



**WORKING PAPER**

**ASSEMBLY — 37TH SESSION**

**TECHNICAL COMMISSION**

**Agenda Item 43: Non-chemical disinsection of the aircraft cabin and flight deck for international flights**

**PREVENTING THE SPREAD OF COMMUNICABLE DISEASE  
THROUGH NON-CHEMICAL METHODS**

(Presented by the Council of ICAO)

**EXECUTIVE SUMMARY**

Methods of aircraft disinsection are recommended by the World Health Organization (WHO) in order to reduce the risk of spread of vector-borne disease from one country to another. At present, such methods involve the use of chemical insecticides.

Assembly Resolution A36-24 - *Non-chemical disinsection of the aircraft cabin and flight deck for international flights* requested the Council of ICAO to urge WHO to hold a consultation on disinsection of the cabin and flight deck and encourage the exploration of non-chemical approaches to aircraft disinsection.

Research shows that a non-chemical method of aircraft disinsection known as the “air curtain” appears to be efficacious in preventing mosquitoes and other flying insects from entering aircraft.

It is not, as yet, possible to recommend a specific non-chemical method of aircraft disinsection, but work to this end is ongoing. In the meantime, the use of chemical disinsectants should be optimized.

**Action:** The Assembly is invited to review the modifications proposed and adopt the Resolution contained in the appendix on non-chemical disinsection to supersede Resolution A36-24.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective E - <i>Continuity</i> — Cooperate with other international organizations to prevent the spread of disease by air travellers.
<i>Financial implications:</i>	Resources for the activities referred to in this paper are included in the proposed budget for 2011 to 2013.
<i>References:</i>	Doc 9902, <i>Assembly Resolutions in Force (as of 28 September 2007)</i> WHO International Health Regulations (2005)

## 1. INTRODUCTION

1.1 WHO considers that chemical insecticides are harmless to humans when used in accordance with the manufacturer's instructions; however, some States have concerns that in certain circumstances they may cause discomfort and possible adverse health effects. The International Transport Workers' Federation (ITF) has expressed similar concerns.

1.2 In March 2008, ICAO notified WHO of Assembly Resolution A36-24. Two consultative meetings on the exploration of non-chemical approaches to aircraft disinsection were held subsequently. In addition, the International Air Transport Association (IATA) undertook a survey of medium to large aircraft operators concerning disinsection practices. Further detail is provided below.

## 2. DISCUSSION

2.1 Annex 5(2) of the WHO International Health Regulations (2005) states: "Every conveyance leaving an area where vector control is recommended by WHO should be disinfested and kept free of vectors". The WHO currently recommends three different methods of aircraft disinsection; all involve treating the cabin with insecticide.

2.2 At the request of WHO, IATA undertook a survey to determine the disinsection methods currently utilized by member airlines. From questionnaires distributed to 24 airlines, 19 responses were received from medium- to large-size companies operating in five continents. It was found that 15 airlines implemented aerosol treatment, two used residual treatment and two did not disinsect their aircraft. A total of eight passenger complaints (and three from crew) were reported. Practical problems were noted such as lack of information about which States required disinsection and when States required disinsection, which methods were acceptable, maintenance time needed for residual treatment and late arrival of aerosol cans at the aircraft.

2.3 The ITF has expressed a number of health and safety concerns over the spraying of insecticides in the aircraft cabin and flight deck, pointing out that there is little regulation on exposure; Standards to monitor or control exposures have not been formulated. Cabin crew, unlike passengers, may be subject to repeated exposures if they work a particular international route that requires disinsection. Also, disinsectants may not be applied correctly resulting in exposure to higher than normal concentrations. Cabin crew undertaking spraying are not typically provided with protective equipment.

2.4 To address the concerns about the use of chemical disinsectants a working group meeting was convened under the auspices of WHO from 15 to 16 December 2008 in Florida. The theme was: Meeting to preliminarily review non-chemical methods and requirements for aircraft disinsection. A demonstration of the air curtain was organized by the United States Department of Agriculture, Centre for Medical and Veterinary Entomology, Gainesville, where the first part of the meeting was held.

