Cabin Operations Safety
Best Practices Guide 2015
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FOREWORD

Dear Colleagues,

Safety is the industry’s number one priority and it is our commitment to strive for continuous improvements in cabin safety. We continue working to achieve these higher levels of cabin safety in order to guarantee the safe transportation to millions of passengers every year. As part of this important effort, effective and consistent practices, and global standards play a critical role. The inaugural Cabin Operations Safety Conference in 2014 facilitated the further exchange of lessons-learned and industry developments. This important global initiative will take place once again in Paris, France on May 5-7, 2015 in order to further elevate and harmonize cabin operations safety best practices worldwide.

In line with its strong commitment to cabin safety, IATA steadily works to improve cabin safety standards, revise recommended practices and update best practice guidelines. These efforts contribute to positive airline safety performances and provide operators with the necessary information to address emerging risks and consider new best practices. IATA is therefore proud to present the Cabin Operations Safety Best Practices Guide (2nd Edition) which addresses numerous policies and procedures for cabin crew in normal, abnormal and emergency situations. These guidelines are meant to assist airlines in implementing integrated, proactive, effective and efficient cabin safety policies and procedures. We thank the cabin safety experts who provided their inputs, particularly the IATA Cabin Operations Safety Task Force for their dedication and hard work, as well as other experts from airlines and government bodies who have contributed to the creation and update of this document.

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Manager, Cabin Safety
Safety and Flight Operations, IATA

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With special thanks to:
Thomas Gunther
AMERICAN AIRLINES
# DEFINITIONS

The IOSA Standards Manual contains a complete list of Cabin Operations Safety definitions. These can be viewed at: [www.iata.org/iosa](http://www.iata.org/iosa) . For the purposes of this guide, the following definitions apply:

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<th>Term</th>
<th>Definition</th>
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<tr>
<td><strong>Cabin Crew</strong></td>
<td>Crew members that are not Flight Crew members and are designated to perform safety duties in the passenger cabin in accordance with the requirements of the operator and the Authority; qualified to perform cabin functions in emergency situations and enact procedures to ensure a safe and orderly evacuation of passengers when necessary. Equivalent terms: Flight Attendant, Cabin Attendant.</td>
</tr>
<tr>
<td><strong>Crew member</strong></td>
<td>A member of either the Flight Crew or the Cabin Crew; when used in the plural (i.e., crew members) refers to Flight and Cabin Crew collectively.</td>
</tr>
<tr>
<td><strong>Crew rest seat</strong></td>
<td>Seat intended for crew rest during cruise.</td>
</tr>
<tr>
<td><strong>Emergency exit rows</strong></td>
<td>Passenger seat rows leading to an emergency exit.</td>
</tr>
<tr>
<td><strong>Evacuation</strong></td>
<td>Passengers and/or crew evacuate aircraft via escape slides, doors, emergency exits, or gaps in the fuselage, usually initiated in life-threatening or catastrophic events.</td>
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<tr>
<td><strong>Flight Crew</strong></td>
<td>The crew members essential to the operation of an aircraft, the number and composition of which shall not be less than that specified in the operations manual and shall include Flight Crew members in addition to the minimum numbers specified in the flight manual or other documents associated with the certificate of airworthiness, when necessitated by considerations related to the type of aircraft used, the type of operation involved and the duration of flight between points where Flight Crews are changed. For each flight, the Flight Crew members shall include the Pilot-in-Command and may include, as appropriate:</td>
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<td>• One or more Copilots;</td>
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<td>• When a separate flight engineer’s station is incorporated in the design of an aircraft, one flight engineer especially assigned to that station, unless the duties associated with that station can be satisfactorily performed by another Flight Crew member holding a flight engineer license, without interference with regular duties;</td>
</tr>
<tr>
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<td>• One member who holds a flight navigator license in all operations where, as determined by the state of the operator,</td>
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navigation necessary for the safe conduct of the flight cannot be adequately accomplished by the pilots from the pilot station;

- One member who holds a valid license, issued or rendered valid by the state of registry, authorizing operation of the type of radio transmitting equipment to be used.

<table>
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<th>Term</th>
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<tr>
<td>Infant</td>
<td>The term “infant” refers to small children as defined by the Authority. If the Authority does not have a definition, the operator would publish its own definition in the OM. An infant is typically defined as a child that is less than two years of age.</td>
</tr>
<tr>
<td>Pilot-in-Command</td>
<td>The pilot designated by the operator as being in command of the aircraft and charged with responsibility for the operational control and safe conduct of a flight.</td>
</tr>
<tr>
<td>Rapid Deplaning</td>
<td>Passengers and/or crew rapidly exit aircraft via boarding doors and via jet bridge or stairs, for precautionary measure.</td>
</tr>
<tr>
<td>Safety</td>
<td>The state in which the possibility of harm to persons or of property damage is reduced and maintained at or below an acceptable level through a continuing process of hazard identification and safety risk management.</td>
</tr>
<tr>
<td>Security</td>
<td>The safeguarding of civil aviation against acts of unlawful interference, achieved by a combination of measures as well as human and material resources.</td>
</tr>
<tr>
<td>Senior Cabin Crew</td>
<td>Cabin Crew appointed by the operator to act as Chief/Lead Cabin Crew of the Cabin Crew and to take orders directly from the Pilot-in-Command.</td>
</tr>
<tr>
<td>Unaccompanied Minor</td>
<td>A child, usually under 12 years of age, travelling without a parent or guardian.</td>
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INTRODUCTION

This is the second edition of the IATA Cabin Operations Safety Best Practices Guide. It is intended to provide a central reference source for industry-agreed best practices, sample procedures, recommended practices and regulations relating to the delivery of safe and efficient cabin operations. This guide contains valuable benchmarks for airline management to use when establishing their corporate policies, procedures and training programs for cabin crew.

These guidelines are not intended to replace or contradict any current State regulations nor the IOSA Standards Manual. Airlines should always comply with the regulations and requirements of their competent Authority.

This guide is available in electronic format with links to pertinent websites containing key cabin operations safety information. We expect these guidelines to develop and improve over time. Please contribute to their evolution by sending feedback and suggestions to IATA Cabin Safety at cabin_safety@iata.org
1. IATA CABIN OPERATIONS SAFETY

The IATA Cabin Operations Safety Best Practices Guide is an industry resource dedicated to enhancing cabin safety, cabin operations, management and delivery. Its aim is to provide members with tools, services and strategies to continue to achieve operational safety and excellence. We hope that this guide will act as an industry focal point for cabin operations safety issues and for the promotion of best practices.

Cabin safety is a key area impacting operational safety. Historically, the safety role of cabin crew was seen as limited to post-accident evacuations. Although this remains an important and essential duty of cabin crew, today the safety role of cabin crew goes much further.

Cabin safety deals with all activities that cabin crew should accomplish during the operation of an aircraft to maintain safety in the cabin. Cabin crews contribute to safe, effective and efficient operations in normal, abnormal and emergency situations. As demonstrated in numerous events, cabin crew play an important role in preventing serious incidents and accidents, including (but not limited to) events such as inflight fires, unruly passengers, depressurizations, turbulence, etc. It is for this reason that IATA focuses on cabin safety and continues to develop standards and recommended practices to ensure safety in all aspects of cabin operations. IATA works with airlines, manufacturers and other industry partners in raising global safety standards and promoting the implementation of best practices.

Cabin safety is a critical component of an airline’s safety management program, including proactive data collection and prevention activities regarding:

- Cabin design and operation;
- Equipment;
- Procedures;
- Crew training;
- Human performance;
- Passenger management.

1.1 IATA Cabin Safety Initiatives

IATA seeks to contribute to the continuous reduction in the number and severity of incidents and accidents, as well as in the costs associated with ensuring the safe operation of commercial aircraft. This is achieved through the:

- Development and promotion of global recommended practices for the industry at large;
- Analysis of worldwide trends and the initiation of corrective actions;
- Cooperation with aircraft manufacturers in developing technical installations, equipment and design;
- Organization of conferences and workshops to bring together a broad spectrum of experts and stakeholders.

For information on the upcoming 2015 event, go to: www.iata.org/cabin-safety-conference.

1.2 Cabin Safety Guidelines

During 2014, IATA drafted specific guidelines on issues of concern to the industry, such as:

- Effective report writing;
- The expanded use of passenger portable electronic devices;
- Lithium battery fire prevention:
  - Cabin crew checklist and amplified checklist for fires involving batteries and portable electronic devices (PEDs);
  - PEDs inadvertently crushed or damaged in electronically adjustable seats;
  - Cabin Crew Seat Safety;
  - Lithium batteries – Guidance for crew members video.

These guidelines and many others are available within this document and/or at: www.iata.org/cabin-safety

1.3 Health and Safety Guidelines – Passengers and Crew

IATA also drafts guidelines specific to the health and safety of passengers and crew. In 2014, the following were drafted:

- Suspected communicable disease: General guidelines for cabin crew;
- Suspected communicable disease: Cabin announcement scripts to be read by cabin crew to passengers prior to arrival;
- Suspected communicable disease: Universal precaution kit.

These guidelines and many others are available at: www.iata.org/health

1.4 GADM and STEADES Cabin Safety

Global Aviation Data Management (GADM) is an electronic platform that provides an evolving range of cabin safety materials. For more information on GADM, please visit www.iata.org/gadm

To register to gain access to the GADM cabin safety information, please click on the following link: https://extranet.iata.org/registration/pages/getemailpage.aspx?siteurl=gadm

IATA also provides a business intelligence tool called STEADESTM that provides access to data, analysis and global safety trends on established key performance indicators in comparison to worldwide benchmarks. This enhances safety for IATA member airlines.
Examples of STEADESTM in-depth cabin safety analysis include:

- Inadvertent Slide Deployments (ISDs);
- Fire, smoke and fume events;
- Passenger and cabin crew injuries;
- Turbulence injuries or incidents;
- Rapid deplaning and evacuations;
- Unruly passenger incidents;
- Operational pressure.

For more information on STEADESTM, please visit www.iata.org/steades.

1.5 IATA Cabin Operations Safety Task Force

The work of IATA is supported by our member airlines. When this work is done with the input and cooperation of our member airlines, it delivers great results. This includes the contributions by the members of the IATA Cabin Operations Safety Task Force (COSTF).

The COSTF reviews all aspects of cabin operations to improve safety and operational efficiency. Members of the COSTF are representatives from IATA member airlines who are experts in the following areas:

- Cabin Safety and Operations;
- Cabin Safety Training;
- Accident/Incident Investigation;
- Human Factors;
- Quality Assurance.

COSTF members are of an appropriate senior management level with influence on decisions taken by their company with respect to inflight policies and practices.

The COSTF mandate includes:

- Maintaining the IATA Operations Standards Audit (IOSA) Standards Manual (ISM) current by conducting the annual revision of Section 5, Cabin Operation (CAB) of the ISM and providing input or opinions relating to questions regarding the CAB section of the ISM as applicable;
- Supporting the development of programs for IATA conferences, seminars, exhibitions and training related to cabin operations and safety;
- Supporting the Accident Classification Task Force (ACTF) through the review of the accident classification for the Cabin Safety section of the IATA Safety Report;
- Developing strategies to reduce injuries or costs associated with the operation of commercial aviation safety;
- Forecasting needs and proposing improvements of strategic importance to commercial aviation safety as applicable to cabin operations;
• Acting as a forum where issues on current and anticipated cabin operations safety issues can be discussed and guidance provided regarding the effected business process or activity;
• Providing advice and support to the IATA-nominated representatives involved in activities with regulatory authorities, the industry in general and any other relevant organization;
• Analyzing worldwide developments in the field of cabin operations safety, in liaison with other agencies and organizations.

1.6 IATA Operational Safety Audit

The IATA Operational Safety Audit (IOSA) program is an internationally recognized and accepted evaluation system designed to assess the operational management and control systems of an airline. All IATA members are IOSA-registered and must remain registered to maintain IATA membership.

Every year, the IOSA Standards Manual (ISM) undergoes a thorough revision in all sections, which includes the review of Section 5, Cabin Operations (CAB).

Section 5 addresses key elements of cabin operations, including standards for:

1. Management and control;
2. Training and qualification;
3. Line operations;
4. Cabin systems and equipment.

Benefits of IOSA for airlines and regulators include:

• A quality audit program under the stewardship of IATA;
• Continuous updating of standards to reflect regulatory revisions and best practices;
• Elimination of audit redundancy, reducing costs and audit resource requirements;
• Accredited audit organizations with formally trained and qualified auditors;
• Accredited training organizations with auditor training courses;
• Structured audit methodology with standardized checklists.

For more information on IOSA and to download the latest version of the ISM, which includes the CAB standards and recommended practices, please go to: www.iata.org/iosa

1.7 Bringing IOSA to the Next Level – Enhanced IOSA

The IOSA program has laid a solid foundation for improved operational safety and security, and has eliminated redundant industry audits. But since its creation in 2003, audit protocols have remained largely unchanged. It is now time to bring even more efficiency to the evaluation of operational safety and security practices, adding value to the IOSA experience for airlines. This is what Enhanced IOSA is about.
Enhanced IOSA is designed to ensure the following benefits:

- **Continuity:** Operators will maintain continuing conformity with all IOSA standards throughout the registration period by conducting ongoing audits as an integral part of their internal quality assurance program. Operators will not only continue to be audited by accredited Audit Organizations (AO), but will have the responsibility for conducting ongoing audits against IOSA Standards and Recommended Practices (ISARPs) under their internal quality assurance program.

- **Implementation:** The 24-month on-site renewal audit conducted by AOs will focus on ensuring the ISARPs are implemented by operators.

- **Reliability:** Operators will demonstrate the reliability and integrity of their internal quality assurance system by including appropriately trained and qualified auditors. This will be achieved by conducting ongoing internal audits against ISARPs and producing detailed conformance reports.

- **Standardization:** The implementation of published auditor action steps tailored for each ISARP.
2. SAFETY

2.1 The Concept of Safety

Within the context of aviation, safety is: “The state in which the possibility of harm to persons or of property damage is reduced to and maintained at or below an acceptable level through a continuing process of hazard identification and safety risk management” (ICAO Safety Management Manual (SMM), Doc 9859, Third Edition, 2013).

Safety is the air transport industry’s number one priority. The 2013 global Western-built jet hull loss rate was 0.41. This was a step back from 2012 when the global Western-built jet hull loss rate stood at 0.21—the lowest in aviation history. Looked at over the five-year period (2009-2013), 2013 shows a 15 percent improvement from the 5-year average of 0.48. The 2013 Western-built jet hull loss rate for members of IATA was 0.30, which outperformed the global average by 26.8 percent and which showed an improvement from the five year average of 0.32. To download the complete IATA Safety Report free of charge go to: www.iata.org/safety-report

Airlines have a responsibility for the safety and security of their passengers and crew, and to ensure that their company policies are communicated to their employees. Cabin crew need to have a strong commitment to safety and security and understand their role and contribution in the event of an emergency. In particular, they should be encouraged to report any concerns they may have on the safety or security on board.

The content of this section on safety is intended to provide airlines with a central reference source covering the roles and responsibilities of cabin crew. The guidelines are based on best industry practices and regulations known at the time of publication.

**National regulations and the IOSA Standards Manual always take precedence over the contents of this manual.**

In establishing their safety policy, it is important for airlines to infuse a safety culture into all personnel in their organizations as well as ensure responsibility and coordination with all relevant departments.

In the event of conflict between safety and service duties, cabin crew should be instructed that safety always takes priority.

2.2 Hazards and Consequences

A Safety Management System (SMS) is a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures. When formulating a safety-related policy and Standard Operating Procedures (SOPs), hazards and consequences should be considered.
**Hazard:** A condition, object or activity with the potential of causing injuries to personnel, damage to equipment/structures, loss of material, or the reduction of ability to perform a prescribed function.¹

**Consequence:** The potential outcome(s) of the hazard.¹

### 2.3 Safety Risk Management

There is no such thing as absolute safety. In aviation it is simply not possible to eliminate all risks. However, risks can be managed to a level “as low as reasonably practicable” (ALARP).¹

Safety Risk Management is the identification, analysis and elimination (or mitigation to an acceptable or tolerable level) of hazards. It is a data-driven approach to safety resources allocation and, therefore, possible to defend and explain. It aims at a balanced allocation of resources to address viable risk control and mitigation.

**Risk mitigation:** The process of incorporating defenses or preventive controls to lower the severity and/or likelihood of a hazard’s projected consequence. (ICAO Safety Management Manual (SMM), Doc 9859, Third Edition, 2013). Risk mitigation can be measured and balanced against time, cost and the difficulty of taking measures to reduce or eliminate the risk. Effective risk management seeks to maximize the benefits of accepting a risk (e.g., a reduction in time and/or cost) while minimizing the risk itself.

**Risk Control Strategies:**

- **Avoidance** – An operation or activity is cancelled because the risks exceed the benefits;
- **Reduction** – The frequency of an operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of an accepted risk;
- **Segregation of exposure** – Action is taken to isolate the effects or consequences of a hazard or build-in redundancy to protect against it.


### 2.4 Safety Management Systems and Cabin Safety

ICAO defines a Safety Management System (SMS) as a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

---

IOSA Section ORG 1.6.5A states that:

**Effective 1 September 2014**

**ORG 1.6.5A** The Operator should have a program that ensures personnel throughout the organization are trained and competent to perform SMS duties. The scope of such training should be appropriate to each individual's involvement in the SMS. [SMS] (GM)

*Note:* Conformity with this ORG recommended practice is possible only when the Operator is in conformity with all repeats of this ORG recommended practice in other ISM sections. Refer to the IOSA Procedures and Guidance for Airlines Manual for information that identifies such repeats.

*Note:* Effective 1 September 2015, this recommended practice will be upgraded to a standard (see ORG 1.6.5B).

### 2.5 SMS Training

SMS training is an element of the Safety Promotion component of the SMS framework. Within an SMS, both management personnel (including the accountable executive) and non-management personnel are expected to complete SMS training. The content of such training is expected to be appropriate to the individual's responsibilities and involvement in the SMS.

**Effective 1 September 2014**

**CAB 2.4.1A** If the Operator conducts passenger flights with cabin crew, the Operator should have a program that ensures personnel throughout the cabin operations organization are trained and competent to perform SMS duties. The scope of such training should be appropriate to each individual's involvement in the SMS. [SMS] (GM) →

Cabin crew should be aware of the SMS program within their airline and how, when and why to report hazards or other concerns. Please see IOSA Section 1 – Organization and Management and Section 5 – Cabin Operations for more information on SMS in cabin operations.

A training curriculum typically includes modules that provide an overview of the elements of SMS, such as:

- Event investigation and analysis techniques;
- Hazard identification;
- Risk assessment and mitigation;
- Audit principles and methodology;
- Communication techniques;
• Safety reporting;
• SMS implementation, analysis and continual improvement;
• Emergency response preparedness.

IATA offers SMS training courses for airlines and regulators. For details, visit the IATA Training and Development Institute website at: www.iata.org/training/subject-areas/Pages/safety-courses.aspx. For more information on IATA SMS initiatives, please contact the IATA SMS team at: sms@iata.org

2.6 SMS Reporting

An important component of an SMS is a strong reporting system and culture. Safety reporting programs form the most basic source of safety information. Examples include Cabin Safety Reports (CSRs), mandatory occurrence reports and voluntary confidential safety reports. These reports can be paper or electronic, mandatory or voluntary, confidential or anonymous. Successful reporting programs are built on the principle of an open reporting culture, where the focus is on safety improvement and not on the assignment of blame.

A functional and effective reporting system is a rich source of information, highlighting:

• Operational threats and their approximate frequencies and demographics;
• Specificities of routes, destinations and other operational factors;
• Capability of the crew to cope with various real-life situations;
• Errors experienced in operations.

The content of the report typically consists of a narrative and various descriptors for classifying the event. Cabin crew should report any safety concerns to the Pilot-in-Command and follow the operator’s guidelines on reporting incidents. Managing a large quantity of reports and distilling useful information from them usually requires a tailored software application. An in-depth study of training-related issues may require an analysis of the narrative parts of the reports, which makes the task more challenging.

2.6.1 Effective Report Writing

2.6.1.1 Introduction

Effective safety report writing is an integral part of the safety management of any airline. It is imperative that effective safety report writing training be supplied to those writing the safety reports.

Any reports received by the operator’s Cabin Safety Department should fall into one or more of three streams of the SMS framework and be acted upon in accordance with those streams: Reactive; Proactive; and Predictive.
2.6.1.2  **Process Flow for Effective Safety Report Writing**

In an industry where the main events take place outside of the office, airlines and their safety personal rely heavily on the reports submitted to them by the cabin crew. Decisions cannot be made on the ground to enhance safety in the air without the hazards and the consequences being identified through effective report writing.

The process flow illustrated below is an example of how a safety report flows through the system, once submitted. The flow feeds back to the originator of the report.

![Diagram](image)

**Figure 1 – Process Flow for Effective Safety Report Writing**

*Figure 1* is an overall view. It does not represent a complete list of stakeholders potentially involved directly or indirectly. This will depend on the structure of individual airlines.
2.6.1.3 Characteristics of Effective Report Writing

The key characteristics of effective reporting can be defined using the “6C+F” process:

**Courteous**: Be business savvy when reporting. Write in plain English – avoid jargon. Consider who may be reading the report. Avoid negative and offensive words.

**Concise**: The report should be brief and to the point. Consider completing it in bullet point format. Only state relevant information.

**Clear**: Think before you write. Ensure that the report is organized and has an appropriate heading. Avoid using unnecessary words and capital letters in the body of the text. Ensure it is written legibly.

**Complete**: Provide all customer/crew details (e.g., name, address, telephone). Ensure that all ‘who, what, where, when, why and how’ questions are covered.

**Constructive**: Avoid opinions and emotions. Offer suggestions and solutions.

**Correct**: The report must be properly using the basic rules of grammar and spelling. Proofread before submitting.

**Factual**: Ensure that the report is accurate. State the facts of the events rather than subjective opinions.

Reports that take the above 6C+F into consideration will:

- Be objective;
- Provide the receiver with the required information for further action;
- Provide facts without emotion;
- Be broken down into relevant sections that capture the data in an easy-to-follow format.

A well-written report should always include the following elements:

1. **Title**

2. **Details of the event:**
   a. Date of occurrence
   b. Flight number
   c. Aircraft type
   d. Registration
   e. Time
   f. Sector flown
   g. Phase of flight in which the incident occurred
   h. Place of occurrence (IATA airport code)
   i. Aircraft configuration
   j. Number of passengers
   k. Number of crew
3. Names of persons involved:
   a. Contact details, where appropriate
   b. Seat number/frequent flyer number, if applicable
   c. Role (cabin crew, passenger or ground staff)
   d. Staff (employee) number, where applicable
   e. Door assigned or work position, where applicable
   f. Details of the reporter

4. Description of the event:
   a. Facts of the incident
   b. Short and concise points
   c. Timing of event in LT or GMT

5. Any action taken:
   a. Any steps taken to resolve the issue
   b. Is the report only for information or is action required?
   c. Relevant paperwork/manual references
   d. Was the issue resolved or does it require follow up?
   e. Any other specific details that might make any investigation/follow-up easier

2.6.1.4 Submission of the Report

The report needs to be sent to the correct department so it can be actioned appropriately. The report should be, where possible, submitted within 24 hours of the flight so that the appropriate corrective action/follow-up can take place at the earliest opportunity. Timeliness is especially important in medical cases or for hazard identification.

2.6.1.5 Evaluation of a Report

Submission of a good report is only part of the process. To achieve desired results, an effective assessment is required:

- Solving an issue;
- Clarifying a process;
- Changing a protocol;
- Implementing a new SOP or recommendation.

Once the report has been received by the correct department, the evaluation process should fall into one or more of the three streams of the SMS framework and be acted upon in accordance with those streams:

**Reactive:** Acting in response to a stimulus (in a particular situation). This methodology involves analysis of past outcomes or events. Hazards are identified through investigation of safety occurrences. Incidents and accidents are clear indicators of system deficiencies and, therefore, can
be used to determine the hazards that either contributed to the event or are latent.

Example: PASSENGER SMOKING IN THE LAVATORY - ALARM ACTIVATED. A passenger smoked in the lavatory which caused the activation of the smoke alarm. The passenger was cautioned by the cabin crew.

**Proactive:** Initiating change rather than reacting to events. This methodology involves analysis of existing or real-time situations, which is the primary function of safety assurance using audits, evaluations, employee reporting and associated analysis/assessment processes. This involves actively seeking hazards within existing processes.

Example: DOOR CHECKER ROLE A380. On arrival, the ground staff requested that the ML2 door be opened immediately instead if the usual door-opening sequence which prescribes that the ML1 door be opened first. The senior member of the cabin crew made his way to the ML1 door to act as a door checker. Due to the number of people in his path, his arrival at the ML2 door was delayed. This delayed the disembarking and frustrated the ground staff. The Cabin Safety team initiated an investigation and it was revealed that the door-opening sequence prescribed in the ground operational manual could not be adhered to in some circumstances due to the operation and location of the gates. After the findings had been presented to the relevant stakeholders via safety groups, a decision was made to introduce a new door checker grade in the crew community. This enables all door areas to have a door checker in the vicinity as soon as the cabin doors need to be opened.

**Predictive:** The reaction to a certain situation is known or expected. This methodology involves data gathering in order to identify possible negative future outcomes or events, analyzing system processes and the environment to identify potential future hazards and initiating mitigating actions.

Example: SLIDE ARMED INDICATOR LIGHT ILLUMINATED. The ML1 door slide armed indicator light illuminated white steady when the door operator moved the handle to the open position. The forward attendant panel door slide status showed all cabin doors were in disarm mode. The captain also confirmed the same. While the cabin crew were waiting for the arrival of the engineer, the UL1 door was used for passenger disembarkation. Upon arrival, the engineer recycled the arming lever several times which rectified the issue and ML1 door was used for disembarkation thereafter. Due to the number of reports received stating the same issue and the fact that cabin crew sometimes recycled the arming lever without consulting the engineer (as they did in this case), a decision was made in consultation with Flight Operations and Engineering to issue a flight crew notification instructing flight crew to always call an engineer if the white slide armed indicator light is illuminated and not to recycle the arming lever themselves. The recycling of the arming lever at this stage of flight was identified as a potential hazard; a potential consequence of that hazard being the cabin crew opening the door in armed mode. The defect of the white slide armed indicator light is currently being fixed by Engineering.
2.6.1.6 The Traffic Light Concept

The Traffic Light Concept provides an overview of the SMS approach and the types of action taken depending on the demands of different reports.

<table>
<thead>
<tr>
<th></th>
<th>Reactive</th>
<th>Proactive</th>
<th>Predictive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The reactive method responds to events that</td>
<td>The proactive method looks actively for the</td>
<td>The predictive method captures system</td>
</tr>
<tr>
<td></td>
<td>already happened, such as incidents and</td>
<td>identification of safety risks through the</td>
<td>performance as it happens in real-time</td>
</tr>
<tr>
<td></td>
<td>accidents.</td>
<td>analysis of the organization’s activities.</td>
<td>normal operations.</td>
</tr>
</tbody>
</table>

Table 1 - The Traffic Light Concept in an SMS Approach

2.7 Reporting System

The most effective reporting systems are those that are confidential and non-punitive, ensuring honest, uninhibited reporting. It is the responsibility of each crew member to always report to the Pilot-in-Command (verbally during flight) and to the airline (upon arrival or at the first point of landing) any hazard, situation, event or defective equipment that is affecting or could affect safety. This may require completing paper or electronic forms as per the airline’s procedures. Completing the reports should be done in a timely manner and it is important for cabin crew to cooperate during any post-event investigation.

2.8 Critical Incident Stress Management

It is recommended that airlines provide a support program for cabin crew to manage any emotional effects following critical incidents. For more information, please consult the IATA Medical Manual at: www.iata.org/medical-manual.

2.9 Statements from the Cabin Crew to the Authorities

Following an incident, a cabin crew could be required to make a statement to the applicable competent authority (e.g., police). This statement could include:

- A briefing of the allegation by the cabin crew involved in the incident;
- An interview with the complainant;
- Particulars of the complainant;
- Details of all other persons involved in the incident who may give corroborative evidence;
- Details of time, date and place on the aircraft where the offence(s) took place;
- A record of “first person” conversation(s) with the offender and crew members involved in the incident, which should be recorded in written notes made at the time or shortly after the incident.
Depending on state legal requirements, the police may require the complainant to be present at the time that the allegation is put to the offender. For more information, refer to the guidance on Unruly Passenger Prevention and Management at www.iata.org/cabin-safety.

2.10 Statements from the Cabin Crew to the Media

Events involving air travel can attract media attention and it is common for the media to approach cabin crew for their views on sometimes sensitive issues or to ask them to share their experience of an incident/accident. Airlines should ensure that their policy with respect to dealing with media queries is clearly communicated to all cabin crew so that these situations can be dealt with in a consistent and professional manner.

It is recommended that, following an incident/accident, a Public Address (PA) be made to reassure passengers. This PA should be carefully worded to avoid misinterpretations that could be later reported by the press. Some airlines have a standard announcement for the crew to use as a template as applicable to the situation. Cabin crew should not speak to the media or use social media to discuss incidents/accidents without the expressed approval of their airline.

2.11 Cabin Crew Safety Responsibilities

Cabin crew are responsible for carrying out safety-related duties principally in the aircraft cabin and related to a specific flight. These duties are essential to the safety and well-being of passengers and fellow crew members. Cabin crew are expected to comply with all applicable operator regulations, instructions and orders issued for cabin crew duties.

2.12 Cabin Crew Qualifications

Cabin crew employed by an IATA member airline must have an appropriate cabin crew license or certificate, comply with local regulations and be registered as a qualified cabin crew based on successful completion of the necessary training programs. It is recommended that cabin crew be at least 18 years of age.

All cabin crew should have passed a medical examination or comply with other operator medical requirements to ensure that they are medically fit and physically capable of fulfilling the duties specified. They should remain medically fit to continue to discharge their duties throughout the term of their employment.

Cabin crew are expected to remain familiar and comply with all regulations, procedures, policies, instructions and orders pertinent to the performance of their duties. An operator might utilize other methods that complement training to ensure cabin crew remain knowledgeable of the laws, regulations, rules, guidelines and other information that is relevant in the performance of their duties. For example, cabin crew might have destination-specific information or briefing books that explain the customs and immigration processes associated with flying into foreign destinations.
Additionally, laws, regulations and procedures might be reviewed to the extent necessary during cabin crew briefings prior to duty assignments.

2.13 **Inspectors and Auditors**

Inspectors from a Civil Aviation Authority (CAA) and/or auditors from an audit organization (AO) could perform an inspection or audit to assess cabin crew training programs, on-board safety equipment, procedures and operations. If someone claims to be an inspector or auditor, cabin crew should ask for identification and inform the Pilot-in-Command. Article 16 of the Convention on International Civil Aviation (the Chicago Convention) stipulates that the appropriate CAAs of each contracting state has the right to search aircraft and documents of other contracting states. Inspectors may enter the aircraft (or facilities) to inspect safety/emergency equipment (in the flight deck and cabin) aircraft log books and other documents or to question persons concerned with the safe operation of the aircraft.

2.14 **Authority of the Pilot-in-Command**

Pilot-in-Command: Has full control and authority of the operation of the aircraft, without limitation, and over the other crew members while on duty. The Pilot-in-Command is designated by the operator as being in command of the aircraft and charged with responsibility for the operational control and safe conduct of a flight. Equivalent terms: Captain, Commander.

Second-in-Command: A licensed and qualified pilot that assists or relieves the Pilot-in-Command; does not include a pilot that is on board the aircraft for the sole purpose of receiving flight instruction. Equivalent Terms: Copilot, First Officer.

Cruise Relief Pilot: A Flight Crew member that possesses a type rating limiting privileges to act as a pilot to only the cruise phase of flight or any Flight Crew member assigned to perform pilot tasks during cruise flight. The role of the Cruise Relief Pilot is to allow the Pilot-in-Command or a copilot to obtain planned rest. Equivalent Terms: Cruise Relief Officer, Relief Pilot, Relief Flight Officer.

2.15 **Chain of Command**

In case of incapacitation of any crew member(s), the recommended chain of command is:

1. Pilot-in-Command
2. Check pilot, supervisory Pilot-in-Command or relief Pilot-in-Command, if on board
3. First officer
4. Supervisory first officer or relief first officer, if on board
5. Senior Cabin Crew/Chief/Designated on-board leader
6. Cabin crew (in order of seniority)
2.16 Senior Cabin Crew Member

When required to carry more than one cabin crew member, an operator should appoint a person to the post of Senior Cabin Crew Member (SCCM). The SCCM will act as the liaison with the flight crew and has responsibility to the Pilot-in-Command for the conduct and coordination of normal, abnormal and emergency procedures specified in airline operations procedures manuals. The position of SCCM might have a different title or name according to the operator (e.g., purser, lead flight attendant, senior purser or on-board leader).

