NATIONAL PUBLIC HEALTH ORGANIZATION

Weekly Epidemiological Report for West Nile Virus infection, Greece, 2020
- 26 November 2020 -

This weekly epidemiological report aims to present an overview of the epidemiological data on West Nile Virus (WNV) human infection, the reported cases and the public health response to WNV in Greece for transmission period 2020.

Data presented in this report are derived from the notifications of laboratory diagnosed human cases of WNV infection sent to the Hellenic National Public Health Organization (NPHO) by the treating physicians and from the daily communication with diagnostic laboratories: i) the National Reference Centre for Arboviruses, Aristotelian University of Thessaloniki, ii) the Department of Microbiology, School of Medicine, University of Athens, iii) the Hellenic Pasteur Institute, iv) the Laboratory of Clinical Virology, School of Medicine, University of Crete. The Directorate of Epidemiological Surveillance and Intervention for Infectious Diseases of the NPHO undertakes a verification procedure through communication with the treating physicians and the patients, as necessary.

In 2020 period, up to 26/11/2020, one hundred forty four (144) laboratory diagnosed cases of WNV infection have been reported to NPHO, one hundred sixteen (116) of which presented with neuro-invasive disease (WNND, encephalitis and/or meningitis and/or acute flaccid paralysis) and twenty eight (28) cases with mild symptoms (febrile syndrome) (Table 1). Twenty-three (23) deaths were recorded, concerning patients older than 62 years of age (median age of the deceased= 82 years).

Table 1. Number of reported cases of WNV disease and deaths, Greece, period 2020, up to 26/11/2020

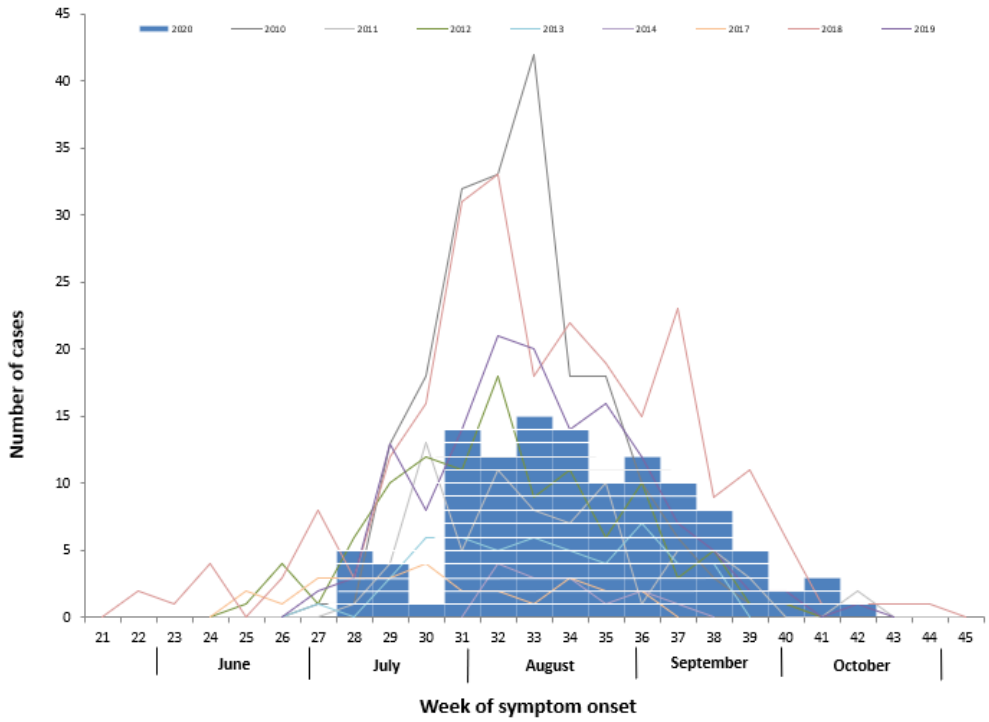
	Number of cases **with** central nervous system (CNS) manifestations [1]	Number of cases **without** CNS manifestations	**Total number of cases**	**Number of deaths** [2]
Number of WNV cases and deaths	116	28	**144**	**23**

1. Refers mainly to encephalitis, aseptic meningitis and meningoencephalitis cases
2. The number of deaths is included in the total number of cases

For the first diagnosed case of WNV infection for transmission period 2020 (case without WNND), the reported onset of symptoms was on 4th July 2020 (wk 27/2020). Figure 1 shows the reported WNND cases by week of symptom onset.

The median age of WNND cases is 74 years (range: 20 - 94 years).

