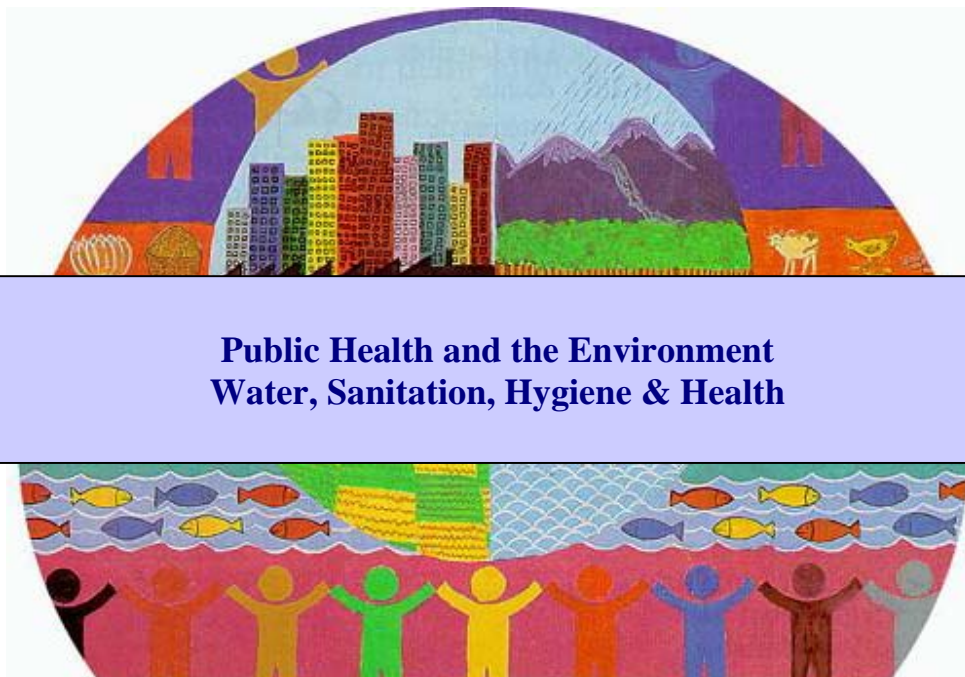




**World Health
Organization**

**3rd Meeting of Experts on the
WHO Guide to Hygiene and Sanitation in
Aviation, 3rd Edition**

Toronto, 24–26 March 2008



**Public Health and the Environment
Water, Sanitation, Hygiene & Health**

WHO/HSE/WSH/08.10

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Printed by the WHO Document Production Services, Geneva, Switzerland

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ACRONYMS

GDWQ	<i>Guidelines for Drinking-water Quality</i>
GHSA	<i>Guide to Hygiene and Sanitation in Aviation</i>
HACCP	hazard analysis and critical control point
IHR	International Health Regulations
PHEIC	public health event of international concern
WHO	World Health Organization
WSP	water safety plan

SUMMARY

The 3rd Expert Meeting on the World Health Organization (WHO) *Guide to Hygiene and Sanitation in Aviation* (GHSA), 3rd edition, was held in Toronto, Canada, from 24 to 26 March 2008. The meeting was facilitated by Health Canada.

This meeting had the following objectives:

- 1) To critically review the draft GHSA.
- 2) To reconfirm the GHSA contents and structure.
- 3) To redraft and restructure the chapters in breakout sessions as necessary.

The meeting's expected outcomes were:

- 1) To completely restructure the draft materials.
- 2) To identify next steps and a timetable towards preparing the draft GHSA for peer and public review.
- 3) To set goals for the next three months with respect to the GHSA development.

A total of 21 participants attended the meeting, including WHO Secretariat and observers. A list of participants is given in Annex 1. The objectives were met, and a realistic plan of work was agreed to.

INTRODUCTION

Background

WHO guidelines are normative but not international standards or regulations. They are recommended practices to achieve minimum environmental health standards; the basis for setting standards; evidence driven and based on scientific consensus; and globally applicable and adaptable to national and local circumstances.

The role of the WHO GHSA (also referred to as "the Guide") is to contribute to the minimization of public health risk in aviation. It is an advisory tool for implementation of the International Health Regulations (IHR), which is a legally binding set of regulations that came into effect on 15 June 2007 (referred to here as IHR-2005), in aviation. It is relevant to developing and developed countries, to small and large airlines and aircraft, and to airlines operating under a variety of regulatory regimes.

