



MEETING REPORT

Expert consultation on guidelines for the surveillance of invasive mosquitoes

Stockholm, 8–9 December 2011

Summary

Vector-borne diseases transmitted by invasive mosquito vectors, such as dengue- and chikungunya fever, are emerging threats to Europe. To provide Member States with evidence-based guidance on adapted surveillance methods, ECDC is developing guidelines for the surveillance of the main invasive mosquito species in Europe. On 8 and 9 December 2011, ECDC organised an expert meeting to review the draft guidelines with a panel of experts and potential users from public health authorities from across the EU. This report contains the main suggestions and recommendations of the meeting to improve the guidelines.

Background

Vector-borne diseases are a specific group of infections that present a (re-)emerging threat to Europe and require particular attention. The recent notifications of autochthonous transmission of dengue fever and chikungunya fever cases in Europe show its vulnerability to these diseases in areas where the vector, the invasive mosquito *Aedes albopictus*, is present. Strengthening surveillance of exotic mosquito species such as *Ae albopictus*, *Ae aegypti*, *Ae atropalpus*, *Ae japonicus*, *Ae koreicus* and *Ae triseriatus*, in areas at risk of importation or spread of mosquitoes and risk of virus transmission is therefore required. This is particularly important in the context of environmental and climate changes which might allow an increase of vector populations and virus amplification.

The European Centre for Disease Prevention and Control (ECDC) programme on Emerging and Vector-borne Diseases (EVD) is developing timely and topical assessments of the risks that vector-borne diseases pose to citizens of the European Union (EU), and aims to provide Member States with practical tools and accurate information to support their decision making. In line with these objectives, ECDC identified the need for guidance on adapted surveillance methods that encourage the Member States to collect appropriate data on invasive mosquito species in the field. Early detection of invasive mosquitoes increases the opportunity for appropriate and timely response measures and therefore disease prevention. In addition, in areas where invasive mosquito species have become established, surveillance of their abundance and further spread is needed for timely risk assessment of pathogen transmission to humans.

The views expressed in this publication do not necessarily reflect the views of the European Centre for Disease Prevention and Control (ECDC).

Stockholm, March 2012

© European Centre for Disease Prevention and Control, 2012. Reproduction is authorised, provided the source is acknowledged.

ECDC has launched a project to produce guidelines to assist Member States to implement invasive mosquito vector surveillance and improve coverage and harmonisation of data collection within the EU. The guidelines should be evidence-based and offer technical support for health policy-makers and public health professionals involved in implementing invasive mosquito monitoring in EU Member States and EEA/EFTA countries.

The main objective of the consultation is to review the draft guidelines for harmonised surveillance of invasive mosquitoes of public health relevance by a panel of experts and potential users. The document should provide a comprehensive and practical guide to assist Member States to implement invasive mosquito surveillance.

The specific objectives include:

- evaluating the accuracy of described surveillance approaches (algorithms), taking into account cost and benefit, and appropriateness of technical support;
- evaluating the ease of implementation of the proposed approaches for each examined situation;
- achieving sufficient consensus on the utility of the guidelines to serve as a reference document for the comprehensive and harmonised surveillance of invasive mosquitoes at EU level.

In addition, two projects addressing complementary issues on control of invasive mosquitoes and on international regulation for vector surveillance and control were presented by the European Mosquito Control Association (EMCA) and the World Health Organization (WHO) respectively (Annex 3). The presentations and discussions were focused on the complementarity of the three projects and the best ways to collaborate more closely in the future.

Discussion points

How the meeting was organised

This meeting comprised plenary lectures and working groups (Annex 1). It was attended by 21 public health experts, entomologists and those working in national public health institutes from across Europe, along with WHO and ECDC staff members (Annex 2).

Three scenarios described in the draft mosquito surveillance guidelines were tested in turn through case studies of observed situations in the EU.

The ease of use and accuracy of all the procedures and methods to be implemented in the field were evaluated. Comments raised were collected from participants prior to the working group discussions via questionnaires and then discussed collectively in each of the two working groups.

