Entomological surveillance in the Mediterranean and Black Sea regions: on the way to harmonisation?

Frédéric Jourdain (1), Marie Picard (1), Abdallah M. Samy (2), Afrim Hamidi (3), Ali Bouattour (4), Bülent Alten (5), David Roiz (1), Dušan Petric (7), Elisa Perez Ramirez (8), Enkeledja Velo (9), Filiz Günay (5), Oleksandr Gaidash (19), Roena Sukhiasvili (20), Silvia Dedichi (16), Tahar Stabbi (21), Tatiana Sušecko (22), Zoubir Harrat (23), Vincent Robert (1)

(1) French National Research Institute for Sustainable Development, Research unit MIVEGEC, IRD-CNRS-Montpellier University, Montpellier, France; (2) Entomology Department, Faculty of Science, Ali Sabah University, Nebelk, Cire, Egypt; (3) University of Prishtina, Faculty of Agriculture and Veterinary Sciences, Kosovo
(4) Institut Pasteur de Tunis, Laboratory of Medical Entomology, Tunisia; (5) Laboratoire d'Entomologie Médicale, Institut National d'Hygiène, Rabat, Morocco; (6) Laboratoire d'Entomologie Médicale, Institut National d'Hygiène, Rabat, Morocco; (7) Faculty of Agriculture, University of Prishtina, Kosovo
(8) University of Tunis El Manar, Institut Pasteur de Tunis, LR11IPT03 Service d'entomologie médicale, Tunis, Tunisia; (9) Faculty of Agriculture and Veterinary Sciences, University of Prishtina, Kosovo; (10) Faculty of Science, University of Prishtina, Kosovo; (11) Faculty of Biology, University of Prishtina, Kosovo; (12) Laboratory of Immunology and Vector-Borne Diseases, Faculty of Public Health, Lebanese University, Beirut, Lebanon; (13) Laboratory of Immunology and Vector-Borne Diseases, Faculty of Public Health, Lebanese University, Beirut, Lebanon; (14) Parasitic and Zoonotic Diseases Department, Vector-Borne Diseases Unit, National Centre for Disease Control and Prevention, Armenia; (15) Epidemiology of Communicable Diseases Unit, National Centre for Epidemiology, Surveillance and Health Promotion, Istituto Superiore di Sanità, Rome, Italy; (16) Laboratory of Immunology and Vector-Borne Diseases, Faculty of Public Health, Lebanese University, Beirut, Lebanon; (17) Laboratory of Immunology and Vector-Borne Diseases, Faculty of Public Health, Lebanese University, Beirut, Lebanon; (18) Laboratory of Immunology and Vector-Borne Diseases, Faculty of Public Health, Lebanese University, Beirut, Lebanon; (19) Institute of Zoology, Faculty of Science, University of Tripoli, Libya; (20) Zoology Department, Faculty of Science, University of Tripoli, Libya; (21) Institute of Zoology, Faculty of Science, University of Tripoli, Libya; (22) Zoology Department, Faculty of Science, University of Tripoli, Libya; (23) Institute of Zoology, Faculty of Science, University of Tripoli, Libya

The MediLabSecure project aims at strengthening the capacities to enhance preparedness to public health threats in the Mediterranean and Black Sea Regions through a One Health approach.

The implementation of entomological surveillance is of utmost importance. Guidance in designing entomological surveillance systems is critical, and these may pursue specific objectives depending on the disease.

We make it clear that there is no universal surveillance system, so the thinking behind harmonization is to define evidence-based standards in order to promote best practices, identify the most appropriate surveillance activities, and optimize the use of surveillance resources.

The MediLabSecure network

Map of the medical entomology laboratories of the MediLabSecure network

Entomological surveillance must be tailored to several entomological and epidemiological scenarios:

1. Prior to introduction or establishment of invasive species
2. The invasive species is locally established
3. Vector is widely established: emerging disease (few cases)
4. Vector is widely established: continuous transmission of pathogen (endemicity)
5. Vector is widely established: outbreak

Proposals for harmonising entomological surveillance

One Health surveillance at both the global and local level

> Integrated surveillance systems (entomology, human and animal health) interact and work together to improve public health
> Incorporate the different disciplines involved in implementing health policy, including the ecological and environmental sciences

Integrated systems for data collection and analysis

> Reinforcement and coordination of surveillance on a global scale enabling the exchange, integration and use of surveillance data
> Standardising the collection of data, and recording and storing it in a format that is easy to access, use and share

Criteria and methods to describe and assess existing levels of integration of surveillance

> Assessing three levels of integration of surveillance systems: policy/institutional, data-collection/data-analysis and dissemination