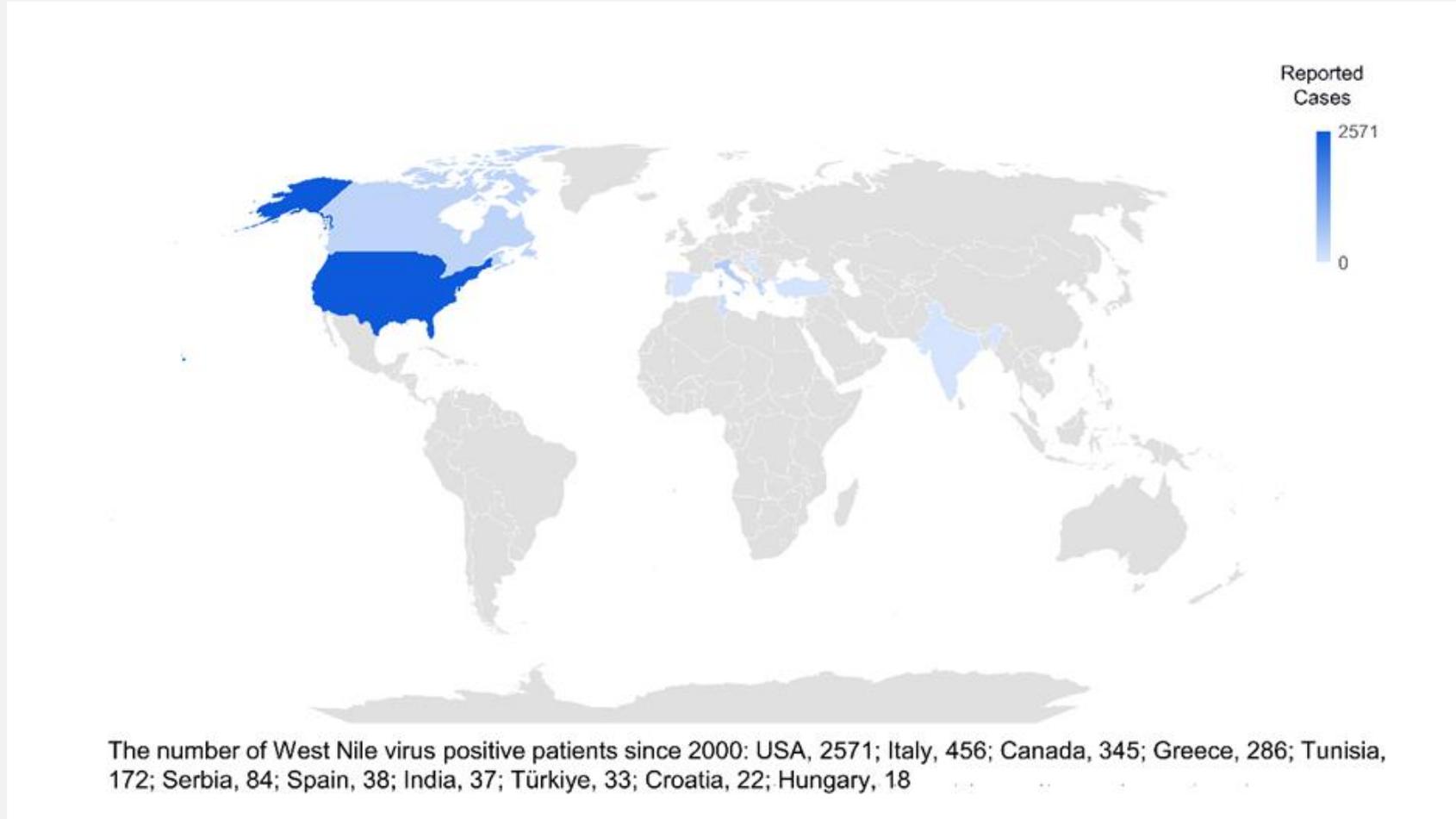
Risk Factors for WNV Infection



Madran B, et al. Clinical spectrum, outcomes, and risk factors of West Nile virus infection: A systematic review and meta-analysis. *Int J Infect Dis.* 2026