Prior to being designated a SCCM, the following criteria should be met:

- Minimum experience considered acceptable by the applicable national Authority;
- Successful completion of the operator’s cabin crew leadership training (e.g., SCCM course) as required by national regulations.

The SCCM is responsible for all of the cabin crew under the authority of the aircraft Pilot-in-Command. The functions of the SCCM include, but are not limited to:

- Applying all safety, security and service standards and procedures as outlined in their operations manual and other sources;
- Briefing with the Pilot-in-Command prior to each flight or series of flights;
- Briefing the cabin crew on all relevant safety, security and service aspects for the conduct of the flight;
- Providing effective leadership to the cabin crew;
- Applying all safety, security and service standards and procedures as outlined in the operator’s operations manual and other sources;
- Liaising between the flight crew and cabin crew;
- Performing emergency preparations according to the Pilot-in-Command and/or special instructions;
- Reporting to the Pilot-in-Command, manage all incidents/accidents, safety concerns of fellow crew or passengers and situations affecting the safety of the operation;
- Reporting/logging all technical irregularities in coordination with the Pilot-in-Command.

2.17 Cabin Crew

Cabin crew are an essential part of the team and their roles include, but are not limited to:

- Applying all safety, security and service standards and procedures as outlined in the operator’s operations manual and other sources;
- Following all directives of the SCCM under the authority of the aircraft Pilot-in-Command;
- Reporting to the SCCM all situations affecting the safety of the operation and/or any safety concerns they may have, or that may have been communicated to them by a passenger.
2.18 Cabin Crew Training Programs

**Effective 1 September 2014**

**CAB 2.1.1** If the Operator conducts passenger flights with cabin crew, the Operator shall have a cabin crew training program, approved or accepted by the Authority that ensures cabin crew members understand their responsibilities and are competent to perform the duties and functions associated with cabin operations. The cabin crew training program shall include initial, recurrent, requalification and aircraft type training courses.

All trainees must successfully complete full training before they can be assigned as a cabin crew. Airlines shall establish training programs in accordance with the requirements of the applicable national Authority of their state/country or, in its absence, in accordance with recommendations found in the IOSA Standard Manual, Section 5, Cabin Operations and Chapter 2 Training and Qualification: [www.iata.org/iosa](http://www.iata.org/iosa).

2.19 Training Records

Airlines should maintain complete and accurate records of all training undertaken by individual cabin crew. The duration and validity of training courses undertaken by cabin crew should be in line with state/country regulatory requirements or, as a minimum, as specified in the IOSA Standard Manual when no local regulatory requirements exist: [www.iata.org/iosa](http://www.iata.org/iosa).

2.20 Competency-Based-Training

In 2014, ICAO released its new Cabin Crew Safety Training manual (Doc 10002, 1st Edition). ICAO drafted this manual with a competency-based approach for the training of cabin crew. The main benefits acquired from competency-based training for cabin crew are:

- The training is focused on both job performance and the adult learner;
- The competencies acquired are observable and measurable;
- The training is adaptable;
- Measurement of the competencies acquired can be used as a tool to improve the quality of training.

It is important for airlines to note what competency-based training for cabin crew is, and what it is not. Competency-based training should not be expected to increase or prolong cabin crew training nor be a method to expedite cabin crew training by disregarding the learning outcomes. Rather it is learner-centric with a focus on the individual and their ability to perform their job functions.

To meet airline training needs, we need not necessarily perform more training, but rather more pertinent and relevant training instead of the old model of prescribed training. In the modern, complex world of aviation it is simply impossible to train for a successful outcome of an infinite number of possible abnormal or emergency situations. The challenge is to successfully equip cabin
crew to handle the challenges of modern operations with a move from prescribed task-based training to competency-based training.

The aim of a competency-based training program is to identify, develop and evaluate the competencies required by cabin crew to operate safely, effectively and efficiently in a commercial air transport environment by managing the most relevant threats and errors. This based on quantitative and qualitative data collected in operations and training.

The implementation of a competency-based program should enable operators to develop more effective training programs and to improve operational safety. It is advantageous to develop, train and assess competencies utilizing scenarios that are relevant to operations. Scenarios can sometimes be identified through the data collection and analysis process. In some cases, the data may highlight the criticality of certain competencies in the operation, which may lead to a focus on specific areas as part of the training program.

2.21 Cabin Crew Manual

Safety regulations are established by the applicable national Authority to ensure minimum standards. Airlines are required to provide each crew member with a manual, or access to a manual (paper or electronic), containing specific company regulations and safety procedures. Table 5.1 of the IOSA Standards Manual contains the Operations Manual Content Specifications.
The content of the airline’s operations manual shall address the following areas of cabin operations:

<table>
<thead>
<tr>
<th>Table 5.1—Operations Manual Content Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>The content of the Operations Manual shall address the following areas of cabin operations:</td>
</tr>
<tr>
<td>(i) Compliance or conformity with:</td>
</tr>
<tr>
<td>a. Applicable laws, regulations and rules;</td>
</tr>
<tr>
<td>b. Standard operating procedures for each phase of flight.</td>
</tr>
<tr>
<td>(ii) Administration of first aid, to include guidelines for:</td>
</tr>
<tr>
<td>a. Life threatening medical emergencies;</td>
</tr>
<tr>
<td>b. Cardiopulmonary resuscitation (CPR);</td>
</tr>
<tr>
<td>c. Injuries and illnesses;</td>
</tr>
<tr>
<td>d. Use of medical equipment (e.g. Automatic External Defibrillator, if applicable).</td>
</tr>
<tr>
<td>(iii) Response to emergency, abnormal, suspected security situations:</td>
</tr>
<tr>
<td>a. Aircraft emergency evacuation;</td>
</tr>
<tr>
<td>b. Cabin decompression, if applicable;</td>
</tr>
<tr>
<td>c. Onboard smoke, fumes and fire;</td>
</tr>
<tr>
<td>d. Emergency landing, ditching;</td>
</tr>
<tr>
<td>e. Leakage or spillage of suspected dangerous goods;</td>
</tr>
<tr>
<td>f. Suspected bomb or explosives, least risk bomb locations (specific to aircraft type);</td>
</tr>
<tr>
<td>g. Cabin search;</td>
</tr>
<tr>
<td>h. Hijacking or unlawful intervention.</td>
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<tr>
<td>(iv) Use of cabin systems and equipment, to include malfunctions:</td>
</tr>
<tr>
<td>a. Oxygen systems, if applicable;</td>
</tr>
<tr>
<td>b. Communication systems;</td>
</tr>
<tr>
<td>c. Entry and exit doors;</td>
</tr>
<tr>
<td>d. Lifesaving equipment;</td>
</tr>
<tr>
<td>(v) Dangerous goods manual or parts relevant to the cabin crew, to include:</td>
</tr>
<tr>
<td>a. Dangerous goods prohibited in passenger and crew baggage;</td>
</tr>
<tr>
<td>b. Information/instructions for dangerous goods permitted in passenger and crew baggage;</td>
</tr>
<tr>
<td>c. Action to be taken in the event of an emergency.</td>
</tr>
<tr>
<td>(vi) Use of emergency, survival equipment.</td>
</tr>
<tr>
<td>(vii) Cabin crew training program:</td>
</tr>
<tr>
<td>a. Abnormal and emergency situations, emergency evacuation;</td>
</tr>
<tr>
<td>b. Use of emergency and lifesaving equipment;</td>
</tr>
<tr>
<td>c. Lack of oxygen, loss of pressurization (as applicable);</td>
</tr>
<tr>
<td>d. Other cabin crew member assignments and functions;</td>
</tr>
<tr>
<td>e. Dangerous goods;</td>
</tr>
<tr>
<td>(viii) Limitations pertaining to flight time, flight duty periods and rest periods.</td>
</tr>
</tbody>
</table>

Table 2 - IOSA Standards Manual, Edition 8: Operations Manual Content Specifications
2.22 Cabin Crew Uniforms

While it is recognized that cabin crew uniforms represent the brand image of an airline, they also should be designed with safety, cultural and practical aspects in mind. Care should be exercised to ensure that the style and materials used for cabin crew uniforms do not affect the ability of the crew to perform their normal duties or to help passengers in the event of an abnormal or emergency situation (i.e., fire, evacuation, etc.). The following is intended to serve as a guideline for airlines when selecting new uniforms for their cabin crew:

- Airlines should take into account the local and destination climates so that clothing is adaptable to suit changes in the climate;
- Uniforms should be distinctive and easily identifiable in the event of an emergency;
- Clothing should be comfortable and allow freedom of movement; tight, restrictive clothing should be avoided;
- Airlines should consider the material used for cabin crew uniforms to ensure that it provides some protection from radiant heat;
- If rank insignia are worn they should be clear and affixed on the jacket and shirt, where applicable;
- Shoes or boots should be flat or low-heeled and closed with laces or straps so that they will not be lost or thrown off;
- Uniform accessories (i.e., ties, chains, necklaces, scarves, etc.) need to take safety considerations into account;
- Metal badges should be designed so as not to cause injury;
- It is recommended that cabin crew wear their full uniform for takeoff and landing (in accordance with their airline’s policies and procedures) to offer them the best protection in the event of an emergency and to better identify cabin crew to passengers and emergency responders (if applicable).

2.23 Cabin Crew Medical Standards

Section 3.2 of the IATA Medical Manual states that medical standards for professional and private pilots have long been clearly specified in international regulations (ICAO, Annex 1, Chapter 6). While there is generally no equivalent for cabin crew (usually the airline determines the appropriate pre-employment health assessment required), a certain number of countries require cabin crew to be licensed to private pilot standards.

2.23.1 Cabin Crew Working Conditions

In the absence of official references, it is important to consider the components of the role of cabin crew and the flight environment. Cabin crew are subjected to the same aircraft environment as the flight crew. On long-haul flights, they are exposed to time zone shift (jet lag), stopovers in countries or stopovers with harsh climates and/or particular disease concerns, and irregular work patterns. Cabin crew on-board duties include a significant physical component. Cabin crew are also in charge
of passengers “safety and wellbeing”.

2.23.2 Aeromedical Assessment

In the absence of specific licensing Authority requirements, many airlines have found that a clear, targeted health questionnaire is a reliable screening tool to provide sufficient information to ensure that safety and the airline’s duty of care are addressed. Other airlines prefer to conduct a full medical assessment starting with a full medical history. The majority of applicants will be assessed as medically fit and will enjoy good health throughout their entire flying career. For those who may experience disease or accident, the airline physician should be not only an aviation medicine expert, but also an adviser taking into account every aspect of the individual’s medical problems. Each situation will be unique and will have to be addressed using the following criteria:

- Is the cabin crew’s medical condition likely to be aggravated by resumption of work?
- Is this medical condition likely to jeopardize flight safety?

2.24 Alcohol, Drugs and Medication

No cabin crew shall consume alcohol or prohibited drugs while performing their duties. Airlines should establish procedures to provide for the testing for misuse of alcohol or drugs, or as required by national legislation.

The taking of over-the-counter medicine or prescribed drugs can impair the ability of cabin crew to perform their duties. Airline corporate policies should, therefore, contain clear instructions as to when medicine or drugs may and may not be taken by cabin crew. Cabin crew must comply with such airline regulations prior to and during a flight.

For more information, please consult the IATA Medical Manual at www.iata.org/Medical-Manual.

2.25 Number and Composition of Cabin Crew

The number and composition of cabin crew is stipulated in ICAO Annex 6, Operation of Aircraft, Chapter 12 Cabin Crew, Section 12.1, Assignment of Emergency Duties, which states, in part:

“An operator shall establish, to the satisfaction of the State of the Operator, the minimum number of Cabin Crew required for each type of aeroplane, based on seating capacity or the number of passengers carried, in order to effect a safe and expeditious evacuation of the aeroplane, and the necessary functions to be performed in an emergency or a situation requiring emergency evacuation […]”

Civil aviation regulations specify the minimum number of cabin crew based on either the number of passengers on board or passenger seats. Where this specification is not stipulated, it is recommended that there be a minimum of one fully qualified cabin crew for every 50 passengers, or passenger seats, installed on the same deck of an aircraft.
2.26 Fatigue Risk Management System

2.26.1 Definition of Fatigue

IATA defines crew member fatigue as:

“A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can impair a crew member’s alertness and ability to safely operate an aircraft or perform safety-related duties.”

Fatigue is a major human factors hazard because it affects most aspects of a crew member’s ability to do their job. It, therefore, has important implications for safety.

2.26.2 An Understanding of FRMS

ICAO defines a Fatigue Risk Management System (FRMS) as:

“A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness”.

FRMS is a comprehensive and valid alternative to traditional prescriptive flight and duty time rules, which can be used singularly or in combination with the traditional approach. Scientific advancement in the correlation between fatigue and performance as well as fatigue mitigation methods, enable the development of an effective FRMS. An effective FRMS can be a significant contributor to flight safety since fatigue is increasingly cited as a contributing factor in accidents.

Establishing a Fatigue Management Reporting System will set a realistic balance between safety, productivity and costs, through the collection of data and a formal assessment of risk. Optimally, the FRMS will be integrated into the airline’s Safety Management System (SMS).

A requirement for a FRMS is incorporated in the IATA Operational Safety Audit (IOSA). IOSA Edition 8 Section - CAB 3.1.4A guidance states:

“Where authorized by the State, the operator may use a Fatigue Risk Management System (FRMS) alone or in combination with prescriptive flight time, flight duty period, duty period and rest period limitations in accordance with CAB 3.1.4B as the means for managing fatigue-related risks.”

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2.26.3 FRMS Structure

FRMS core activities must be clearly recognizable and auditable, particularly where integrated in the SMS. Core activities at a minimum should include:

1. FRMS Policy and Documentation;
2. Fatigue Safety Risk Management;
3. FRMS Safety Assurance Processes;
4. FRMS Promotion Processes.

2.26.4 FRMS Policy and Documentation

The elements and scope of the FRMS must be defined and it must list all aspects that it covers. This includes whether the FRMS covers all or part of the airline’s operations and is (or is not) integrated into the airline’s SMS. Documentation must describe all elements of the FRMS and any changes thereto. It must also provide a record of FRMS activities. The documentation can be centralized in an FRMS Manual, or integrated into an operator’s SMS Manual.

As a way of meeting these requirements, it is recommended that an airline create a working group responsible for coordinating the organization’s fatigue management activities. Such a group is referred to here as the Fatigue Safety Action Group. The principle functions of the Fatigue Safety Action Group are to:

1. Develop and maintain the FRMS documentation;
2. Manage the FRM processes;
3. Contribute to the FRMS safety assurance processes;
4. Be responsible for the FRMS promotion processes

Airlines may also elect to create a FRMS Governance Group to guide the working group within the framework of the SMS and establish an Independent Alertness Assurance Panel.

2.27 Fatigue Risk Management

Fatigue Risk Management (FRM) processes within an FRMS are specifically designed to manage risk related to crew member fatigue.

Fatigue Risk Management (FRM) processes need to:

1. Identify where fatigue is a hazard;
2. Assess the level of risk that a given fatigue hazard represents;
3. Put in place controls and mitigation strategies, if necessary
4. Monitor to make sure that risk is managed at an acceptable level.
To achieve this, the following data is required:

1. Measures of the fatigue levels of crew members;

### 2.27.1.1 Identification of Hazards

An airline shall develop and maintain three fundamental and documented processes for fatigue hazard identification:

**Predictive** - Identify fatigue hazards by examining the crew (e.g., bio-mathematical models).

**Proactive** - Identify fatigue hazards within the current flight (e.g., crew fatigue surveys).

**Reactive** - Identify the contribution of fatigue hazards to reports and events associated with a potentially negative safety consequence (e.g., fatigue reports).

### 2.27.1.2 Risk Assessment

An airline shall develop and implement risk assessment procedures that determine the probability and potential severity of fatigue-related events and identify when the associated risks require mitigation.

The risk assessment procedures shall review identified hazards and link them to:

1. Operational processes;
2. Probability of the hazard occurring;
3. Possible consequences;
4. Effectiveness of existing safety barriers and controls.

### 2.27.1.3 Risk Mitigation

An airline shall develop and implement risk mitigation procedures that:

1. Select the appropriate mitigation strategies;
2. Implement the mitigation strategies;
3. Monitor the strategies’ implementation and effectiveness.

### 2.27.2 FRMS Safety Assurance Processes

FRMS safety assurance processes provide an additional layer of protection against fatigue-related risk. FRMS safety assurance processes are integral to and monitor how well the entire FRMS is functioning. They:

1. Check that the FRMS is functioning as intended;
2. Check that it is meeting the safety objectives defined in the FRMS policy;
3. Check that it is meeting regulatory requirements;
4. Identify where changes in the operating environment have the potential to increase fatigue risk;
5. Identify areas for improvement in the management of fatigue risk (i.e., continuous improvement of the FRMS).

An independent assurance panel can be used as a means to drive continuous improvement through:

1. Review of reports from the FRMS Governance and/or Working Group;
2. The scientific methods used to collect fatigue data;
3. Comment on the validity of any recommendations;
4. Action as a "strategic think tank" to identify new approaches or solutions for managing fatigue.
5. Composition of the panel may include representatives from: FRMS Governance Group members; Fatigue Safety Action Group members; Regulators; Other suitable internal or external fatigue research specialists.

2.27.3 FRM Promotion Processes

Coupled with FRMS policy and documentation, the FRMS promotion processes support the core operational activities of fatigue risk management and safety assurance processes. FRMS promotion processes include training programs and a communication plan.

FRMS training should ensure all involved personnel are trained and competent to undertake their respective FRMS responsibilities and standards for initial and recurrent training are specified in FRMS documentation. Central elements of FRMS training are the key principles of fatigue science: managing sleep and understanding the effects of the circadian body clock. These are relevant not only to people’s roles in the FRMS but also to the inter-relatedness of their lives outside of work.

FRMS training covers issues that everyone can identify with personally, which can help promote the concept of shared responsibility in an FRMS.

An effective FRMS requires full support of the line to provide quality information into the system, develop knowledge, understand and implement mitigation strategies, and have confidence in the resulting actions of their reporting.

Factors such as accessibility and ease of reporting, timeliness and accuracy of reports, along with regular fatigue safety action group newsletters detailing results and actions, build line confidence in the FRMS and drive quality reporting and data validity.
2.28 Fatigue and Sleep

Sleep and rest is essential to combat fatigue. There are also other factors that can reduce the effects of fatigue. Regular physical activity of moderate intensity increases resistance to both stress and fatigue. However, too much physical activity before a flying duty is tiring.

Individuals know their own sleep requirement and how much sleep they will need in order to be refreshed. However, if the amount of sleep has not been sufficient, particularly over a few days, the individual will build up a “sleep deficit” that will need to be recovered; otherwise it will affect their level of performance.

Crew members’ sleeping patterns will often be disrupted due to flying duties. Short-haul flying will often require multiple sectors working very early in the morning or late into the night, whereas long-haul flights have the added consequence of crossing multiple time zones, which means that rest is taken at a time the body is not used to. As a result of the nature of the work, crew members are not on duty the same days each week, or the same hours each day. Nor do they eat or go to sleep at the same times each day.

Adequate sleep is a necessity and sleep deprivation may lead to serious health disorders. It is, therefore, essential that crew members be well rested, both at home and while on a layover, before working any flight.

2.28.1 Sleep

Crew members should not sleep during duty or appear to be asleep except during approved crew rest periods and in designated crew rest areas. Sleep deprivation is defined as the lack of sleep. The need for sleep varies for each individual. While some people need more sleep than others, 90 percent of people sleep between six and nine hours in each 24-hour period. However, it should be noted that:

- Each individual has his/her own sleeping pattern;
- Sleeping patterns may change according to health and age;
- Identifying and respecting your sleep pattern is a condition for good performance.

Jet lag can affect sleep. This common problem is defined as a difficulty adjusting to time zones. It is unavoidable following rapid travel over three or more time zones and is exacerbated by:

- Stress;
- Overeating;
- Dehydration;
- Increasing age;
- Travelling in an easterly direction;
- Sleep deprivation;
- Excessive alcohol consumption.
2.28.2 Fatigue

When people are suffering from fatigue, their ability to carry out tasks can be impaired. During flight operations, reduced alertness or performance due to fatigue can pose serious risks to safety.

Fatigue usually results from lack of sleep or disruption of normal sleep patterns. However, there are many other contributory factors:

1. Sleep loss:
   a. Less than the individual’s needed sleep in the last 24 hours;
   b. Shortened rest periods;
   c. Reduced sleep quality;
   d. Cumulative sleep loss over successive 24-hour periods.

2. Continuous hours awake (more than 17 hours since last major sleep period):
   a. Time since awakening;
   b. Length of duty day.

3. Disruption of the circadian system (i.e., working out-of-sync with the body’s internal clock):
   a. Crossing multiple time zones (jet lag);
   b. Working between midnight and 6 a.m.;
   c. Getting up very early/going to bed late.

4. Workload intensity:
   a. Multiple legs in succession;
   b. Long duty periods.

5. Other:
   a. Illness;
   b. Side effects of medication, alcohol.

2.28.3 Symptoms and Effects of Fatigue

Symptoms may not be noticed when stimuli such as noise, physical activity, caffeine, nicotine, thirst, hunger, excitement or other distractions are present. However, once the stimuli are gone, fatigue symptoms such as the following tend to manifest themselves:

- Eyes going in and out of focus;
- Persistent yawning;
- Wandering or poorly organized thoughts;
- Spotty short-term memory;
- Worsened mood (i.e., irritability);
- Lack of concentration.
2.28.4 Possible Consequences at Work

- Slower reaction time;
- Reduced motor skills and coordination;
- Impaired judgment;
- Slower decision making;
- Reduced flexibility;
- Reduced situational awareness;
- Decreased work efficiency;
- Degraded crew coordination;
- Reduced motivation;
- Decreased vigilance;
- Increased variability of work performance.

2.28.5 Fatigue Preventive Strategies

It is of utmost importance to execute flight operations as alertly as possible. Negative occurrences, such as sleep disturbance and/or circadian disruptions, may be successfully counteracted if proper preventive measures are taken. The following recommendations are general and have to be adapted to one’s own needs:

- Restful sleep requirements ("good sleep habits");
- Protect your individually required sleep time;
- Keep a regular sleep/wake schedule (when possible);
- Use a suitable sleep environment (i.e., shades, lower temperature, earplugs, etc.);
- Develop and practice a regular pre-sleep routine;
- Eat a light snack, if hungry;
- No alcohol before bedtime (alcohol induces sleep, but has a negative effect on sleep quality);
- No coffee, black tea or other sources of caffeine before bedtime;
- No exercise before bedtime;
- If you do not fall asleep within 30 minutes, get out of the bed for a time. Don't toss and turn.

2.28.6 Lifestyle

Flight duty must be performed in good physical and mental condition. Crew should be well-rested as a result of appropriate personal conduct with regard to sleep, nutrition and consideration of the effects of medications, alcohol, caffeine, nicotine, etc.

Preventive strategies for use every day:

- Get as much sleep as possible prior to the trip;
- For night flights, an afternoon nap is highly recommended;
- Practice active ways to relax after work;
- Do regular physical activity.
Preventive strategies during a short layover (less than three days):

- Try to sleep as much within 24 hours (in one or more sleep periods) as in a normal 24-hour period at home;
- If the circumstances permit, sleep if you are sleepy;
- Try to maintain the sleep/wake rhythm of your original time zone.

2.28.7 General Countermeasures Inflight

- Give preference to light food and high-protein meals;
- Avoid high-fat and high-carbohydrate food;
- Drink plenty of fluids, preferably water;
- Caffeine can help counteract noticeable fatigue symptoms;
- Use the crew rest area (bunk), if planned.

2.29 IMSAFE

IMSAFE is a mnemonic used by some aircraft pilots to assess their fitness to fly. The IMSAFE checklist assesses whether “I am free from factors that could affect my physical or mental capacity to operate safely”. Although the job function is different, the IMSAFE checklist is equally applicable to cabin crew:

- Illness
- Medication
- Stress
- Alcohol
- Fatigue
- Eating deficiencies

2.29.1 Flight Time, Flight Duty Periods and Rest Periods

Regulations specifying the limits applicable to flight time, flight duty periods and rest periods for cabin crew are usually approved by national civil aviation authorities. The prime objective of flight time duty limitations and subsequent rest periods is to ensure that crew members are adequately rested at the beginning of each flying duty period and subsequently during the flight, and are sufficiently free of fatigue so that they can operate in all normal, abnormal and emergency situations.

2.29.2 Flight Duty Period

A flight duty period is intended to cover a continuous period of duty, including a flight or a series of flights. It includes all duties a cabin crew may be required to carry out from the time of reporting for duty on the day of a flight or series of flights, until completion of all duties relating to the flight or series of flights.
2.29.3  Rest Periods

The definition of a rest period implies an absence of duty and is intended to provide adequate time for rest following a flight or series of flights. Airlines should ensure that procedures are followed to make sure that cabin crew do not exceed their flight time limitations and that adequate controls are in place to ensure that cabin crew are not assigned duties during required rest periods. Cabin crew have a responsibility to use their rest periods to rest. Time spent by cabin crew positioning or deadheading to or from duty assignments is not considered part of a rest period.

2.29.4  Inflight Rest Facilities

Airlines should comply with their regulatory requirements to provide adequate inflight crew rest facilities. When establishing duty times and rest periods, the size of the crew complement and the tasks to be performed should be taken into account. When private, horizontal rest facilities are provided in the aircraft, flight duty periods may be extended.

2.29.5  Fatigue Awareness and Personal Mitigation Strategies (FAMS)

IATA has released the Fatigue Awareness and Personal Mitigation Strategies (FAMS) Cabin Crew eLearning course: www.iata.org/training/courses/Pages/talp54.aspx. A demo is available in the sidebar.

2.30  Fatigue Risk Management System

A Fatigue Risk Management System (FRMS) is a data-driven means of continuously monitoring and managing fatigue-related safety risks, based on scientific principles and knowledge as well as operational experience. The aim of an FRMS is to ensure that relevant personnel are performing at adequate levels of alertness.

The traditional regulatory approach to manage crew member fatigue has been to prescribe limits on maximum flight and duty hours, and minimum breaks within and between duty periods. It has been a “one-size-fits-all” approach that does not reflect operational differences among operators. The FRMS is an enhancement to prescriptive rules, enabling each operator to customize flight and duty time limitations (FTLs) to better manage fatigue risk in its own operations. Unlike prescriptive FTL, an FRMS needs to emphasize the shared responsibility between management and individual crew members within an operation to manage fatigue risks.

Operators should tailor their FRMS to their own operational demands and focus on fatigue mitigation strategies that are applicable within their specific operational environment, and use the FRMS to adapt policies, procedures and practices to the specific conditions that create fatigue in their own operational setting.

Like the Safety Management System (SMS), the FRMS relies on the active involvement of all stakeholders and an “effective reporting culture” where personnel have been trained and are
encouraged to report hazards whenever observed in the operational environment. Cabin crew should be aware of the FRMS at their airline and know when and how to report fatigue.

2.31 Implementing FRMS

Just as with SMS, FRMS is a management process built on organizational policies and procedures that implement a systematic approach to fatigue management. This ensures that FRMS is an integrated network of people and resources performing activities designed to minimize fatigue in the operational environment.

It is important to point out that there is no “off-the-shelf” version of FRMS; each operator will need to develop a FRMS appropriate to its organizational and operational specificity as well as the nature and level of the fatigue risk(s).

2.31.1 FRMS Implementation Guide for Operators

The FRMS Implementation Guide for commercial aircraft operators is the result of collaboration between IATA, ICAO and the International Federation of Airline Pilots’ Associations (IFALPA) to jointly guide and serve the industry in fatigue management, using the most current scientific findings and operational experience. It presents a common approach for pilots, operators, and regulators regarding the complex issue of fatigue.

The information in the guide is likewise applicable to cabin crew. The FRMS Implementation Guide is available as a free download: www.iata.org/publications/Pages/frms.aspx

The FRMS Implementation Guide includes valuable insight into the methodology and framework for implementing an effective fatigue risk management program and an explanation of the science supporting it. For more information, please contact frms@iata.org

There is scientific and operational evidence that an FRMS is an effective means of mitigating fatigue risks. For this reason, IATA issued a white paper on FRMS in January 2013. The white paper provides an overview of FRMS and its benefits. In 2014, to further support member airlines with FRMS implementation, IATA published the document “Fatigue Safety Performance Indicators (SPIs): A Key Component of Proactive Fatigue Hazard Identification”. This document reviews different SPIs to help operators develop processes and procedures to monitor the effectiveness of their own fatigue management program. To access the IATA white paper on FRMS, go to: www.iata.org/whatwedo/ops-infra/Documents/frms-white-paper.pdf

2.32 The Flight Crew and Cabin Crew Relationship: ONE TEAM - ONE CREW

Each crew member is a member of a team, with a specific role to play and tasks to perform. Great team performance depends in part on synergy. Synergy is defined as “the interaction of elements that, when combined, produce a total effect that is greater than the sum of the individual elements”. This means that, when in synergy, the performance of a team is higher than the sum of the individual
performances. Conditions for synergy include:

- A shared goal
- A clear crew structure
- Clear task allocation
- Team spirit
- Good leadership

The roles of cabin crew on board are twofold:

1. The safety role;
2. The customer service role.

At times, there can be conflict between the two roles which can have implications on performance.

A good cabin crew structure ensures that members have clear roles and duties. The application of Crew Resource Management (CRM) creates the right balance for the crew to work as an effective team. In order for a team to be effective, they must be able to talk to each other, share information, listen to each other and be assertive, when necessary. For more information on CRM, see section 2.34 below.

In every effective team, there are leaders and followers. Followers are not sheep following blindly. Followers play a complimentary role to leadership by supporting the leader. Every effective leader needs the support of their team. Differing group composition (e.g., age) requires varying styles of leadership. In CRM, it is vital to introduce appropriate leadership styles for the crew to adopt. This helps to build and strengthen crew leadership skills.

Situational awareness is important at all times and CRM highlights the human factors that could contribute to incidents and accidents. Situational awareness among the crew improves safety. CRM addresses detecting errors in the early stages and correcting or controlling them.

### 2.33 Human Factors

The science of Human Factors focuses on how humans interact with the environment in their workplace. For cabin crew, it is about understanding how crew use equipment, interpret policies, interact with each other, and generally operate within their working environment.

ICAO defines human factors or performance as the human capabilities and limitations that have an impact on the safety and efficiency of aeronautical operations. More information from ICAO on human performance can be found in the following documents:

- Human Factors Digest 15 – Human Factors in Cabin Safety
- Human Factors Training Manual (Doc 9683)
2.33.1 Human Factors Awareness Training

Cabin crew should be provided with an understanding and awareness of the human factors that can potentially lead to errors. Key components of human factors awareness training are often referred to as the “Dirty Dozen”. These are (in no specific order of importance):

1. Lack of communication;
2. Distraction;
3. Lack of resources;
4. Stress;
5. Complacency;
6. Lack of teamwork;
7. Pressure;
8. Lack of awareness;
9. Lack of knowledge;
10. Fatigue;
11. Lack of assertiveness;
12. Norms (meaning workplace practices and culture, which can be both good and bad or safe and unsafe).

Awareness of these components increases the understanding of how humans can contribute to accidents and incidents. The objective of human factors awareness training is for the cabin crew to understand how they can effect safety and act accordingly to reduce and capture human error.

IOSA has provisions pertaining to training in human performance that typically include basic human factors concepts and Crew Resource Management.

**Effective 1 September 2014**

_CAB 2.2.8 If the Operator conducts passenger flights with cabin crew, the Operator shall ensure cabin crew members receive training in human performance to gain an understanding of the human factors involved in conducting cabin safety duties and coordinating with the flight crew during the execution of onboard emergency procedures. Such training shall be included in the cabin crew initial and re-qualification training courses, and in the recurrent training course, on a frequency in accordance with requirements of the Authority, but not less than once during every 24-month period. (GM)_

IATA provides comprehensive training in human factors in aviation. For more information, please consult: [www.iata.org/training/courses/Pages/aviation-human-factors-tcvt05.aspx](www.iata.org/training/courses/Pages/aviation-human-factors-tcvt05.aspx)
2.34  Crew Resource Management

Crew Resource Management (CRM) promotes safe operations and overall crew performance through the optimum use of available resources including people, procedures and equipment. A prerequisite of effective CRM is a skilled, knowledgeable crew member who contributes to the overall crew effectiveness. CRM is an essential aspect of airline operations influencing how safely and effectively crew members perform their duties.