A synthesis of the outcome of the working groups was then presented in a plenary session to build a consensus about the proposals for improvement.

Specific questions or themes were put to the working groups to help identify improvements in the draft guidelines. These related to (1) the definition of the three scenarios, (2) the management of surveillance, (3) the cost estimates, and (4) the general structure of the draft guidelines document.

The draft guidelines will be updated according to these recommendations and the final guidelines will be freely available on the ECDC website.

Overall suggestions to the ECDC guidelines

The draft guidelines were well perceived by all the participants. Their development was considered as useful and necessary. A general consensus was achieved on the structure and content, taking into account the recommendations given below.

These guidelines are complementary to other guidelines that are currently being developed elsewhere: (1) the WHO's Handbook on 'Vector surveillance and control at points of entry' for the application of the 2005 International Health Regulations (IHR), and (2) the WHO/EMCA initiative on 'Guidelines for the control of invasive mosquitoes and associated vector-borne diseases on the European continent'. There was a consensus that these should be complementary documents that cross-refer to each other given their connected but differing aims and scopes. It was also suggested that ECDC's guidelines could be included as an annex on the CDs that will be used to disseminate WHO's handbook. The WHO/EMCA document will be a strategic document, emphasising mosquito control issues.

Recommendations

A number of recommendations came out of the meeting to ECDC to improve the draft guidelines for the surveillance of invasive mosquitoes.

- The document should make clearer when and how optional procedures should be implemented or key procedures modified, to take into account a specific environment or vector.
- More arguments to inform decision makers about the risks and costs of vector-borne diseases (observed spread of the vectors, burden of the diseases and impact on blood donation, including cost estimates) should be included.
- The scope of the two complementary guidelines projects on international regulation (WHO) and control (EMCA) should be included with links to more detailed information.
- Checklists might be provided at different levels (policy makers and people performing surveillance activities in the field) and for each scenario.
- The description of the three scenarios in the guidelines is accurate but should be more self-explanatory.
- The summary for the organisation and management of surveillance should be more prominent within the document.
- For the procedures to be implemented in the field:
 - More guidance is needed both to choose the methods and to adapt the general key procedures to specific mosquito species and local situations;
 - More practical examples of applications in the field from EU countries should be included to illustrate the implementation of the procedures;
 - The procedures for mosquito collection should be more detailed to include variations according to mosquito species and the size of areas.
- Cost estimates of surveillance activities should be more detailed:
 - Some explanations about the costs proposed would be useful.
- More background and contextual information should be included in the document.

Annex 1. Agenda

Thursday, 8 December 2011

Presentations and Scenario studies

9:00 – 9:20	Welcome and introduction Herve Zeller Laurence Marrama
9:20 – 10:00	Presentation of guidelines for invasive mosquito surveillance Francis Schaffner
10:30 – 10:45	Working group organisation; Scenarios for testing, and feedback/evaluation questionnaire Laurence Marrama Francis Schaffner
10:45 – 12:00	Scenario testing: use of the guidelines in the context of: 1. Absence of detection of invasive mosquitoes: Explore suitability, feasibility and resource indications Questionnaire filling. WG leaders
13:00 – 14:15	Scenario testing: use of the guidelines in the context of: 2. Invasive mosquitoes detected locally Explore suitability, feasibility and resource indications. Questionnaire filling. WG leaders
14:15 – 15:30	Scenario testing: use of the guidelines in the context of: 3. Established populations of invasive mosquitoes Explore suitability, feasibility and resource indications. Questionnaire filling. WG leaders
16:00 – 17:00	Restitution from Scenario testing

Friday, 9 December 2011

Discussion

9:00 – 9:15	Welcome and introduction for day 2
09:15 – 09:45	Presentation of the legal framework for mosquito surveillance and control (WHO; Directives 98/8/ EC and 2009/107/EC) and new developments of WHO guidelines project and possible collaboration with ECDC guidelines Raman Velayudhan
09:45 – 10:15	EMCA guidelines on vector control road map Norbert Becker
10:45 – 12:30	Discussion of issues raised during the scenario studies and suggestions for improvement, consensus Francis Schaffner Laurence Marrama
13:30 - 14:30	Discussion of specific questions and structure of document Francis Schaffner Laurence Marrama
14:30 – 15:00	Summary of meeting discussions, recommendations for improvement and further steps Laurence Marrama

Annex 2. List of participants

This meeting included 21 public health experts, entomologists and end users from Europe, along with experts from WHO and ECDC staff members.