Related documents include the first guide, published in 1960, the 2nd edition, published in 1977, the 3rd edition of the *Guidelines for Drinking-water Quality* (GDWQ), published in 2004 and since then subject to a rolling revision process, and IHR-2005.

The first chapter of the Guide is the Introduction (1). It deals with the general issues and concerns, roles and responsibilities, the structure and scope of the document, the importance of the modular approach, harmonization with IHR-2005, and the process followed in developing the Guide. The next three chapters are on Water Safety (2), Food Safety (3) and Cleaning and Disinfection (4). The remaining chapters, on Waste Disposal (5), Vector Control (6), and Cargo Safety (7), are to be completed at a later date. A modular approach is being applied to the development of this Guide because of its broad scope, the advantages of developing sections independently from each other, the capacity for web-based publication of the modules, and the facility for subsequent updating of the modules.

Organization of the Meeting

The meeting consisted of breakout sessions in which smaller groups (Water Safety, Food Safety, Cleaning and Disinfection) met to work on their respective chapters of the Guide, as well as plenary sessions at which the smaller groups reported on progress made, identified outstanding issues to be resolved, and agreed to next steps towards completion of their draft chapters. The agenda/timetable is attached as Annex 2.

David Bennitz agreed to chair the meeting, and Marla Sheffer acted as rapporteur.

Opening Session

Lena Hope welcomed participants to the meeting on behalf of WHO and thanked Health Canada, and David Bennitz in particular, for supporting and facilitating the meeting.

Lena Hope advised participants that the purpose of the meeting was to critically review the draft Guide, add missing information and restructure the material submitted to date in breakout sessions as necessary, summarize the results and identify outstanding issues, and then identify next steps and a timeline for completion. She commented that impressive progress had been made since the October 2007 meeting in Montreal, thanked participants for their work done to date, and expressed her hope for their continued expert support.

Restructuring Requirements

The individual chapters had been previously restructured into two main sections: Background, which explained the critical issue and why it is important and provided supporting evidence; and Guidelines, which contained the guidance for the user. The importance of supporting evidence for each identified critical issue, whenever such evidence is available, was emphasized. The Guidelines section requires a lot of work, as it needs to be restructured according to a new template, consisting of guidelines, indicators, and guidance notes (as presented to the meeting by Lena Hope).

The “guidelines” will consist of the situation to aim for and maintain, the “indicators” are the measures for determining whether the guidelines have been met, and the “guidance notes” consist of advice on applying the guidelines and indicators in practice. For example, for the water safety chapter, guidelines are needed for each component of the water supply chain, several indicators are required per guideline,

and guidance notes corresponding to each indicator will be needed. An example of this structure is appended as Annex 3.

It is noted that, ideally, each indicator is numbered and corresponds to a numbered guidance note. Also, each chapter should contain an assessment checklist, organized by guideline and by indicator (see Annex 4).

It was generally agreed that the “guidelines” given in the WHO document to be followed as an example (*Essential environmental health standards in health care*) were in fact “guiding principles”. Therefore, each chapter will include a guiding principle, below which will fall guidelines, indicators, and guidance notes. It was noted that the “guiding principles” will use “should” statements (e.g. The water on board aircraft should be safe for its intended purposes), whereas the guidelines themselves will be simple “is” statements (e.g. Critical water quality parameters are monitored). This approach will need to be applied consistently across all chapters.

Harmonization with IHR-2005

Daniel Menucci explained that the scope of the IHR-2005 has expanded from three (notifiable) diseases to all public health risks; from preset public health measures to tailored responses; and from disease control at borders to include containment at the source. The purpose and scope of IHR-2005 are to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade. (The control of diseases at border crossings remains an essential element of the Regulations and entails close collaboration with other United Nations organizations and industry associations. It is expected that the IHR-2005 will, among other things, ensure that facilities used by travellers at points of entry are maintained in a sanitary condition and kept free of infection or contamination, including vectors and reservoirs, and that routine measures, in compliance with IHR-2005, are in place for travellers, conveyances, cargo, goods and postal parcels.

