HELLENIC CENTER FOR DISEASE CONTROL & PREVENTION
MINISTRY OF HEALTH

Protect yourself from mosquitoes

Weekly Epidemiological Report for West Nile Virus disease, Greece, 2018
- 29 November 2018 -

This weekly epidemiological report aims to present an overview of the reported cases and public health response to West Nile Virus (WNV) in Greece for transmission period 2018.

Data presented in this report are derived from the notifications of laboratory diagnosed human cases of WNV infection sent to the Hellenic Center for Disease Control and Prevention (HCDCP-KEELPNO) 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. Laboratory of Clinical Virology, School of Medicine, University of Crete. The Department of Epidemiological Surveillance and Intervention of the HCDCP undertakes a verification procedure through communication with the treating physicians and the patients, as necessary.

In 2018, until 29/11/2018 (13.00), three hundred fifteen (315) laboratory diagnosed cases of WNV infection have been reported to HCDCP, two hundred forty one (241) of which presented with neuro-invasive disease (WNND, encephalitis and/or meningitis and/or acute flaccid paralysis) and seventy four (74) cases with mild symptoms (febrile syndrome) (Table 1). In addition, one WNV case without CNS manifestations is under investigation. Among the cases, forty seven (47) deaths were reported in patients >63 years old.

Table 1. Number of reported cases of WNV disease, Greece, period 2018, until 29/11/2018 (13.00)

	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	241	74	**315** [3]	**47**

1. Refers mainly to encephalitis, aseptic meningitis and meningoencephalitis cases
2. The number of deaths is included in the total number of cases
3. One WNV case without CNS manifestations is under investigation

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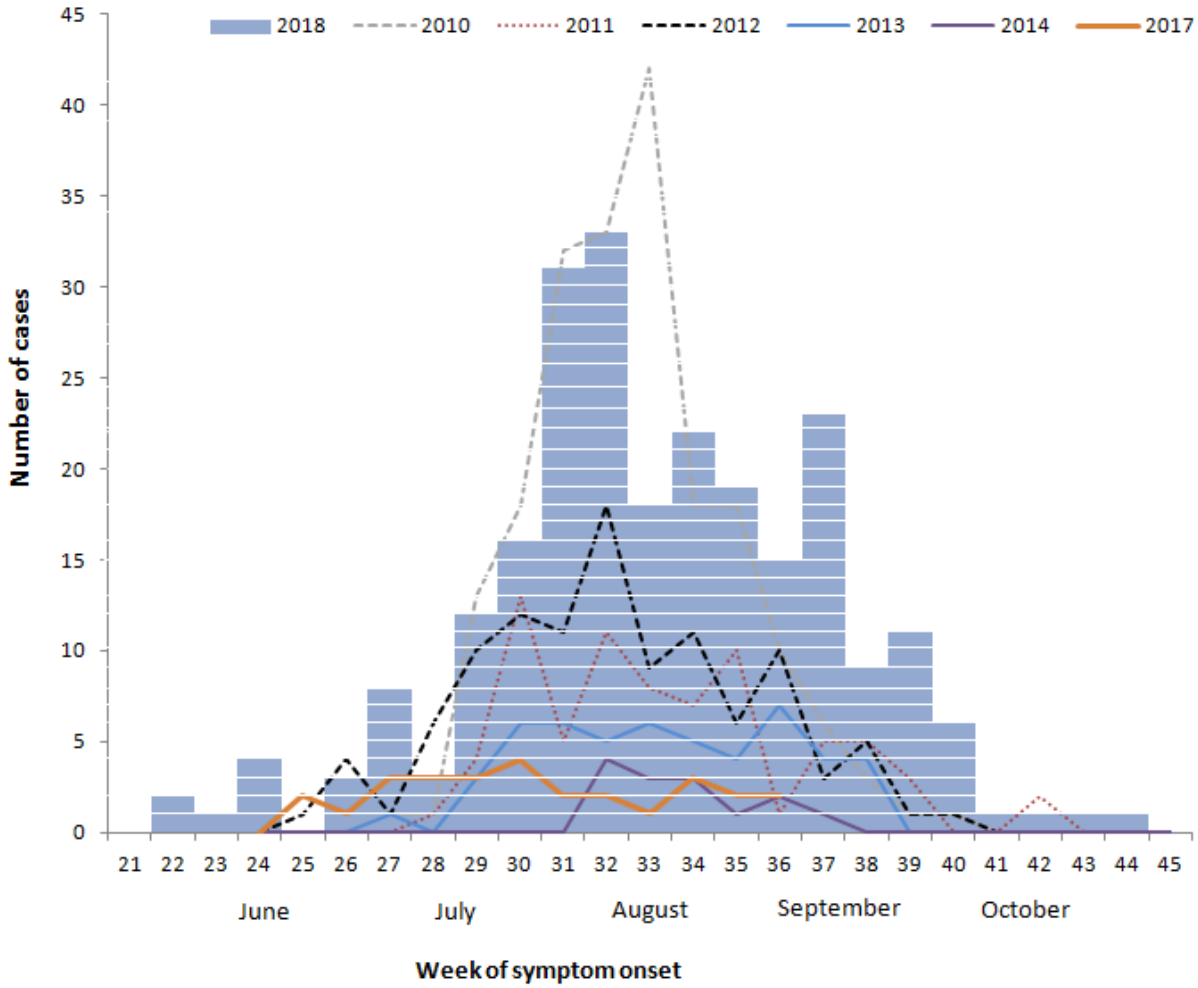
Figure 1 shows the reported WNND cases by week of symptom onset. For the first diagnosed case of WNV infection for transmission period 2018 the reported onset of symptoms was on 31st May 2018 (wk 22/2018).

