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### 225 Vector competence of Mediterranean mosquitoes for Rift Valley fever virus: a meta-analysis

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#### Background

Rift Valley fever (RVF) is an arbovirosis mainly transmitted by Aedes and Culex mosquitoes. Circulation of the virus in Egypt and Libya as well as the existence of unregulated live animal trade with endemic areas raise concern about the possibility of virus incursion in other Mediterranean countries, where mosquitoes that are potentially competent for RVF virus transmission are present. Competence of vectors for a given pathogen can be assessed through laboratory experiments, but results may greatly vary according to study designs.

#### Objective

We systematically reviewed the literature and conducted a meta-analysis aiming to quantify vector competence of five potential important RVFV vectors in the Mediterranean basin, namely Aedes detritus, Ae. caspius, Ae. vexans, Culex pipiens and Cx. theileri.

#### Materials and Methods

From published laboratory studies, we extracted data allowing the estimation of five outcomes: the infection rate (IR), the dissemination rate among infected mosquitoes (DR/I), the overall dissemination rate (DR), the transmission rate among mosquitoes with a disseminated infection (TR/D) and the overall transmission rate (TR). After selecting the appropriate structure of random effects for the meta-analysis models, we assessed the effect of mosquito species and estimated the outcomes values for each species. Lastly, we evaluated the potential influence of laboratory study designs on the variability of these outcomes using meta-regressions.

#### Results

Thirty-four articles were included in the meta-analysis. Species had a significant effect on IR, DR/I, DR, TR/D but not on TR. Aedes caspius seemed to be the most competent vector among the five species considered.

#### Conclusion

Our analysis confirms that the five species of interest could be involved in RVF transmission in the Mediterranean basin, and should promote further investigation about the risk of RVF introduction in the up-to-now free region as well as reinforced surveillance in risky areas.