

Disinfection and Disinsection

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Plan

- ❖ Disinfection
 - Definition
 - Why a problem?
 - Challenges
- ❖ Disinsection
 - Current methods
 - Problems
 - Non-chemical methods

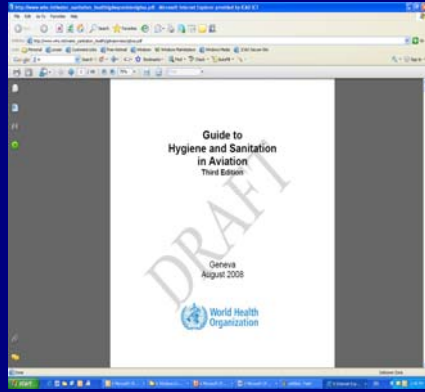
Disinfection (WHO)

- ❖ The procedure whereby measures are taken to control or kill infectious agents on a human or animal body, on a surface or in or on baggage, cargo, containers, conveyances, goods and postal parcels by direct exposure to chemical or physical agents.

Sodium hypochlorite (bleach)

- ❖ Strong oxidising agent
 - ❖ Good disinfectant
 - ❖ Inexpensive
- BUT
- ❖ Dissolves aluminium
 - ❖ Reduces fire retardant properties
 - ❖ Not suitable for use on aircraft

WHO Guide to Hygiene and Sanitation



❖ 2nd edition published 1977

❖ 3rd edition in draft:
Chapter 3:
Cleaning and Disinfection

What did second edition recommend as suitable disinfectant for aircraft?

Recommended attributes for aircraft disinfectant

- ❖ *Safety of active ingredients for humans*
- ❖ *Environmental safety*
- ❖ *Spectrum of microbiocidal activity*
- ❖ *Materials compatibility*
- ❖ *Transport, storage and inventory control*
- ❖ *Directions for use*
- ❖ *Speed of activity*
- ❖ *Freedom from off-gassing and volatile organic chemicals (VOCs)*

Recommended products

- ❖ 'Accelerated' hydrogen peroxide (AHP)
- ❖ Contains surfactants and chelators + other ingredients
- ❖ Produced by Virox technologies (Canada)

- ❖ [Alcohol 70-75%: difficult to handle/store]

Public health authority Aircraft operators

- ❖ Both need to consider aircraft disinfection requirements prior to an event
- ❖ Aircraft manufacturer may need to be involved

Disinsecton

Disinsection – definition (WHO)

- ❖ The procedure whereby measures are taken to control or kill the insect vectors of human diseases present in or baggage, cargo, containers, conveyances, goods and postal parcels

International Health Regulations (2005)

“Conveyance operators should permanently keep conveyances for which they are responsible free of sources of infection or contamination, including vectors and reservoirs. Every conveyance leaving an area where vector control is recommended by WHO should be disinfested and kept free of vectors”.

Passenger terminals and the area within 400 m of airports should be kept free of vectors

Diseases of concern

- ❖ Malaria
- ❖ Dengue
- ❖ Yellow Fever
- ❖ Chikungunya fever (similar to dengue)
 - Transmitted by Aedes mosquito

Current WHO approved chemicals

- ❖ Pyrethroids – synthetic chemicals based on natural extract of chrysanthemums
 - Permethrin (longer lasting)
 - D-phenothrin (short-lived)
- ❖ Both rapidly broken down and human effects are minimal
- ❖ Anecdotal reports of passengers feeling unwell after spraying

WHO approved methods

- ❖ Residual
- ❖ Pre-flight & top of descent
- ❖ Blocks away

Aircraft General Declaration

APPENDIX 1. GENERAL DECLARATION

GENERAL DECLARATION
(Dashed border)

Operator

Mode of liability and registration Flight No. Date

Departure from (Time) Arrival at (Time)

FLIGHT ROUTING
(“Yes” or “No” in each case to last origin, every en route stop and destination)

PLACE	NAMES OF CREW*	NUMBER OF PASSENGERS ON THIS FLIGHT**
	Departure Place:
	En route:
	Arrival Place:

Declaration of Health For all flights only

I declare that all persons on board with illness other than ...
 Details of each disinsecting or sanitary treatment (place, date, time, method) during the flight. If no disinsecting has been carried out during the flight, give details of most recent disinsecting.

Signed, if required, with title and date
 Government concerned

I declare that all statements and particulars contained in this General Declaration, and in any supplementary forms required to be presented with this General Declaration, are complete, correct and true to the best of my knowledge and that all through passengers will continuously remain on the flight.

SIGNATURE
 (Indicate if Signature is the name of the person)

Details of each disinsecting or sanitary treatment (place, date, time, method) during the flight. If no disinsecting has been carried out during the flight, give details of most recent disinsecting

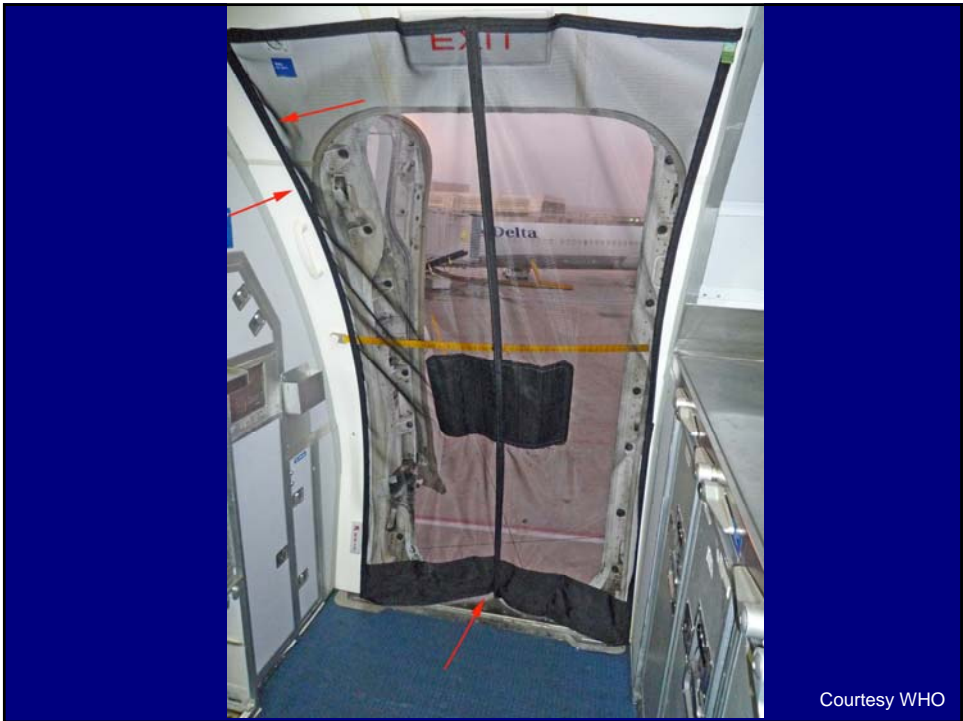
IATA airline survey

- ❖ Of 17 airlines that disinsected
 - 12% used residual method
 - 24% residual + cabin spraying
 - 68% cabin spraying alone

Air curtain: non-chemical disinsection



Courtesy WHO



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