The key public health functions at points of entry are in the areas of prevention, early warning, and response (see Figure 1). The routine core capacity requirements for designated airports, ports and ground crossings include assessment and medical care, staff and equipment; equipment and personnel to transport ill travellers; trained personnel for inspection of conveyances; ensuring a safe environment (e.g. water, food, waste); and trained staff and a programme for vector control. Core capacity requirements for designated airports, ports and ground crossings for responding to events that may constitute a public health emergency of international concern (PHEIC) include, among others, a public health emergency contingency plan and the application of recommended measures to disinsect, disinfect, and decontaminate baggage, cargo, goods, etc.

PREVENTION	EARLY WARNING	RESPONSE
Monitoring sanitary conditions Routine control	Inspection Screening	Contingency plans
Controlling known public health risks at ports, airports, ground crossings	Detecting public health events of international concern	Controlling events and responding to emergencies
"Sanitary conditions" at points of entry and conveyances	Information and verification	Support to investigation and control measures
Vector control, vaccination Travellers, goods, food, water, waste, etc.	Notification	Information and recommendations
Risk management	Risk assessment	Event management

Figure 1. Public health functions related to points of entry and mechanisms of implementation of IHR-2005

Source: World Health Organization, Department of Epidemic and Pandemic Alert and Response, International Health Regulations Coordination Programme, WHO Office for National Epidemic Preparedness and Response, Lyon, France, unpublished data, 2008

A PHEIC is defined in IHR-2005 as an "extraordinary event which is determined as provided in IHR-2005, to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response"[see IHR-2005, Article 1.1]. Other key IHR definitions, which should be harmonized with the GHSA, include those for event, disease, public health risk, health measure, competent authority, surveillance, inspection, disinfection, and traveller.

The need to harmonize the GHSA with IHR-2005 is described briefly in the Introduction to the GHSA. Those parts of the IHR that refer specifically to the topics covered in the other chapters — such as water, food, and disinfection and cleaning — must also be harmonized.

PROGRESS REPORTS AND PLAN OF WORK

Introduction

- Claude Thibeault is coordinating the input on the Introduction.
- The purpose, scope, and audience for this Guide need to be explained at the beginning of the chapter. This should include the types of airport and types of aircraft to which these guidelines apply, the intended audience of the guidelines, and what the guidelines do and do not cover (e.g. air quality).
- It should be explained that the guidelines are not standards but need to be adapted for national and local purposes.
- Waste disposal is referred to, but not cargo safety and vector control, so they will be added (as this is the Introduction to the full text of the Guide).
- It was suggested that the point of entry slide from Daniel Menucci's presentation (adapted in Figure 1 above) might be a useful addition to the Introduction, with elaboration on the role of the airline, airport, water supplier, etc. in relation to each of the three points of entry.
- Text on harmonization with IHR-2005 may need to be moved to a different part of the Introduction.

- Comments on the section on roles and responsibilities (from David Gamper) are to be incorporated.
- The paragraph on the Guidelines section needs to be expanded to explain the new structure, with guidelines, indicators, and guidance statements.
- Any other omissions or suggested additions should be sent to Claude for incorporation.

Water Safety

- Working group members: Joe Cotruvo, Katie Porter, Dean Davidson, Cathy Hollister, David Gamper, Dinkar Mokadam, Jacques Nadeau, Marla Sheffer
- The background section was revised according to comments made at the meeting.
- Six guidelines (five related to water quality and one to water quantity) were drafted by the entire group, and then various individuals were responsible for slotting the current text of the chapter into the template structure accordingly.
- Katie Porter pulled the six guidelines together, deleting repetition and paring down the text as necessary.
- The working group commented on the guidelines and noted any text from the original that still needed to be incorporated in the guidelines.
- Katie has prepared a list of action items for the working group, listing responsible persons and due dates. Once these actions have been completed, a complete version of the chapter will be sent to working group members by 10 April.
- Katie will take on the responsibility of compiling comments received. The final draft should be ready to send to Lena by 18 April.

Food Safety

- Working group members: Erica Sheward, Benoît Pilon, John Grace, David Bennitz, Debbie Chuckman, Dulce Maia Trindade, Katherine Andrus
- There has been a complete reorganization of sections and headings since the last meeting. Some of the previous information has been put into tables, and some detailed information has been annexed.
- A large HACCP-style table based on the process flow diagram showing all possible actions/processes within a flight catering unit is still missing.
- The group was asked to identify gaps/omissions in content at this meeting. Independent oversight surveillance and personal hygiene standards (crew vs food service personnel) need more work, for example.
- Some text was moved from the guidelines to the background; comments from working group members were incorporated; some sections were rewritten; some text was condensed.
- The narrative will be pared down post-meeting as necessary.
- Restructuring of the Guidelines section according to the new template has not yet been attempted. David Bennitz has volunteered to try to restructure the food safety chapter once the revised structure of the water chapter has received approval from WHO Headquarters
- It was suggested that there be one guideline for each step of the process (e.g. food receiving, food preparation, etc.).

