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 disinfected 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)
  - Txed 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

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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