2.5 The principle of the air curtain is that flying insects, such as mosquitoes, can be prevented from entering an aircraft by applying a brisk, fan-generated, flow of air (4 to 8 m/s) from around the entry door and away from the side of the aircraft. Under experimental conditions it has been demonstrated to be 95 to 99 per cent effective. The air curtain is intended for use at the aircraft entry door, and other doors need to be protected using nets which are closely fitted to cabin walls. Cargo holds are not under consideration, since there is little objection to this area being treated with chemicals currently in use, as required, with relevant precautions being taken for those who may be exposed to insecticide chemicals.

2.6 Whilst the air curtain demonstration in Gainesville effectively showed that the number of flying insects entering an aircraft could be dramatically reduced by using the air curtain technology, some challenges to the deployment of an operational system remain and before it could be recommended as an alternative to insecticide use, field testing would need to be undertaken. In the meantime, until the air curtain, or other mechanical system, can be recommended as a practical method of aircraft disinsection, improvements to the recommended methods of chemical disinsection could be made.

2.7 A meeting of a sub-group of the full working group was held in Montreal under the auspices of ICAO on 7 July 2009 to address some of the issues raised during the preceding meeting in Florida. Recommendations were made by the sub-group concerning an efficiency standard for assessing both chemical and mechanical (including air curtain) disinsection methods, as well as further testing of different configurations of air curtain and net curtains impregnated with insecticide at passenger and service doors. These recommendations will be considered further by WHO and the United States Department of Agriculture agreed to undertake additional testing.

### 3. CONCLUSION

3.1 The efficacy of the air curtain as a means to prevent flying insects, such as mosquitoes, has been demonstrated experimentally; however, further experimental testing to address specific aspects, as well as field testing using an operational aircraft, is required before this method can be recommended by WHO as an alternative to the use of chemical insecticides.

3.2 Current procedures for insecticide deployment should be considered with a view to optimizing current methods. The choice of insecticide, method and timing of application, standard operating procedures and training material could be improved.

3.3 WHO has agreed to continue working with ICAO and other stakeholders to maintain the momentum towards the development of an effective and practical method of mechanical aircraft disinsection, whilst at the same time considering how best to optimize the current use of chemical disinsectants.

3.4 Contracting States should ensure that aircraft operators are made aware of requirements concerning aircraft disinsection. Information provided should include whether or not the State requires disinsection, for which routes, and which methods of disinsection are acceptable.

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## APPENDIX

### DRAFT RESOLUTION FOR ADOPTION BY THE 37TH SESSION OF THE ASSEMBLY

#### **Resolution 43/1: Non-chemical disinsection of the aircraft cabin and flight deck for international flights**

*Whereas* ICAO Assemblies have demonstrated a concern for the quality of life and the environment in which human beings work and live, including matters related to engine emissions, the ozone layer, aircraft noise, smoking and invasive alien species;

*Whereas* the 35th session of the Assembly declared that “the protection of the health of passengers and crews on international flights is an integral element of safe air travel and that conditions should be in place to ensure its preservation in a timely and cost-effective manner”;

*Whereas* the 2005 revisions to the International Health Regulations, which strengthen public health security in travel and transportation and minimize public health risk, expanded the definition of disinsection to include the control as well as the killing of insect vectors;

*Whereas* there is concern that the current practice by some States of requiring the use of insecticides to disinsect aircraft can result in discomfort and possible adverse health effects to aircraft crews and passengers; and

*Whereas* some recently conducted research has shown non-chemical methods of disinsection to be efficacious in preventing mosquitoes and other flying insects from entering an aircraft;

*The Assembly:*

1. *Requests* that the Council urge the World Health Organization to hold a consultation on the disinsection of the cabin and flight deck in which:
  - a) information on advances of non-chemical disinsection is reviewed;
  - b) the efficacy and safety of non-chemical disinsection are compared with the efficacy and safety of pesticide based disinsection; and
  - c) recommendations are made on acceptable disinsection practices;
2. *Requests* the Council to encourage the exploration of non-chemical approaches to aircraft disinsection of the cabin and flight deck; ~~and~~
3. *Requests* the Council to report on the implementation of this Resolution at the next ordinary session of the Assembly;

4. *Urges* Contracting States to ensure that aircraft operators are made aware of requirements for aircraft disinsection. Information provided should include whether or not the State requires disinsection, for which routes, and which methods of disinsection are acceptable; and
5. *Declares* that this Resolution supersedes Resolution A36-24.

— END —