Cleaning and Disinfection

- Working group members: Claude Thibeault, Anthony Evans, Colin Browne, Daniel Menucci, Chris Witkowski (with help from David Bennitz)
- The chapter had been previously organized into sections on cleaning and disinfection; it was suggested that a better organization would be into sections on airports and aircraft, with cleaning and disinfection as subsections within these.
- Different authors have written different pieces, so the whole chapter needs to be pulled together.
- The background is being revised to become more textual, with short statements rather than bullet form lists.
- One section that was missing, on critical aspects of airport disinfection, was worked on during the meeting.
- It was found to be difficult to make a clean distinction between cleaning and disinfection, as disinfection in some cases should form part of routine cleaning.
- Dulce Maia Trindade requested that step-by-step instructions on how to clean properly be included.
- Generic cleaning products recommended in Annex B will be moved into the main text. In response to a concern that the disinfectants listed may not be sufficiently available globally, it was noted that listing them in the document would encourage manufacturers to supply them worldwide.
- IATA guidelines on cleaning in Annex A can be retained, as IHR-2005 mentions IATA as a collaborating agency.
- Initial work focused on content and responding to comments received, rather than structure. The layout was later changed as proposed, and some text was moved into four annexes (which are now longer than the main text).

CLOSING SESSION

It was agreed that contributors would send their draft chapters to Lena Hope by Friday, 18 April. Lena will then send the chapters to the entire group for a two-week review period (until 2 May). Each chapter coordinator would then be responsible for incorporating any working group comments received. The entire document will then need to be put together and edited before the peer review stage (which may need to be concurrent with the public review stage, depending on timelines). The peer review will start on 1 June (until mid-July). Working group members were asked to send suggestions for peer reviewers to Lena Hope. They were also reminded to update the Glossary as they work on their respective chapters. The ultimate deadline is mid-August, when Lena Hope's term at WHO is complete.

Lena Hope thanked the participants for their work at this meeting, as well as Health Canada and David Bennitz for facilitating the meeting. She expressed her hope that meeting participants would continue to be involved and noted that the outcome should be a document that is extremely useful and globally applicable.

ANNEX 2: Agenda and Timetable

**3rd Meeting of Experts on the WHO Guide to Hygiene and Sanitation in Aviation, 3rd Edition, 24–26 March 2008
Toronto, Canada**

[Location: Metropolitan Hotel Toronto, Victoria Room](#)

AGENDA

Objectives: a) Presentation and critical review of the 1st draft of the GHSA; b) Redrafting in breakout sessions as necessary.

Expected outcomes: a) Complete restructuring of draft materials; b) Identify immediate steps and timetable towards preparing draft GHSA for peer and public review; c) Set goals for the next 3 months on the GHSA development.

Day One: Monday, March 24, 2008, 9:00–16:30

Time	Agenda Item
8:30–9:00	<i>Arrival, morning coffee</i>
9:00–9:05	Greeting and overall approach (Lena Hope)
9:05–9:10	Election of chair and rapporteur (Lena Hope)
9:10–9:15	Consideration and adoption of agenda (Chair)
9:15–9:20	Introduction of participants
9:20–9:40	Summary of work completed since the 2nd meeting in Montreal, Canada, and presentation of 1st Draft Guide (Lena Hope)
9:40–10:00	QA session and discussion
10:00–10:15	<i>Short break, refreshments</i>
10:15–10:30	Guide Section 1: “Introduction” (Dr Claude Thibeault)
10:30–10:45	QA session and discussion
10:45–11:00	Harmonization with IHR (2005) (Dr Daniel L. Menucci)
11:00–11:15	Q&A and discussion of Section A
11:15–11:30	Draft Guide Section 2 “Water” (Dr Joseph Cotruvo)
11:30–12:00	QA session and discussion
12:00–13:00	<i>Lunch</i>
13:00–13:15	Section 3 “Food” (Dr. Erica Sheward)
13:15–14:00	QA session and discussion
14:00–14:15	<i>Short break, refreshments</i>
14:15–14:30	Section 4 “Cabin Cleaning & Disinfection” (Dr Anthony Evans/Dr Claude