CRM encourages efficient and effective communication, cooperation and coordination within a crew. Its objective is to:

- Promote and maintain a safe operation at all times;
- Promote effective and efficient decision making;
- Mitigate and capture human error;
- Increase the chance of survival in an emergency;
- Manage effectively and efficiently all available resources (human or physical).

To promote CRM, crew members should:

- Understand each other’s roles and responsibilities;
- Possess an excellent understanding of their airline’s safety and security policies and procedures;
- Effectively communicate with each other;
- Cooperate and coordinate their efforts;
- Resolve or work through any differences or conflicts.

CRM is a system of applying human factors concepts to improve crew performance and, subsequently, improve safety. Effective CRM results in all crew members functioning as a team, rather than a collection of technically competent individuals. High technical proficiency does not guarantee safe aircraft operation in the absence of effective crew coordination.

2.34.1  CRM Training

Operators aim to encourage appropriate contributions from all crew members to ensure a consistently high level of safe and efficient procedures. Together with service excellence, it is important to note that training cannot cover every possible scenario a crew may face.

CRM is an essential component of safety training. It allows airlines to influence the way that cabin crew and flight crew work more effectively together by providing the technical and behavioral skills necessary for each to know what to expect from their fellow crew members in any given situation. It is recommended that CRM form an integral part of initial and recurrent/refresher cabin crew training programs.
The following best practices should be taken into consideration when formulating effective CRM training programs:

- Standards for human factors and CRM for cabin crew to be combined with flight crew;
- Specialist trainers should be used and these trainers should undergo specific training on CRM;
- Check flights/audits to be set to measure whether training methods are carried out in flight;
- Guidelines on all training to be designed with the specific needs of the carrier being taken into consideration (i.e., cultural training);
- When incidents occur on board, airlines should consider using these as case studies in future CRM training;
- Encourage crews to talk about incidents and share views at cabin crew preflight briefings;
- Build a trust between crew and management where people feel comfortable to “open up”;
- Role play simulated flights, where:
  - Everyone has a role to play;
  - “Passengers” are given cards with scenarios to enact;
- A full debriefing is conducted as a learning exercise and not as criticism of what could have been done better;
- All key topics from the debriefing are included in future case studies.

2.35 Communication

Communication is essential for safe operations. Appropriate and timely decisions depend on both flight crew and cabin crew communications. Effective and efficient communication between all crew members can be defined as the appropriate, constant, timely and unrestricted exchange of information. The full, free and unrestricted flow of information should always be encouraged. However, cabin crew hesitancy to contact the flight deck remains common. To promote effective communication and decision making, cabin crew should report any situation that appears unusual or abnormal to the flight crew. The transmitting of such information should be clear, concise and factual. For example, if a cabin crew sees “smoke” they should not report that they see “fire”. Cabin crew should also listen to and acknowledge receipt of information given by the flight crew. Cabin crew should seek clarity and details they require (What? Where? How? When?) and, as appropriate, provide ideas and solutions. The following are the ABCs of communication to and from the flight deck:

A = Appropriate
B = Brief
C = Clear and Concise
2.35.1 Communication via the Interphone

Cabin crew should be competent in the use of the interphone and the procedures used for calling the flight deck, receiving calls from the flight deck, and handling calls between members of the cabin crew under normal, abnormal and emergency situations.

2.35.2 Read-Back Instructions

Repeating or “read-back” instructions are a good communication strategy for both face-to-face and interphone communications to ensure effective and correct communications. When the flight crew communicates a message, the cabin crew must read back or repeat the instructions to prevent error. This method is a means of confirming information and ensuring it is accurately understood. For example, if the Pilot-in-Command warns the crew that turbulence will be encountered in 15 minutes, the cabin crew may understand 50 minutes, leaving them less time than they think to secure the cabin. When the cabin crew read back the instructions and state 50 minutes the Pilot-in-Command will hear the error and reconfirm: “No, 15 minutes, 1-5”.

2.35.3 Cooperation and Coordination

Effective cooperation and coordination is the hallmark of good teamwork. High mutual assistance, low discord and timely communication and feedback all contribute towards effective cooperation and coordination. Cooperation and coordination assist crew to function effectively, make decisions and mitigate problems as they arise. It is also important to communicate and cooperate with other airport and airline members, including maintenance personnel, catering staff and ground staff. Finally, always remember to communicate with passengers to make them feel comfortable and able to communicate problems to the crew.

2.36 Threat and Error Management

An integral part of CRM, Threat and Error Management (TEM) is the promotion of safe operations through the continuous process of identifying, avoiding, capturing and managing operational threats and human errors. The ultimate goal of TEM is to maximize flight safety by minimizing incidents and accidents caused by human factors. IOSA defines TEM as “the actions taken by the flight crew (or cabin crew) to reduce threats or manage errors”.

According to the TEM framework, threats are defined as events or errors that occur beyond the influence of the crew. Threats increase operational complexity and should be properly managed to maintain acceptable margins of safety. TEM categorizes threats based on whether or not the sources of operational pressure are internal or external to the airline. This analysis includes separate TEM breakdowns for the sources of pressure experienced by the flight crew and those experienced by the cabin crew.
The ABCS for TEM are:

- Actively monitor and assess potential for error;
- Balance available barriers to avoid and trap errors;
- Communicate threats and intentions in a timely and effective manner;
- SOPs to be followed at all times.

2.36.1 Threat and Error Management Framework

The Human Factors Research Project at The University of Texas in Austin developed TEM as a conceptual framework to interpret data obtained from both normal and abnormal operations. For many years, IATA has worked closely with the University of Texas Human Factors Research Team, ICAO, member airlines and manufacturers to apply TEM to its many safety activities.

Latent Conditions: Conditions present in the system before the accident, made evident by triggering factors. These often relate to deficiencies in organizational processes and procedures.

Threat: An event or error that occurs outside the influence of the flight crew (or cabin crew), but which requires crew attention and management to properly maintain safety margins.
**Cabin Crew Error:** An observed cabin crew deviation from organizational expectations or crew intentions.

**Undesired Cabin/Aircraft State:** A cabin crew induced cabin/aircraft state that clearly reduces safety margins; a safety-compromising situation that results from ineffective threat/error management. An undesired aircraft state is recoverable (e.g., a door that is not disarmed when it should have been).

**End State:** An end state is a reportable event. An end state is unrecoverable (e.g., an inadvertent slide deployment).

**Distinction between “Undesired Aircraft State” and “End State”:** Discovering a door that was left in an armed position (aircraft parked at gate on ground after command to disarm and crosscheck) is recoverable: this is an Undesired Aircraft State. An inadvertent slide deployment is unrecoverable. Therefore, this is an End State.

### 2.37 Crew Briefings

The preflight briefing is an important component of flight preparations. It encourages communication and teamwork, builds rapport among crew members and promotes high team performance. Communication and coordination between the flight crew and cabin crew is crucial and is an integral part of normal, abnormal and emergency procedures. A joint briefing enhances the One Team – One Crew concept. This, in turn, has a positive impact on the safety of the flight.

A predetermined process is necessary to ensure a flight and cabin crew coordination briefing takes place prior to each flight and addresses relevant safety subjects (e.g., sterile flight deck, security, aircraft technical issues, flight crew incapacitation, cabin depressurization, on-board fire, emergency evacuation, forced landing or ditching, etc.). Following SOPs ensures that all crew members are familiar with flight standards and expectations. The following are suggested places where briefings may be conducted:

- In the briefing room before departure from base;
- In the aircraft cabin, with no passengers on board;
- In a suitable place before leaving the hotel;
- On the crew bus en route to the airport;
- Another suitably private place.

#### 2.37.1 Briefings with Flight Crew

Normally, state regulations require a crew preflight briefing. It is recommended that, when operationally possible, the preflight briefing be conducted by the Pilot-in-Command and involve all crew members. When flight crew and cabin crew are not following the same flight schedule and/or transit passengers are on board, the Pilot-in-Command should brief the SCCM, who in turn briefs the rest of the cabin crew.
This briefing should include, as a minimum:

- Anticipated weather and flying conditions (i.e., turbulence);
- Expected flight time and altitudes;
- Any defective/inoperative equipment that could affect the flight/cabin service;
- Any other necessary issues such as a short taxi time, PA translation requirements, etc.;
- Flight deck door procedures;
- Sterile flight deck procedures;
- Security procedures.

The SCCM should also review the following items with the Pilot-in-Command, as applicable:

- Cabin crew complement;
- Taxi time;
- Special handling of certain categories of passengers such as prisoners with escorts;
- Announcements and requirements for translation by cabin crew;
- Service to flight crew;
- Any additional information necessary for the flight (including information on inoperative equipment, service items on board or abnormalities that may affect the flight).

2.37.2 Briefing of Cabin Crew

A cabin crew briefing must be conducted before the first departure of the day. Some of the following information may be obtained from the flight crew as part of a joint flight crew-cabin crew briefing. However, if a joint briefing does not take place the information should be disseminated by the SCCM. The SCCM is responsible for conducting the preflight safety briefing to the cabin crew. The operating SCCM cannot delegate the preflight briefing. This task typically includes, but is not limited to:

- A check that the required minimum number of cabin crew members are present;
- A customized briefing for the aircraft type;
- The assignment of cabin crew positions, duty stations and emergency duties;
- The distribution of an emergency equipment checklist or equipment-check responsibilities, if applicable;
- Information on safety demonstration procedures;
- The assignment of special duties to individual cabin crew, such as PAs and the handling of special-category passengers;
- Review of selected communication procedures;
- Review of selected emergency procedures and equipment;
- Review of selected safety and security procedures;
- Destination-specific information;
- Meteorological information;
- Cabin defects.
The preflight briefing to cabin crew should also include a service briefing in compliance with the inflight service manual, including:

- The time schedule for meal service;
- Special meal requirements;
- The serving of meals to the flight deck;
- Crew rest schedules, etc.

It is important to update all required information to the cabin crew if new information becomes available (e.g., changing meteorological conditions).

2.38 Passenger Safety Briefings

Passenger safety briefings promote safety and are conducted pre-takeoff, pre-landing and in preparation for emergency landings.

2.38.1 Safety Announcements

It is important that passengers understand the safety announcements made on board. Airlines should, therefore, take into account passenger demographics when determining the languages used for announcements by cabin crew and, where necessary, employ the use of translators or video. Announcements should be clear, well-paced and able to engage passenger attention.

2.38.2 Prior to Departure

In accordance with state regulations and operator policies, on each flight prior to push back from the gate, the cabin crew must brief passengers to:

- Stow carry-on baggage;
- Ensure chair tables are stowed/locked and seatbacks are in the full upright position;
- Securely fasten seatbelts;
- Stow PEDs;
- Open window blinds.

On aircraft equipped with Electronically Dimmable Windows (EDW) it is recommended that cabin crew set and block the EDWs in “full clear” mode for taxi, take off and climb up to 10,000 feet. Above that altitude the cabin crew should unblock the EDWs and allow each passenger to operate them freely.

2.38.3 Passengers Seated Adjacent to Self-help Exits

Airlines should have clear policies regarding passengers seated in rows adjacent to emergency exits. Check-in agents need to be aware of these policies. As per local regulatory requirements, cabin crew must brief the passengers seated in the over-wing emergency exit rows. In addition to communicating the required safety information, the cabin crew should listen to, observe and assess
the passenger while giving instructions. From this they can gauge the passenger’s reactions and answer any questions they may have.

Time is critical during an emergency. Passengers seated adjacent to over-wing exits play a very important role in assisting the crew during an evacuation. While all passengers must act according to the crew’s verbal commands during the evacuation process, the reaction of passengers seated in an over-wing emergency exit row is even more crucial. The crew commands will vary depending on many factors (i.e., the nature and location of the emergency, potential fire and other dangers outside or inside the aircraft). Therefore, it is vital that passengers seated in the over-wing emergency exit rows understand how and when to open specific exits and, perhaps more importantly, when not to open them.

Air operators should develop procedures for cabin crew to conduct over-wing emergency exit briefings (briefing card, video or one-on-one, as applicable to the regulations of the Authority). The main benefit of a one-on-one interaction during the over-wing briefing is that cabin crew can assess if passengers have really understood what is expected of them should the need for an evacuation occur. They can also determine if the passenger should indeed occupy this restricted seating or be moved to another seat.

Prior to departure, the SCCM should ensure that the cabin crew have briefed passengers seated at an over-wing emergency window exit on:

- **When** to use the exit (only when advised to do so by a crew member or upon hearing the command to evacuate);
- **How** to open the exit.

The cabin crew should assist in reseating the passenger if:

- They are not comfortable with operating the emergency exit;
- They cannot perform the procedures they were briefed on;
- The cabin crew feel that the briefing information has not been clearly understood by the passenger (i.e., language barrier).

### 2.38.4 Prior to Takeoff

On each flight prior to takeoff, cabin crew must provide a safety briefing (via demonstration or video) to all passengers on the following safety and emergency procedures:

- Ordinance signs;
- Seatbelts;
- Escape path lighting;
- Emergency exits;
- Passenger safety features card (where to find it and recommendation to review it prior to takeoff);
- Life vests (when applicable);
- Oxygen system (and to secure their own mask prior to assisting another person).
When demonstrating the emergency exits via a video briefing, it is recommended that cabin crew be present at their assigned “demo position” in the cabin to point out the exits and be vigilant in the cabin to ensure that the safety video is being played.

Also, it is important to remind passengers to bring any safety concerns to the attention of the cabin crew. Passengers can be a great source of information and may sometimes be the first to bring important information (e.g., an unusual odor) to a crew member’s attention. Always take into account passengers’ remarks regarding:

- The cabin (e.g., noise, fumes, smoke, fire, loose objects, etc.);
- Other passengers’ behavior (e.g., loud voice, etc.);
- Aircraft exterior (e.g., wings, fuselage, etc.);
- Outside environment (e.g., runway, weather, etc.).

Cabin crew should follow up any reports from passengers regarding anything unusual and ensure that the SCCM and flight crew are informed. Operators should encourage passengers to communicate with the cabin crew. Some airlines include an announcement in this regard in the passenger briefing. For example, “If you have any safety concern during the flight, please do not hesitate to bring it to the attention of a crew member”. Something as simple as this could encourage passengers to voice an important concern.

Cabin crew should attempt to capture the passenger’s attention for the preflight safety briefing. Some airlines have designed very creative preflight safety briefing videos in order to engage the passenger’s attention on the important safety information. Nevertheless, it is the passenger’s choice whether or not to watch the safety demonstration. Cabin crew should never replace the safety briefing by simply asking passengers if they are familiar with the safety/emergency procedures, equipment and exits of the aircraft.

### 2.38.5 Prior to Landing

On each flight prior to landing, in accordance with applicable regulations, the cabin crew must brief passengers to:

- Stow carry-on baggage;
- Ensure chair tables are stowed/locked and seatbacks are in the full upright position;
- Securely fasten seatbelts;
- Stow PEDs;
- Open window blinds.

On aircraft equipped with electronically dimmable windows (EDW), it is recommended that cabin crew set and block the EDWs in “full clear” mode for landing.

Investigations into numerous accidents have identified that crew commands to passengers to leave carry-on baggage behind during an emergency evacuation are not always followed. This is perhaps because it is not the optimal time for passengers to understand critical safety information or instructions as stress levels are high and the noise level in the cabin could also be high. It is,
therefore, recommended on each flight prior to landing to include clear direction to leave all carry-on baggage behind during an evacuation. For more information, please see Transport Canada Advisory Circular (AC 700-012) Passenger Safety Briefings: www.tc.gc.ca/media/documents/ca-opssvs/700-012.pdf

2.39 Safety Briefing Cards

Oral briefings must be supplemented with Safety Briefing Cards, which must be pertinent only to that type and model of aircraft and consistent with the airline’s procedures. There should be sufficient Safety Briefing Cards for the number of passengers. The information on the cards should be consistent with the air carrier’s manuals and regulatory requirements. When aircraft equipment is substantially different, even with the same model of aircraft, the air carrier should provide Safety Briefing Cards specific to that aircraft. In addition, the briefing cards should be designed to be understood by passengers who are totally unfamiliar with aircraft and safety equipment, and who may have a limited understanding of any of the languages used. Briefing cards must show the most common method used to operate the emergency exits in an emergency. They must also show other instructions necessary for the use of emergency equipment.

2.39.1 Design and Location

The Safety Briefing Card must be designed and located so that the seated passenger will be able to see it and have access to the card when it is placed in its normal location. The Safety Briefing Card should be large enough so that, when placed in its normal location, the passenger seated for taxi, takeoff and landing will be able to visually locate and identify the card. It should not be possible for the card to slip out of sight of the passenger. The card should have an eye-catching title or symbol identifying it as safety and emergency instructions for passengers. The mode of presentation should be diagrammatic or pictorial, limiting written information to the extent possible.

When developing Safety Briefing Cards, it is recommended that airlines use international symbols. All depictions should be easy to understand. Cards should also be interesting and attractive so passengers will want to read them. For example, a multi-colored card with pictures and drawings will be picked up and read more often than a black-and-white card.

Safety Briefing Cards should use standard colors: green for actions passengers can do and red for actions passengers cannot do. It is recommended to use standard symbols when highlighting an exit or an action to be followed. For example, emergency exits should be highlighted in green in accordance with those used on the ground in terminal buildings. When highlighting an exit that should not be used in certain situations, such as an over-wing exit on water, the exit should be indicated in red with a cross going through it.
The following features are normally included, but this is not an exhaustive list of typical information contained in a card:

- Seatbelts;
- Emergency exits (location and operation);
- Egress assistive devices (i.e., slides or slide rafts);
- Bracing positions;
- Emergency escape path lighting;
- Life jackets (personal flotation devices);
- Passenger oxygen masks;
- Smoking restrictions;
- PED restrictions.

If a multi-step process is included in a card (such as donning a life vest or detaching a slide), all operational steps should be depicted.

Safety Briefing Cards should contain only information that is essential for safety. Advertising, schedules and promotional information is not safety-related and should not be on the cards.

2.40 Safety Equipment Check

Prior to boarding passengers, cabin crew should check all cabin safety, communications and other equipment to ensure that they are in full working order. It is recommended that a checklist be used for this purpose, and adapted to each aircraft type and duty station. In addition, it is important for cabin crew to check their assigned seat, seatbelt/harness and inertia reels for proper operation, cut or worn edges, damaged stitching, excessive wear or chafing.

SCCMs should consult the logbook before each flight and advise the PIC who may wish to transfer items that directly relate to the safety of the aircraft to the Aircraft Technical Log. Once the items have been repaired or if the repair has been deferred, a Licensed Engineer will complete an “Action Taken” log entry. Airlines should consult their national Authority for the required format of the logbook.

2.41 Galley Checks

The galley should be checked as part of the equipment check. Galley checks should also include verification of electrical equipment in the galley as well as the controls for cabin temperature and ventilation.

2.41.1 Reporting Defective Galley Equipment

Cabin crew should identify and report any defective galley equipment immediately. It should be off-loaded, repaired and returned to service as soon as possible. Airlines should establish means of recording and tracking damaged or broken equipment to enable repairs to be affected by
Engineering during routine turnarounds or maintenance.

Defective galley appliances or other permanent equipment should be recorded by the SCCM in a logbook to be kept on the aircraft. Airlines may also wish to establish a system for logging and identifying removable equipment such as damaged catering trolleys and containers so that these items can be removed from the system for repair.

2.42 Passenger Information List

In order to provide cabin crew with necessary information concerning passengers on board and, optionally, about seats blocked for other purposes, it is recommended that airlines use the Passenger Information List (PIL) as specified in IATA Recommended Practice RP 1716 from the Passenger Services Conference Resolutions Manual, which is available for purchase at www.iata.org/publications/Pages/pscrm.aspx.

The list should be produced after final passenger closeout and provided to the SCCM. Where so required, the list may be provided separately for each class and/or compartment of the passenger cabin.

2.43 Cabin Crew Positions for Boarding and Disembarkation

It is very useful for cabin crew to screen passengers during boarding to look for any abnormalities such as sickness, intoxication, or potentially unruly passengers. Also, care should be given to the size of hand luggage and how it will fit into the aircraft stowage. During passenger boarding, cabin crew must:

- Ensure that all curtains and dividers are open;
- Monitor passenger flow;
- Monitor the exits and aisle(s) to ensure they remain clear of obstructions;
- Monitor restricted rows (e.g., over-wing emergency exit seating);
- Assist passengers, especially passengers requiring special assistance;
- Remain on board until all passengers have disembarked.

2.44 Communication with Ground Staff

Effective and timely communication between ground staff and the designated cabin crew is essential during all passenger embarkation, disembarkation and transit stops. Some airlines require the SCCM to give clearance to ground staff prior to the commencement of boarding. Other airlines utilize a “green light boarding” or “precision boarding” policy. This means that boarding starts automatically at the scheduled time (as per each aircraft type) at every airport, unless the PIC or SCCM advises ground staff otherwise. A deferred boarding decision would usually be for reasons relating to safety or security.
2.45   Pre-Boarding

Certain passengers with reduced mobility or passengers requiring extra assistance should be boarded and seated prior to the embarkation of other passengers.

2.46   Aircraft Seating

Airlines should establish and communicate a clear policy regarding seat assignments as aircraft seating arrangements have an important safety function. Seat selection or assignment is carried out at check-in. However, it is essential that cabin crew be familiar with the categories of passengers that should not be seated in specific seat types or in emergency exit rows. Such passengers who have been seated in such areas, and whom cabin crew believe might impair an emergency evacuation, should be assisted in moving to another seat.

It is recommended that vacant crew and crew rest seats only be assigned to passengers who are airline employees and fully briefed on safety procedures. Airlines should not allow passengers to occupy seats reserved for crew.

2.47   Passenger Count

In the interests of safety and security, and if not established by other means, cabin crew should count the number of passengers on board prior to door closing and relay the count to the Pilot-in-Command in order to ensure accurate load sheet information.

2.47.1   Discrepancies and Relocating Passenger

There are instances when a headcount or relocation of passengers may be necessary.

Recount: In the event of a discrepancy between the passenger headcount and the PIL, and when ordered by the ground staff or by the PIC, a recount may have to be completed. Recounts should be conducted by the SCCM. Count all passengers only when boarding is complete and all passengers are in their assigned seat (an announcement may be required to request cooperation for the recount).

2.47.2   Weight and Balance

Should there be a discrepancy between the passenger count and load dispatch, cabin crew may be required to relocate passengers for takeoff and landing as per the PIC’s instructions. Usually, relocated passengers may return to their originally assigned seats during flight. However, they must return to the specified seat as per the PIC’s instructions for landing.

2.48   Fueling with Passengers On Board

Flight crew will normally be in the flight deck to coordinate the necessary precautions and procedures to be observed when fueling the aircraft. However, some regulatory authorities permit
fueling to take place without flight crew on board. When flight crew are not on board, the qualified maintenance engineer and/or the SCCM (who will be positioned in the vicinity of the main boarding door) may undertake these duties.

The cabin crew and flight crew must be trained in emergency evacuation and rapid deplaning procedures. The aircraft ‘NO SMOKING’ signs must be ON and the ‘FASTEN SEATBELT’ signs must be OFF. Sufficient interior lighting is required to enable emergency exits to be identified. Such lighting should remain ON until fueling operations are completed.

The emergency lighting master switch should be positioned to ‘ARM’ prior to the commencement of fueling operations and remain positioned to ‘ARM’ until fueling operations are completed.

The Public Address system must be serviceable. Appropriate announcements should be made instructing passengers to unfasten their seatbelts and refrain from smoking. The cabin crew should also advise passengers and other responsible staff that fueling will take place and that they should not operate potential sources of ignition (i.e., flashbulbs and PEDs – as required by state regulations).

All cleaning activities using electrical equipment within the aircraft must be stopped until conditions permit resumption.

The SCCM should be at the main cabin door during fueling. The SCCM is responsible for notifying the refueling staff immediately should the presence of any fuel vapor be detected in the passenger cabin or if any other hazard arises in the aircraft cabin.

A minimum of one cabin crew is to be on board the aircraft for every 50 passengers, or 50 passenger seats (or fraction thereof as required by state regulations), with at least one cabin crew for each separate passenger cabin to initiate the rapid, safe evacuation of passengers if an incident occurs.

Note: local airport regulations may be more restrictive regarding aircraft with more than 200 seats.

Cabin crew must always be on board when passengers are on board, with one cabin crew positioned at each pair of aircraft doors, including the upper deck doors on the B747 and A380 when the upper decks are occupied. Cabin crew are required to supervise passengers and to ensure that aisles and emergency doors are unobstructed. Some aircraft types might require the designation of over-wing exits for evacuation.

Provision for safe, rapid evacuation of passengers in the event of an emergency should be made via the designated fueling exits. This involves designating at least two of the main passenger doors or a main passenger door plus one emergency exit, preferably at opposite ends of the aircraft. These doors must be constantly manned by a cabin crew throughout the fueling operation. The area outside of the designated fueling emergency evacuation exits should be unobstructed.

2.49 No-Smoking Policy

Passengers should be informed of all restrictions pertaining to on-board smoking, including when, where and under what conditions smoking is prohibited. In addition, the cabin crew should inform passengers that their compliance with the “No Smoking” ordinance signs, placards and instructions is
required at all times. Passengers should also be advised that, for their safety, lavatories are fitted with smoke detectors and that tampering with a smoke detector is a serious offence that may lead to prosecution.

Airlines should undertake all essential safety precautions to bring to passengers’ attention the restrictions on smoking. Such precautions should include:

- Announcements over public address systems prior to each takeoff and at regular intervals during the flight;
- Installation of smoke detectors in all lavatories to provide an alert of fire;
- Installation of “No Smoking” placards on each side of lavatory doors;
- Installation of “No Cigarette Disposal” placards on or near each waste disposal receptacle in all lavatories;
- Installation of ashrays on or near the entry side of all lavatory doors;
- Passengers should also be made aware (via a PA, passenger awareness material or the IFE) that triggering, tampering or disabling a smoke detector is a serious matter that may lead to diversion of the aircraft and/or, depending on the jurisdiction, prosecution leading to a fine or imprisonment.

2.50 Electronic Cigarettes

Electronic or simulated smoking materials (e-cigarettes, pipes, cigars) should be prohibited from use by both passengers and crew at all times on board the aircraft. Operators should not permit the use of any item that could insinuate that smoking is permitted on board the aircraft. Permitting the use of these devices on board could result in passengers attempting to smoke real cigarettes (or other smoking products) and result in increased unruly passenger events. They can, however, be accepted on board in the passenger’s carry-on baggage for passenger use at destination, provided they remain stowed and unused at all times in the passenger’s carry-on baggage.

ICAO has issued an electronic bulletin (EB 2014/074) on incidents related to electronic cigarettes: 

Following this bulletin, the US DOT published a Safety Alert for Operators (SAFO) nr. 15003, which “alerts operators to recent incidents involving e-cigarettes in checked baggage and recommends carriage of such devices in the passenger cabin only”:

www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2015/SAFO15003.pdf

Where the electronic cigarettes are powered by lithium batteries, the requirements of the IATA Dangerous Goods Regulations (DGR), paragraph 2.3.5.9 must also be met. This requires that spare lithium batteries of any type be carried in passenger carry-on baggage.
2.51 Ordinance Signs

2.51.1 No Smoking Sign
On flights where smoking is prohibited, the NO SMOKING sign should remain on for the duration of the flight.

2.51.2 Fasten Seatbelt Sign
The Pilot-in-Command will turn on the FASTEN SEATBELT sign for taxi, takeoff and at any time considered necessary (e.g., turbulence). When the FASTEN SEATBELT sign has been turned off, passengers should be advised to keep their seatbelt fastened at all times when seated. Whenever the FASTEN SEATBELT sign is switched on, the cabin crew should:

- Make a PA to alert passengers of the requirement to fasten their seatbelt and to keep it fastened at all times when seated;
- Remind passengers to secure infants and children;
- Ensure infants are removed from bassinets and secured in an infant/child restraint device, if available, or held by the parent or guardian as approved by the requirements of their CAA. Some recent bassinet models allow the infant to be maintained in the bassinet during turbulence. Check with the manufacturer’s instructions to ensure proper usage;
- Complete compliance checks (if flight conditions/turbulence levels permit cabin crew to do so);
- Some airlines reinforce these instructions to passengers via use the IFE and automatic PAs.

2.51.3 Portable Electronic Device Sign
Some aircraft are now equipped with ordinance signs that alert passengers as to when a permitted PEDs may be used.

2.52 Operation of Aircraft Doors
The SCCM should confirm with the Pilot-in-Command that the cabin is secure for pushback and request permission for the cabin crew to close the boarding doors.

Airlines should ensure that they have clear policies and procedures for both cabin crew and ground staff with respect to the operation of aircraft doors on arrival and departure. Areas of responsibility, both on the ground and in the aircraft, clearly set out.

2.52.1 Responsibility
Effective communication between staff on the ground and in the aircraft is essential for the operation of cabin doors. Cabin doors (i.e., passenger entrance and service doors) should be operated by qualified staff, either from the outside or inside of the aircraft, depending on the aircraft
2.52.2 Signals

In order to prevent injury to personnel and damage to aircraft and equipment due to misinterpretation, only standard signals must be used to indicate to the cabin crew responsible for the door operation that:

- Ground equipment (i.e., passenger steps, passenger loading bridges, passenger transport vehicles/plane mates and galley loading vehicles) are correctly positioned;
- The area for deployment of integral stairways is free from obstruction;
- The standard signals to be employed for this purpose are:
  - Knocking at the door;
  - Thumbs-up signal.

2.53 Removal of Ground Equipment from Aircraft Cabin Access Doors

Before removing ground support equipment from cabin access doors, the operator should advise the cabin crew. Ground support equipment must not be removed until the aircraft door has been closed. No cabin door (the door that allows external access to the passenger cabin) should be opened, closed or left open without suitable ground equipment correctly installed. Exception: some airlines may permit doors to be opened, provided a full-size net or barrier safety strap is installed on the door.

Unless an emergency situation requires the slides to be deployed, cabin doors should only be opened when a suitable piece of ground equipment is attached to the doorway area (i.e., aircraft steps, high-lift truck, etc.) Before opening an aircraft door under normal operations, cabin crew should:

- Request authorization from the Pilot-in-Command, who is responsible for advising ramp staff that ground equipment is required;
- Assess outside conditions to verify that ground equipment is in place (i.e., stairs or bridge) prior to door opening;
- Once the installation of the ground equipment is confirmed by the ramp staff, cabin crew must ensure the door is disarmed;
- Move the door handle slowly to the full-and-open position;
- Push the door out fully until locked against the fuselage using assist handles and hand grips. Exception: on the A380, the door opens automatically after pushing a designated switch.

In the event that ground equipment is not available and the cabin requires cooling due to excessively hot temperatures, effort should be made to have the air conditioning turned on. In the event that power to the aircraft cannot be provided, it is recommended that authorization from the Pilot-in-Command be obtained to open a door using the following safety procedures:

- Open door as per normal procedures using extreme caution to secure oneself on the inside of the aircraft;
• Immediately and with caution, attach the door barrier safety strap across the door;
• Ensure no items are placed on the floor door vicinity;
• Guard the door at all times;
• When closing the door, extreme caution should be used.

Note: Door barrier safety straps on open doors are only a “visual” barrier; they do not provide fall protection and are intended only as a visual warning. Open aircraft doors must never be left unprotected once opened by cabin crew. Some airline policies and procedures require that a full-door safety net be fitted by Engineering if a door is to be opened with no platform in place.

2.54 Preparation of Cabin for Taxi, Takeoff and Landing

Preparation for departure involves a high workload for cabin crew as there are many preflight checks and tasks to complete. The cabin crew must be available during boarding to assist with the carry-on baggage, answer questions, brief and assist passengers who require special attention... the list goes on.

2.54.1 Cabin Checks

Prior to departure and landing, cabin crew should check the cabin as follows:

• Lavatories are unoccupied (and locked if required);
• All closets, compartments and overhead bins are closed;
• All cabin baggage is securely stowed under seats or in overhead bins;
• All passengers have seatbelts secured;
• Table trays and seatbacks are upright and locked;
• Electronic equipment is used as per applicable regulations and the operator policy.

Cabin crew should also ensure that all galley equipment is stowed and secured, including trolleys/carts. Stowage areas should be closed. Any spillage on galley floors should be cleaned immediately.

