VectorNet

Welcome to the fourth VectorNet newsletter. VectorNet is a joint project of the European Food Safety Authority (EFSA) and the European Centre for Disease Prevention and Control (ECDC), which started in May 2014, and is now in its second iteration (2019–2023). The project is supported by a Scientific Coordination Committee with members from the Public and Animal Health community. In this project period, VectorNet aims to publish two newsletters per year.

ENTOMOLOGICAL ENDPOINTS AND THE EFFICACY OF VECTOR CONTROL

The *VectorNet,* performed a systematic literature review to understand the value of entomological endpoints for assessing the efficacy of vector control interventions. Currently, epidemiological endpoints are used to demonstrate the public health value of a vector control intervention. This systematic literature review aimed to help assess whether entomological endpoints (such as mosquito abundance, infection rates, inoculation rates, parity rate as proxy for longevity, or others) can be used on their own as evidence of efficacy of vector control interventions against vector-borne diseases. We searched electronic bibliographic databases for intervention trials where vector control interventions were evaluated and extracted epidemiological and entomological effect size estimates. The review illustrates the complex relation between entomological and epidemiological endpoints. Based on this review, it is concluded that evaluating interventions on entomological endpoints only is insufficient to understand their potential epidemiological impact. To guide implementation of vector control interventions in Europe, a stronger evidence base of their efficacy and effectiveness is needed.
www.efsa.europa.eu/en/supporting/pub/en-9984

REVERSE IDENTIFICATION KEY FOR INVASIVE MOSQUITOES

More and more people are getting involved in the surveillance of invasive mosquito species in the EU/EEA, not just professionals with formal training in entomology. There are many taxonomic keys available for identifying mosquitoes of medical and veterinary importance, but they are almost all designed for professionally trained entomologists. *VectorNet* developed a so-called 'reverse' identification key for invasive mosquito species and native mosquitoes that can be confounded with invasive ones for lay persons. This key provides the non-specialist with reference material to help recognise an invasive mosquito species and gives details on the morphology (in the species-specific pages) to help with verification and the compiling of a final list of candidates. The key displays six invasive mosquito species that are present in the EU/EEA or have been intercepted in the past. It also contains nine native species. The native species have been selected based on their morphological similarity with the invasive species, the likelihood of encountering them, whether they bite humans and how common they are. The key is based on magnificent illustrations by Disa Eklöf and photos by Anders Lindström. The tool is available as PDF, PPT, and as an interactive online tool.
www.ecdc.europa.eu/en/publications-data/reverse-identification-key-mosquito-species

Bar graph with the frequency of the different epidemiological endpoints found in the included studies. Bars are colour-coded to represent the different diseases included: malaria = blue; dengue = red; leishmaniasis = green; tick-borne diseases = purple.

Legend:
- ■ Malaria
- ■ Dengue
- ■ Leishmaniasis
- ■ Tick-borne diseases
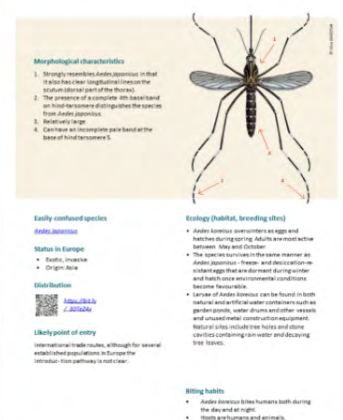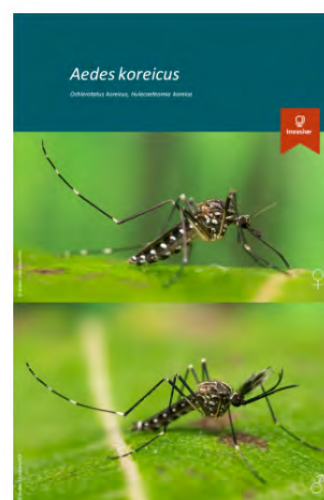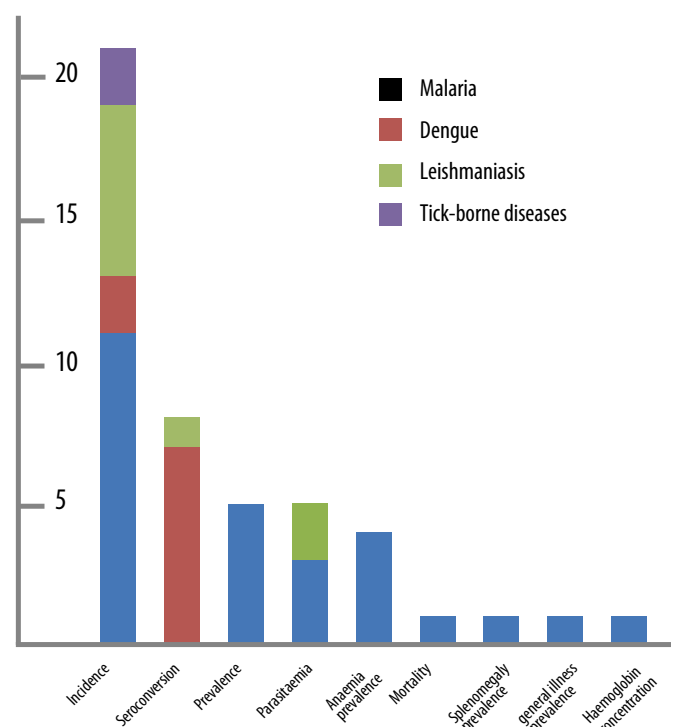
Screenshot of two pages on *Aedes koreicus* from the Reverse identification key for mosquito species