Figure 1. Number of laboratory diagnosed WNND cases by week of symptom onset, Greece, 2010-2020 (until 26/11/2020).



* Each blue box represents one laboratory diagnosed case of WNND reported to NPHO in transmission period 2020.

Table 2 show the geographic distribution of the notified cases with laboratory diagnosed WNV infection at the level of probable Municipalities of exposure. The patient's probable place of exposure is a rough indicator of the area of WNV circulation.

According to a serosurvey conducted in 2010 by the NPHO and the National School of Public Health, at the epicentre of the 2010 WNV outbreak in Central Macedonia, it was estimated that WNND disease develops in 1:140 infected persons.

Table 2. Reported cases with laboratory diagnosed WNV infection (with and without WNND) by probable Municipality of exposure, Greece, transmission period 2020, up to 26/11/2020 (n=144)

Region	Regional Unit	Probable Municipality of exposure	Number of cases with WNND	Incidence of WNND per 100,000 population[1]	Number of West Nile Fever cases (non WNND)
East Macedonia & Thrace	Xanthi	Avdira	2	10.5	1
		Xanthi	1	1.5	0
		Topeiros	5	43.3	2
	Rodopi	Arrianoi	2	12.1	1
		Iasmos	2	14.5	0
		Komotini	4	6.0	1
		Maronia - Sapes	1	6.8	0
	Evros	Alexandroupoli	1	1.4	0
		Didymoteicho	1	5.1	0

	Kavala	Kavala	3	4.3	0
		Nestos	3	13.4	1
		Paggaio	1	3.1	0
	Drama	Doxato	1	6.9	0
		Drama	2	3.4	0
		Prosotsani	2	15.3	0
Thessaly	**Karditsa**	Karditsa	3	5.3	2
		Mouzaki	0	0.0	1
	Larisa	Larissa	1	0.6	0
		Tempi	1	7.3	0
	Trikala	Pyli	1	7.0	0
		Trikala (Trikkaion)	1	1.2	0
Central Macedonia	**Serres**	Amfipoli	3	32.7	0
		Visaltia	6	30.0	2
		Emmanouil Pappa	2	13.6	1
		Irakleia	8	37.8	5
		Nea Zichni	2	16.1	0
		Serres	10	13.0	3
		Sintiki	11	49.6	3
	Pieria	Dion - Olympus	2	7.8	0
		Katerini	3	3.5	1
		Pydna - Kolindros	1	6.6	0
	Imathia	Alexandria	1	2.4	1
		Veroia	0	0.0	1
	Kilkis	Kilkis	6	11.6	0
		Paeonia	3	10.5	0
	Pellas	Pella	4	6.3	1
		Skydra	1	5.0	0
	Thessaloniki	Ampelokipi - Menemeni	2	3.8	0
		Volvi	2	8.5	0
		Thessaloniki	1	0.3	0
		Kordelio - Evosmos	1	1.0	0
		Pavlos Melas	1	1.0	0
		Pylaia - Chortiatis	1	1.4	0
		Chalkidona	1	3.0	0
	Chalkidiki	Aristotle	2	10.9	0
		Kassandra	1	6.0	0
		Nea Propontida	1	2.7	0
Attica	**East Attica**	Marathon	2	6.0	0
Undetermined – unknown place of exposure			0	-	1
Total Greece			**116**	**1.1**	**28**

1. Calculations based on 2011 census data (Hellenic Statistical Authority).

PUBLIC HEALTH MEASURES SUPPORTED BY THE NPHO, 2020

In every mosquito circulation season, the National Public Health Organization -in collaboration with other involved stakeholders- implements a series of preventive and response public health measures for the management of West Nile Virus infection, which include:

I. **Enhanced surveillance for WNV disease in humans**:

- **Awareness raising of physicians** about the WNV infection: Testing for West Nile virus infection in suspected cases (such as cases with encephalitis, aseptic meningitis, acute flaccid paralysis, fever of undetermined etiology) is recommended. The NPHO provides guidelines for the recognition and diagnosis of WNV disease and the recommended laboratory investigation (mailings and website www.eody.gov.gr). For the 2020 period, an informative letter was sent to all Health Units and Medical Associations of the country for vigilance regarding West Nile Virus, in early May 2020. In addition, following the recording of cases in an area, local Health Units are urgently informed.
- **Daily communication and information exchange with laboratories** conducting diagnostic testing for WNV.
- **Enhancing laboratory diagnosis** of suspected cases, by supporting specialised diagnostic laboratories.
- **Case investigation:** The Department of Vector Borne Diseases of NPHO undertakes the investigation of every reported WNV case within 24 hours after diagnosis, in order to determine the probable place of exposure, the risk factors and the severity of the disease. Health status of hospitalized cases is daily updated.
- **Immediate update of stakeholders** on the diagnosed cases (Ministry of Health, Ministry of Rural Development and Food, Hellenic National Blood Transfusion Center, Regions/ Directorates of Public Health and Social Welfare, Municipalities).