2.54.2 Securing the Cabin and Galley

During aircraft movement on the ground (pushback and taxiing) and during takeoff and landing, all exits and escape paths must be unobstructed. This means that:

• All carts and loose items in the galley and cabin must be secured;
• Coat hooks must be free from clothes or other hanging articles at over-wing exits, exit seat rows and partition walls;
• Lavatories must not be used for storage of excess baggage, galley equipment or cabin equipment;
• All cabin baggage must be placed in an approved stowage location: under a seat, in a closed overhead bin or in a closed stowage compartment.
2.54.3 Preparation for Aircraft Movement

Local regulations may supersede the items listed below, however, aircraft are generally ready for movement when:

- A preflight safety briefing has been performed;
- Emergency equipment has been checked (at originating stations and crew change);
- A preflight security check has been performed;
- Crew meals and/or passenger meals have been loaded (as applicable);
- Passengers have received an exit briefing (when applicable);
- A passenger safety briefing has been completed (at the gate or during taxi);
- A cabin check has been properly performed (see section 2.54.1 above);
- Window shades are open at all exits (or in the entire aircraft as per regulatory requirements);
- Blankets are stowed (if applicable and as per regulatory requirements);
- Infant life vests and infant/extension belts have been distributed (if applicable);
- All objects are secured;
- Dividers are secured;
- Lavatories, crew rest compartment(s) and other compartment doors are closed and locked (as applicable);
- Curtains are open and secured;
- Galleys, containers, carts and trolleys are secured (see section 2.54.2 above);
- All electronic equipment is switched off and stowed (as applicable);
- “Cabin checked” reported to SCCM by the assigned cabin crew;
- SCCM has verified the number of passengers against the PIL (when applicable);
- Aircraft doors have been closed;
- Arming of doors has been completed (as per operator procedures).

Note: It is the responsibility of the SCCM to ensure that the cabin, galleys, passengers and cabin crew are ready for aircraft movement. The closing of the entry door(s) by the SCCM (after communication and coordination with the flight crew) indicates that the cabin is ready for aircraft movement.

2.55 Surface Contamination

2.55.1 Deicing and Anti-Icing

In order for aircraft to maintain lift (prevent stall) during takeoff, all critical aircraft surfaces (e.g., wings, tail, lifting control surfaces and, in some cases, the fuselage) must be free of contaminants such as ice, frost or snow. Based on atmospheric conditions, including temperature, precipitation, accumulation, etc., the PIC or other responsible person (e.g., Ground Lead) will decide to deice or apply anti-icing fluid on all critical surfaces of the aircraft.
• Deicing is the removal of contaminants such as ice, frost or snow from critical aircraft surfaces;
• Anti-icing is the application of fluids to prevent the accumulation of contaminants on critical aircraft surfaces.

2.55.2 Role of Cabin Crew
The SCCM should advise the PIC prior to takeoff roll of any:
• Ice, frost or snow adhering to the aircraft structure;
• Concerns conveyed by a passenger or other crew member.

2.56 Portable Electronic Devices
Globally, permission to operate Portable Electronic Devices (PEDs) on board aircraft varies as it is regulated by each applicable national aviation Authority. However, all authorities share a common concern regarding the possibility of interference with aircraft frequencies by the transmitting function of PEDs, particularly in critical phases of flight.

If interference is suspected at any time, the Pilot-in-Command will instruct passengers to turn off all electronic devices. Hearing aids, heart pacemakers and other medical devices are acceptable at any time during flight. Larger devices (i.e., laptop computers, video cameras, etc.) are considered cabin/carry-on baggage and should be stowed during taxi, takeoff, turbulence and landing. Cabin crew should inform passengers to turn off and stow PEDs, as per regulations and the operator’s policy, prior to engine start and the commencement of the safety demonstration (live or video) as well as during refueling, as applicable.

2.56.1 Expanded Use of Portable Electronic Devices on Board
For decades, the regulations on the use of PEDs on board aircraft have remained unchanged. The proliferation and daily use of PEDs such as mobile phones, smartphones, e-readers, tablets, laptops and media players has been the catalyst for members of the travelling public and the airline industry to call for the reassessment of regulations on the use of PEDs on board aircraft.

As a result, the Federal Aviation Administration (FAA) and the European Aviation Safety Agency (EASA) have issued guidance on the expanded use of PEDs on board aircraft:
• FAA:
  o A detailed report submitted by the FAA Aviation Rulemaking Committee (ARC) (September 30, 2013);
  o Information for Operators, InFO13010 (October 2013);
  o Expanding Use of Passenger PEDs, InFO13010 SUP (June 2014).
2.56.1.1 Distinction between Transmitting and Non-transmitting Electronic Devices

Intentional transmitting PEDs (T-PEDs) are designed to transmit or receive data through various technologies, including cellular, wireless (Wi-Fi) and other radio frequencies, Bluetooth® and infra-red.

Non-intentional transmitting devices are not designed to transmit or receive data, but can emit electromagnetic interference at low levels. Examples include cameras, music players, electronic games, etc.

Many T-PEDS allow the user to disable the transmitting functions (e.g., flight mode, flight safe mode, airplane mode). When disabled, the T-PED becomes a non-intentional transmitting device.

2.56.1.2 Technical Analysis

Prior to an airline being permitted to allow the expanded usage of PEDs on board, thorough technical analyses and tests are required to be conducted in order to obtain the regulator’s approval. The responsibility for determining if passenger-operated PEDs will cause interference is placed on the airline. The airline engineering and technical teams are required to fulfill all of the requirements as per the guidance offered by their regulator, including immunity, analysis and mitigations for eligible phases of flight. The implementation plan needs to include all relevant SOPs described in the guidance and/or safety alerts produced by the regulator.

In the absence of any local regulator guidance, airlines should refer to the guidance material of the FAA or EASA prior to seeking approval from the local regulator.
2.56.1.3 Operational Policy and Procedures

In addition to the technical aspects, there are matters related to cabin safety that will need to be considered. These should be risk-assessed as applicable to each airline’s operation and for each phase of flight. These include, but are not limited to:

- Requirement to switch off the PED, or place it in Airplane Mode, once all passengers have boarded and the doors are closed;
- Permission to operate small handheld non-transmitting PEDs or T-PEDs in Airplane Mode (i.e., e-readers, tablets, etc.) during the critical phases of flight;
- The securing of these devices;
- Requirement for larger PEDs (e.g., laptops or notebooks) to be stowed in approved stowage locations during all critical phases of flight, this in accordance with the airline’s approved cabin baggage program;
- Mitigating passenger distraction during the safety briefing so that passengers’ attention is focused on the safety briefing and cabin crew instructions;
- Consideration of how airlines should manage passengers not hearing emergency cabin announcements due to the use of headsets;
- Cabin crew monitoring the expanded use of PEDs in the cabin;
- Reporting suspected interference with the aircraft system to the Pilot-in-Command and subsequent procedures on board;
- Submission of a subsequent report to the competent authority (see section 2.56.6);
- Permission to use mobile/smartphones after landing when the aircraft has left the active runway during taxi to gate;
- Equipping aircraft with onboard connectivity (Wi-Fi and/or cellular), including when the system is activated or deactivated during critical phases of flight, if applicable, and state regulations that may affect their use;
- Inclusion of company policies and procedures on the airline website, inflight magazine and safety features card as well as in cabin crew PAs and safety briefings.

Airlines should consult FAA InFO 13010, Expanding Use of Passenger Portable Electronic Devices, (October 31, 2013) and FAA InFO 13010 SUP, Aid to Operators for the Expanded Use of Passenger PEDs (June 9, 2014) when developing or amending procedures related to the use of PEDs during critical phases of flight.

2.56.1.4 Permitted, Restricted and Prohibited Portable Electronic Devices

PEDs fall under several categories, including permitted, restricted and prohibited devices. Most current regulations permit the unrestricted use of electronic watches, portable voice recorders, hearing aids, heart pacemakers and electric shavers. Most regulations permit the use of any other portable electronic device that the operator of the aircraft has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used. With the exception of the unrestricted devices listed above, the aircraft operator is solely responsible for determining which PEDs may be used on its aircraft. PED tolerance may not address all
transmitters so some devices should be prohibited unless additional analysis or testing is completed to permit their use.

2.56.1.5 Sample List of Permitted, Restricted and Prohibited Devices

Permitted at all times:

- Electronic watches;
- Portable voice recorders;
- Hearing aids;
- Heart pacemakers;
- Approved medical portable electronic devices (MPEDS), as determined by the operator.

Permitted when the aircraft door is open or at the Pilot-in-Command’s discretion during lengthy ground delays; use when fueling may or may NOT be permitted depending on the local regulatory Authority:

- Mobile phones and smartphones (unless restricted by local regulations);
- Wireless computer/mobile phone accessories;
- One-way pagers (capable of receiving signals only);
- All other portable electronic devices.

Restricted Transmitting Portable Electronic Devices (T-PEDS)

- Mobile phones and smartphones
- Tablets
- Bluetooth devices
- e-Readers
- Electronic games
- Digital media players*
- *When equipped with a transmitting function

Under an approved expansion of the use of PEDs program, the above T-PEDs are permitted for use during taxi, takeoff, cruise, approach and landing, with the following restrictions:

- Unless the aircraft has been tested and proven to be resistant to T-PED interference, the ‘Airplane Mode’ must be enabled once the aircraft door is closed and until the aircraft has left the active runway after landing;
- PEDs should not be charged during critical phases of flight;
- Laptops, notebooks and portable DVD players must be unplugged, switched off and stowed in approved stowage during taxi, takeoff, approach and landing;
- Navigation devices (GPS) must be switched off for taxi, takeoff, approach and landing.
Permitted during cruise:

- On aircraft with onboard connectivity:
  - All non-transmitting electronic devices may be used;
  - Transmitting devices with cellular and Wi-Fi capability may be used, provided the associated connectivity system is activated.

- On aircraft without onboard connectivity:
  - All non-transmitting electronic devices may be used;
  - Transmitting devices may be used, provided the transmitting functions are disabled (Flight Mode).

Permitted after landing when the aircraft has cleared the active runway:

- Mobile phones and smartphones
- Tablets
- 2-way pagers

Prohibited at all times:

- AM/FM transmitters and receivers (including televisions, radios)
- Remote-control devices (customer-owned)
- VHF scanners/receivers
- Two-way transmitters such as walkie-talkies, amateur radios
- Citizen Band (CB) radios

### 2.56.2 Medical Portable Electronic Devices

Each operator must determine that its aircraft are PED-tolerant. This is to avoid the evaluation of each specific PED make and model. A determination of aircraft PED tolerance with respect to passenger PEDs includes medical portable electronic devices (MPEDs).

Airlines are encouraged to include MPEDs in their carry-on baggage program and/or personal items policy in order to increase accessibility to air travel for people with reduced mobility. Some MPEDs are life sustaining (i.e., a ventilator) and must not be turned off at any time during flight. MPEDs have been safely used during all phases of flight in commercial operations for decades. An airline’s risk assessment and crew member procedures should address the proper stowage of larger MPEDs and the inability to turn off certain types of these devices during aircraft operations.

Small MPEDs should be secured during taxi, takeoff, descent, approach and landing. Operator procedures should encourage passengers to secure small MPEDs on their person by placing them in an armband or garment pocket.
Airlines must be aware of their Authority’s regulations related to Passengers with Reduced Mobility (PRM) to ensure conformity with these regulations, including the use of MPEDs. In addition, airlines that operate inbound and outbound of the United States should be aware of Department of Transportation requirements in 14 CFR part 382 - Nondiscrimination on the Basis of Disability in Air Travel that address the use of certain MPEDs. Information on part 382 is available at: airconsumer.dot.gov/SA_Disability.htm

2.56.3 Monitoring PED Use in the Cabin

Cabin crew are expected to inform passengers of the airline’s policy on the expanded use of PEDs rather than enforce it. The rational for this is that it is simply not possible for cabin crew to be able to verify and confirm that each and every device on board is in proper mode at all times. Nevertheless, during the cabin secure checks for takeoff and landing, if a passenger is identified with a T-TPED, cabin crew may request the passenger to check that the device is in Airplane Mode. Particularly, if the passenger is unable to confirm whether the device is in Airplane Mode or if ‘Airplane Mode’ on the device cannot be enabled, the passenger should be instructed to switch the device OFF.

After landing and once the aircraft has vacated the active runway, the SCCM will make a PA to permit the use of T-PEDS.

2.56.4 Passenger Awareness of PED Policy

Airlines should use easily recognized symbols and signs to advise passengers of their policy on the acceptable use of PEDs onboard. Visual information may be presented through a variety of onboard media types including safety cards, inflight magazines, video presentations and placarding.

Figure 3 - PED policy symbols and signs
### Flight Phase

<table>
<thead>
<tr>
<th>Flight Phase</th>
<th>Set your device to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxi-out</td>
<td>Airplane Mode ON</td>
</tr>
<tr>
<td>Take-off</td>
<td>Airplane Mode ON</td>
</tr>
<tr>
<td>Cruise</td>
<td>Airplane Mode ON</td>
</tr>
<tr>
<td></td>
<td>Airplane Mode OFF</td>
</tr>
<tr>
<td></td>
<td>Airplane Mode ON</td>
</tr>
<tr>
<td></td>
<td>Airplane Mode OFF</td>
</tr>
</tbody>
</table>

**Figure 4 - Examples use of Handheld Portable Electronic Devices by Flight Phase**

#### 2.56.5 Low-Visibility Operations

All PEDs should be switched off during Low Visibility Operations (LVOs on aircraft types that are not determined to be tolerant of PED interference). The Pilot-in-Command shall advise the SCCM to make a PA.

Sample PA:

"The Pilot-in-Command requires all personal electronic devices, including mobile phones and smartphones, tablets and e-readers, to be switched off and stowed. You may switch your device back on only when instructed to do so by the cabin crew."
2.56.6 Suspected Interference Report

Should a PED be suspected of causing interference with aircraft operation, the Pilot-in-Command will prohibit use of the device. An entry should be recorded in the Technical Log and an Air Safety Report should be completed. The airline should have established procedures to terminate the operation of a device suspected of causing interference with aircraft systems.

Where PED interference with the aircraft systems or equipment is suspected, crew members should:

- Instruct the passenger(s) to terminate the use of the suspected device;
- Prohibit the use of the device;
- Recheck the aircraft systems and equipment;
- Photograph the suspected PED, if possible, and submit with the report.

The Pilot-in-Command will report incidents of PED interference and include the following information in the report:

- Flight information;
- Aircraft type;
- Registration date;
- UTC time of incident;
- Aircraft location (VOR bearing/DIST/LAT/LONG);
- Altitude;
- Weather conditions;
- Name and telephone number of the Pilot-in-Command;
- The aircraft systems affected and description of the interference;
- Effects on aircraft systems, including radio frequency, identification, duration, severity and other pertinent information;
- Location where the device was found;
- Phase of flight and the time the problem occurred;
- Full description of the device, including brand, serial number, operating system (type and version) and any peripherals.

2.56.7 Other Considerations

Additional procedures and policies should be considered for crew members on handling:

- Passenger care and response: Techniques that may be used to handle passengers that are using their devices in a disruptive or unsafe way (e.g., use of speakers versus headphones, loud voice communications, etc.);
- Non-routine, abnormal and emergency procedures, including, but not limited to, a PED/lithium battery fire or smoke incident.
2.56.8  Cabin Safety “To-Do” List

When preparing for an expansion of the use of PEDs by passengers on board, consideration should be given to the following:

- Update relevant safety manuals with the applicable procedures;
- Issue a safety bulletin to cabin crew;
- Update the manual safety demonstration;
- Assess and address Crew Resource Management and workload issues for all crew members, including passenger information and passenger handling;
- Reflect changes in the on-board PAs and prerecorded announcements;
- Update the commercial website;
- Communicate information to passengers on board via text message, as a reminder during electronic check-in, etc.;
- Update applicable ground personnel manuals;
- Produce new safety briefing cards;
- Produce new safety video graphics and text;
- Communicate to passengers via PA or the safety video on how to stow their devices on board to prevent crushing incidents;
- Communicate to passengers via PA or the safety video on when to safely charge a device;
- Update the IFE and/or Airshow, as applicable;
- Initiate a campaign aimed at both crew and passengers highlighting the main changes to the PED policy (i.e., the definition of Airplane Mode, how to recognize a transmitting PED, etc.) using various formats (i.e., paper and/or electronic: training, posters, podcasts, publications, etc.);
- Implement awareness sessions for cabin crew on handling PED compliance;
- Consider procedures to address the use of hard and loose items (such as PEDs) in seat rows immediately facing cabin crew stations or in seat rows adjacent to passenger or crew-operated emergency exits.

2.56.9  Cabin Crew Training

Cabin crew training should include training on the airline’s policy and procedures for the use of both PEDs and T-PEDS.

Initial training should include:

- The airline’s policy (how to interpret it and apply it);
- Awareness of the potential impact on aircraft systems from improper use of PEDs and T-PEDS;
- The various types of devices and classes of technologies that may be encountered and how to apply their use on board as per the operator’s PED and T-PED policy and procedures;
- Typical indicators identifying operating modes (i.e., Airplane Mode).
Recurrent training should include:

- Any revisions to the airline’s policy (how to interpret them and apply them);
- Recent examples of known occurrences of interference with aircraft systems, if any;
- New devices cabin crew may encounter on board, particularly new technologies that may be forbidden for use on board.

2.57 Use of Picocell System for Mobile Phones Inflight

Mobile phone use is currently prohibited during all phases of flight due to potential interference with aircraft navigation systems and/or ground-based mobile phone networks. Some countries/airlines allow use prior to takeoff until the aircraft door is closed or after landing once the aircraft has left the active runway.

A number of technology companies are proposing the use of a picocell system (a small mobile base station that improves in-aircraft cellular coverage) to connect calls/data by Wi-Fi or an airborne Internet access system via satellite to a designated global ground infrastructure while preventing all other cellular communication to the ground.

![Picocell System Diagram](image)

**Figure 5 – Picocell System**

The picocell system is able to send and receive phone calls, SMS messages and e-mail messages as well as provide Internet access while flying at altitudes above 3,000 meters, or 9,840 feet. Cabin crew are able to turn off the system or restrict usage to text services like SMS, in accordance with the operator’s policies and procedures.
2.57.1 Cabin Operations

Airlines wishing to introduce a picocell service should take into account the following considerations prior to implementation. While the items mentioned below do not represent an exhaustive list, they are intended to provide IATA member airlines with the most accurate and up-to-date information possible.

To properly manage cabin operations, guidelines should be established on:

1. Training of cabin crew;
2. Passenger safety briefing;
3. Passenger information;
4. Company policy;
5. Courtesy guide;
6. Incident reporting.

Details on each of these items are provided below:

1. Training of Cabin Crew

To properly manage passenger expectations, cabin crew should receive sufficient training. This includes:

- Understanding the differences in technology (i.e., transmitting and non-transmitting devices);
- Which device type can be used in each phase of the flight;
- Restrictions on use;
- Reasons why they can be used only above 3,000 meters;
- Courtesy guide and specific company policy;
- Procedural variation between aircraft types (if any);
- Human factors;
- Conflict management to de-escalate any event;
- Incident reporting.

2. Passenger Safety Briefing

The passenger safety briefing should include information regarding the restrictions on the use of PEDs and the phases of flight when the different devices can be used. Methods that should be used to provide the information include:

- Preflight and inflight announcements;
- Safety cards;
- Safety demonstration video (if any).

In order not to distract passengers from the safety briefing, information on the picocell system and the mobile phone user guide should be given at a different time.
3. Passenger Information

To properly manage passenger expectations, basic guidelines on policy, procedures and courtesy should be established. This will allow the cabin crew to enforce the procedures in the most prudent manner.

It is recommended that the following information be contained in the guidelines:

- Company policy;
- Procedures;
- Courtesy guide;
- User guide (e.g., when and how to use the picocell service);
- Pricing.

Methods that could be used to provide the information prior to travel:

- e-Ticket passenger information;
- Customer mailings (i.e., to frequent flyers);
- Airline websites;
- Passenger lounges/gates.

Methods that could be used to provide the information on board:

- Inflight magazines are convenient and easily recognized resources for passengers to obtain detailed information;
- Flight information video (if applicable);
- Dedicated user and courtesy guide(s).

4. Company Policy

The following are examples of company policies that could be adopted by the airline:

- During certain times of the day (e.g., sleep, dining, etc.), use only text message;
- Complaints from other passengers may lead to restriction of the service to text message only;
- For passengers’ own safety, it is important to interrupt communications to listen to critical safety announcements;
- In an emergency, the service will be terminated with very little notice;
- Prior to landing, before reaching 3,000 feet, an announcement will be made giving passengers time to finish their communications before terminating the service.
5. **Courtesy Guide**

In order to minimize human factor occurrences, it is recommended to establish a courtesy guide to remind customers to respect other passengers. The items mentioned below do not represent an exhaustive list:

- Phones should be on silent or vibrate mode;
- Passengers should not speak more loudly than normal;
- Passengers should be especially sensitive when having a long conversation;
- Make phone calls only when seated, not while walking in the aisle;
- Aircraft lavatories are not to be used as phone booths.

6. **Incident Reporting**

Cabin crew should be trained to objectively observe and report any events related to the use of mobile phones. Regular reviews will be necessary to evaluate relevant incidents. The reports should be used to:

- Identify safety hazards;
- Ensure remedial action to maintain an acceptable level of safety;
- Continuously monitor and assess the safety level achieved.

2.58 **Carry-On Baggage**

The IATA Baggage Services Manual contains information on the rules and industry-accepted procedures relating to the carriage of baggage: [www.iata.org/publications/Pages/bsm.aspx](http://www.iata.org/publications/Pages/bsm.aspx).

For the purposes of this publication, the term “carry-on baggage” is synonymous with unchecked baggage, hand baggage and cabin baggage, and the terms are used interchangeably.

All cabin baggage must be securely stowed. Accident reports indicate that the presence of excess cabin baggage can be a significant factor affecting passenger survival in accident situations. Unsecured baggage can be dislodged and become a projectile during accidents and severe turbulence. It can also obstruct evacuation routes and exits, where it can delay the evacuation of passengers and crew.

All airlines and manufacturers should ensure that sufficient adequately designed cabin storage facilities are provided on all passenger aircraft. Consideration should be given to weight, volume and aircraft type. All carry-on passenger baggage that cannot be stowed or does not conform to regulations should not be carried in the cabin and should be checked.

2.58.1 **Baggage Allowance**

Carry-on baggage should be stowed in the aircraft cabin which limits baggage to a size, weight and shape that fits under a passenger seat or in a storage compartment. Cabin baggage should have a maximum length of 22 inches (56 cm), width of 18 inches (45 cm) and depth of 10 inches (25 cm).
These dimensions include wheels, handles, side pockets, etc. Carry-on items must remain with the passenger at all times and are the responsibility of the passenger. More information on this topic can be found at: www.iata.org/whatwedo/passenger/baggage/Pages/check-bag.aspx

Cabin crew should be encouraged to be vigilant during the boarding phase to ensure that all carry-on baggage conforms to the airline’s regulations and that carry-on baggage is properly tagged and stowed. Ground staff should also monitor cabin baggage during the check in and boarding process and not allow deviations from the airline’s standards.

For more information, IATA RP1749 Carriage of Carry-On Baggage can be referenced in the IATA Passenger Services Conference Resolutions Manual which is available for purchase at www.iata.org/publications/Pages/pscrm.aspx.

2.58.2 Identification of Carry-on Baggage

In order to provide a means of verifying whether a piece of carry-on baggage has been submitted to the carrier at the check-in or boarding point, a carry-on baggage tag/label may be affixed to each piece of baggage accepted for carriage in the cabin.

2.58.3 Excessive Carry-on Baggage

After check-in, excessive carry-on baggage (including items purchased on departure) should be handled and labeled as checked baggage stowed in the cargo hold or by using valet/sky check procedures on smaller aircraft. Please see Section 3.13.1 on Carriage by Passengers and Crew for additional guidance to consider prior to checking excessive carry-on baggage in the cargo hold.

2.58.4 Informing Passengers about Carry-on Baggage

Because carry-on baggage allowances vary from carrier to carrier, it is very important that passengers be made aware of the allowances applicable to their journey. Such action will improve customer service and on-time reliability. It is recommended that airlines belonging to the same alliance or working with codeshare partners agree on consistent guidelines. Similarly, consideration needs to be given when passengers are connecting on to a smaller aircraft type.

When explaining limitations regarding carry-on baggage, cabin crew can explain that limited carry-on baggage provides the following benefits:

- Avoided injuries from carry-on baggage falling out of the overhead compartments;
- Increased leg space and improved stowage space;
- Fairness (space for all passengers regardless of boarding sequence);
- Ease of movement into and out of the seats;
- Ease of boarding and deplaning;
- Comfort during transfers;
- Health (reduced risk of fatigue and injuries such as back strains);
- Improved on-time performance (speedier boarding, disembarking and transfers).
Some airlines have adopted an announcement during the boarding of passengers to solicit timely compliance and cooperation regarding cabin baggage. Such an announcement could include:

“May we draw your attention to the following information: There are two designated stowage areas for your hand baggage: the overhead bin and the floor space in front of you. Please use both areas, placing softer, lightweight items carefully in the overhead bins and heavier, more solid items underneath the seat in front of you. To facilitate an on-time departure, please do not block the aisle while stowing your hand baggage. For those passengers seated in the exit rows or in the first rows of the cabin, all items of hand baggage must be placed carefully in the overhead bins. Exit areas, aisles and the floor space around your feet must be kept clear of baggage for takeoff and landing.”

2.59 Oversized, Fragile and Special Articles

It is recommended that oversized, fragile and special articles (e.g., musical instruments, glass pictures, etc.) be carried in an overhead bin or closed compartment. If this is not possible, special objects may be carried by passengers subject to the following stipulations:

- Being properly secured by a safety belt or other approved means of eliminating the possibility of shifting under normal conditions;
- Being packaged or covered with approved materials to avoid possible injury to passengers;
- Not imposing a load on seats or the floor structure that exceeds the load limitation for those components;
- Not being located in a position that restricts access to or use of any emergency equipment, exit, or the aisle;
- Not obstructing any sign, placard or screen where safety information is demonstrated to passengers.

2.60 Pets in the Passenger Cabin

Some airlines will not accept animals for carriage in the passenger cabin. Other carriers may carry animals in passenger cabins under special conditions as accompanied baggage in accordance with their own company policy and government regulations.

When passengers travel with their pets, such as domestic dogs, cats, ferrets, rabbits or birds, as accompanied baggage in the cabin, the animal must travel in a suitable container according to IATA’s Live Animal Regulations (i.e., the animal can stand in a natural position, turn around and lie down).

Containers should not exceed the dimensions for carry-on baggage and should be able to be stowed under the seat for taxi, takeoff and landing. The container must be well ventilated, securely fastened and made of material that is leak-proof and cannot be easily destroyed by the animal inside it. Animals should not be taken out of the container at any time during the flight.

Cabin crew should avoid any physical contact with the animal and observe strict personal hygiene rules at all times. All animals, including domestic pets, are capable of transmitting a variety of
diseases to humans. Therefore, they must not be stowed in close proximity to foodstuffs during any stage of the flight because of the risks of contamination. In the event that the cabin crew is required to handle animals during the flight they should:

- Wear protective gloves;
- Wash their hands after handling the animal;
- Report to a doctor as soon as possible after being bitten or scratched by an animal and provide information on the species and origin of the animal;
- Ensure that the wound is thoroughly washed with soap and water and covered with a dry dressing until medical attention can be obtained;
- Avoid contaminating skin, clothing or surfaces with the blood or excretion of animals;
- Contaminated clothing must be changed and sent for cleaning as soon as possible; skin and surface contamination must be cleansed using a germicidal soap.

2.61 Takeoff, Approach and Landing Signals

Cabin crew should be aware of the procedures, including signals and verbal commands that notify them when to prepare for takeoff, decent and landing.

Some airlines instruct their flight crews to use the ordinance sign chimes to advise the cabin crew while others use verbal commands such as: “Would the cabin crew please be seated for takeoff/prepare for descent/be seated for landing”. Cabin readiness prior to landing is to be communicated and coordinated between the flight crew and cabin crew in accordance with the operator’s procedures. These procedures might be verbal or non-verbal.

2.62 Silent Review

The objective of the Silent Review is to mentally prepare cabin crew for any eventualities that may occur during takeoff and landing, so that they are prepared for unexpected emergency situations, taking into account both inside and outside conditions.

The Silent Review helps the cabin crew to focus their attention on safety and be ready to act in the event of an emergency. It enables cabin crew to respond and adapt more quickly and correctly in the event of an emergency. While Silent Review can take any form (there are no hard and fast rules), it should contain all the elements needed to review evacuation duties and responsibilities.

Suggested reflections for the Silent Review should include, but are not limited to, the following:

- What aircraft type am I on?
- Are we taking off or landing over land or water?
- Which type of exit am I operating?
- Am I properly secured in my seat?
- Which commands do I expect?
- What are the outside conditions?
- How do I initiate an evacuation?
- Where are the door assist handles?
- How do I open the exit?
- Where is the manual inflation handle?
- What are my evacuation commands?
- When, where and how do I redirect passengers?
- What equipment do I take with me?
- What are my duties on the ground?
- What are the brace position and commands?
- Where are the Able-Bodied Passengers (ABPs)?
- Where are the passengers that need special assistance?

It is recommended that Silent Review be included in all safety training courses, both Initial and Recurrent.

Below is a mnemonic for Silent Review used by some operators to help review some critical components. This example is known as “OLD ABC”:

- O – Operation of exits
- L – Location of emergency equipment
- D – Drills (e.g., brace for impact)
- A – Able-bodied passengers and passengers with reduced mobility
- B – Brace position
- C – Commands

Another example of a mnemonic for the Silent Review is ALERT.

- A – Aircraft type
- L – Location
- E – Equipment
- R – Responsibility
- T – Threat

Regardless of the format used for Silent Reviews, these help cabin crew to reflect on how to complete their emergency duties in the correct sequence, as applicable to the situation. It is easy to get caught up in all the various duties required of cabin crew (i.e., boarding, catering, passenger queries, managing delays, etc.) and it is easy to get distracted. When cabin crew take their positions for takeoff or landing, the use of the Silent Review will help to focus on emergency responsibilities, which will assist in the event of an emergency. The ability to anticipate a situation before it happens will enable cabin crew to respond more rapidly. The cabin crew should be alert to any indication that a possible emergency situation exists, especially when preparing for takeoff and landing. Such indications may be fire, smoke, metal-on-metal scraping sounds or other unusual noises, the force of impact, or an unusual aircraft attitude.
2.63 Sterile Flight Deck

A sterile flight deck procedure ensures the safe operation of the aircraft and allows the flight crew to concentrate on their tasks/duties. Cabin crew should not enter the flight deck or call/talk to the flight crew during critical phases of flight, except for safety issues or in the event of an emergency.

The phases of flight when the operational state of the flight deck should be sterile are defined by the state regulator of the operator.

Critical phases of flight are usually:

- Taxi;
- Takeoff;
- Initial climb (approx. 10 minutes after takeoff);
- Approach (approx. 10 minutes prior to landing);
- Any other phases of flight below 10,000 feet;
- Landing.

Procedures for a sterile flight deck during critical phases of flight usually include a procedure for communication between the cabin crew and flight crew in the event of an emergency.

<table>
<thead>
<tr>
<th>Flight Phase</th>
<th>From</th>
<th>To</th>
<th>Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pushback</td>
<td>Doors armed by Cabin Crew</td>
<td>Aircraft starts to taxi</td>
<td>Cabin Crew must not contact Flight Crew*</td>
</tr>
<tr>
<td>Taxi</td>
<td>Aircraft starts to taxi</td>
<td>Engine power applied for takeoff</td>
<td>Communication through the SCCM only</td>
</tr>
<tr>
<td>Takeoff</td>
<td>Engine power applied for takeoff</td>
<td>Aircraft is airborne normally retraction of undercarriage.</td>
<td>Cabin Crew must not contact Flight Crew*</td>
</tr>
<tr>
<td>Climb</td>
<td>Retraction of undercarriage</td>
<td>Seatbelt sign OFF**</td>
<td>Communication through the SCCM only</td>
</tr>
<tr>
<td>Cruise</td>
<td></td>
<td></td>
<td>NO RESTRICTIONS</td>
</tr>
<tr>
<td>Descent</td>
<td>Seatbelt sign ON</td>
<td>3,000 meters</td>
<td>Communication through the SCCM only</td>
</tr>
<tr>
<td>Landing</td>
<td>3,000 meters (SCCM instruction be seated or flight deck advisory - announcement, call or chime)</td>
<td>Touchdown and roll down runway</td>
<td>Cabin Crew must not contact Flight Crew*</td>
</tr>
<tr>
<td>Taxi</td>
<td>Aircraft has vacated runway</td>
<td>Aircraft is parked on stand</td>
<td>Communication through the SCCM only</td>
</tr>
</tbody>
</table>

* Unless the safety of the aircraft is immediately affected.