VectorNet

WEBINARS
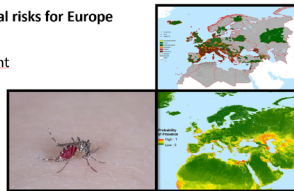
RECENTLY PUBLISHED

New and updated vector distribution maps October 2021.
https://www.ecdc.europa.eu/en/disease-vectors/surveillance-and-disease-data

Summary: The updates of the vector distribution maps resulting from the routine *VectorNet,* distribution data extraction and mapping activities for contract period 4, that ran from March to October 2021 (7 instead of 6 months) are now online. For invasive mosquito species (IMS) the current updates include additional 'Absent' data for all IMS (n=159), and new 'Introduced/Established' (N=122), including first report of *Aedes japonicus* in Romania (Cluj-Napoca). No specific distribution extension of native mosquito species is shown but gaps are filled in countries where the species' presence was already known. In particular, we report in this period the first data (unpublished) for Libya. A total of 2777 data lines relating to six of the seven priority tick species have been generated, with various extension of know areas but no first records for new countries. The global picture of *VectorNet,*maps on Culicoides is the same as for the previous period. The only change in distribution was related to the presence of Culicoides imicola in the southern French mainland. We report on new locations for 18 sand fly species in 11 countries totaling 71 species - NUTS3/GAUL2 subdivision combinations. We report for the first time the presence of *Phlebotomus balcanicus* and *P. mascitii* in Kosovo, *P. killicki* in Greece and *P. simici* in Austria.

NEWS FROM THE NETWORK

As every year Vectornet Entomological Network members meet and discuss the best way of collaboration. Due to covid-19 emergency, this year *VectorNet* meeting will be an online event on the afternoons of Tuesday November 30th (Day 1) and Wednesday December 1st (Day 2) 2021.

Culicoides imicola (copyright: VectorNet).

UPCOMING

- November 2021: *Fact sheet: Fleas* by A.Mihalca

- December 2021: Publication entitled *VectorNet: Putting Vector on the map*; VectorNet consortium and funding agencies. PI: M. Braks

- January 2022 *Fact sheet for experts: Lice* by A. Mihalca

- February 2022 Live webinar on the *Availability and regulation of biocides for the control of vectors of diseases of public and veterinary health importance*. Collaboration between VectorNet, ECDC, EFSA and DGSANTE

- April 2022: Paper on the *likelihood of establishment of* Aedes aegypti *in Europe*. PI's: W. Wint and F. Schaffner.

- April 2022: Technical report on *VectorNet vector distribution maps*. PI: Willy Wint.

- April 2022: Literature review on the topic of *the monitoring of insecticide resistance of arthropod vectors of diseases of public and veterinary health importance in Europe*. PI: W Van Bortel.

- April 2022: Technical report on *leishmaniosis in the EU and its neighbourhood – A spatial correlation analysis*. PI: E. Berriatua

- April 2022: Update Reverse *Key for invasive mosquito species*. PI: W. Van Bortel

To find out more about VectorNet please subscribe
https://ec.europa.eu/eusurvey/runner/VectorNet_Community_2020

ecdc EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

efsa European Food Safety Authority