II. **Communication and health promotion activities for the public:** Informative material for the public regarding West Nile Virus infection and the recommended protective measures against mosquito bites is available in the NPHOs website (https://eody.gov.gr). In 2020, NPHO:

- Published a Press Release (in 19th July 2020) regarding the diagnosis of the first two cases of West Nile Virus infection and the recommended prevention measures.
- Updated informative leaflets for the protection against mosquito bites and for West Nile virus infection.
- Sent -via email- the new informative material to regional and local authorities in mid June 2020.
- Sent informative leaflets for the protection against mosquito bites to all Regions of Greece, in order to be distributed to the public.
- In every affected Municipality, informative leaflets are urgently provided.

III. Coordination of an intersectional Working Group (WG) on the definition of affected areas by vector borne diseases. This WG, under the MoH Committee for the Prevention and Management of Tropical Diseases, considers all available entomological and epidemiological data and decides on the characterization of affected areas assisting the implementation of blood safety measures. The list of affected areas is published on NPHOs website and updated regularly. These are used by the Hellenic National Blood Transfusion Center to issue guidance on blood safety. In addition, the Coordinating Haemovigilance Centre of NPHO issue guidance for the haemovigilance competent authorities.

IV. Collaboration and exchange of information with the **Ministry of Rural Development and Food** regarding the West Nile virus infection in equids.

V. Vector surveillance and control activities:

- **Raising awareness and guidance to Regional Authorities:** NPHO communicates regularly (workshops, meetings, letters) with all Regional Authorities in Greece recommending the timely planning, organization and implementation of integrated vector control programmes. In 2020, NPHO sent relevant awareness letters in January 2020 (with a brief guide to the key steps to achieve timely implementation of the vector control program) and urgently informs local authorities of the affected areas regarding the recommended preventive and response measures (intensified mosquito control and raising awareness of the local population).
- **Entomological surveillance**: For the 2020 period, NPHO performed an active vector surveillance programme to be performed in various areas of the country and continues the effort to collect entomological data.
- **Communication with international public health stakeholders:** Frequent communication and weekly information exchange with ECDC (real-time reporting of the diagnosed cases in TESSy).

CONCLUSIONS

West Nile virus infection cases are recorded -on an annual basis- in many countries worldwide, including many European countries. In 2010-2014 and 2017-2019, cases of West Nile virus infection were recorded in various areas of Greece also, while virus circulation has been recorded in almost all regions. The recurrence of WNV infection cases was considered likely and expected in the country, as well as in other European countries (as in each transmission season). The last recorded case of WNV infection in Greece for the transmission period 2020, up to 26/11/2020, reported onset of symptoms on 13th October 2020 (wk 42/2020).

In 2020, up to 26/11/2020, human cases of WNV infection have been recorded in Greece, in some Municipalities in the Regional Units (NUTS3 level) of Serres, Pieria, Pella, Imathia, Kilkis, Thessaloniki, Chalkidiki, Xanthi, Rodopi, Evros, Kavala, Drama, Karditsa, Larisa, Trikala and East Attica.

In the EU Member States and EU neighboring countries, in transmission period 2020, up to 19/11/2020, human WNV infection cases have been also recorded -besides Greece- in Spain, Italy, Germany, Romania, the Netherlands, Hungary, Bulgaria, and Israel (source: ECDC, Weekly updates: 2020 West Nile virus transmission season).

Epidemiological surveillance of the disease, systematic and early implementation of mosquito control programs and personal protective measures against mosquito bites are considered the most appropriate measures to control WNV infection outbreaks.

Since the circulation of WNV and its geographical distribution (i.e., the areas with recording of human cases) during each period cannot be predicted, personal protective measures against mosquitoes are encouraged, during the period of mosquito activity.

National public health authorities have taken timely preventive measures, including communication activities regarding the recommendation for personal protection measures against mosquito bites. General information regarding personal protection measures against mosquitoes is available at: https://eody.gov.gr/wp-content/uploads/2019/04/mosquito_brochure_2019.pdf

In addition, weekly surveillance reports are published on NPHO website https://eody.gov.gr/en/disease/west-nile-virus/, which include updated information.

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