14:30–15:00	Thibeault) QA session and discussion
15:00–16:00	Agree on plan of work for Day 2 and organize workgroups/breakout sessions
16:00–16:30	Summary of Day 1 (Chair and Lena Hope)

Day Two: Tuesday, March 25, 2008, 9:00–16:30

Time	Agenda Item
8:30–9:00	Arrival and coffee
9:10–12:00	Breakout sessions (<i>10:00–10:15 Break</i>)
<i>12:00–13:00</i>	<i>Lunch</i>
13:00–13:30	Report results of breakout sessions
13:30–14:00	QA sessions and discussion
<i>14:00–14:15</i>	<i>Short break, refreshments</i>
14:15–16:00	Agree on plan of work for Day 3 in workgroups/breakout sessions
16:00–16:30	Summary of Day 2 (Chair and Lena Hope)

Day Three: Wednesday, March 26, 2008, 9:00–16:30

Time	Agenda Item
<i>8:30–9:00</i>	<i>Arrival and coffee</i>
9:00–12:00	Breakout sessions continued
<i>12:00–13:00</i>	<i>Lunch</i>
13:00–14:00	Report results of breakout sessions
<i>14:00–14:15</i>	<i>Short break, refreshments</i>
14:15–15:00	Q&A and discussion
15:00–15:30	Reconfirm individual and workgroup commitments
15:30–16:00	Define next steps and timelines
16:00–16:30	Closing remarks & adjourn (Chair)

ANNEX 3: Guide Structure Example

Watering transfer point (Water transfer and delivery system)

BACKGROUND

Critical Issue

The transfer of water from the airport source to the aircraft onboard storage and distribution system presents an opportunity for contamination of the aircraft water supply.

Evidence

Wide range of transfer vehicles and processes used for each type of aircraft handled, hence multiple opportunities for introduction of contaminants into drinking-water. These include:

- Employee personal hygiene
- Water piping systems
- Hydrants
- Water hoses
- Connections
- Water trucks
- Cabinets
- Refillable containers

Important: documented supporting evidence needed (peer reviewed articles, grey literature, etc.)

GUIDELINES

Guideline 1

Water safety is maintained throughout water transfer and delivery system.

Indicator(s)

WSP in place to assess and manage water system

Sanitary inspections

1. Hygiene
2. Hydrants
3. Water hoses
4. Water tanks

Water quality monitoring

5. *Escherichia coli* or thermotolerant coliform bacteria are not detectable in any 100-millilitre sample of drinking-water.

6. Drinking-water meets WHO *Guidelines for drinking-water quality* or national standards concerning chemical guidelines and radiological parameters.
7. All drinking-water is treated with a residual disinfectant to ensure microbial safety up to the point of consumption or use.
8. There are no tastes, odours or colours that would discourage consumption or use of the drinking-water.

GUIDANCE NOTES FOR GUIDELINE 1

1. Employee personal hygiene (only handle potable water, no wastewater – to prevent cross-contamination, dedicated filling area for jugs/refillable containers, etc.)
2. Hydrants (not used for purposes that could affect quality of water, proper drainage from the hydrant area and from the hydrant box...)
3. Water hoses (constructed of appropriate material, handled properly, smooth interior surfaces, nozzle properly constructed, filling connection parameters, etc.)
4. Water tanks (proper construction, storage, labelling, inlet and outlet equipped properly, etc.)
5. Microbial quality of water is of utmost importance for infection control
6. Chemical constituents – monitored for compliance with GDWQ
7. Disinfection – water tested to ensure residual disinfectant levels do not exceed limits set by GDWQ
8. Aesthetic parameters may indicate chemical contamination or possibly interference with disinfection processes (in the case of turbidity)

Good example of structure and logic behind it: “Essential environmental health standards in health care”, Edited by John Adams, Jamie Bartram and Yves Chartier, published by WHO in 2008

ANNEX 4: Template for Restructuring

Guidelines

Guideline X Title Guideline text
--

Indicators for Guideline X

1. **Indicator title**

Descriptive text

2.

3.

...

Guidance notes for Guideline X

1. **Indicator title**

Provide narrative guidance note.

2.

3.

...

Assessment checklist

1. Guideline title

Guideline in italics

Indicator	Design and construction	Operation and maintenance
1		
2		
3		
4		
5		
6		