



# Strengthening preparedness to arbovirus infections in Mediterranean and Black Sea Countries: towards common criteria to assess and report on One Health strategy

Maria Grazia DENTE<sup>1</sup>, Flavia RICCARDO<sup>1</sup>, Jean-Claude MANUGUERRA<sup>2</sup>, Camille ESCADAFAL<sup>2</sup>, Miguel Angel JIMENEZ-CLAVERO<sup>3</sup>, Elisa PEREZ RAMIREZ<sup>3</sup>, Vincent ROBERT<sup>4</sup>, Marie PICARD<sup>4</sup>, Lobna GAAYEB<sup>2</sup>, Kathleen VICTOIR<sup>2</sup>, Silvia DECLICH<sup>1</sup> on behalf of the MediLabSecure Network

- 1: Istituto Superiore di Sanità (ISS), Roma, Italy
- 2: Institut Pasteur, Paris, France
- 3: Centre for Research on Animal Health (INIA-CISA), Madrid, Spain
- 4: Institut de Recherche pour le Développement (IRD), Montpellier, France

## Background

Identification of common criteria to consistently describe integration of arbovirus surveillance is needed to allow comparable assessments and document the impact of the One Health strategy. With this aim, we conducted a scoping review focusing on mosquito-borne arboviruses representing risks for health in the Mediterranean and Black Sea Region in the framework of MediLabSecure Project.

## Methods

We included articles from 2000-2015 in English focusing on surveillance of West Nile Virus(WNV), Chikungunya(CHK), Dengue(DNG), Rift Valley Fever(RVF) and on integration between sectors (human, animal, entomological and environmental). We retrieved articles through PubMed and qualitatively analyzed them considering sectors and levels of integration as per the analytical framework (table1) we previously proposed for a survey on integrated surveillance with MediLabSecure Partners (M.G. Dente et al., Italian Journal of Tropical Medicine and Global Health 1, 2016).

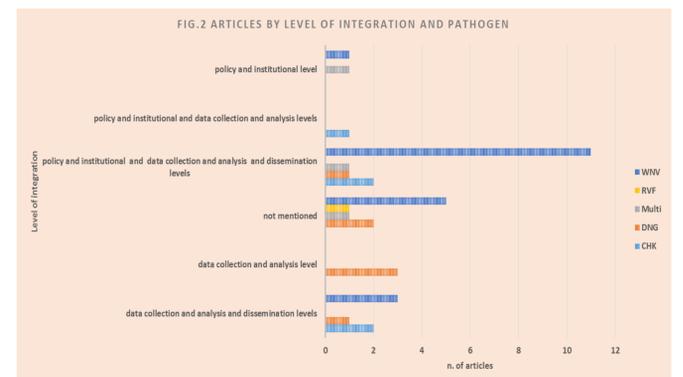
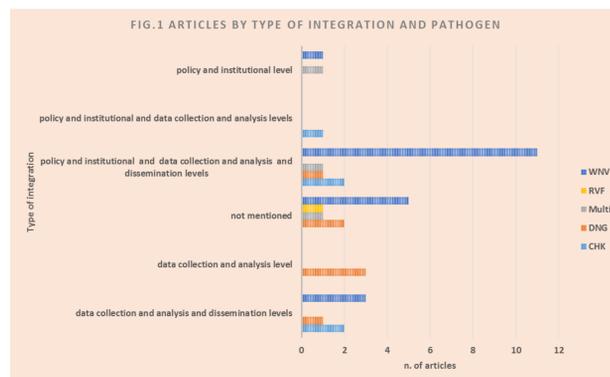
## Results

We identified 343 articles of which 36(10%) met the inclusion criteria: 23(64%) referred to WNV, 7(19%) to DNG, 5(14%) to CHK and 1(3%) to RVF. United States(10), Italy(5) and France/Réunion Island(4) were the most represented countries.

12(33%) articles reported integration between the human and entomological sectors, 6(18%) between human and animal and 12 between human, animal and entomological sectors (Fig1 for further details).

Of the 27(75%) articles specifying the integration level, 15(56%) reported integration at 3 levels: policy/institutional, data collection/analysis and dissemination and 6 (22%) reported integration at two levels: data collection/analysis and dissemination (Fig2 for further details).

Level of integration	Sublevels of integration	Criteria
Policy and institutional level	Policy level	1. Existence of a National policy addressing integrated surveillance for this specific exposure 2. Existence of a policy addressing integrated surveillance for this specific exposure at subnational level
	Institutional level	1. Existence of agreements among the institutions involved in human/animal/entomological surveillance for the specific exposure. 2. Existence of a coordination mechanism among the institutions involved. 3. Existence of identified focal points for each of human/animal/entomological surveillance for the specific exposure.
Data collection and analysis level	Interoperability mechanisms at data collection level	1. Existence of integrated data collection tools 2. Existence of activation mechanisms of human surveillance based on signals from animal/entomological surveillance 3. Other interoperability mechanisms at data collection level
	Interoperability mechanisms at data analysis level	1. Presence of DB exchange/merging/other mechanisms to facilitate joint analysis among sectors. 2. Performance of joint/integrated data analysis among the different surveillance sectors. 3. Other interoperability mechanisms at data analysis level
Dissemination level	-	1. Existence of joint result dissemination mechanisms (e.g. bulletins, reports, papers, media reports, websites...)



**Limits:** only one electronic database was utilized and only one reviewer performed the screening and the analysis of the articles.

## Conclusions and Recommendations

Recurrent criteria based on sectors and levels are used in studies to describe integrated/One Health surveillance on arboviral diseases and this reinforces the possibility to analyze these systems on the basis of common analytical frameworks such as the one we proposed.

There is the need to estimate One Health benefits in a systematic way to assess if this approach can really lead to faster disease detection, more efficient disease control and tangible financial savings when formally compared against separated surveillance streams.

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