** In case of turbulence, when the seatbelt sign must stay on longer after initial climb, a flight deck signal is suggested (announcement, call or chime).

Table 3 – Sample Procedures for Sterile Flight Deck
2.64 Entering and Exiting the Flight Deck

No person should be admitted onto the flight deck of an aircraft unless the person is an operating crew member or otherwise authorized by the Pilot-in-Command. The Pilot-in-Command may decide to exclude any person from the flight deck in the interests of safety. Airlines should establish a clear policy regarding when the flight deck door is to be open and when access to the flight deck is allowed.

It is recommended that airline safety procedures and training encourage cabin crew to monitor the areas around the lavatory, galley and flight deck door to prevent passengers from congregating in these areas.

Airlines should establish a clear policy that ensures the area around the flight deck door is kept clear when a pilot leaves the flight deck and monitor the area until the pilot returns to the flight deck. Policies and/or procedures related to flight deck security are considered sensitive information and are normally provided to relevant personnel in a manner that protects the content from unnecessary disclosure.

2.65 Service to the Flight Deck

Airlines should establish a clear policy for serving meals and beverages to the flight crew in accordance with aviation regulations, where applicable. To prevent the remote possibility of both pilots being incapacitated at the same time, it is recommended that the Pilot-in-Command and other flight crew not eat the same meal and avoid certain types of foods that are particularly liable to cause gastrointestinal symptoms (e.g., shellfish, crustaceans, etc.).

Beverages should be served separately from the meal tray in order to avoid spillage. No alcoholic beverages should be served to anyone in the flight deck at any time. The following are guidelines to be considered for offering meal/beverage service to the flight deck:

- Meal trays/casseroles should be kept in their assigned location in the relevant galley until the food is required for consumption;
- The Pilot-in-Command and the First Officer should not have the same meal and not at the same time;
- Drinks and meal trays should be handed directly to the pilots and not left unattended in the flight deck;
- Drinks should not be passed over the central pedestal area to avoid spillage and consequential damage to electronics;
- Drinks should be served via the window side; to the Pilot-in-Command from left side and First Officer from the right side;
- Alcoholic beverages must not be served or consumed in the flight deck;
- All beverages should be served to two-thirds of the cup or using cups with lids on them to avoid spillage;
2.66 Cabin Service on the Ground in the Event of a Delay

In the event of a flight delay, airlines should ensure that they have procedures in place regarding the type of cabin service to be performed on the ground, depending on the length of the delay. It is recommended that cabin service on the ground be conducted under the following conditions:

- The aircraft should be parked and engines switched off (with or without a bridge or stairs in place);
- Cabin crew should be fully briefed by the Pilot-in-Command or his delegate with respect to the expected length of the delay;
- All doors/exits should be clear of any obstructions at all times (i.e., chair tables at window exits should not be used; displace the passenger(s) for the service, if required);
- Cabin crew should be prepared for the possibility of an emergency evacuation;
- Hand service only to be conducted (i.e., carts and trolleys should not block the aisles);
- All galley and service equipment should be stowed immediately after use;
- The PIC should advise the cabin crew at least 10 minutes prior to any aircraft movement;
- The cabin should be clear of all service items (e.g., meal trays, glasses, etc.) prior to any aircraft movement;
- The SCCM should advise the PIC immediately after the service is completed and the cabin is secure for pushback or taxi;
- Videos can be shown during extensive ground delays with the approval of the PIC, but the aircraft should be parked and engines switched off (with or without a bridge or stairs in place);
- Some airlines have procedures for approved gate-to-gate IFE allowing for uninterrupted viewing.

2.67 Commencement of Service during Cruise

Airlines should determine at what point after takeoff services may commence, taking into account the nature of the operation and the angle of the aircraft cabin (floor) so as not to pose unnecessary hazard to the cabin crew:

- Carts and trolleys must be equipped with braking devices;
- Cabin crew working in the cabin during meal service may leave a cart unattended, but secured, to retrieve items in the galley;
- Cabin crew working in the galley may leave a cart unattended, but secured, in the galley area to supply carts in the cabin;
- Cabin crew should stow loose items into their proper carts/units and stow/latch each individual cart/unit if not needed to perform service;
- Cabin crew should take care to close doors/lockers and secure them not only for takeoff and landing, but also when not in use during flight.

### 2.68 Flight Deck, Cabin, Galley and Lavatory Checks

Aircraft cabins and lavatories must be periodically monitored for early detection of potential safety, security and health-related incidents. Cabin crew should monitor cabins and lavatories as per applicable airline procedures (e.g., intervals of no less than 15 minutes). Special attention should be paid to lavatories, which should be checked for any trace of passenger smoking or tampering with the smoke detector.

Cabin crew should alternate breaks, as required, so that cabin crew are regularly visible in the cabin. Galley fire prevention can be promoted by keeping work areas clean and free of debris (i.e., paper products) and by using equipment only for their intended purposes.

For reasons of safety, cabin crew should check on the flight crew on a regular basis.

### 2.69 Liquid Spillage from Galley Rubbish Bins and Drains

Cabin crew should refrain from pouring liquids into galley and lavatory sinks on the ground as this may result in injuries to ground staff.

Galley sink waste is usually drained overboard through heated waste masts. To prevent sink drain blockages, it is recommended not to put solid waste (i.e., coffee grounds, tea bags, fruit pulp, etc.) in the sink drain. Place solid waste in galley waste bins. Mixtures, which can curdle and create a drain blockage, should be diluted with water.

Blocked galley drains can overflow and spill onto the galley floor. Similarly, waste liquids should not be poured into galley rubbish bins as these may leak and the liquid end up on the galley floor.

Always wipe up all spills immediately to avoid slips/falls or electric shock.

### 2.70 Circuit Breakers

A circuit breaker that has tripped will usually have a white rim showing at its base. In the event a circuit breaker has tripped, it is important to request the permission of the flight crew before resetting it. The following is an example of an airline circuit breaker procedure:

- Always advise the PIC when a circuit breaker has been tripped;
- If instructed by the PIC to reset the circuit breaker:
  - Confirm that the circuit breaker is fully out;
  - If the appliance on the affected circuit breaker has an ON/OFF switch (e.g., coffee maker, oven, etc.), place the appliance switch to OFF;
  - Reset the circuit breaker by pushing it back in;
  - If applicable, return the appliance ON/OFF switch to ON.
IMPORTANT: Should the circuit breaker trip again, DO NOT ATTEMPT a second reset as there could be an abnormality in the wiring that could result in an electrical fire. Advise the PIC that the circuit breaker tripped a second time.

2.71 Serving Alcohol

Offering superior customer service and ensuring passenger satisfaction are common goals of airlines. Serving alcoholic beverages to passengers is a practice that has endured for many years and will likely continue well into the future. However, there is a distinction between consuming alcohol for pleasure and becoming intoxicated as a result of consuming alcohol. Intoxicated passengers can become a danger to themselves and others on board the aircraft. In the event of an abnormal or emergency situation, the intoxicated passenger would likely be less able to comprehend, cooperate with, respond to, or follow instructions to evacuate the aircraft.

Tolerating intoxicated passengers at the check-in counter, terminal building, lounge, gate and on board the aircraft can undermine the airline’s goals to offer safe, secure and superior passenger service as well as a safe work environment for crew members.

Airlines should not permit passengers to board an aircraft when there are reasonable grounds to believe that their faculties are impaired by alcohol to an extent that will present a hazard to the aircraft, to persons on board (crew or passengers) or to themselves.

Service of alcoholic beverages should be carried out in a responsible manner. This should include tactfully refusing to serve passengers alcoholic beverages when they are displaying signs of intoxication.

Passengers should only be permitted to drink alcohol served by the cabin crew. It is important that the cabin crew be attentive to identify passengers that might be consuming their own alcohol.

On specific routes with increased incidents of unruly passengers, some airlines implement alcohol sales rather than free service in an attempt to mitigate these incidents.

The airline may consider having a written policy that supports all employees in the enforcement of their alcohol policy. Some countries where IATA member airlines operate require cabin crew to obtain Responsible Service of Alcohol (RSA) statements upon hiring (e.g., Australia). Other countries (e.g., USA) simply use their National Restaurants Association traffic light system to recognize and manage possible intoxication.
These are classified as green, yellow and red behaviors:

<table>
<thead>
<tr>
<th>Green Behaviors:</th>
<th>Yellow Behaviors:</th>
<th>Red Behaviors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sociable</td>
<td>• Reduced inhibitions</td>
<td>• Moving in slow motion</td>
</tr>
<tr>
<td>• Relaxed</td>
<td>• Impaired judgment</td>
<td>• Slow to respond to questions</td>
</tr>
<tr>
<td>• Comfortable</td>
<td>• Talking or laughing louder than normal</td>
<td>• Glassy-eyed</td>
</tr>
<tr>
<td>• Happy</td>
<td>• Being overly friendly</td>
<td>• Losing train of thought</td>
</tr>
<tr>
<td></td>
<td>• Arguing or baiting</td>
<td>• Making irrational statements</td>
</tr>
<tr>
<td></td>
<td>• Increased use of foul language</td>
<td>• Spilling drinks</td>
</tr>
<tr>
<td></td>
<td>• Increasing alcohol consumption</td>
<td>• Walking awkwardly</td>
</tr>
<tr>
<td></td>
<td>• Careless with money</td>
<td>• Stumbling or falling down</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Unable to sit up straight</td>
</tr>
</tbody>
</table>

Table 4 - Traffic Light Procedures – Behavior Classification

Notwithstanding the above indicators, it is important to distinguish behavior (e.g., talking too loudly) that may simply be a result of a person’s personality, cultural background or medical condition from signs of intoxication. It is recommended that the company adopt a method for handling disruptive and unruly passengers in a manner that is sensitive to issues of culture and custom. A concerned, upset or rude customer is best handled using conflict management techniques to defuse and/or avoid escalation of the situation.

2.71.1 Traffic Light Procedures

Traffic light procedures encourage the responsible serving of alcoholic beverages to passengers by observing their behaviors.

If a passenger displays green behaviors:
- Alcoholic beverages may continue to be served;
- It is recommended to offer food to slow intoxication.

If a passenger displays yellow behaviors, it is recommended to:
- Notify the SCCM and the flight crew;
- Not allow the passenger to transition to Red behaviors;
- Delay requests for alcohol by offering food and water with drinks;
- As applicable to the situation, stop serving alcohol to the passenger.

If a passenger displays red behaviors, it is recommended to:
- Notify the SCCM and flight crew that a passenger appears to be intoxicated;
- Stop serving alcohol to the passenger;
- Advise all cabin crew not to serve alcohol to the passenger;
- Inform passenger that the crew will not be serving further alcohol;
- Consider medical attention. Certain medical conditions may cause similar symptoms to those caused by intoxication;
- Consider declaring an appropriate threat level (as required);
- Complete and submit required reports.
When dealing with a passenger who appears to be intoxicated, it is recommended to be as tactful and discreet as possible. It is important to notify the SCCM and flight crew if a passenger appears to be intoxicated or drinks from their own supply of alcohol. If the passenger refuses to comply with crew member requests, the cabin crew should follow their company procedures.

2.72 Turbulence

Turbulence is an important contributing factor to aircraft accidents and incidents, as demonstrated by the following facts and figures:

- Turbulence is the leading cause of injury in non-fatal accidents;
- Over 25 percent of serious injuries result in diversions;
- Unrestrained baggage and equipment can damage the cabin interior and may seriously injure passengers and crew;
- Turbulence events attract media attention and may negatively impact the public view of the airline’s safety record;
- Cabin crew are injured due to turbulence at a disproportionate rate compared to passengers as their duties require them to be moving about the passenger cabin and/or galleys;
- Cruise is the predominant phase of flight associated with turbulence-related injuries, however, cabin crew also sustain physical harm due to turbulence during climb, descent and approach.

Investing in turbulence management strategies can result in fewer incidents and accidents, thereby resulting in significant cost savings for airlines. The promotion of a “Seatbelt Use at ALL Times While Seated” policy is an important and effective global safety initiative to mitigate turbulence incidents and accidents and their resulting injuries. IATA promotes this policy among its member airlines. For more information, please consult the IATA Turbulence Management guidelines which can be found at: [www.iata.org/cabin-safety](http://www.iata.org/cabin-safety)

2.73 Dangerous Goods

Dangerous goods are substances or articles that can pose a risk to health, safety, property or the environment.

Cabin crew are required to recognize the hazards that each class of dangerous goods can represent. In case of any concerns, the cabin crew should always advise the PIC.

IATA offers a Dangerous Goods Training Program – Workbook 3 for Cabin Crew. For more information, please consult: [www.iata.org/publications/dgr/Pages/training-books.aspx](http://www.iata.org/publications/dgr/Pages/training-books.aspx)

IATA’s training programs are designed to familiarize students with the various sections of the IATA Dangerous Goods Regulations (DGR) manual as well as how and when to apply them. The IATA training workbooks are based on practical application of the DGR, which include all ICAO
requirements.

After completing the IATA DGR Workbook 3 for Cabin Crew, the learner should be able to:

- Recognize dangerous goods;
- Know the origin of the regulations and be aware of their general philosophy;
- Recognize the hazard/handling labels applicable to dangerous goods;
- Recognize dangerous goods packaging;
- Be able to identify potential hidden hazards in baggage and cargo;
- Be aware of the provisions for dangerous goods in the baggage of passengers and crew;
- Be familiar with dangerous goods emergency response procedures.
3. EMERGENCY PROCEDURES

3.1 Management of Emergencies

Each emergency situation is different. It is simply impossible, therefore, to train for an infinite number of possible abnormal scenarios. We cannot train for it all, but we can prepare for it all by managing emergencies, cabin crew contribute to minimizing injuries and fatalities as well as damage to property through appropriate actions. The success of these actions is influenced by the cabin crew’s knowledge of their airline’s safety and emergency procedures as well as their initiative, situational awareness, good judgment, communication, cooperation, coordination and training.

3.2 Levels of Stress

People react differently to stressful situations such as an emergency on board an aircraft. High levels of fear or stress can lead to panic, freezing and/or dependency on the part of both passengers and crew. It is important for cabin crew to recognize these negative behaviors and use countermeasures to interrupt and change passenger actions and behaviors.

3.3 Landing Categories

There are three landing categories:

1. Normal landing;
2. Abnormal landing (involving a condition that requires a higher alert level, such as an engine failure);
3. Emergency landing (a serious situation requiring crew members to follow emergency procedures).

3.4 Urgent Communication

Airlines should establish policies for urgent communications to and from the flight deck. For example, when immediate communication is required from the flight deck to the cabin crew, the PIC could announce: “Would the SCCM call the flight deck.” The SCCM should immediately call the flight deck using the interphone. This announcement would also indicate to the remainder of the cabin crew to be on alert for further instruction from the SCCM. And vice-versa, from the cabin crew to the flight deck: the SCCM should use the interphone and dial the emergency number as per each aircraft type.
3.5 Crew Member Incapacitation

Crew member incapacitation is defined as the inability of a crew member to carry out his/her normal and emergency duties. Incapacitation may occur as a result of injury or illness.

3.5.1 Flight Crew Incapacitation

In the case of the incapacitation of a flight crew member, the remaining crew member shall, as soon as practicable, call a member of cabin crew by using the simplest and most effective means of communication available to summon help.

The SCCM or any other crew member should proceed to the flight deck immediately. Should a locked door policy be in effect, the crew member should ensure that the appropriate procedures are followed before entering the flight deck. Once in the flight deck, the cabin crew should carry out the following actions, as required:

- Tighten and manually lock the shoulder harness of the incapacitated crew member;
- Slide the seat fully aft;
- Recline the seatback;
- Liaise with the other flight crew member on further action and consider:
  - First aid;
  - Call for medical assistance;
  - Removal of the incapacitated crew member from the flight deck, if advisable to prevent:
    - Injury to the incapacitated crew member;
    - Damage to or interference with flight deck controls.

If the decision is made to leave the incapacitated flight crew in the flight deck, a member of the cabin crew should stay with him/her until the aircraft has landed. Consideration could be given to seeking the assistance of a type-qualified pilot on board to replace the incapacitated flight crew.

3.5.2 Incapacitated SCCM or Cabin Crew

In the event of the incapacitation of the SCCM or another cabin crew, an able-bodied cabin crew should immediately inform the Pilot-in-Command, administer first aid and/or provide medical assistance to the incapacitated SCCM or cabin crew. Airlines should establish procedures to select the next most suitably qualified (or senior ranking) cabin crew to operate as SCCM in the event of the initial SCCM becoming unable to perform his/her duties and to assess whether further crew responsibilities should be reassigned amongst the remaining cabin crew (i.e., cabin crew seating positions and emergency exit responsibilities). Such procedures should be acceptable to the regulator and take into account the cabin crew’s operational experience.
3.6 Planned and Unplanned Emergencies

Unplanned emergencies occur with no warning and give the crew little or no time to prepare a course of action. Most emergencies occur during takeoff or landing. The most important mitigation tool is the Silent Review.

In the case of a “planned” emergency, cabin crew receive advance warning and adequate time to prepare a course of action. For example, cabin crew can prepare passengers for an emergency landing using the Prepared Emergency Landing Card.

3.7 Depressurization and Oxygen Deprivation

Cabin pressurization is the active pumping of air into an aircraft cabin to increase the air pressure within the cabin. It is required when an aircraft reaches high altitudes to allow cabin occupants to absorb sufficient oxygen.

Should the pressurization system of the aircraft fail for any reason, or should there be a failure of the aircraft, this would cause a decrease in cabin pressure. This is known as a depressurization. A depressurization may be slow or rapid (explosive) depending on the cause. Slow depressurization is as dangerous as, or even more dangerous, than a rapid depressurization. By its nature, a rapid depressurization commands attention.

In contrast, a slow depressurization may go unnoticed and the resultant hypoxia may be unrecognized by the crew.

If an aircraft experiences a depressurization, hypoxia (inadequate oxygenation of the blood) is the main hazard facing crew and passengers. Oxygen masks are automatically deployed if the aircraft altitude exceeds 14,000 feet.

3.7.1 Hypoxia

Oxygen is essential for life, required by every cell in the human body to carry out its functions. Cabin crew must be aware of the symptoms related to hypoxia. The following effects may develop with exposure to high altitude:

- 10,000 feet to 20,000 feet:
  - Mental impairment;
  - Euphoria;
  - Lack of awareness of the danger and the inability to remedy the situation.

- 20,000 feet to 30,000 feet:
  - Lack of muscular coordination;
  - Collapse.
Even at a constant altitude, the symptoms of hypoxia are various and may manifest themselves differently in each individual. Initial signs of hypoxia include:

- Increased rate of breathing;
- Headache;
- Nausea;
- Light-headedness;
- Dizziness;
- Tingling sensation in hands and feet;
- Sweating;
- Irritability;
- Euphoria;
- Cyanosis (bluing of the lips and fingernails);
- Ear discomfort;
- Stomach pain due to gas expansion.

The symptoms become more pronounced with prolonged exposure to the lack of oxygen, and include:

- Impaired vision;
- Impaired judgment;
- Impaired motor control;
- Drowsiness;
- Slurred speech;
- Memory loss;
- Difficulty to concentrate.

Hypoxia can also cause a false sense of well-being. It is possible for a person to be hypoxic and not be aware of their condition. It is important that all crew members recognize the signs of hypoxia and administer supplemental oxygen as soon as possible in order to prevent unconsciousness. When oxygen has been administered, recovery will usually take place within minutes.

When a rapid depressurization occurs, the immediate use of oxygen is critical. The first actions of the cabin crew should be to:

- Don the nearest oxygen mask;
- Sit down and strap in. secure self with seatbelt or harness;
- If cabin crew are unable to sit down, they should grasp the nearest fixed object or ask passengers to assist by holding on to avoid being ejected from the aircraft.
3.7.2 Time of Useful Consciousness

Time of Useful Consciousness (TUC) or Effective Performance Time (EPT) is the period of time from the interruption of the oxygen supply, or exposure to an oxygen-poor environment, to the time when an individual is no longer capable of taking proper corrective and protective action. The faster the rate of ascent, the worse the impairment and the shorter is the TUC. **WARNING:** TUC does not mean the onset of unconsciousness. Impaired performance may be immediate. The higher the altitude, the worse the impairment and the shorter the TUC. Prompt use of 100 percent oxygen is critical.

The following illustration shows the trend of TUC as a function of altitude:

![Figure 6 – Times of Useful Consciousness vs. Altitude](image_url)

NOTE: The above times are to be used as averages only and are based on an individual at rest. Physical activity at altitude, fatigue, self-imposed stress, and individual variations will make time vary.

<table>
<thead>
<tr>
<th>ALTITUDE</th>
<th>TUC/EPT</th>
<th>FOLLOWING RAPID DECOMPRESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,000</td>
<td>20-30 min</td>
<td>10-15 min</td>
</tr>
<tr>
<td>22,000</td>
<td>10 min</td>
<td>5-6 min</td>
</tr>
<tr>
<td>25,000</td>
<td>3-5 min</td>
<td>1.5-2.5 min</td>
</tr>
<tr>
<td>28,000</td>
<td>2.5-3 min</td>
<td>1-1.5 min</td>
</tr>
<tr>
<td>30,000</td>
<td>1-2 min</td>
<td>30 s - 1 min</td>
</tr>
<tr>
<td>35,000</td>
<td>30 s - 1 min</td>
<td>15-30 s</td>
</tr>
<tr>
<td>40,000</td>
<td>15-20 s</td>
<td>Nominal</td>
</tr>
<tr>
<td>45,000</td>
<td>9-12 s</td>
<td>Nominal</td>
</tr>
<tr>
<td>50,000</td>
<td>9-12 s</td>
<td>Nominal</td>
</tr>
</tbody>
</table>

The FAA Aerospace Medical Research Division of the Civil Aerospace Medical Institute (CAMI) offers a Cabin Safety Workshop that includes physiology education on the effects of high altitude flight operations on the human body. The workshop concludes with an altitude chamber flight to allow the participants to actually experience the effects of depressurization. While the workshop includes numerous other cabin safety topics, it is not intended as basic training for cabin crew, but rather is designed to provide supplemental information. To learn more, please visit www.faa.gov/data_research/research/med_humanfacs/aeromedical/cabinsafety/workshops

3.8 Guidance for Depressurization Procedures

A review of depressurization incidents and accidents clearly indicated that aircraft pressurization events had a continuing presence in aviation operations. Many of the events were identical to events that had occurred in the past, a few of which escalated into fatal accidents. The events examined occurred around the world and on a variety of different pressurized aircraft. Multiple issues arose from the review:

- Cabin altitude warning horn not recognized by the flight crew;
- Master Caution and passenger oxygen mask deployment indication not recognized by the flight crew;
- Cabin crew not advising the flight crew of passenger oxygen mask deployment;
- Cabin crew not establishing and maintaining open communication between the cabin and the flight deck;
- Physiological effects of rising cabin altitude not recognized by the flight crew or cabin crew;
- Insufficient flight crew understanding and appreciation of gradual cabin depressurization, the insidious effects of hypoxia and the importance of using supplemental oxygen as a precaution.

Several international accident investigation reports recommended improved communication between cabin crew and flight crew in the case of a suspected decrease in cabin pressure. Also, when the oxygen masks deploy in the cabin due to loss of cabin pressure or insufficient cabin pressure and, if the aircraft does not suspend its climb or start a descent, the SCCM or the cabin crew situated closest to the flight deck will immediately notify the flight crew of the deployment of the oxygen masks and will confirm that the flight crew have donned their oxygen masks.

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One of these reviews is the accident investigation of the Helios Airways flight 522, which crashed on 14 August 2005, as investigated by the Hellenic Air Accident Investigation and Aviation Safety Board available at www.aaiasb.gr/imagies/stories/documents/11_2006_EN.pdf
Figure 7 – Guidance for Depressurization Procedure

**Note:** It is important for the cabin crew to don portable oxygen before proceeding to circulate in order to check on others and assist other crew members and/or passengers. The priority of these checks should be to check on the flight crew (SCCM), check all other cabin crew and then check passengers.
3.9  Brace for Landing

The “brace for landing” order is usually given by the flight crew. Upon hearing the command to “BRACE”, the cabin crew should take their brace position and instruct passengers to do so as well using oral commands. However, if a cabin crew suspects an imminent impact (i.e., hearing metal scrapes, unusual aircraft attitude, fire, etc.), the cabin crew should brace themselves and communicate the advisory to passengers using oral commands.

3.10  Rapid Deplaning

There are situations when passengers and crew need to deplane immediately and quickly (e.g., in serious situations such as a fueling emergency). A rapid deplaning is when passengers and/or crew rapidly exit the aircraft via the boarding doors and via the jet bridge or stairs, for precautionary measure. A rapid deplaning may be initiated by the pilots or, in their absence, the SCCM.

3.10.1  Commands

Commands are a very important part of the process, and should be:

- Situation-relevant;
- Loud;
- Clear;
- Short;
- Well-paced;
- Assertive;
- Positive (“Release your seatbelt” versus “Unfasten your seatbelt”).

3.10.2  Two-step Public Address

If time permits, the flight crew or SCCM should make two public announcements:

1. First PA to alert cabin crew (cabin crew should return to their doors);
2. Second PA to initiate rapid deplaning.

3.10.3  Actions

Cabin crew must ensure the rapid deplaning is performed in a calm and orderly fashion:

1. Ensure bridge or stairs are in place;
2. Direct passengers to go to their designated exit(s) and leave their baggage behind: “Leave the aircraft immediately (specify by which door) and please leave all of your personal belongings behind”;
3. Cabin crew closest to the exit door(s) or a designated Able-bodied Passenger (ABP) will lead passengers into the terminal;
4. Cabin crew must remain alert in case an emergency evacuation becomes necessary;
5. Rapid deplaning is complete when the last passenger or crew member leaves the aircraft;
6. If no bridge or stairs are in place, an evacuation using the slides may need to be initiated.

### 3.11 Emergency Evacuations

Cabin crew must react quickly and according to the situation because no two emergency evacuations are exactly same. There are numerous factors that will affect the situation, for example:

- Fire;
- Smoke;
- Ditching/water;
- Slide/slide-raft malfunction;
- Unusual aircraft attitude;
- Landing gear collapse;
- Severe structural damage;
- No communication from flight crew, etc.

The necessity to initiate and carry out an evacuation from the aircraft can arise from two possible circumstances:

**Unplanned** – an incident or emergency developing without warning;

**Planned** – where time and knowledge allow preparations to be carried out prior to an evacuation.

An evacuation is much more expeditious than a rapid deplaning. Evacuations are initiated by the Pilot-in-Command or by the cabin crew in life-threatening situations or in, when unable to contact the case of flight crew, or catastrophic accidents (i.e., the break-up of the fuselage, fire, etc.) If possible, before initiating an evacuation the cabin crew should always try to advise the PIC. It is also important to initiate an evacuation once the aircraft is no longer moving and the engines are OFF (particularly when using exits near aircraft engines).

#### 3.11.1 Unplanned Emergency Evacuation

Many evacuations are not planned and occur with no prior warning on takeoff or landing. In most cases the decision to evacuate is made by the flight crew. In a study conducted by the VLTA Emergency Requirements Research Evacuation Study (VERRES), 77 accidents were analyzed. The results of the analysis show that in 11 of the 77 cases (14%), “cabin crew had a significant role in the evacuation decision since they often ask the pilot to decide an evacuation”. There may be occasions when the cabin crew has to initiate the evacuation. For example, when there is a life-threatening situation in the cabin, such as:

- Uncontrollable fire;
- Dense smoke;
- Severe structural damage;
- Ditching.
When making the decision to initiate an evacuation, cabin crew must evaluate the level of danger and the consequences that a delay in decision-making may lead to. Smoke or fire that is out of control would definitely require a rapid decision because of the danger presented to the occupants of the aircraft.

If cabin crew consider that an evacuation may be required, they must attempt to contact the flight crew in order to inform them of the situation and await instructions. If contact with the flight crew is not possible, cabin crew should initiate the evacuation.

Any evacuation requires crew coordination because not all crew members may be aware that a life-threatening situation exists. Therefore, all crew members need to be informed. There are several possible methods of communication, depending on their availability:

- Public address;
- Interphone;
- Megaphone;
- Evacuation alarm (if applicable);
- Initiation of commands.

### 3.11.2 Planned Emergency Evacuation

Inflight emergencies may result in the diversion of the aircraft and a planned emergency evacuation. Cabin crew will have some time to prepare the cabin and passengers for eventual evacuation after landing.

#### 3.11.2.1 Briefing of Cabin Crew

The SCCM provides the cabin crew with the information received from the flight crew. The SCCM instructs the cabin crew to take their positions and prepare for the emergency announcement and demonstration.

#### 3.11.2.2 Preparing the Cabin

The difference with a planned emergency evacuation is that there is time to prepare the cabin and the passengers. It is best when the flight crew informs the passengers of an emergency. However, this may not always be possible due to the workload of the flight crew during an emergency. Therefore, the SCCM may be required to make the initial announcement. The SCCM should:

- Explain the nature of the emergency;
- Describe the necessity to prepare the cabin;
- Instruct passengers to follow the instructions of the cabin crew.

Time permitting, the cabin should be prepared for the emergency evacuation:

- Dividers should be open;
- Lighting should be on full “bright”;
• IFE, Internet and/or telecommunications systems should be switched OFF;
• Passengers must be in their seats, with the seatbacks in the upright position, tray tables closed and latched, and seatbelts fastened.

The cabin crew should be prepared to demonstrate the “emergency passenger briefing” in their assigned briefing positions.

3.11.2.3 Emergency Passenger Briefing

Time permitting, a full passenger briefing may be possible. The aim of the briefing is to give passengers as much information as possible. The amount of time available will determine the extent of the briefing. Both passengers and crew members will need to give their undivided attention to the briefing. Therefore, there should be no unnecessary distractions. This may be the only opportunity that crew members will get to relay critical information. To avoid distraction crew members should:

• Instruct passengers to stow all PEDs;
• Stay in their assigned demo position;
• Not walk up and down the aisle during the announcement;
• Not talk during the demonstration;
• Coordinate the demonstration with the announcement.

When reading the announcement, the SCCM should pause at key points in order to allow the cabin crew time to demonstrate and check passenger compliance.

3.11.2.4 Securing Loose Items

Passengers should remove all loose items from their person and secure them in an overhead bin, closet or under a seat.

3.11.2.5 Securing the Cabin

Securing the cabin includes, but is not limited to:

• Seatbelts fastened;
• Seatbacks in the upright position;
• Tray tables closed and latched;
• Armrests down;
• Carry-on baggage stowed and secure;
• Overhead bins closed and latched;
• Aisles clear of all obstructions;
• Service items cleared;
• Cabin dividers open.
When the passengers and cabin have been secured, areas such as lavatories and galleys need to be correctly secured as well. All lavatories should be vacated and locked. All galley equipment should be stowed and secured:

- Close and lock all containers;
- Ensure that carts are correctly stowed and secured;
- Switch off all galley power and pull all galley circuit breakers.

3.11.2.6 The Brace Position

The brace position is one of the most important items in preparing for an emergency. The brace position has a dual function. First, it reduces body flailing, as passengers must lean forward or bend over their legs. Second, it protects the head from hitting a surface. Remaining in the brace position (until the aircraft comes to a final stop) will help to protect from injury during primary and secondary impact. Pregnant women and passengers traveling with infants will need to be shown the correct alternative brace positions. It is recommended to use the “Safety Information Card” to illustrate the brace position. The cabin crew will:

- Point out the brace position on the safety information card;
- Demonstrate the recommended brace position;
- Check passengers’ brace position and alternative brace positions.

It is important to ensure that the passengers understand how to brace for impact correctly in order to reduce injuries (note that recommended brace positions vary according to regulatory jurisdiction).

Once the brace position has been explained, the next step is to inform the passengers when to assume the brace position. For example: “When you hear the crew shouting “BRACE! BRACE! BRACE!”, this will be your signal to take the brace position; you must remain in this position until the aircraft has come to a complete stop”.

3.11.2.7 Emergency Exit Locations

Cabin crew will need to point out the location of the nearest emergency exits and explain the floor proximity exit path lighting.