Name	Organisation, country
Anita Plenge-Boenig	Institute for Hygiene and Environment, Hamburg, Germany
Christophe Lagneau	EID Méditerranée, France
Cindy Schenk	Ministry of Health, The Netherlands
Cornelia Ceianu	Cantacuzino Institute, Romania
Dejan Stanko	Plant Protection in Agricultural Production, Serbia
Enkelejda Dikolli	Institute of Public Health, Albania
Enrih Merdic	University of Osijek, Croatia
Florian-Liviu Prioteasa	Cantacuzino Institute, Romania
Francis Schaffner	Guidelines project consortium
George Koliopoulos	Benaki Phytopathological Institute, Greece
Gioia Capelli	IZSVe - Istituto Zooprofilattico Sperimentale delle Venezie, Italy
Harold Noël	Institut de Veille Sanitaire, France
Joylon Medlock	Health Protection Agency, United Kingdom
Julia Walochnik	Medical University of Vienna, Institute of Specific Prophylaxis and Tropical Medicine, Austria
Maria João Alves	CEVDI-National Institute of Health/Center for Vectors and Infectious Diseases Research, Portugal
Ognyan Mikov	NCIPD - National Center of Infectious and Parasitic Diseases, Bulgaria
Nikolaos Vakalis	National School of Public Health, Greece
Norbert Becker	German Mosquito Control Association & University of Heidelberg, Germany
Raman Velayudhan	WHO – World Health Organisation, Switzerland
Rene Bødker	National Veterinary Institute Technical University of Denmark, Denmark
Roger Eritja	Consell Comarcal Baix Llobregat, Spain
Sophie Quoilin	Scientific Institute of Public Health, Belgium
Eva Warns-Petit	European Centre for Disease Control
Herve Zeller	European Centre for Disease Control
Laurence Marrama	European Centre for Disease Control
Wim van Bortel	European Centre for Disease Control

Annex 3. Presentation of the complementary guidelines (WHO and EMCA)

WHO International Health Regulations guidance for Ports, Airports and Ground Crossings

The development of a 'web-based global vector identification (networking) tool' and of a 'handbook on vector surveillance and control at Points of Entry (PoE)' was presented by Raman Velayudhan.

The priority vectors identified by groups are (in order of priority) mosquitoes, rats, fleas, ticks, flies, cockroaches, bedbugs, triatomid insects and others.

For vector surveillance at PoE, WHO is developing a process for identification of vectors that involves a technician using a microscope and digital camera, connected via the web to an expert for assisted identification (rapid identification at PoE). The development includes (i) a platform for the identification of vectors which is created and based at WHO Lyon (using molecular identification and barcoding) and (ii) a handbook addressing surveillance tools and control at PoE. PoE include ground crossing for surveillance (not for control).

Vector control at airports and seaports is mandatory even without the presence of vector-borne diseases, if the vector is present. .

Certificates for areas 'free' of vectors are given based on checklists of actions that have been taken, and capacity for application and evaluation may be built at national level.

Note: ECDC's Guidelines and WHO's handbook are complementary, it should be possible to cross-refer to ECDC's guidelines and even include them as annex on the CD that will be issued with the handbook.

WHO/EMCA guidelines for the control of invasive mosquitoes and associated vector-borne diseases on the European continent

EMCA and WHO have recently launched an initiative for developing 'Guidelines for the control of invasive mosquitoes and associated vector-borne diseases on the European continent' that was presented by Norbert Becker.

This work is based on a pan-European consultation and the first outcome will be a strategic document (currently being finalised), with special emphasis on control issues.