

Hunting for stowaway vectors on aircraft – the “Mosquito on Board” MOB project

Nadja Hedrich¹, Michèle Bandolay², Julianne Fischer², Patricia Schlagenhauf^{1,3}

¹ University of Zurich, Epidemiology, Biostatistics and Prevention Institute, ² Umwelt Bundesamt Deutschland, ³ WHO Collaborating Centre for Travellers' Health, Department of Global and Public Health, MilMedBiol Competence Centre

Background:

A changing climate and the subsequent expansion of the range of vectors and mosquitoes means it is crucial to examine possible routes for their introduction into Europe. We examined the possibility of exotic mosquitoes being imported into Europe through air travel.

Methods:

This study examined aircraft arriving at Zürich airport by performing sweeps of the passenger areas of aircraft after passengers have disembarked using a handheld vacuum system. Collected samples were then examined under a dissecting microscope to look for the presence of mosquitoes or other arthropods.

Results:

No mosquitoes were found in the 37 sampled flights arriving at Zürich airport. Flights came from a variety of destinations, including exotic destination such as the Dominican Republic, Sri Lanka, and the Maldives. However, 12 flights, one third of all flights screened, showed the presence of different arthropods. These included insects such as beetles (Coleoptera) and ants (Formica), as well as a fly (Diptera). None of the insects found are vectors of importance for human diseases, and there was no connection found between presence of insects and size of aircraft or jetty type at destination.

Conclusions:

The results suggest a relatively low immediate risk of mosquito-borne diseases being introduced through air travel but highlight the broader issue of potential vector transport. The findings contribute to discussions on the necessity and effectiveness of aircraft disinsection measures, the need for integrated vector management at all airports and the importance of continued surveillance and monitoring of stowaway vectors on board aircraft.