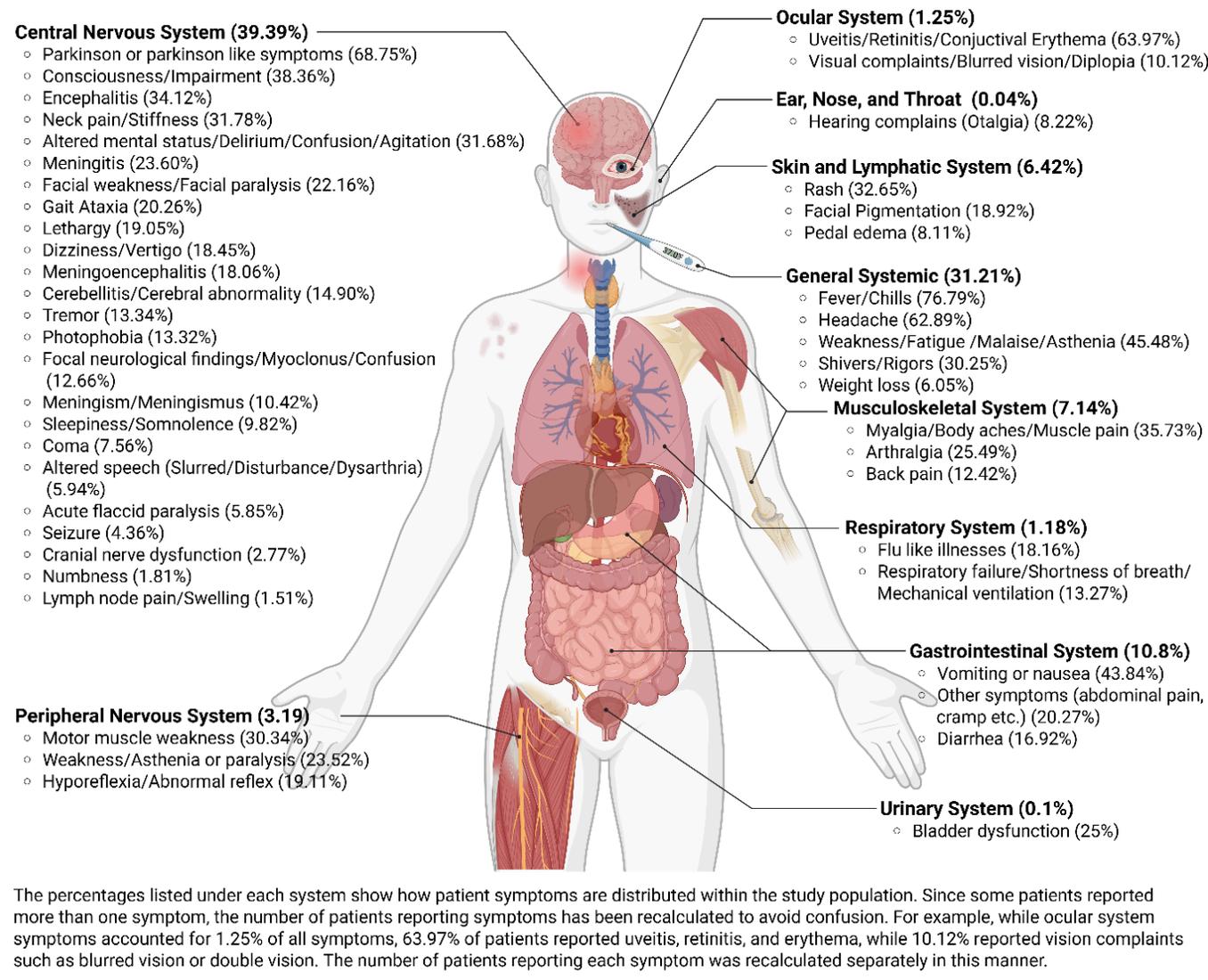


WNV Infection cases included to the meta-analysis





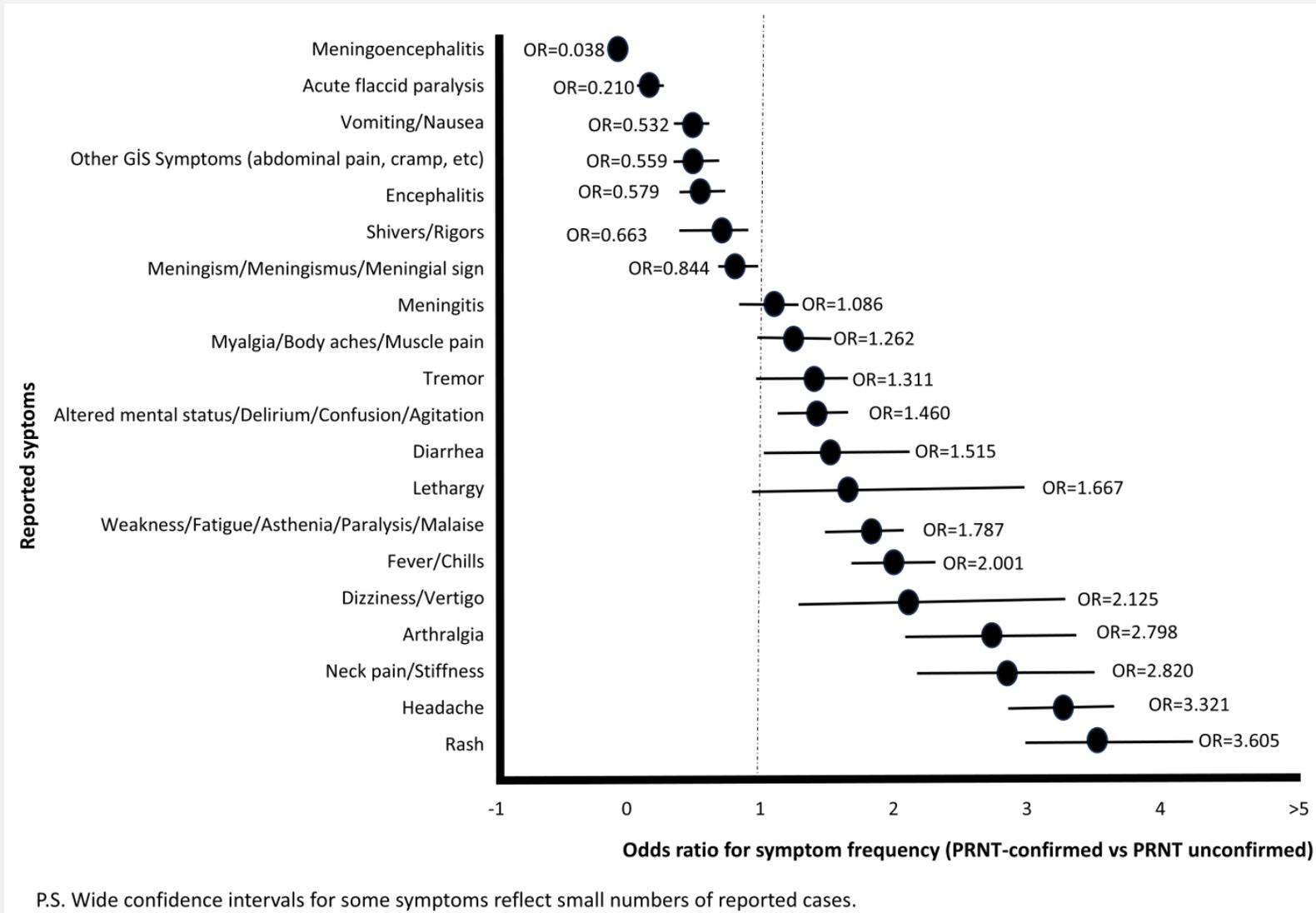
Clinical Spectrum of WNV Infection



Madran B, et al. Clinical spectrum, outcomes, and risk factors of West Nile virus infection: A systematic review and meta-analysis. Int J Infect Dis. 2026



The Changes in Reported Clinical Symptoms according to PRNT test



Madran B, et al. Clinical spectrum, outcomes, and risk factors of West Nile virus infection: A systematic review and meta-analysis. Int J Infect Dis. 2026



Clinical spectrum, outcomes, and risk factors of West Nile Virus infection

Study Design & Diagnostic Validity

 **39** scientific reports

 **4062** WNV infection

 **53% PRNT-confirmed**
(gold standard)

High risk of diagnostic misclassification

Clinical Spectrum & Mortality

Predominantly **neuroinvasive** and **systemic** symptoms

Most common symptoms;

*Fever/chills

*Headache

*Weakness/fatigue

*GIS symptoms

*Encephalitis, etc



Pooled **mortality** rate: **6.23%**
(Range: 0-42%), **62% in ICUs**

Environmental & Behavioural Risk Factors



Warm season



Living near wetlands



Outdoor activities (camping, fishing, gardening)



Livestock-related activities



Recent travel to endemic areas

Critical Comments for WNV Infection

- Early recognition of WNV infection may influence disease severity and clinical outcomes
- Awareness of WNV symptoms and behavioural and environmental risk factors should be increased
- PRNT confirmation should be expanded to reduce misclassification





Questions

1. Human to human transmission? (sexual)
2. Predictors of fatality?
3. Re-infection?
4. Standardization of diagnosis? NT test?
5. Changing risk groups?
6. Clinical course in children: milder? Why?
7. IVIG?
8. Antiviral?
9. Isolation precautions?
10. Vaccine?



Thank you



<https://kuiscid.ku.edu.tr>