Figure 1. Number of laboratory diagnosed WNND cases by week of symptom onset, Greece, 2018, until 29/11/2018, 13.00 (n=241)*.



* Each blue box represents one laboratory diagnosed case of WNND reported to KEELPNO in transmission period 2018.

The median age of WNND cases is 75 years (10 – 95 years).

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

According to a serosurvey conducted in 2010 by the HCDCP 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 disease (with and without WNND) by suspected Municipality of exposure, Greece, transmission period 2018, until 29/11/2018 (13.00)

Regional Unit	Suspected 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 (Anatoliki) Attiki	Oropos	4	11,85	2
	Marathon	3	8,98	0
	Saronikos	2	6,90	0
	Dionysos	1	2,49	0
	Markopoulou- Mesogeas	1	4,99	0
	Rafina- Pikermi	1	4,93	0
Western (Dytiki) Attiki	Megara	14	37,92	4
	Elefsina	10	33,44	3
	Aspropyrgos	9	29,75	1
	Mandras- Eidyllias	2	11,18	0
	Fili	3	6,53	0
Kentrikos Tomeas Athinon	Ilioupoli	1	1,28	0
	Galatsi	1	1,69	0
	Athens, 1st District	1	1,32	0
	Athens, 2nd District	2	1,94	1
	Athens, 3rd District	1	2,15	0
	Athens, 4th District	0	0,00	1
	Athens, 5th District	5	5,07	1
	Athens, 6th District	3	2,33	0
	Athens, 7th District	3	2,35	0
	Zografou	1	1,41	0
	Philadelphia-Chalkidona	1	2,81	0
Dytikos Tomeas Athinon	Agia Varvara	3	11,30	1
	Egaleo	4	5,72	1
	Ilion	2	2,36	0

	Agioi Anargiroi- Kamatero	1	1,60	0
	Chaidari	2	4,26	0
Voreios Tomeas Athinon	Penteli	0	0,00	1
	Amaroussion	4	5,53	1
	Iraklio Attiki	3	6,04	1
	Vrilissia	4	13,01	1
	Papagos-Cholargos	0	0,00	1
	Chalandri	0	0,00	2
	Nea Ionia	2	2,98	0
	Kifisia	1	1,41	0
Notios Tomeas Athinon	Kallithea	6	5.96	0
	Moschato - Tavros	2	4,95	0
	Glyfada	1	1,15	0
	Nea Smyrni	2	2,74	0
Peiraias (Pireaus) & Nisoi	Piraeus	5	3,05	0
	Salamina	7	17,82	1
	Korydallos	2	3,15	1
	Nikaia – Agios Ioannis	8	7,59	1
	Troizinia-Methana	3	42,00	0
	Perama	3	11,82	0
	Keratsini- Drapetsona	1	1,10	0
Corinthia	Loutraki-Perachora-Agioi Theodoroi	1	4,71	0
Argolis	Argos-Mycenae	0	0,00	1
Voiotia	Tanagra	3	15,44	1
	Aliartos-Thespies	1	9,19	1
	Thiva (Thebes)	1	2,74	1
Fthiotida	Amfikleia- Elateia	1	9,16	0
Evvoia	Chalkideon	1	0,98	0
	Chalkidona	1	2,97	2

Thessaloniki	Oraiokastro	2	5,22	1
	Volvi	2	8,52	0
	Kordelio-Evosmos	6	5,90	2
	Thessaloniki	5	1,54	2
	Delta	2	4,36	1
	Thermaikos	3	5,97	2
	Pavlou Mela	1	1,01	1
	Lagadas	1	2,43	1
	Thermi	4	7,52	0
	Kalamaria	4	4,38	2
	Ampelokipoi- Menemeni	0	0,00	1
Imathia	Alexandria	11	26,46	7
	Veria	7	10,52	3
	Heroic City of Naoussa	4	12,31	3
Pella	Almopia	1	3,63	0
	Pella	7	11,09	9
	Skidra	5	24,77	1
	Edessa	1	3,47	0
Kilkis	Paionia	1	3,51	0
	Kilkis	1	1,93	0
Pieria	Diou- Olimpou	1	3,90	0
Serres	Irakleia	2	9,46	0
	Amfipolis	1	10,89	0
Chalkidiki	Kassandra	2	12,00	0
	Nea Propontida	2	5,48	2
Rodopi	Komotini	5	7,47	0
	Maroneia- Sapes	1	6,79	1
Evros	Didymoteicho	2	10,26	0
	Orestiada	1	2,65	0
	Alexandroupoli	1	1,37	0