3.11.2.8 Able-bodied Passengers (ABP)

Identify ABPs who could help open exits and assist with passengers during evacuation. The selection of ABPs may be based on their physical stature as well as their ability to understand instructions and stay calm. The selection of ABPs is the responsibility of the cabin crew. Deadheading crew, off-duty company crew members, military, police and fire service personnel are good choices because they are used to following instructions and have the required manual dexterity. Ideally, cabin crew should select a minimum of three ABPs per exit and reseat them at the exit. However, cabin crew should make it clear that the ABPs are only to open the exit in the event of the crew member being incapacitated.
The cabin crew should brief one ABP on the following:

- How to assess conditions outside the aircraft;
- How to identify usable/unusable exits;
- How to open the exit;
- Where to find the manual inflation handle;
- How to protect oneself from going overboard;
- How long to remain in the assist space;
- Commands to be used during evacuation (i.e., “Jump and slide” or “Sit and slide”).

The other two ABPs should be briefed on how to assist the crew during the evacuation by:

- Holding passengers back during door opening and slide inflation;
- Remaining at the bottom of the slide to assist the other passengers.

The cabin crew should brief the ABPs seated at over-wing exits on:

- How to assess the outside conditions;
- When to open the exit;
- How to open the exit;
- Commands (e.g., “Come this way”, “Step out”, “Follow the arrows”, “Run and slide”);
- How to redirect passengers if an exit becomes unusable or blocked.

The cabin crew should ensure that an ABP is assigned to passengers that require assistance to evacuate the aircraft. These passengers include:

- Passengers with reduced mobility;
- Elderly;
- Unaccompanied minors;
- People traveling alone with more than one child.

These passengers will need assistance from ABPs during the evacuation. When time permits, reseat an ABP with the passenger requiring assistance.

When the cabin has been secured and the cabin preparation is complete, the SCCM will notify the flight crew. The SCCM should also ask for an update of the situation and an estimate of the amount of time remaining. Cabin crew should take their seats, adjust their harness, begin a “silent review”, and be prepared to “brace” when the command comes from the flight crew.

### 3.11.3 The Evacuation Process

When the aircraft has come to a complete stop, cabin crew need to assess the inside and outside conditions, such as:

- Is it safe to open the door?
- Is the area below free of smoke, fire, obstacles and debris?
- Has the aircraft landed in water or on land?
Then, the cabin crew should instruct passengers to go to their nearest available exit. Using a strong voice, the commands will act as a beacon for passengers, especially if visibility is limited due to smoke in the cabin. Cabin crew can use their flashlight to call passengers to their specific door. Instructing passengers to leave behind their belongings is important, as baggage carried to the door of the aircraft will impede or delay evacuations and cause pile ups at the bottom of the evacuation slide.

Cabin crew should protect themselves by holding on to the “frame assist handle” and staying in the dedicated assist space located on either side of the door. This will prevent them from being pushed overboard in the event of a rush of passengers and will not interfere with passengers exiting from the aircraft.

When safe to do so, cabin crew should open the aircraft door in the “Armed” mode (note: some aircraft types require some doors to be disarmed in a ditching).

Cabin crew should ask ABPs to hold other passengers back until the slide is fully inflated. If the slide does not inflate, and the crew member needs to pull the “Manual Inflation Handle”, extra time may be required. Passengers should be held back until the cabin crew have verified that the slide is fully inflated and ready for use. If two cabin crew are assigned to one exit, one should manage the passengers while the other checks the correct slide inflation and outside conditions.

3.11.3.1 The Effect of Smoke and Fire during Evacuation

It has been well documented in accident reports that smoke and fire in the cabin has presented frequent obstacles during evacuation. Smoke or fire in the cabin can also cause a tremendous amount of panic among the passengers. Inhalation of smoke and toxic fumes has incapacitated people and limited their physical and mental ability to the extent that they have not been able to react, operate the exits or evacuate. Smoke also has the ability to obscure light, make visibility difficult and to incapacitate a person.

In the event of a smoke-filled cabin during evacuation, visibility and air quality is usually improved at floor level. Passengers should be instructed to get down low and follow the escape path lighting to the exits.

3.11.3.2 Slide Evacuation with Infants and Young Children

In a planned emergency evacuation, parents/guardians should be briefed to hug their infant to them so that they can evacuate down the slide together.

When boarding an escape device (e.g., single or dual lane escape slide, slide raft, ramp slide) with infants, jumping together onto the escape device produces faster egress than sitting and sliding.
The carrying positions that provide the most protection for infants include:

- **Vertical position:** The parent/guardian should protect the infant’s head and neck as much as possible with one hand, placing the other arm around the buttocks and holding the infant with their legs around the adult’s waist.

- **Horizontal position:** The parent/guardian should cradle the infant’s head and neck in his/her arm and should keep infant’s arms, legs and feet enfolded as much as possible in his/her arms.

Climbing through a Type III over-wing exit while holding an infant promotes faster egress than passing the infant to another passenger who has already exited. The recommended carrying position of the infant is vertical. Horizontal carrying of larger infants is more likely to result in striking a part of the infant’s body on the exit frame.

Evacuation methods with small children over age two would depend on the age and size of the child. The carrying method when egressing should be the one most comfortable and natural for the parent and the child and, at the same time, providing adequate protection for the child and ensuring a fast egress from the aircraft.\(^5\)

### 3.11.3.3 Crowd Control

Crew members must have absolute control of the evacuation. They must be assertive in the way commands and instructions are given to passengers. Not all passengers will react in the same manner. Some evacuations have been quite efficient because passengers have cooperated with the crew members’ instructions. Other evacuations, especially where a life-threatening situation has been perceived, have experienced a range of reactions:

- Panic (i.e., screaming, crying, hysteria);
- Negative panic (i.e., no reaction, frozen);
- No perception that danger exists;
- Insisting on leaving by the door they entered;
- Exiting with carry-on baggage;
- Returning to their seat to re-stow baggage;
- Wanting to take control of the evacuation;
- Pushing;
- Jumping over seatbacks to get ahead;
- Disregarding others.

People who have been involved in evacuations have observed the above types of behavior. There is an absolute need for crew members to assert their authority in order to avoid delays in getting passengers down the slide and away from danger.

\(^5\) EASA Safety Information Bulletin (SIB) No.: 2013-06, Issued: 17 May 2013, Evacuation of Infants
3.11.3.4 Flow Management

Cabin crew need to monitor the evacuation to maintain an even flow of passengers from each exit. On larger aircraft with a multi-class cabin configuration, the aft and middle zones are usually more congested than the front of the aircraft during an evacuation. It may be necessary to redirect passengers to maximize the use of all exits and avoid congestion. Crew members should monitor the progress of the evacuation to ensure that the slide is clear at the bottom and that there are no pile ups. It is useful to ask two or three ABPs to assist at the bottom of the slide. The crew members should use commands such as:

- “Stay at the bottom”
- “Help people off”
- “Send them away”

Passenger help at the bottom of the slide significantly reduces the risk of congestion and injury. Cabin crew can maintain the flow of the evacuation using commands, such as:

- “Jump and slide”
- “Form two lines” (double-lane slide)
- “Form one line” (single-lane slide)
- “Keep moving”
- “Hurry”

Crew members also need to be aware of any developments during the evacuation. If the slide becomes damaged, a fire starts in the area, or another factor renders the exit unusable, the crew member should stop the evacuation at that door, block the exit, and redirect passengers to the nearest usable exit.

Airport rescue and firefighting services will use standard ICAO signals to indicate hazards to the cabin crew. When redirecting passengers, crew members need to be aware of which exit to send passengers to. Cabin crew should listen for another crew member giving the command to “come this way” or “jump”, indicating that the exit is usable.

When redirecting passengers to the usable exit, cabin crew should use positive commands:

- “Blocked exit” (arms crossed in an x)
- “Go across”
- “Go forward”
- “Go to the back”
- “Go that way” (pointing)

3.11.3.5 Evacuation of Cabin Crew

When the flow of passengers has ceased, cabin crew will need to check the cabin for any remaining passengers. If the cabin is in darkness, use a flashlight to check the cabin.
Check the following areas:

- Aisles;
- Seats (including the floor area between the seats);
- Galleys;
- Lavatories;
- Crew rest areas;
- Flight deck area.

After all remaining passengers have been evacuated, or if it is not possible to remain in the cabin, cabin crew should evacuate through the first available exit after taking the applicable emergency equipment from the aircraft (e.g., megaphone, first aid kit, flashlight, etc.).

### 3.11.3.6 Post-evacuation

Once outside the aircraft, the cabin crew is responsible for the passengers until relieved by the authorities or emergency services. Until this help arrives, the cabin crew should:

- Direct passengers upwind and away from the aircraft;
- Assemble passengers;
- Direct passengers away from fuel, fire and vehicles;
- Ensure no electronic devices are used in the vicinity;
- Enforce “No Smoking”;
- Assist passengers and provide first aid;
- Start survival planning (if in a remote location).

### 3.11.3.7 Ditching

A ditching is an emergency landing on water and is a relatively rare occurrence in commercial aviation. During a “planned” ditching, the cabin crew will have prior notice and, therefore, some time to prepare the cabin and advise passengers to put on their life vests. An “unplanned” ditching leaves little or no time for the cabin crew to prepare passengers or themselves (e.g., donning life vests). The evacuation procedure should be in accordance with the aircraft type (i.e., over-wing exits, slides, slide-rafts, main deck only or upper deck, etc.) and as per the manufacturer recommendations.

After separation of the slide raft or raft, cabin crew should stay clear of the aircraft and debris. If in a remote location, once the passengers and crew are safe on a life raft, the cabin crew should:

- Close the canopy;
- Activate the radio beacon;
- Tie the radio beacon to the life raft (if more than one radio beacon is available, only launch and activate one at a time);
- Look out for other rafts and tie them loosely together using the lanyards;
- Launch flares (when the crew sees potential rescuers);
- Drop sea dye-marker in water (during daylight);
Aim flashlights or other signaling devices at noises;
Launch sea anchor, etc.

Flight crew or cabin crew should take command of the raft(s) and delegate duties to other occupants. Crew should ensure that no one removes their life vests.

3.12 Fire
An on-board fire has the potential to consume an aircraft quickly. Prevention is important and the prompt response by all crew members is critical. Each crew member should be familiar with the location and operation of on-board firefighting and protective equipment.

3.12.1 Prevention and Early Detection
Fires are an especially serious event on board an aircraft. To prevent an on-board fire the cabin crew should eliminate any potential hazards. In the event of a fire the cabin crew should detect its source quickly. The cabin crew should be on alert for fire hazards such as:

- Paper/debris in overhead compartments and ovens;
- Spilled fats or oils in ovens;
- Cigarettes or smoldering items in waste containers;
- Electrical appliances such as ovens, coffee makers, refrigeration units, and trash compactors;
- Items in passenger and crew cabin baggage, including personal electronic devices;
- Dangerous goods.

Cabin crew play an important role in fire and smoke prevention. SOPs to mitigate these events include, but are not limited to:

- Cleaning up spills in ovens;
- Checking contents of ovens before turning them on to ensure there are no foreign items inside;
- Ensuring oven inserts are correctly installed, clean and undamaged (i.e., free of paper, labels, spilled fats or oils);
- Checking service items and containers to ensure they are fit for purpose;
- Ensuring lavatories are kept tidy, waste bin flaps are closed and smoke detectors are not obstructed;
- Ensuring correct use of in-seat power supply.

Fire protection is an integral part of the design of modern aircraft. Examples of fire protection equipment in the passenger cabin include:

- Seats are made of fire-retardant materials;
- Lavatories are equipped with smoke detectors;
- Waste containers in the lavatory are equipped with a fire extinguisher;
Crew rest areas are equipped with smoke detectors and extinguishers. Yet, cabin fires still occur occasionally. Fires are not always obvious as smoke and flames may not be visible, but there may be other indications that a potential fire is in progress. Signs to be aware of and investigate include:

- Fumes or unusual odors;
- Electrical malfunctions (e.g., circuit breakers “tripping”);
- Noises that may indicate electrical arcing (i.e., popping, snapping or crackling);
- Hot spots on sidewalls, floors and panels.

If passengers or crew suddenly develop eye irritation, sore throat and/or headache, this may indicate that gas fumes are present, but may not have reached a level where they are visible. Cabin crew should immediately investigate any reports from passengers that may indicate a fire. The aim is to locate and extinguish a fire in its early stages.

Fires can be complex. In order to fight a fire successfully, crew members need to know the basics about fire chemistry and combustion as well as the appropriate extinguisher to use.

### 3.12.2 Smoke, Fumes and Burning Odors

Not all smoke, fumes and burning odors are related to a fire. For example, smoke may result from deicing fluids being ingested by the engines. Burning smells may be the result of a new refrigeration compressor. Nevertheless, cabin crew should always report such incidents and investigate to ensure no danger exists.

Identifying the source of smoke, and taking immediate action, will significantly minimize the risk of fire on board the aircraft. The existence of smoke may impact flight operations and cause flight diversions, delays, cancellations, declared emergencies and evacuations. In addition, the presence of smoke may physically affect passengers and crew members if it is not dealt with rapidly and efficiently. It is important to ensure that the flight deck door remains closed to protect the flight crew from the smoke. The cabin crew should advise passengers to bend forward, cover their mouth and nose with clothing and take slow, shallow breaths. The cabin crew should don their protective breathing equipment (PBE).

#### 3.12.2.1 Identifying the Source of the Smoke

In the main aircraft cabin, the only areas that have smoke detectors are the lavatories, the crew rest areas and the Video Control Center Therefore, smoke detection and fire suppression rely heavily on human intervention.

It is wise to treat a smoke occurrence as a fire, until it has been proven otherwise. Smoke occurrences in the cabin usually involve equipment that is easily accessible to cabin crew. It can be observed directly if the smoke is coming from a coffee maker, oven, seat video screen, or passenger seat control box. Sometimes, the cabin crew may not see the smoke, but may be alerted to it by an odor. In this case, the odor should be traced to its strongest location. Keep in mind that the
development of an odor takes some time to reach a level that is easily noticeable. In order to pinpoint the source of the smoke another indication may be a surface that is abnormally warm.

If the source of the smoke is connected to an electrical source (e.g., a coffee maker) the circuit breaker relating to that coffee maker should be pulled. If the smoke is coming from the galley area, but cannot be pinpointed further, isolate the area by using the “galley shutoff” or by pulling all of the galley circuit breakers to cut off the power source. As a general rule, in case of smoke emissions from any electrical source, the first step is to remove the power source and keep firefighting equipment readily available in the event that the situation deteriorates.

3.12.3 Fighting a Fire

Time is critical and aggressive intervention is required to successfully fight a fire. Cabin crew should locate and attack the source of the fire immediately as per their airline’s procedures. Cabin crew should always advise the flight crew of the presence of fire on board and liaison with the flight deck should be maintained throughout the emergency. If the source of the fire cannot be identified, the flight crew should be informed of that fact without delay. In addition to fighting the fire, cabin crew may be required to:

- Bring additional back-up extinguishers and equipment (PBE, protective gloves, crash axe, crowbar, flashlights, etc.);
- Remove flammable items (e.g., oxygen bottles) from the vicinity;
- Deactivate electrical switches or circuit breakers;
- Remove carry-on luggage from the vicinity;
- Close air vents;
- Prepare wet blankets;
- Move passengers away;
- In case of smoke, make an announcement for passengers to cover mouths/nose with (wet) clothes, etc. (note: emergency oxygen masks should not be deployed).

To fight fires safely, the cabin crew should:

- Advise the flight crew;
- Use protective equipment such as gloves, PBE, etc.;
- Obtain assistance from other crew members;
- Don their full uniform (an extra layer such as a blazer or jacket offers extra protection);
- Use caution when making holes or removing cabin panels to prevent damage to essential aircraft systems;
- Use the correct class of extinguisher for the type of fire.
3.12.4 Hidden Fires

The FAA’s Advisory Circular AC120-80A, *In-Flight Fires*\(^6\) emphasizes the threat of hidden fires and the importance for crew members to do the following:

- Recognize the sources of smoke;
- Rapidly assess conditions;
- Take immediate action to gain access to fires that are behind interior panels.

One of the first indications of a hidden fire may be smoke emitting from areas that cannot be accessed easily by the cabin crew (i.e., sidewalls, overhead panels, air ducts, ceiling panels, or cargo compartments). Many of these “hidden areas” involve wiring, air conditioning and/or insulation, and may, in fact, hide a potential fire within the aircraft.

Smoke emitting from the seams or joints of a wall panel may indicate that electrical arcing has ignited another piece of material (i.e., insulation). Smoke and fumes may infiltrate into the cabin and enter the cabin air supply. Items in the cargo compartments are another source of smoke to consider.

It is important for cabin crew to be aware of the potential sources of smoke on board the aircraft:

1. Overhead area: This is the area above the ceiling panels that includes wiring bundles and control surface cables as well as the emergency oxygen system, air conditioning system, and components of the IFE;
2. Return air grill: These are the vents at the foot of the sidewall panels on each side of the passenger cabin by which stale air is removed from the cabin;
3. Cheek area: This area below the floor outboard of the cargo area hosts hydraulic lines, electrical components and wiring bundles.

3.12.5 Crew Communication

The importance of effective crew communication, particularly in an abnormal or emergency situation such as a fire, is crucial. Ineffective (or lack of) communication between the cabin crew and the flight crew can exacerbate the severity of an incident. Equally, effective communication between crew members can improve the likelihood of a successful outcome.

The information that the flight crew receives from the cabin crew will have a direct impact on the course of action that the flight crew will take. Therefore, it is vitally important that the flight crew receive a realistic account of the events in the cabin.

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It is important to advise the flight crew immediately and report the conditions in the cabin in a clear and concise manner:

- Name of the cabin crew speaking;
- Exact location of the fire (if known);
- Source of the fire (if known);
- Severity (properties or characteristics) of the fire and smoke (i.e., density, color, odor, how it is affecting people);
- Action taken and status of firefighting effort.

The cabin crew should never underestimate the severity of smoke and fire. On-board fires can spread very quickly. The following table from the UK CAA Paper 2002/01\(^7\) shows the time taken from the first indication to the crew of the presence of a hidden fire to when it became catastrophically uncontrollable:

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOCATION</th>
<th>A/C TYPE</th>
<th>NON-SURVivable</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-Jul-69</td>
<td>Biskra, Algeria</td>
<td>Caravelle</td>
<td>26 minutes</td>
</tr>
<tr>
<td>11-Jul-73</td>
<td>Orly, Nr. Paris, France</td>
<td>B707</td>
<td>7 minutes</td>
</tr>
<tr>
<td>03-Nov-73</td>
<td>Boston, USA (Cargo Flight)</td>
<td>B707</td>
<td>35 minutes</td>
</tr>
<tr>
<td>26-Nov-79</td>
<td>Jeddah, Saudi Arabia</td>
<td>B707</td>
<td>17 minutes</td>
</tr>
<tr>
<td>02-Jun-83</td>
<td>Cincinnati International Airport, USA</td>
<td>DC9-32</td>
<td>19 minutes</td>
</tr>
<tr>
<td>28-Nov-87</td>
<td>Mauritius, Indian Ocean (Cargo Flight)</td>
<td>B747</td>
<td>19 minutes</td>
</tr>
<tr>
<td>02-Sep-98</td>
<td>Peggy’s Cove, Nova Scotia, Canada</td>
<td>MD-11</td>
<td>16 minutes</td>
</tr>
</tbody>
</table>

Table 5 - Hidden Fires, Time to Become Non-Survivable

3.12.6 Halon Extinguishers

Halon or BCF (chemical name: bromochlorodifluoromethane) is a member of the chemical family of halogenated hydrocarbons, a liquefied gas that extinguishes fires by chemically interrupting a fire’s combustion chain, as opposed to physically smothering the fire. This is one of the main reasons why Halon is effective when the exact source of the fire cannot be positively determined. A small concentration of Halon in the air will prevent a fire from continuing to burn.

While it is recommended to always wear a PBE when operating a fire extinguisher and fighting a fire, “[…] The NTSB has expressed concern that the risks of exceeding the maximum recommended levels of Halon gas outlined in AC 20-42C Hand Fire Extinguishers for Use in Aircraft have been

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overemphasized in crew member training programs, especially when compared to the risks of an in-flight fire. The NTSB emphasizes, “that the potential harmful effects on passengers and crew [of Halon] are negligible compared to the safety benefits achieved by fighting in-flight fires aggressively”. The toxic effects of a typical aircraft seat fire, for example, far outweigh the potential toxic effects of discharging a Halon fire extinguisher.\(^8\)

FAA Advisory Circular AC120-80A stresses the effectiveness of Halon when fighting inflight fires.

A team effort is the most effective way to combat an on-board fire. Crew communication and coordination are important. The roles of the members of the cabin crew firefighting team complement each other because their tasks are performed simultaneously in order to optimize the firefighting effort. The roles of the members of the firefighting team are defined as follows:

1. **Firefighter:** The first crew member to find the fire will take on the role of the Firefighter who will:
   - Alert the other cabin crew;
   - Obtain the nearest fire extinguisher;
   - Attempt to locate the source of the fire;
   - Fight the fire.

2. **Communicator:** Usually the second cabin crew on the scene, this cabin crew informs the flight crew of the fire/smoke via an interphone near the fire (the flight deck door must be kept closed to prevent smoke from entering the flight deck). Depending on the intensity of the fire or smoke, the Communicator may decide to don a PBE. The Communicator should keep the communication link between the cabin crew and the flight crew open and inform the flight crew about the:
   - Location of the fire;
   - Source of the fire;
   - Severity, density, color of smoke/odor;
   - Firefighting progress;
   - Number of fire extinguishers used;
   - Time firefighting action started;
   - Situation in the cabin.

3. **Assistant Firefighter:** The Assistant Firefighter should be prepared to replace the Firefighter, and exchange roles with the Firefighter, as required. The Assistant Firefighter is usually the third cabin crew on the scene and:
   - Supplies extra firefighting equipment;

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• Supports the firefighting effort;
• Removes flammable material from the area.

4. Support Crew Members (Runners): These crew members are not directly involved in the firefighting effort, but will be required to provide assistance (e.g., relocate passengers, administer first aid, calm and reassure passengers, etc.). After the fire has been extinguished, one Support Crew Member should be responsible for monitoring the affected area for the remainder of the flight, and should regularly report to the SCCM. Additionally, it is important for cabin crew to maintain situational awareness as a fire may be a distraction; one cabin crew might be assigned to monitor cabin conditions for suspicious activity and/or security concerns.

3.12.7 Passenger Management

If there are passengers within close proximity of the fire, the cabin crew should move them away from the immediate area. If the amount of smoke or fumes is affecting the passengers, the cabin crew should encourage them to protect themselves from smoke inhalation by covering their nose and mouth with a cloth to protect from smoke particles. Better still, the cabin crew may distribute wet towels to the passengers, if available. If a passenger needs to be treated for smoke inhalation, and requires oxygen, the cabin crew should move the passenger from the affected area before administering the oxygen.

It is important to take into account the reactions of the passengers during an on-board fire. Most passengers will express concern, or may even panic. Therefore, there is a definite need for crew members to be present in the cabin to calm and reassure passengers. Crew members who are not actively involved in the firefighting effort should remain in the cabin to give assistance where required. Cabin crew should keep the passengers informed in a calm and reassuring manner by telling them what is happening.

3.13 Lithium Battery Fires

Lithium batteries are classified as dangerous goods and are regulated for transport by air. For air transport, the provisions of the UN Model Regulations are incorporated into the Technical Instructions for the Safe Transport of Dangerous Goods by Air published by ICAO. IATA publishes the Dangerous Goods Regulations (DGR), which incorporate all of the provisions of the ICAO Technical Instructions (ICAO TIs) together with additional operational requirements developed by the IATA Dangerous Goods Board.
Lithium batteries can be divided into two groups:

- **Primary (non-rechargeable) lithium metal batteries;**
  - Primary (non-rechargeable) lithium metal batteries are used in smaller devices such as watches, calculators and cameras, or as a back-up power supply;

- **Secondary (rechargeable) lithium-ion batteries.**
  - Secondary (rechargeable) lithium-ion batteries tend to be larger and are used in devices such as laptop computers and mobile phones.

Batteries pose a unique hazard during transport because they contain stored energy which, if released through a short circuit, is capable of causing a fire. Because of their chemistry, lithium batteries also pose a chemical hazard due to the presence of metallic lithium or flammable liquid electrolyte. Typically, primary (non-rechargeable) lithium metal and secondary (rechargeable) lithium-ion batteries are widely used in various consumer electronic devices:

### 3.13.1 Carriage by Passengers and Crew

There is widespread usage of lithium batteries in consumer electronic devices such as laptop computers, mobile phones, portable electronic tablets, e-readers and games. The provisions in the IATA DGR permit crew members and passengers to carry lithium battery-powered equipment in checked or carry-on baggage. Crew members and passengers are also permitted to carry spare lithium batteries for such devices. Spare lithium batteries must be in carry-on baggage.

To be permitted in crew and passenger baggage, lithium batteries must:

- **Lithium metal batteries:** have a lithium content of not more than 2 g. Lithium metal batteries larger than AA exceed this allowance;
- **Lithium-ion batteries:** have a Watt-hour rating of not more than 100 Wh.

For the most part, lithium-ion batteries in typical consumer electronic devices will not exceed a capacity of 100 Wh. As an indication, a typical laptop computer battery has a Watt-hour rating of approximately 53 Wh. All new lithium-ion batteries will be marked with the Wh rating.

Exceptionally, with the approval of the airline, crew members and passengers may have lithium-ion batteries larger than 100 Wh up to a maximum of 160 Wh. If installed in equipment, the equipment may be placed in either checked or carry-on baggage. However, spare batteries must be in carry-on baggage and no more than two spare batteries are permitted per person.

IATA and ICAO have developed procedures for cabin crew to address incidents involving lithium batteries and PEDs (see Appendix A and Appendix B). In addition to the guidance listed in these appendices, in order to mitigate possible events during critical phases of flight, it is recommended not to charge PEDs during critical phases of the flight.
IATA, in conjunction with the Dangerous Goods Board and the IATA Dangerous Goods Training Task Force, has developed three lithium battery outreach and awareness products:

- Lithium battery passenger pamphlet: www.iata.org/whatwedo/cargo/dgr/Documents/LithiumBattery_PassengerFlyer.jpg
- Lithium battery booklet for shippers and acceptance staff
- Lithium battery awareness poster

This information is available at: www.iata.org/whatwedo/cargo/dgr/Pages/lithium-batteries.aspx

For hard copies, please contact IATA Dangerous Goods at: dangood@iata.org

Figure 8 – IATA’s Information for Airline Passengers on Lithium Batteries

Preventing lithium battery events in the passenger cabin is important to flight safety. Airlines should be aware of the requirements to implement procedures as stipulated in the IATA DGR 1.4.2.1(a). Gate agents and cabin crew should seek confirmation from passengers who surrender their carry-on baggage at the boarding gate or aircraft for loading into the cargo hold (perhaps because it is too large to be stowed in the cabin), that the baggage item does not contain any spare lithium batteries, e-cigarettes or, if applicable to the operator’s procedure, any PEDs.

See IATA DGR 1.4.2 Information to Operator Employees, subsection 1.4.2.1(a) which states in part: “[…] for passengers and handling staff and Cabin Crew the procedures to be followed to alert passengers that certain items of dangerous goods are specifically prohibited from being in checked baggage, e.g. spare lithium batteries (see Subsection 2.3 of the IATA DGR’s) and must be removed from baggage where items of carry-on baggage cannot be accommodated in the cabin […]”

Another possible proactive mitigation strategy includes, but is not limited to, communications with passengers via the airline webpage. The information should be straightforward, simple and clear with photos of various types of lithium batteries as examples. Some airlines also include additional information at the airport on electronic displays and at appropriate intervals along the check-in lines.
or self-check-in kiosks. Passengers are also asked questions to verify if there are any lithium batteries in their checked baggage.

In 2014, IATA published its first edition of the **Lithium Battery Risk Mitigation Guidance for Operators**\(^9\). This guide is designed to outline potential strategies airlines may wish to consider to reduce the risks associated with the transport of lithium batteries. These strategies address the carriage of lithium batteries as cargo on passenger and cargo aircraft as well as in passenger and crew checked and carry-on baggage. The strategies are primarily directed at an airline’s internal processes and procedures, although there are strategies for engaging with other entities in the supply chain, such as manufacturers of lithium batteries as well as shippers and freight forwarders.

The UK Civil Aviation Authority (UK CAA) has created further guidance for crew members, cargo and ramp personnel, and passenger handling staff on the carriage of lithium batteries and battery-powered mobility aids which is available on their Youtube channel: [www.youtube.com/user/UKCAA](http://www.youtube.com/user/UKCAA)

- “One team, one goal” guidance on the carriage of battery-powered mobility aids
- Lithium batteries – Guidance for crew members
- Lithium batteries – Guidance for cargo and ramp personnel
- Lithium batteries – Guidance for passenger handling staff

The Civil Aviation Safety Authority (CASA) Australia also published an educational video to help the public travel safely with lithium batteries: [Travelling safely with lithium batteries](http://www.iata.org/publications/Documents/lithium%20battery-risk-mitigation-guidance-for-operators-1st-ed.pdf).

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4. SECURITY

ICAO Annex 17 to the Chicago Convention requires that all airlines produce an Airline Security Program. Many countries require a copy of an air carrier’s security program before allowing them to fly inside their borders. The primary objective of international civil aviation security is to assure the protection and safeguarding of passengers, crew, ground personnel, the general public and airport facilities against acts of unlawful interference perpetrated on the ground or in flight.

4.1 IATA Security Manual

The objective of the IATA Security Manual is to provide airline personnel, at all levels, with security reference material, guidance and information required to competently perform their duties. It provides the reader with an understanding of current day principles of aviation security and various considerations to meet future threats. It also provides reference material that will assist in the management of security tasks not common to everyday operations.

With each new edition, IATA introduces the latest guidance and information to provide our airline members, aviation security stakeholders and other interested parties with the indispensable tools required to manage the security demands of today and tomorrow. The manual enables the industry and its stakeholders to further the goal of implementing integrated, proactive, effective and cost-efficient security procedures. Topics related to cabin crew include, but are not limited to:

- Acts of unlawful interference;
- Crew training programs;
- Types of unlawful seizures;
- Bomb threats;
- Least-risk bomb locations;
- Cabin crew checklist for suspected in-flight chemical/biological weapons;
- Prohibited items in the passenger cabin;
- Catering security;
- Removal of inadmissible passengers;
- Deportees and other persons travelling under special status (e.g., prisoners);
- Human trafficking;
- Unruly passengers.

For security reasons, we will not be including sensitive information in this manual. Security guidance, procedures and instructions for cabin crew are considered sensitive information and are normally provided by the airline’s security department to relevant personnel in a manner that protects the content from unnecessary disclosure. To order the IATA Security Manual:

www.iata.org/publications/Pages/security-manual.aspx or contact securitymanual@iata.org

For information on the IATA Security Course for crew offered by the IATA Training and Development Institute: www.iata.org/training/Pages/index.aspx
4.2 Security Checks

Cabin crew (or other designated company personnel) should perform inspections for left-behind objects and suspicious and/or restricted articles. This should be conducted after catering and cabin cleaning, before passengers embark and after passengers disembark. It is recommended that each cabin crew member be assigned specific areas to check and report to the SCCM when checks are completed. A checklist indicating the specific areas to be checked should be available for cabin crew to use in order to assist with the task of security checks. The check should include all compartments that are accessible and are in general use by cabin crew and passengers on a given flight.

4.3 Reinforced Flight Deck Door

The principal intent of a reinforced flight deck door is to ensure the security of the flight deck by restricting access. Airlines should provide the crew with appropriate guidance, procedures and instructions for use when a reinforced flight deck door is in place.

4.4 Restricted Areas

Cabin crew should be alert for possible security breaches at all times. Only authorized personnel and passengers, as well as screened baggage, mail and cargo should have access to the aircraft, airside and/or other restricted areas. Cabin crew should report to the applicable authorities any situation that could affect the security of a flight. Cabin crew should challenge anyone attempting to gain access to a restricted area without authorization or proper identification, or anyone entering a restricted area with an unauthorized object that could affect the safety of a flight.

Potential security breaches should be reported to the Pilot-in-Command or to another applicable competent authority such as Airport Security. Cabin crew should report what the problem is, where and when it occurred, who noticed the situation and why it is a concern.

4.5 Identification Badges

All cabin crew should be issued with a photo identity card or badge. It should be worn so as to be clearly visible when on duty in all secure areas. Cabin crew should always wear their identification badge as instructed by the applicable authorities.

Cabin crew should safeguard their identification badge at all times. Airlines should have appropriate policies in place to handle cases where badges are lost or stolen.