	Soufli	0	0,00	1
Larisa	Larisa	5	3,08	0
	Tempi	1	7,29	0
	Tirnavos	1	3,99	1
Xanthi	Xanthi	1	1,54	0
	Topeiros	0	0,00	1
Rethymno	Mylopotamos	1	6,96	0
	Rethymni	1	1,80	0
Unknown place of exposure		1	-	0
Under investigation		0	-	1
Total Greece		**241**	**2,23**	**74**

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

PUBLIC HEALTH MEASURES SUPPORTED BY THE HCDCP - 2018

The following public health measures have been implemented by the HCDCP and other involved stakeholders:

I. **Enhanced surveillance for encephalitis and 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 HCDCP provided guidelines for the recognition and diagnosis of WNV disease and the recommended laboratory investigation (mailings and website www.keelpno.gr).
- **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 Vector-borne Diseases Office of HCDCP undertakes the investigation of every reported WNV case within 24 hours after diagnosis, in order to determine the likely place of exposure, the risk factors and the severity of the disease.
- **Immediate update of stakeholders** on the diagnosed cases (Ministry of Health, Ministry of Rural Development and Food, National Centre for Blood Donations, Regions/ Directorate of Public Health and Social Welfare, Municipalities).

II. **Communication and health promotion activities for the public:** Distribution of leaflets with educational material for the public regarding the recommended protective measures against mosquito bites in collaboration with local authorities; educational material in the HCDCP website. In 2018, information material (leaflets, posters) has been distributed to the Regional authorities, according to their needs (upon request). In addition, HCDCP sends leaflets and posters in areas where cases are recorded.

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 our website (www.keelpno.gr) and updated regularly. These are used by the National Centre for Blood Donation to issue guidance on blood safety. In addition, the Coordinating Haemovigilance Centre of HCDCP has issued 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:** HCDCP communicates regularly (workshops, meetings, letters) with all Regional Authorities in Greece recommending the timely planning, organization and implementation of integrated vector control programmes. In 2018, HCDCP sent relevant awareness letters in February 2018 (with a brief guide to the key steps to achieve timely implementation of the vector control program) and urgently informs local authorities of the currently affected areas regarding the recommended preventive and response measures (intensified mosquito control and raising awareness of the local population).
- **Monitoring of the vector control programmes' stage** at each Region/ Regional Unit.
- **Entomological surveillance**: The HCDCP, in collaboration with the Department of Parasitology, Entomology and Tropical Diseases of the National School of Public Health (NSPH), the Benaki Phytopathological Institute, the MALWEST project (2012-2014), Universities, Regions, local authorities and subcontractors of the local mosquito control programmes has implemented, participated or coordinated -from 2010 to 2014- active vector surveillance programme. For the 2018 transmission period, vector surveillance is organized to be performed in various areas of the country. HCDCP recommends to local authorities to perform vector surveillance, and intensify it in the affected areas.
- **Communication with international public health stakeholders:** Frequent communication and weekly information exchange with ECDC (real-time reporting of the diagnosed cases in TESSy).

CONCLUSIONS

In 2010-2014 and 2017 (June - October), cases of West Nile virus infection were recorded in humans in various areas of Greece, while virus circulation was recorded in almost all regions. Given the complex epidemiology of the virus, the recurrence of WNV infection cases in humans in the country was considered likely and expected.

In 2018, early circulation of WNV and occurrence of human cases has been recorded in our country and other countries in Europe. Until 29/11/2018, human WNV cases have been recorded in the Regional Units (RU, NUTS3 level) of West (Dytiki) Attiki, East (Anatoliki) Attiki, Kentrikos Tomeas Athinon (Central Athens), Voreios Tomeas Athinon, Dytikos Tomeas Athinon, Notios Tomeas Athinon, Evros, Rodopi, Serres, Voiotia, Chalkidiki, Thessaloniki, Evvoia, Imathia, Peiraias (Pireaus) & Nisoi, Pella, Larisa, Fthiotida, Pieria, Corithia, Kilkis, Rethymno, Xanthi and Argolis.

In the EU Member States and neighboring countries, in transmission period 2018 (until 23/11/2018), WNV cases have been also reported -besides Greece- from Italy, Cyprus, Serbia, Romania, Hungary, Kosovo*,

France, Croatia, Israel, Czech Republic, Austria, Slovenia and Bulgaria (source: ECDC, Disease Data from ECDC Surveillance Atlas-West Nile Fever).

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 areas of virus circulation during the current period cannot be predicted, personal protective measures against mosquitoes are strongly encouraged all over Greece, during the whole period of mosquito activity.

**This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the International Court of Justice Opinion on the Kosovo Declaration of Independence*.