It is also recommended for airlines to have procedures for the withdrawal or retrieval of company-issued identification badges, passes to restricted areas, ID cards and other company-issued items (e.g., manuals, uniforms, etc.).
4.6 Unruly Passengers

Unruly passengers hinder crew members from performing their duties and constitute a serious threat to aviation safety. A clear airline policy is required to proactively address the issue. Crucial to the effectiveness of the process is the support of the airline’s executive management at an early stage. A set of procedures offering specific guidelines on implementing the policy needs to be communicated to all front-line staff.

Many incidents involving unruly passengers have had an impact on flight operations, including flights being diverted and/or delayed, with the ensuing repercussions on the rest of the operation (i.e., missed connections, inconvenience and the financial cost to the airline). Many passengers and crew have been extremely upset and frightened by the behavior of some unruly passengers.

Conflicts can take many forms. Some may be resolved through discussion and a satisfactory conclusion found, without further consequences. However, when a conflict becomes confrontational and hostile, it should be addressed immediately. Most important to consider is whether the behavior of the passenger poses a threat to the safety of the flight. If the conflict occurs on the ground, it should be resolved before departure.

In using conflict resolution techniques to reduce tension, it is recommended for cabin crew to:

- Listen;
- Allow the passenger to express his/her concerns;
- Be courteous, but firm;
- Address the issue;
- Determine what is right, not who is right;
- Appeal to reason before resorting to authority;
- Ensure cabin safety;
- Be assertive;
- Do not take issues personally.

Cabin crew should not hesitate to involve other crew members and/or the SCCM, as required. The SCCM should inform the flight crew of any incidents involving unruly passengers.

IATA has published Guidelines on Unruly Passenger Prevention and Management, which can be accessed at the following link: www.iata.org/cabin-safety

In addition, IATA Recommended Practice 1724 General Conditions of Carriage (Passenger and Baggage) provides airlines with useful guideline for dealing with difficult passengers. This includes Article 8, Section 8.1 Refusal and Limitation of Carriage and Article 11, Conduct Aboard Aircraft.

The IATA Recommended Practice can be found in the IATA Passenger Services Conference Resolutions Manual which is available for purchase at www.iata.org/publications/Pages/pscrm.aspx
4.7 Crew Protection

Some airlines provide destination briefings or notices/communications to their crew. These can include references to current events and possible advisories in order to provide advice for the safety and security of their crew members while at the destination. In addition, there are a number of steps cabin crew can take to promote their personal safety and security while on duty:

- Be discreet when communicating a room number to hotel staff and other crew members;
- Establish a buddy system to contact each other in case of fire or other emergency at the hotel;
- Note the room number of the SCCM;
- Do not leave luggage unattended;
- Ensure name tags are discreet and home address is not visible;
- Do not walk in questionable or dark areas on layover, especially when alone;
- Review hotel exit routes and other emergency procedures (i.e., fire, earthquake, etc.);
- Protect passports and any other important documents (i.e., ID cards) as well as valuables in the hotel room by using the room/hotel safe;
- Always carry medication in the original containers;
- Do not agree to transport packages or envelopes for others.
5. SAFETY EQUIPMENT AND SYSTEMS

All aircraft are equipped with various safety equipment and systems. Airlines should ensure that cabin crew receive training to understand the function and operation of cabin emergency equipment and to execute associated preflight checks. All cabin crew should be familiar with the location and use of all safety equipment and systems on board the aircraft.

5.1 Preflight Checks

Prior to each flight, the cabin crew should ensure that all safety equipment in the cabin is operative. The cabin crew should check that it is available, accessible, functional and secured in its designated stowage location and sealed (if applicable).

The Minimum Equipment List (MEL) is used by the crew and maintenance/engineering personnel to perform their preflight checks. The MEL contains details as to which equipment should be operational, and under what conditions, for a flight to be dispatched. It also lists the items that may be missing or inoperative, as applicable to each aircraft type.

If any safety equipment is missing or deemed inoperative, the cabin crew should immediately advise the SCCM to ensure the equipment is replaced or repaired as per the MEL. The SCCM will advise the PIC who will advise engineering/maintenance personnel. If required by company procedures, an “inoperative equipment” tag should be attached and an entry made in the cabin defect logbook.

5.2 Usage of Equipment

All service and safety equipment on board should be used only in accordance with the manufacturer’s instructions. After using emergency equipment, the cabin crew should always advise the SCCM and the PIC. The equipment should be returned to its designated stowage location. If the equipment is no longer usable (e.g., a depleted PBE or fire extinguisher) and if required by company procedures, an “inoperative equipment” tag should be attached and an entry made in the cabin defect logbook.

5.3 Equipment

Regardless of aircraft type, all commercial aircraft are equipped with safety equipment and systems. These include, but are not limited to:

5.3.1 Doors

Cabin crew need to be trained on the function of all aircraft door components on aircraft they are qualified to work on. These include, but are not limited to:

- Door handle;
- Arming and disarming controls;
- Floor brackets;
- Hand grips and assist handle(s);
- Viewing window;
- Slide pack cover and girt bar (if applicable);
- Power assist (or no power assist);
- Door opening and closing procedures (normal and emergency operations, both on land and on water);
- Associated escape devices, including:
  - Manual inflation handle;
  - Slide release handle;
  - Lanyard;
  - Lights;
  - Deceleration pad and breakpoint;
  - Apron slide handles.
- Slide raft contents (if applicable):
  - Hand pump fitting;
  - Beacon light;
  - Boarding station;
  - Heaving line;
  - Hand pump;
  - Survival kit;
  - Canopy, etc.
- Survival kit contents:
  - Flare(s);
  - Mirror;
  - Compass;
  - Flashlight (water activated), etc.
- Emergency window exit components (if applicable):
  - Exit handle;
  - Viewing window;
  - Assist handle;
  - Approximate weight.

5.3.2 Life vests

Life vests are available in two sizes: adult/child and infant. These are usually found under each passenger seat or in the armrest (premium cabin), at cabin crew seats and in designated life vest stowage locations (i.e., for infant life vests and additional adult/child life vests).
5.3.3 Emergency Locator Transmitters
Cabin crew need to be aware of the location and operation of emergency locator transmitters, both for on water and on land.

5.3.4 Seatbelts
All passenger and crew seats are fitted with a seatbelt (or safety harness for crew) to restrain the occupants. The cabin crew should be aware of the operation of all seatbelts on board, including seatbelts equipped with airbags. The SCCM/crew member should report to the PIC if any seatbelts are not properly anchored or functioning correctly.

5.3.5 Restraining Devices
Some airlines provide restraining handcuffs or ties for cabin crew to utilize in the event that an unruly passenger requires restraining. Cabin crew should be aware of their location and use.

5.3.6 Cabin Crew Stations
Cabin crew stations vary according to aircraft type. Components include, but are not limited to:
- Jump seat/spring-loaded seat;
- Lap belt/shoulder harness (retractable/non-retractable).

5.3.7 Passenger Seats
Passenger seats vary according to aircraft size and features as well as commercial considerations. However, most have the following components:
- Seatbelt;
- Seat recline button;
- Reclining seatback;
- Underneath stowage area for carry-on baggage;
- Life vest stowage.
In addition, electric seats usually include:
- Recline mechanism;
- Leg rest mechanism;
- Other attached features such as controls for the IFE.

5.3.8 Passenger Address System
The Passenger Address (PA) system enables crew members to broadcast an announcement to all passengers. Speakers are located throughout the aircraft cabin, including in the lavatories, galleys and crew rest areas.
5.3.9 **Megaphones**

A megaphone is a battery-operated loudspeaker that enables cabin crew to give instructions to passengers and crew during or after an evacuation (outside the aircraft).

5.3.10 **Safety Demonstration Kits**

A safety demonstration kit usually contains the following equipment:

- Seatbelt;
- Life vest;
- Oxygen mask;
- Passenger safety information card.

5.3.11 **Passenger Safety Information Cards**

A passenger safety information card is located at each seat and must be visible from the seated position. Airlines may provide braille and/or large print safety cards for passengers who are visually impaired. These may be distributed to visually impaired passengers during their personal preflight safety briefing.

5.3.12 **Emergency Lighting**

The aircraft is fitted with an emergency floor path lighting system to assist passengers and crew during an evacuation in both dark and smoke-filled cabins. Other fixed emergency lighting systems include:

- Ceiling flood lights;
- Exit lights;
- Exterior lights.

5.3.13 **Smoke Detectors**

Aircraft are fitted with smoke detectors in the lavatories, crew rest areas and main deck cargo compartments on COMBI aircraft.

5.3.14 **Fire Extinguishers**

For the recommended number and location of portable fire extinguishers for each aircraft type, see [IOSA CAB 4.2.5](#). Cabin crew should be familiar with the location and operation of every on-board fire extinguisher. All lavatory waste containers are equipped with a self-activating fire extinguisher.
5.3.15  Protective Breathing Equipment

As specified in IOSA CAB 4.2.5, Protective Breathing Equipment (PBE), to provide protection from smoke and fumes, must be installed:

- Adjacent to each hand-held fire extinguisher or adjacent to each cabin crew station, whichever is fewer;
- Adjacent to cargo compartments where a hand-held fire extinguisher is located.

5.3.16  Firefighting Kits

Some airlines equip their aircraft with a firefighting kit for the cabin crew to use to better fight an on-board fire. The firefighting kit usually contains protective gloves and a crowbar.

5.3.17  Axes

An axe is located on the aircraft as per regulatory requirements and security considerations. The cabin crew should ensure that passengers do not have access to the axe or the compartment where the axe is located.

5.3.18  Fixed Oxygen Systems

Aircraft are equipped with fixed oxygen systems to provide oxygen to passengers and crew in the event of a depressurization. There are two types of fixed oxygen systems, depending on the aircraft type:

- Gaseous system;
- Oxygen generator-based system.

Regardless of which system is used, in the event of a depressurization, oxygen masks will drop down from compartments in the ceiling above each row of seats, cabin crew seat, crew rest bunk and lavatory.

5.3.19  Portable Oxygen Bottles

Portable oxygen bottles are on board in accordance with regulatory requirements. These are used post-depressurization or to administer to those with medical problems.

5.3.20  First-Aid and Medical Kits

The recommended number and contents of first-aid and medical kits can be found in Section 5 (CAB) of the IOSA Standards Manual in subsections CAB 4.2.1, CAB 4.2.2 and CAB 4.2.3.
5.3.21 Universal Precaution Kit

The recommended number and contents of universal precaution kits (UPK) can be found in Section 5 (CAB) of the IOSA Standards Manual in subsection CAB.3. IATA has recently developed further guidance on the recommended content typically included in an UPK, which can be found in the IATA Air Transport and Communicable Diseases section.

5.3.22 Automatic External Defibrillator

See Section 0 of this document, Health and Medical Care On Board, and Section 5 of the IOSA Standards Manual (ISM).

5.3.23 On-Board Wheelchairs

Aircraft equipped with accessible washrooms should be equipped with an on-board wheelchair.

5.3.24 Bassinets

A device intended for the comfort of infants and the convenience of parents/guardians must be used in accordance with manufacturer’s instructions. Bassinets are intended for use during flight, but not during taxi, takeoff and landing. Use of the device is restricted by infant size and weight.

An infant should be secured when using a bassinet at all times in case of turbulence. An infant should be removed from a bassinet in the event of turbulence unless the device is manufactured and approved for use during turbulence.
6. HEALTH AND MEDICAL CARE ON BOARD

Airlines should have a company policy in place to deal with medical events that occur on board.

Some of the procedures in this section are derived from IATA Resolutions, which means they are mandatory for IATA member airlines.

In developing a policy, it is important for airlines to ensure that all necessary departments are identified and involved in the creation of the policy, such as:

- Medical or Occupational Health Department (or designated physician or clinic): to ensure that medical equipment is adequate and appropriate, and that medico-legal requirements are met;
- Safety and Training Departments: for training of flight and cabin crew;
- Inflight Services: for communication with cabin crew and coordination of cabin crew welfare issues;
- Flight Operations: for agreement of procedures, including communications with the ground;
- Legal: to deal with legal problems arising as a result of medical care provided to a passenger in flight.

6.1 Emergency Equipment and Supplies

As per ICAO Standard and Recommended Practices (SARPs), airlines are required to carry first-aid kits. It is also recommended that airlines carry two other types of medical supplies:

- One or more universal precaution kits;
- An extended medical kit (i.e., materials to be used by qualified medically trained persons)

The recommended number and contents of these kits can be found in Section 5 (Cabin Operations) of the IOSA Standards Manual in section CAB 4.2.1, CAB 4.2.2 and CAB 4.2.3.

It is essential that the first-aid kits and UPKs be distributed as evenly as practicable throughout the passenger cabin so they are readily accessible to cabin crew. In view of the possible use of medical supplies outside the aircraft in an emergency situation, some kits should be located near the exits.

The extended medical kit, when carried, should be stored in an appropriate secure location, with a placard stating it is emergency equipment stowage and not for passenger use.

6.2 Automatic External Defibrillators

The carriage of Automatic External Defibrillators (AEDs) is determined by an operator on the basis of risk assessment, taking into account the particular nature of the operation. Airlines should ensure that they have established clear policies with respect to liability, maintenance, quality assurance and training standards, particularly the requirement for CPR (cardio-pulmonary resuscitation) training.
6.3 Survival Equipment
In addition to the usual survival equipment carried for flights over water (i.e., life vests), first-aid kits should be carried in the slide rafts so they can be used for post-ditching medical care.

6.4 Training
Cabin crew training for inflight medical events should be in accordance with recommendations found in CAB 2.2.11 of the IOSA Standard Manual Section 5 (CAB).

6.5 Cabin Crew Manual
Airlines should ensure that their cabin crew manual contains specific company policies and procedures regarding the responsibilities of cabin crew in the case of a medical event, including information regarding:

- First-aid care;
- Safety considerations;
- Administration of medication and oxygen;
- Use of medical equipment;
- Calling for a physician;
- Notification of the flight deck;
- Medical contacts, etc.

In addition, the necessary instructions should be provided so that cabin crew can ensure that appropriate medical assistance is ready upon arrival.

6.6 Cabin Crew Protection
Airlines should include in their training programs procedures regarding the prevention of cabin crew injury as a result of the handling of syringes, needles, etc. These should include hygienic protocols to ensure the safety of the cabin crew (e.g., wearing of gloves, face masks, etc.).

6.7 Crew Immunization
It is recommended that crew be immunized in accordance with the recommendations of the World Health Organization (WHO) and the airline’s national public health Authority.

6.8 Carriage of Passengers with Communicable Diseases
The risk of any communicable disease being transmitted on board aircraft is limited. However, passengers and crew can be exposed, with or without their knowledge, to communicable diseases that are normally spread through close contact. Examples of such diseases include chicken pox,
tuberculosis and influenza.

For this reason, it is important for airlines to ensure that they receive up-to-date information regarding countries where there is a greater risk of exposure to communicable diseases. It is recommended that airlines take into account the information, and follow the recommendations, published by the WHO closely. Airlines should make this information/recommendations available to cabin crew travelling to the countries concerned.

In the event that a cabin crew suspects that a passenger may suffer from a communicable disease, they should follow the IATA guidelines for cabin crew for suspected communicable disease found at: www.iata.org/whatwedo/safety/health/Pages/diseases.aspx

### 6.9 Cabin Insect Extermination

Airlines should ensure that their ground staff and crew members are informed about:

- Proper insect extermination procedures;
- The safety of insecticides;
- WHO recommendations on cabin insect extermination.

When establishing a policy, airlines should try to obtain the most reliable information (e.g., from national control authorities) regarding the risks involved and any imposed insect extermination requirements. Cabin crew should be aware of how to expel the insect extermination spray from the cabin. They should ensure that passengers are informed as early as possible, preferably prior to boarding, that insect extermination has been or will be conducted. It is important for cabin crew to deliver a positive message to passengers when making announcements that cabin spraying has to be carried out.

### 6.10 Carriage of Persons Requiring Special Assistance

When a passenger requires special assistance, an information sheet should be completed at the time of reservation. It is important that airlines ensure that this sheet is transmitted to the cabin crew when any on-board assistance has been requested.

### 6.11 Passengers with Reduced Mobility

Airlines should assist passengers with reduced mobility in a manner compatible with the relevant safety regulations and operational considerations found in:


The information provided below stems from IATA Resolution 700 Acceptance and Carriage of Passengers Requiring Special Assistance and IATA Recommended Practice 1700b Carriage of Passengers with Reduced Mobility and Escorts. The Resolution and Recommended Practice can be found in the IATA Passenger Services Conference Resolutions Manual, which is available for purchase.
In addition, ICAO provides a manual on *Access to air transport by persons with disabilities (Doc9984)*. To obtain a copy of this document, please visit: [store1.icao.int](http://store1.icao.int). Please note that the ICAO manual is guidance material and should not be interpreted as regulation. A State may choose to follow, adopt, or exceed this guidance.

Also important to note: IATA member airlines should be aware of the applicability of the United States Department of Transportation (DOT) 14 CFR Part 382, Non-discrimination on the Basis of Disability in Air. This particular regulation is applicable to all carriers operating in the United States, including foreign carriers. For more information, please contact the U.S. DOT at: [www.dot.gov/contact-us](http://www.dot.gov/contact-us).

### 6.11.1 Definition

IATA Resolution 700 defines a passenger with reduced mobility as any person whose mobility is reduced due to physical deficiency (locomotory or sensory), intellectual deficiency, age, illness or any other cause of disability, and who needs some degree of special accommodation or assistance over and above that provided to other passengers. This requirement will become apparent from special requests made by the passengers and/or their family, a medical authority, airline personnel or other industry-associated persons (e.g., travel agents, etc.).

The level of assistance required from the airport and/or the airline can vary depending on the different needs that the passenger with reduced mobility has when travelling by air.

### 6.11.2 Categories

Passengers with reduced mobility are categorized into various groups distinguished by the disability of the passenger requiring assistance. These are identified in airline messages by AIRIMP code.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLND</td>
<td>Blind passenger — specify if accompanied by seeing-eye dog or other service animal</td>
</tr>
<tr>
<td>DEAF</td>
<td>Deaf passenger – specify if accompanied by a service animal</td>
</tr>
<tr>
<td>DPNA</td>
<td>Disabled passenger with intellectual or developmental disability needing assistance - specify details</td>
</tr>
<tr>
<td>MAAS</td>
<td>Meet and assist - specify details</td>
</tr>
<tr>
<td>SP</td>
<td>Special needs passenger – details to be optionally entered after the passenger’s name on the ticket</td>
</tr>
<tr>
<td>WCHR 1</td>
<td>Wheelchair — R for Ramp — passenger can ascend/descend steps and make his/her own way to/from cabin seat, but requires wheelchair for distance to/from aircraft (i.e., across ramp, finger dock or to mobile lounge, as applicable). When a service animal is accompanying the passenger, specify the type of animal in the free text of the Special Service Request (SSR) Item.</td>
</tr>
</tbody>
</table>
### Table 6 – AIRIMP Codes for Passengers Requiring Assistance

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCHS 1</td>
<td>Wheelchair — S for Steps — passenger cannot ascend/descend steps, but is able to make own way to/from cabin seat; requires wheelchair for distance to/from aircraft or mobile lounge and must be carried up/down steps. When a service animal is accompanying the passenger, specify the type of animal in the free text of the SSR Item.</td>
</tr>
<tr>
<td>WCHC 1</td>
<td>Wheelchair — C for Cabin Seat — passenger completely confined to wheelchair; requires wheelchair to/from aircraft/mobile lounge and must be carried up/down steps and to/from cabin seat by trained personnel. When a service animal is accompanying the passenger, specify the type of animal in the free text of the SSR Item.</td>
</tr>
<tr>
<td>WCLB 1</td>
<td>Wheelchair – Lithium-ion Battery – Requires advance notification/preparation. Weight and dimensions may be specified. Wheelchair and battery must be claimed and rechecked at each interline transfer point.</td>
</tr>
</tbody>
</table>

### Table 7 – AIRIMP Codes for Medical Cases

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEGL</td>
<td>Leg in cast - Left – for passengers with their left leg in a full cast or with a fused knee (only to be used in conjunction with SSR code MEDA)</td>
</tr>
<tr>
<td>LEGR</td>
<td>Leg in cast - Right - for passengers with their right leg in a full cast or with a fused knee (only to be used in conjunction with SSR code MEDA)</td>
</tr>
<tr>
<td>LEGB</td>
<td>Legs in cast - Both - for passengers with both legs in full casts or with fused knees (only to be used in conjunction with SSR code MEDA)</td>
</tr>
<tr>
<td>MEDA</td>
<td>Medical case – company medical clearance may be required. Generally not to be used for passengers with reduced mobility who only require special assistance or handling. However, depending on the reason for reduced mobility, it may be necessary to have a medical clearance in some cases.</td>
</tr>
<tr>
<td>OXYG</td>
<td>Oxygen – for passengers travelling seated or on a stretcher needing oxygen during the flight (only to be used in conjunction with SSR code MEDA)</td>
</tr>
<tr>
<td>STCR</td>
<td>Stretcher passenger</td>
</tr>
</tbody>
</table>

### 6.11.3 Boarding and Disembarking

Persons with reduced mobility who self-identify as needing assistance or additional time should be offered the opportunity to pre-board (i.e., prior to all other passengers) and disembark separately (i.e., after all other passengers). Assistance in getting on and off the aircraft should be provided promptly to persons with reduced mobility.

### 6.11.4 Maximum Number and Escort Requirement

In circumstances in which the number of passengers with reduced mobility forms a significant proportion of the total number of passengers carried on board, the number of passengers with reduced mobility should not exceed the number of able-bodied persons capable of assisting with an emergency evacuation.
Passengers with reduced mobility who are not able to reach an emergency exit without assistance in a reasonable time should be escorted. Escorts shall be at least 16 years old as well as physically and mentally able and willing to evacuate the passenger with reduced mobility in case of an emergency (IATA Recommended Practice 1700b).

6.11.5 Evacuation Procedure

During an emergency evacuation, the cabin crew is responsible for evacuating passengers with reduced mobility that are not able to reach an emergency exit without assistance in a reasonable time. Passengers with reduced mobility requiring assistance to reach an emergency exit should be evacuated by their escorts. Depending on the situation, cabin crew may assist (IATA Recommended Practice 1700b).

6.11.6 Seating

Persons with reduced mobility should be assigned seats that meet their needs, subject to safety requirements. For instance:

- A seat with a movable armrest for a passenger who cannot easily transfer over a fixed aisle armrest;
- A seat that provides additional leg room for a passenger who cannot bend his/her leg (although not at an emergency exit);
- A seat close to a lavatory or exit for a passenger with a mobility impairment.

Once seats have been assigned, persons with reduced mobility should not be moved from the seats that are most appropriate for them, other than for safety reasons. In the event of an equipment change, persons with reduced mobility should be reassigned to an appropriate seat.

6.11.7 Individual Safety Briefings

The presence on board an aircraft of any of the categories of passengers mentioned in Section 6.11.2 above requires special individual briefings prior to taxiing. Briefings should cover safety and emergency procedures, cabin layout and any specialized equipment supplied by the airline on board. Responsibility for such personal briefings rests with each carrying airline’s cabin crew. When the passenger requiring the briefing is capable of understanding the content, cabin crew should ensure that they give the individual safety briefing to the passenger and not just to the travelling companion or escort.

Airlines should provide individual safety briefings to persons with reduced mobility, where requested or required, in a manner that meets the passenger’s needs. If individual safety briefings are provided, they should be done as discreetly as possible. Airlines should ensure that verbal descriptions are provided for information that is presented in a visual format and that verbal information is likewise also presented in a visual format. Visually and hearing-impaired passengers should be briefed individually. Visually impaired passengers may be briefed verbally and Braille brochures may be
provided as a back-up (as required by State regulations). This will ensure that persons with sensory impairments have equal access to the same information provided to all other passengers. The use of pictures can meet the needs of persons with learning disabilities. Upon request, aircraft operators should provide verbal or visual information about the equipment features of an aircraft, such as the location of call buttons and lavatories.

6.11.8 Wheelchairs

Passengers travelling with their own folding wheelchair or other assistive device may request it to be carried in the passenger cabin where storage facilities are available. Where facilities do not exist, the wheelchair or assistive device should be loaded into the baggage hold in such a way that it is easily accessible for a timely return to the passenger.

6.11.9 On-Board Wheelchairs

Aircraft with accessible lavatory facilities should be equipped with an on-board wheelchair. An aircraft that is not equipped with accessible washrooms should carry an on-board wheelchair when a person with reduced mobility requests one, subject to the aircraft having the capacity to stow and restrain such equipment. On-board wheelchairs should be designed to permit the easy transfer of an occupant and easy maneuvering of the wheelchair. On-board wheelchairs should include footrests and armrests that are moveable or removable, an occupant restraint device, and wheel locks or other adequate means to prevent the chair from moving during transfer or turbulence.

6.11.10 Accessible Lavatories

Where aircraft type, size and configuration permit, at least one lavatory should be accessible to persons with reduced mobility. Persons with reduced mobility are entitled to assistance in moving from their seat to an aircraft lavatory. However, cabin crew are not required to lift a passenger or provide assistance in using the lavatory facilities.

6.11.11 Personal Care Assistance

Airlines are not required to provide personal care assistance to persons with reduced mobility. Examples of personal care assistance include the following:

- Assistance with eating;
- Assistance in a lavatory or with elimination functions;
- Provision of medical services, including administration of medication.
6.12 Carriage of Incapacitated Passengers

The carriage of incapacitated passengers is an important aspect of air travel. Acceptance of incapacitated passengers for travel may require input from:

- The airline’s medical department;
- The passenger’s medical advisor;
- The airline’s reservations, ticketing and operations departments.

6.12.1 Medical Clearance Not Required

No medical clearance or special forms are required for those incapacitated passengers who only require special assistance in the airport, or in embarking/disembarking.

6.12.2 Medical Clearance Required

A medical clearance by the medical department/advisor of the airline shall be required whenever the airline has received information that any passengers:

- May be suffering from any disease that is believed to be actively contagious and communicable;
- Who, because of certain diseases or incapacitation, may have or develop an unusual behavior or physical condition that could have an adverse effect on the welfare and comfort of other passengers and/or crew (keep in mind that some countries may question or challenge this approach);
- Can be considered to be a potential hazard to the safety or punctuality of the flight (including the possibility of diversion and unscheduled landing of the flight);
- Would require medical attention and/or special equipment to maintain their health during the flight;
- Might have their medical condition aggravated during or because of the flight.

Such passengers shall be subject to prior clearance for air travel by the medical departments/advisors of all carrying airlines prior to travel. The airline’s advisors will obtain relevant information from a licensed physician who is familiar with the passenger’s physical or mental condition.

Subject to local laws on medical confidentiality, the information must be provided to another airline when seats are requested on a connecting flight. Also, when an airline receives a request for travel and has reasonable grounds for doubt about the passenger’s incapacitation, such airline is free to require additional medical information for clearance purposes.

Airlines can deny transportation to passengers needing medical clearance. For more information, see *IATA Resolution 700* which is available for purchase at [www.iata.org/publications/Pages/pscrm.aspx](www.iata.org/publications/Pages/pscrm.aspx).
6.12.3 Medical Information Form

A completed Medical information Form (MEDIF) or equivalent is required for passengers:

- Whose fitness to travel is in doubt, as evidenced by a recent illness, disease, treatment, operation or other condition;
- Whose medical condition requires provision of special services (i.e., stretcher, oxygen, etc.), other medical assistance or the carriage of special medical equipment.

See a sample MEDIF in the IATA Medical Manual.

6.12.4 Frequent Traveler’s Medical Card

In order to facilitate air travel by regular passengers who are permanently or chronically incapacitated, any airline’s medical department may provide a standard Frequent Traveler’s Medical Card (FREMEC) or equivalent. Please see the IATA Medical Manual: www.iata.org/Medical-Manual

The provision of such cards is governed by the issuing airline’s terms and conditions. Whenever special assistance or handling is required, the Information Sheet for Passengers Requiring Special Assistance should be used to obtain the detailed requirements.

6.12.5 Refusal or Removal of Incapacitated Passengers

In the event a cabin crew suspects that a passenger is not fit to travel, or may represent a danger to themselves or to other passengers, they should inform the Pilot-in-Command and determine appropriate action in close coordination with ground staff.

If an incapacitated passenger is denied transportation at point of origin or at a connecting point, the person taking the decision to refuse or remove the passenger should immediately notifying all down-line transfer stations and the destination station shown on the passenger’s ticket, as well as the originating airline (if known), stating the reason for the refusal/removal and full details of any consequent action taken or to be taken.

6.12.6 Other Medical Equipment

The following medical equipment or services are to be provided in accordance with individual airline policies and the respective government regulations:

- Wheelchairs;
- Oxygen;
- Incubators;
- Stretchers;
- Devices for supporting limbs;
- Any other specialized equipment to support incapacitated passengers.
6.12.7 Use of Oxygen

When oxygen is used, it is important to enforce the no-smoking policy. The Pilot-in-Command should be informed and an appropriate announcement made. The “No Smoking” sign should be cycled (Turned ON/OFF), as applicable, as a warning.

6.12.8 Use of Stretchers

The rules concerning the exact number of seats and the locations required for the installation of stretchers or similar devices (i.e., couches, divans, etc.) on board vary between carriers and aircraft types.

Escorts are always required for passengers needing a stretcher and they should be seated next to the passenger they are escorting and occupy a seat towards the aisle.

6.12.9 Loading of Special Equipment

Special equipment required by incapacitated passengers in connection with their trip, if not carried in the passenger cabin, should be loaded in the baggage hold where it is easily accessible for timely return to the passenger. Any such item should:

- Be properly identified and tagged;
- Always travel with the passenger;
- Be loaded in such a way as to be readily and immediately available at transfer and destination points.

For more information, see IATA Resolution 745b in the IATA Passenger Services Conference Resolutions Manual which is available for purchase at www.iata.org/publications/Pages/pscrm.aspx.

6.12.10 Transit Stations

Incapacitated passengers requiring special assistance should normally be permitted to stay on board during a transit stop (with their escorts), subject to the observance of applicable government or other safety rules.

6.12.11 Disembarkation

Airlines should make arrangements for assisting incapacitated passengers in matters relating to inbound government clearance and baggage delivery. Wheelchairs and other assistive devices checked in should, within the shortest possible time, be delivered as close as possible to the door of the aircraft. However, incapacitated passengers may, at their option, use a station/airport wheelchair.
6.12.12 Group Travel

Special arrangements should be made for the carriage of incapacitated passengers in groups. Such groups should be handled independently of individual incapacitated passengers. Travel by groups of incapacitated passengers should always be subject to applicable government and carrier air safety rules and regulations.

6.13 Periodic Enquiries

During a flight, cabin crew should make periodic enquiries concerning the needs of a person with reduced mobility or a passenger requiring special assistance.

6.14 Service Animals

Dogs (or other animals as approved by state regulators) brought into the cabin should be properly harnessed and remain with the passenger throughout the flight. Cabin crew and other passengers should not approach the animal. Food and water should only be provided at the owner’s request. Guidelines regarding service animals on board include the following:

- Aircraft operators should not impose charges for transporting service animals;
- Persons with reduced mobility and aircraft operators should take the steps necessary to comply with the animal health regulations, if any, of the state of arrival, to permit the legal transportation of a service animal into the destination airport;
- If the use of a service animal is required by a person with reduced mobility, aircraft operators should provide seating with sufficient space so that the animal can remain on the floor at the passenger’s seat, in accordance with applicable safety regulations. This may require an extra seat to be provided by the aircraft operator or purchased by the passenger in order for there to be enough floor space for the animal to lie down, without discomfort to the animal, the person with reduced mobility or other passengers. The accommodation should ensure that the animal is able to carry out its duties without contravening safety regulations.

The following should be considered when determining the required amount of floor space:

- A service animal should have sufficient space to be able to assume other positions besides a “tight curl”, especially on long flights;
- Entry paths of seat rows affect the space available for a service animal to lie down. An entry path for this purpose is measured from the front of the seat cushion to the back of the seat in front, and should be wide enough for the animal to get in and out of the row without having to be squeezed through the space;
- No part of a service animal should have to extend into an aisle where it could get in the way of carts or people walking;
6.14.1 Emotional Support or Psychiatric Service Animals

Emotional support or psychiatric service animals are usually not accepted on most domestic or international flights. However, for flights inbound or outbound of the United States, airlines should be aware of the applicability of the *U.S. Department of Transportation 14 CFR Part 382, Non-discrimination on the Basis of Disability in Air* as related to emotional support animals. Acceptance under this regulation usually includes the following stipulations:

- A dog is accepted as an emotional support or psychiatric service animal;
- On U.S. codeshare flights (domestic, trans-border and international), an airline may be required to accept other types of emotional support or psychiatric service animals;
- It is recommended that the emotional support or psychiatric service animal be harnessed and seated at the passenger’s feet during the flight.

For more information and to ensure compliance with the applicable regulations, please contact the U.S. DOT at: [www.dot.gov/contact-us](http://www.dot.gov/contact-us)

6.15 Use of Canes

Canes used by passengers should be stowed during the flight in a manner as to prevent them from sliding into the aisle, obstructing access to emergency exits or becoming a dangerous projectile during an emergency or turbulence.

6.16 Expectant Mothers and New-Born Infants

Expectant mothers are not regarded as incapacitated passengers and are normally accepted for travel without requiring medical clearance unless there is any uncertainty regarding the progress of the pregnancy. Medical clearance is recommended when travelling less than four weeks prior to the planned date of delivery (eight weeks for multiple pregnancies) or if any complications in delivery may be expected. It is recommended that cabin crew be alerted via a notation in the PIL where medical clearance has been required.

Passengers beyond the 28th week of pregnancy should carry a medical certificate confirming the expected delivery date and that they are in good health.

Passengers with normal pregnancies and no previous history of premature labor can travel up to and including the 36th week. After that time, only short trips will be considered and only after assurance by the treating physician that there is no sign of imminent delivery.

Air travel is not recommended for pregnant women within the last seven days prior to delivery and within the first seven days after delivery.
Healthy new-born infants, provided not prematurely born, may travel following the first seven days after birth. Premature infants are subject to medical clearance depending on individual airline policies.

**Seatbelts**: Expectant mothers should fasten their seatbelts below the stomach. When necessary, seatbelt extensions should be provided.

**Bassinets**: The number of bassinets available will depend on the bulkhead locations available on particular types of aircraft. Airlines should inform passengers of the status and availability of bassinets on board. Effective coordination with ground staff is essential to ensure that special needs are reflected in the PIL.

Bassinets should only be used during cruise flight. In other phases of flight, infants should be restrained as per regulatory regulations. For more information, please consult the IATA Medical Manual at: [www.iata.org/Medical-Manual](http://www.iata.org/Medical-Manual). IATA Resolution 700 applies where medical clearance is required to travel.

### 6.17 Unaccompanied Minors

Airline policies regarding the designated age of an unaccompanied minor (UMNR) vary. However, they are usually applicable to a child who is travelling alone and aged between five and 12 years old. The airline is responsible for the safe delivery of UMNRs to the receiving carrier at the transfer station or to the final destination. For this purpose, it is recommended that airlines use a form to track the movement of each UMNR in its care. In this respect, the SCCM should ensure that the form is properly completed at the time of hand-over after boarding and when disembarking from the aircraft. The form is an important tool to track the movement of UMNRs at each hand-over point.

While the maximum number of UMNRs carried on each aircraft is left to the discretion of each airline, it is highly recommended that airlines ensure that there is a sufficient number of cabin crew in proportion to the number of UMNRs in their care.

It is recommended that cabin crew:

- Ensure that ground staff have seated UMNRs together, in close proximity to crew areas and lavatories, but never near an emergency exit;
- Check on UMNRs frequently throughout the flight;
- Not serve alcoholic beverages to UMNRs;
- Supervise UMNRs during meal times;
- Provide a special safety briefing.

### 6.17.1 Identification

Airlines should use a special identification tag/badge for unaccompanied minors, preferably displaying the letters UMNR that children should wear throughout the flight.
6.17.2    Travel Documents

Tickets and other travel documents of UMNRs, including baggage identification tag(s), health certificates, etc., should be carried in the charge of the SCCM. When this is not possible, these documents may be retained by the minor, preferably in a wallet provided by the carrier.

IATA Recommended Practice 1753 taken from the Passenger Services Conference Resolutions Manual contains guidance on the carriage of Unaccompanied Minors.

6.18    Use of Infant Restraint Devices

Infants should be restrained for takeoff, landing and whenever the fasten seatbelt sign is illuminated in an approved infant restraint device or held by an adult with the seatbelt fastened around the adult passenger only (not around the infant). Airlines should refer to national aviation requirements for information on approved restraint systems. Child seats used in flight must meet requirements for aviation use.

6.19    Infant Flotation Equipment

Airlines must carry appropriate infant flotation equipment and brief passengers on their location and use.

6.20    Passengers of Size

Seatbelt extensions should be provided to passengers who are unable to fasten their seatbelt. Cabin crew should be familiar with their airline’s policy with respect to seat allocation for such passengers so as to be able to deal effectively with any requests for seat changes on board.

6.21    Handling of a Death on Board

In the event of a death on board, it is recommended that cabin crew follow IATA guidelines found at: www.iata.org/health. While only a medical doctor can formally pronounce a person dead, see the IATA guidelines for when a person may be presumed dead.

If an airline has predetermined areas for stowing a passenger’ body, and the body has to be moved from another part of the aircraft, it is essential that cabin crew move the body discreetly. For example, an aircraft wheelchair may be used so as not to draw the attention of other passengers.

The Pilot-in-Command must be informed of the death.

Close cooperation needs to be established with national governments and airport authorities to ensure that procedures are properly communicated to ground staff.

When a serious medical emergency has occurred on board resulting in the death of a passenger, the crew needs to be trained in the handling of any accompanying passengers. There can also be lasting
effects on the crew involved. It is recommended that airlines develop procedures to ensure that crew members are properly supported after such incidents.

6.22 Reporting of Medical Incidents

In developing their medical care policy, airlines need to determine what information needs to be reported and how it should be reported. The following elements should be addressed:

- Use a clear form or electronic support to ensure that incidents are well documented;
- Identify a central point of responsibility to receive and manage the reports;
- Determine the circumstances when actions should be taken;
- Define and communicate what actions should be taken;
- Implement a process to ensure that medical supplies, equipment and training programs are appropriate to the type of incidents occurring.

A sample Medical Incident Report form to be used by cabin crew to report incidents is available in the IATA Medical Manual: [www.iata.org/Medical-Manual](http://www.iata.org/Medical-Manual)
7. FOOD AND HYGIENE

Cabin crew play a crucial role in creating an airline’s image to the customer. It is, therefore, important for the service delivered by cabin crew to meet airline management’s expected quality standards. Equally important is the need for cabin crew to ensure that food and beverages served on board meet the highest standards of hygiene and safety.

7.1 Acceptance of Catering Supplies on Aircraft

Effective interaction between the caterer and cabin crew is particularly important. The SCCM acts as the interface with the caterer and should supervise the delivery of catering supplies onto the aircraft. It is important that the cabin crew be informed of the type of service (e.g., full uplift, top-up, etc.) and what is being delivered on board, so that they are in a position to ensure that the delivery corresponds to the Airline Catering Order (ACO). In cases when a full service is not carried out, the SCCM should be responsible for checking on missing supplies and communicating to the local station or caterer (as appropriate) regarding any additional items required.

The caterer should hand over to the SCCM a delivery sheet containing details of the meals uplifted and ensure that:

- Each item is placed in the correct location (this will vary depending on the aircraft, airline and flight involved);
- Food is well sealed and has been sufficiently protected against heat, dust and insects during loading;
- The time interval between when food was taken out of the refrigerator and loaded onto the aircraft remains within acceptable limits.

The SCCM should be satisfied that the delivery corresponds to the ACO and, in the event of a delay, that appropriate measures have been taken to prevent spoilage of the food (see section 7.4 below).

7.2 Crew Briefings

In order to ensure the smooth running of the inflight food service, it is recommended that the SCCM review the service plans for the flight with the crew, including:

- Time schedule for the meal service;
- Special meal requirements;
- Flight deck service;
- Crew meals.

7.3 Meal and Beverage Service to the Flight Crew

Airlines should establish a clear policy for serving meals and beverages to the flight crew in accordance with aviation regulations, as applicable. To prevent the remote possibility of both pilots
being incapacitated at the same time, it is recommended that the PIC and other flight crew not eat the same meal at the same time, and avoid certain types of foods that are particularly liable to cause gastro-intestinal symptoms (e.g., shellfish, crustaceans, etc.)

Beverages should be served separately from the meal in order to avoid spillage. No alcoholic beverages should be served to anyone in the flight deck at any time.

### 7.4 Food Safety and Hygiene

Food is responsible for the transmission of a large number of diseases. The subject of food sanitation and hygiene is sufficiently important that international health regulations govern the storing and handling of food. Various parties are involved in that responsibility and have an important role to play:

- National health administrations;
- Local health authorities;
- Airline catering companies;
- Airlines;
- Aircraft manufacturers;
- Catering equipment manufacturers.

It is important to recognize that, in view of the millions of passengers now travelling by air each year, the incidence of food-borne infections and allied disorders is remarkably small due to the vigilance of airlines and their catering departments and suppliers. There are many diverse authoritative books on the subject of food sanitation and it is recommended that airlines be guided by relevant resources such as the Hazard Analysis and Critical Control Point (HACCP) analysis [www.haccponline.ca/home](http://www.haccponline.ca/home) and the International Flight Services Association (IFSA) *International Inflight Catering Association (IFCA) Food Safety Guidelines* [www.ifcanet.com/teams/foodsafety](http://www.ifcanet.com/teams/foodsafety) and other references found in this section. Also, in order to promote worldwide meal definition standardization, guidelines have been set out in IATA Recommended Practice 1773, Passenger Services Conference Resolutions Manual which is available for purchase at [www.iata.org/publications/Pages/pscrm.aspx](http://www.iata.org/publications/Pages/pscrm.aspx).

#### 7.4.1 Hygiene and Sanitation

The World Health Organization (WHO) *Guide to Hygiene and Sanitation* was developed with the cooperation of IATA and can be found at the following link: [www.iata.org/health](http://www.iata.org/health)

**NOTE:** The WHO is currently revising its *Guide to Hygiene and Sanitation in aviation* which will include topics such as food safety, water safety, waste management, cleaning and vector control.
7.4.2 Risks and Prevention

Poor hygiene or unsatisfactory disposal of food wastes can result in the contamination of food and, thus, influence safety on board, either directly or indirectly, in the following ways:

- Sudden incapacitation or collapse of a member of the crew resulting from a short incubation type of food poisoning due to bacterial toxins;
- Subtle incapacitation of one member of the crew at a critical phase of flight, as may occur in cases where there is toxemia prior to the onset of gastro-intestinal symptoms (i.e., food poisoning);
- A suspected outbreak of acute food poisoning affecting a significant number of passengers; while in itself is a minimal safety risk, the scenario may influence the flight crew to divert to an alternative airport.

It is, therefore, essential that anyone engaged in the provision or handling of aircraft food be properly trained. Cabin crew should be trained in the proper safety, hygiene and handling of inflight food and meet the following minimum standards:

- Company regulations and procedures;
- Essentials of food hygiene;
- Risks and precautions;
- Health requirements of cabin crew;
- Cabin galley features and use of all equipment;
- Use of protective clothing;
- Code of practice in handling food, cooking times, chilling, etc.;
- Personal hygiene;
- Special meals;
- Airline Catering Orders (ACO);
- Acceptance of the delivery of food onto the aircraft;
- How to deal with cases of food poisoning.

7.5 Personal Hygiene

Cabin crew should follow the same code of practice as food handlers on the ground. Prior to commencing food service, hands should always be washed with soap (preferably a non-perfumed liquid soap solution from a dispenser) and plenty of warm water. In addition, they should wash their hands again if they have handled any article likely to be contaminated (e.g., an airsickness bag, waste, lavatories, etc.). Hands should be dried with a disposable towel: clothing should never be used to dry hands. Cabin crew should never touch food directly and handle only the trays and containers. Fingers should not be placed inside cups or glasses, and cutlery should be picked up only by the handle.

Cabin crew with visible cuts/lesions should cover them with a waterproof dressing that is replaced regularly to keep clean. Crew should never sneeze or cough over food, utensils or galley working
surfaces.

It is recommended that all cabin crew should be medically screened before employment. Airlines should give cabin crew the responsibility of confirming that they are in good health when signing on for duty, particularly when a staff member has suffered from sickness related to a gastro-intestinal disease or other food-related disease.

The SCCM should supervise other cabin crew to ensure that they are following food safety and hygiene procedures.

7.6 Delayed Flights

In the case of unexpected delays, after the food has been loaded onto the aircraft, the length of the delay will determine the course of action to be taken.

The responsibility for determining the course of action will depend on individual airline policies and the prevailing circumstances. However, once the crew has accepted a delivery of food, it becomes the responsibility of the airline. In the event of a delay of several hours, and if cabin crew have any doubts as to safety of the food, the caterer should be asked to examine the food and, if necessary, arrange for off-loading of the food and re-catering of the flight with completely fresh meals.

7.7 Suspected Food Poisoning

In the event a passenger or crew member becomes ill during the flight due to suspected food poisoning, a Medical Incident Report form should be completed. Cabin crew should be appropriately trained in dealing with such cases. Further guidelines are set out on the IATA Health web page at: www.iata.org/health

7.8 Special Cleaning

There are occasions when special cleaning is needed during a flight (e.g., when a sick passenger soils seats or carpets). This sickness might be the result of an infection and, apart from the nuisance caused to other passengers, there might be a health hazard. Since a major cleaning, involving the replacement of soiled seat covers cannot be undertaken until arrival at the next airport, the cabin crew should be supplied with appropriate materials to decontaminate the area. Where possible, passengers should be re-seated. Crew should contact the next airport of call to arrange for special cleaning beforehand. Thus, any delays can be minimized.

7.9 Insects

Insects are a source of contamination, and one of the most common foreign objects found in aircraft meals. Cabin crew should keep a careful watch for insects and report their presence on board immediately to the PIC. Local regulations and individual airline policies will determine the action to
be taken in this respect (see also Section 5 – Health and Medical Care and the IATA Medical Manual).

### 7.10 Special Meals

A passenger’s special meal needs should be handled at the time of reservation, and reflected on the PIL. The cabin crew should be familiar with the characteristics of the different meal types in order to be able to identify such meals and respond appropriately to passenger needs.

Special meals should be identified by the caterer by attaching a special meal tag or label to the cart or container that the meals are in. The number and types of special meals are listed on the Aircraft Catering Order (ACO). Crew should verify that the appropriate numbers of meals have been delivered and the passenger’s name and seat number correspond to the information provided on the PIL.

See the table below for the IATA meal definitions and codes, or IATA Recommended Practice 1773 in the IATA Passengers Services Conference Resolutions Manual:

<table>
<thead>
<tr>
<th>SPML</th>
<th>Special Meal</th>
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<tbody>
<tr>
<td>AVML</td>
<td>Asian Vegetarian Meal</td>
</tr>
<tr>
<td>BBML</td>
<td>Baby Meal</td>
</tr>
<tr>
<td>BLML</td>
<td>Bland Meal</td>
</tr>
<tr>
<td>CHML</td>
<td>Child Meal</td>
</tr>
<tr>
<td>DBML</td>
<td>Diabetic Meal</td>
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<tr>
<td>FPML</td>
<td>Fruit Platter Meal</td>
</tr>
<tr>
<td>GFML</td>
<td>Gluten Intolerant Meal</td>
</tr>
<tr>
<td>HNML</td>
<td>Hindu Meal</td>
</tr>
<tr>
<td>KSML</td>
<td>Kosher Meal</td>
</tr>
<tr>
<td>LCML</td>
<td>Low-Calorie Meal</td>
</tr>
<tr>
<td>LFML</td>
<td>Low-Fat Meal</td>
</tr>
<tr>
<td>LSML</td>
<td>Low-Sodium Meal</td>
</tr>
<tr>
<td>MOML</td>
<td>Muslim Meal</td>
</tr>
<tr>
<td>NLML</td>
<td>Non-Lactose Meal</td>
</tr>
<tr>
<td>RVML</td>
<td>Raw Vegetarian Meal</td>
</tr>
<tr>
<td>SFML</td>
<td>Seafood Meal</td>
</tr>
<tr>
<td>SPML</td>
<td>Special Meal</td>
</tr>
<tr>
<td>VGML</td>
<td>Vegan Meal</td>
</tr>
<tr>
<td>VJML</td>
<td>Vegetarian Jain Meal</td>
</tr>
<tr>
<td>VLML</td>
<td>Vegetarian Lacto-Ovo Meal</td>
</tr>
<tr>
<td>VOML</td>
<td>Vegetarian Oriental Meal</td>
</tr>
</tbody>
</table>

Table 8 - IATA Meal Codes
7.11 Galley Equipment and Hygiene

Food is stored in the galleys which vary depending on the size and type of aircraft. Cabin crew should be trained in the proper use of all galley equipment in use on the aircraft.

It is the responsibility of cabin crew to ensure that the galley, equipment and utensils are kept clean and organized during the flight, including:

- Galley tops;
- Stowage drawers and units.

Used items (e.g., glasses, trays, etc.) should be kept separate from clean items at all times.

Galley checks must be performed during flight preparation. Cabin crew should identify and report any defective galley equipment immediately. It should be off-loaded, repaired and returned to service as soon as possible.

7.12 Potable Water and Ice

Airlines should take into account the length of the flight and ensure that there is sufficient potable water on board. The quality standards and sanitary regulations regarding the potable water systems on board aircraft are published by the World Health Organization (WHO).

Only ice cubes manufactured from potable water and delivered to the aircraft in sealed polyethylene bags should be put into drinks. Broken block ice should only be used for chilling bottles and cans. Ice should be served by proper tongs, and never handled by hand. For more information, see the International Standards for Drinking Water: WHO Guide to Hygiene and Sanitation in Aviation.

7.12.1 IATA Drinking-Water Quality Pool

The IATA Drinking-Water Quality Pool (IDQP) was created by a number of airlines to share audits on drinking water quality around the world. The IDQP also developed its own procedures for conducting airfield inspections, using the highest quality standards.

Benefits include:

- Safeguards the on-board health of passengers and crew by using the highest standards to ensure water quality;
- Avoids multiple audits of the same provider at the same location;
- Promotes substantial financial savings from reductions of airport inspection workloads and associated costs.

To avoid illnesses, all water for drinking and other personal use made available to crew and passengers must be free from harmful chemical substances and micro-organisms. The WHO and local authorities have, therefore, issued sanitary requirements for the chlorination and handling of potable water.

For more information, please see: www.iata.org/whatwedo/safety/audit/Pages/idqp.aspx.
For more information on how to join the IDQP, please contact: IDQP@iata.org

7.13 Feedback from Passengers and Crew
Cabin crew are able to provide valuable feedback regarding their airline catering service. Should a passenger or crew member have a comment regarding any item of food, cabin crew should be encouraged to complete a report providing details. In the event of a complaint involving a foreign object in a food item, or suspected food poisoning, crew should retain samples of the suspect dish for analysis and hand it over at the arrival station for investigation.

7.14 Reporting of Service Delivery Irregularities
Cabin crew are airline management’s link with the performance of the caterer. It is, therefore, essential that they report any discrepancies with respect to the delivery and quality of catering supplies. This will allow airlines to review problems with the caterer in order to avoid a recurrence.

Food should not be served if the cabin crew has any doubts with respect to the quality of the food (e.g., abnormal smell, texture, etc.). A standard report should be available to cabin crew on board to report feedback to airline management.
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>A4A</td>
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**PHONETIC ALPHABET**

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FAA, Supplement to FAA InFO 13010, 10/31/13, *FAA Aid to Operators for the Expanded Use of Passengers PEDs*, 09-Jun-2014


RTCA, document no. DO-294B, *Guidance on Allowing Transmitting Portable Electronic Devices (T-PEDs) on Aircraft*, 16-Dec-2008


Transport Canada, *Report from the Portable Electronic Devices Aviation Rulemaking Committee to the Federal Aviation Administration, Recommendations on Expanding the Use of Portable Electronic Devices during Flight*, 09-Sep-2013

United Kingdom Civil Aviation Authority (UK CAA), Civil Aviation Publication (CAP) 756, *Portable Electronic Device Generated Electro-magnetic Fields on Board a Large Transport Aeroplane*, Nov-2005
Lithium Battery specific references

**Civil Aviation Safety Authority (CASA):**
- Portable Electronic Devices containing Lithium Metal or Lithium-Ion Cells or Batteries:  
- Passengers warned of lithium battery safety risk:  
- Dangerous Goods Lithium poster:  
- Can I pack that? - Dangerous Goods App:  

**United States Federal Aviation Administration (US FAA):**
- Safety Alert for Operators (SAFO) 09013 - Fighting Fires Caused By Lithium Type Batteries in Portable Electronic Devices:  
- Batteries & Battery-Powered Devices Aviation Incidents Involving Smoke, Fire, Extreme Heat or Explosion:  
  [www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/aircarrier_info/media/Battery_incident_chart.pdf](www.faa.gov/about/office_org/headquarters_offices/ash/ash_programs/hazmat/aircarrier_info/media/Battery_incident_chart.pdf)
- The following information expands upon SAFO 09013:  
- Fire Risk of Electronic Cigarettes (e-cigarettes) in Checked Baggage:  
  [www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2015/SAFO15003.pdf](www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/media/2015/SAFO15003.pdf)

**International Air Transport Association (IATA):**
- Dangerous Goods webpage:  
  [www.iata.org/whatwedo/cargo/dgr/Pages/index.aspx](www.iata.org/whatwedo/cargo/dgr/Pages/index.aspx)
- Cargo & Dangerous Goods Regulations Training Courses:  
  [www.iata.org/training/subject-areas/Pages/cargo.aspx](www.iata.org/training/subject-areas/Pages/cargo.aspx)
- Guidance on Handling Dangerous Goods Incidents and Lithium Battery Fires in the Passenger Cabin:  
  [www.iata.org/cabin-safety](www.iata.org/cabin-safety)

**International Civil Aviation Organization (ICAO):**
- Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481 AN/926):  
**SKYbrary:**
Lithium-Ion Aircraft Batteries as a Smoke/Fire Risk:
[www.skybrary.aero/index.php/Lithium-Ion_Aircraft_Batteries_as_a_Smoke/Fire_Risk?utm_source=SKYbrary&utm_campaign=747bc81a5-SKYbrary_Highlight_07_02_2013&utm_medium=email](www.skybrary.aero/index.php/Lithium-Ion_Aircraft_Batteries_as_a_Smoke/Fire_Risk?utm_source=SKYbrary&utm_campaign=747bc81a5-SKYbrary_Highlight_07_02_2013&utm_medium=email)

**Transport Canada:**
Service Difficulty Alert - Procedures for fighting fires caused by Lithium Type batteries in Portable Electronic Devices:
Related Organizations

**SAFETY**

- Air Safe [www.airsafe.com](http://www.airsafe.com)
- Flight Safety Foundation (FSF) [www.flightsafety.org](http://www.flightsafety.org)
- International Society of Air Safety Investigators (ISASI) [www.isasi.org](http://www.isasi.org)
- National Transportation Safety Board (NTSB) [www.ntsb.gov/index.html](http://www.ntsb.gov/index.html)
- SKYbrary [www.skybrary.aero](http://www.skybrary.aero)
- Southern California Safety Institute (SCSI) [www.scsi-inc.com](http://www.scsi-inc.com)

**REGULATORY**

- Civil Aviation Safety Authority (CASA) [www.casa.gov.au](http://www.casa.gov.au)
- Federal Aviation Administration (FAA) [www.faa.gov](http://www.faa.gov)
- International Civil Aviation Organization (ICAO) [www.icao.int](http://www.icao.int) [www.icao.int/cabinsafety](http://www.icao.int/cabinsafety)
- Transport Canada [www.tc.gc.ca](http://www.tc.gc.ca)
- UK Civil Aviation Authority [www.caa.co.uk](http://www.caa.co.uk)
- US Department of Transportation (DOT) [www.dot.gov/aviation](http://www.dot.gov/aviation)

**CATERING**

- International Inflight Catering Association (IFCA) [www.IFCA.net.com](http://www.IFCA.net.com)

**HEALTH AND MEDICAL CARE**

- Aerospace Medical Association (ASMA) [www.asma.org](http://www.asma.org)
- The Centers for Disease Control and Prevention [www.cdc.gov](http://www.cdc.gov)
- The Medical Department of the [www.icao.int/icao/en/med/aviomed.htm](http://www.icao.int/icao/en/med/aviomed.htm)
International Aviation Organization (ICAO)

World Health Organization (WHO)  
www.who.int

World Health Organization (WHO) – Disease Outbreak Site  
www.who.int/csr/don/en

World Health Organization (WHO) – International Travel and Health Publication  
www.who.int/ith

World Medical Association  
www.wma.net
### APPENDIX A – CABIN CREW CHECKLIST FOR FIRES INVOLVING BATTERIES AND PORTABLE ELECTRONIC DEVICES (PED)

<table>
<thead>
<tr>
<th><strong>BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steps</strong></td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
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</tbody>
</table>
Step 6 When the device has cooled (e.g., approximately 10 to 15 minutes):
  - Obtain a suitable empty container
  - Fill the container with enough water (or other non-flammable liquid) to submerge the device
  - Using protective equipment, place the device in the container and completely submerge it in water (or other non-flammable liquid)
  - Stow and (if possible) secure the container to prevent spillage

Step 7 Monitor the device and the surrounding area for the remainder of the flight

Step 8 After landing at the next destination:
  - Apply the operator’s post-incident procedures

Table 9 – Cabin Crew Checklist for Fires Involving Batteries and Portable Electronic Devices (PED)
### OVERHEAD BIN BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE

<table>
<thead>
<tr>
<th>Steps</th>
<th>Cabin Crew Action</th>
</tr>
</thead>
</table>
| **Step 1** | Apply the firefighting procedure:  
Obtain and use the appropriate fire extinguisher  
Retrieve and use protective equipment, as applicable to the situation  
Move passengers away from the area, if possible  
Notify pilot-in-command and other cabin crew members  
*Note. — Actions should occur simultaneously in a multi-crew operation* |
| **Step 2** | Identify the item if the device is visible and accessible, or  
If the device is contained in baggage and flames are visible:  
Reapply Step 1 to extinguish the flames, if applicable  
Apply Steps 3 to 5  
If smoke is coming from the overhead bin, but the device is not visible or accessible:  
Remove other baggage from the overhead bin to access the affected baggage/item  
Identify the item  
Apply Steps 3 to 5  
*Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames* |
| **Step 3** | Douse the device (baggage) with water (or other non-flammable liquid)  
*Note. — Liquid may turn to steam when applied to the hot battery* |
| **Step 4** | When the device has cooled:  
Obtain a suitable empty container  
Fill the container with enough water (or other non-flammable liquid) to submerge the device (baggage)  
Using protective equipment, place the device (baggage) in the container and completely submerge it in water (or other non-flammable liquid)  
Stow and (if possible) secure the container to prevent spillage |
| **Step 5** | Monitor the device and the surrounding area for the remainder of the flight |
Step 6

After landing at the next destination:
Apply the operator’s post-incident procedures

Table 10 – Overhead Bin Battery/Portable Electronic Device (PED) Fire/Smoke
## OVERHEATED BATTERY / ELECTRICAL SMELL INVOLVING A PORTABLE ELECTRONIC DEVICE (PED) - NO VISIBLE FIRE OR SMOKE

<table>
<thead>
<tr>
<th>Steps</th>
<th>Cabin Crew Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Identify the item</td>
</tr>
<tr>
<td>Step 2</td>
<td>Instruct the passenger to turn off the device immediately</td>
</tr>
</tbody>
</table>
| Step 3 | Remove power:  
- Disconnect the device from the power supply, if safe to do so  
- Turn off in-seat power, if applicable  
- Verify that power to the remaining electrical outlets remains off, if applicable  
- Verify that the device remains off for the remainder of the flight  
  *Caution*: Do not attempt to remove the battery from the device |
| Step 4 | Instruct the passenger to keep the device visible and monitor closely  
*Caution*: Unstable batteries may ignite even after the device is turned off |
| Step 5 | If smoke or flames appear:  
Apply BATTERY / PED FIRE / SMOKE checklist |
| Step 6 | After landing at the next destination:  
Apply the operator’s post-incident procedures |

**Table 11 – Overheated Battery/Electrical Smell Involving a Portable Electronic Device (PED) - No Visible Fire or Smoke**
### PED Inadvertently Crushed or Damaged in an Electrically Adjustable Seat

<table>
<thead>
<tr>
<th>Steps</th>
<th>Cabin Crew Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Notify the pilot-in-command and other cabin crew members</td>
</tr>
</tbody>
</table>
| **Step 2** | Obtain information from the passenger, by asking him/her:  
To identify the item  
Where he/she suspects that the item may have dropped or slipped into  
If the seat was moved since misplacing the item |
| **Step 3** | Retrieve and use protective equipment, if available |
| **Step 4** | Retrieve the item  
**Caution:** Do not move the seat electrically or mechanically when attempting to retrieve the item |
| **Step 5** | If smoke or flames appear:  
Apply BATTERY / PED FIRE / SMOKE checklist |
| **Step 6** | After landing at the next destination:  
Apply the operator’s post-incident procedures |

Table 12 – PED Inadvertently Crushed or Damaged in an Electrically Adjustable Seat
APPENDIX B – AMPLIFIED CABIN CREW CHECKLIST FOR FIRES INVOLVING BATTERIES AND PORTABLE ELECTRONIC DEVICES (PED)

Note: Although this guidance material presents sequences of tasks, some of these actions occur simultaneously when carried out by crew.

BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE/SMOKE

1. IDENTIFY THE ITEM

It may not be possible to identify the item (the source of the fire) right away, especially if the fire has started in a seat pocket or the device is not readily accessible. In this case, firefighting procedures should be applied as a first step. Once it is possible to do so, identify the item after the fire is under control.

If the item is contained in baggage, the crew’s actions would be similar to the actions for a device that is visible or readily accessible. Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames. However, in certain situations, cabin crew members may assess and deem it necessary to slightly open the baggage to allow entry of the extinguishing agent and non-flammable liquid. This should be done with extreme caution and only after donning appropriate protective equipment, available on the aircraft.

2. APPLY FIREFIGHTING PROCEDURE

Any occurrence concerning a fire in the cabin should be notified immediately to the pilot-in-command who should be kept informed of all actions taken and of their effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each are kept fully informed of the other’s actions and intentions.

Appropriate firefighting and emergency procedures must be used to deal with any fire. In a multi-cabin crew operation, the actions detailed in the firefighting procedure should be conducted simultaneously. On aircraft operated with only one cabin crew member, the aid of a passenger should be sought in dealing with the situation.

A Halon, Halon replacement or water extinguisher should be used to extinguish the fire and prevent its spread to additional flammable materials. It is important to wear available protective equipment (e.g., protective breathing equipment, fire gloves) when fighting a fire.

If fire develops, cabin crew should take prompt action to move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them.

Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times. Crew
communication and coordination is of utmost importance. The use of the interphone is the primary means of communication unless the interphone system fails.

3. **REMOVE POWER**

It is important to instruct the passenger to disconnect the device from the power supply, if it is deemed safe to do so. A battery has a higher likelihood of catching fire due to overheating during or immediately following a charging cycle, although the effects may be delayed for some period of time. By removing the external power supply from the device, it will be assured that additional energy is not being fed to the battery to promote a fire.

Turn off the in-seat power to the remaining electrical outlets so a potentially malfunctioning aircraft system does not contribute to additional failures of the passengers’ portable electronic devices.

Visually check that power to the remaining electrical outlets remains off until the aircraft’s system can be determined to be free of faults, if the device was previously plugged in.

The removal of power may occur simultaneously to other cabin crew actions (e.g., obtaining water to douse the device). Depending on the aircraft type, in-seat power may have to be turned-off by the flight crew members.

Caution: Do not attempt to remove the battery from the device.

4. **DOUSE THE DEVICE WITH WATER (OR OTHER NON-FLAMMABLE LIQUID)**

Water (or other non-flammable liquid) must be used to cool a battery that has ignited to prevent the spread of heat to other cells in the battery. If water is not available, any non-flammable liquid may be used to cool the device.

Note: Liquid may turn to steam when applied to the hot battery.

5. **LEAVE THE DEVICE IN ITS PLACE AND MONITOR FOR ANY REIGNITION**

A battery involved in a fire can reignite and emit flames multiple times as heat is transferred to other cells in the battery. Therefore, the device must be monitored regularly to identify if there is any indication that a fire risk may still exist. If there is any smoke or indication of fire, the device must be doused with more water (or other non-flammable liquid).

**Caution:**

i. Do not attempt to pick-up or move the device; batteries may explode or burst into flames without warning. The device must not be moved if displaying any of the following: flames/flaring, smoke, unusual sounds (such as crackling), debris, or shards of material separating from the device;

ii. Do not cover or enclose the device as it could cause it to overheat; and
iii. Do not use ice or dry ice to cool the device. Ice or other materials insulate the device, increasing the likelihood that additional battery cells will reach thermal runaway.

6. WHEN THE DEVICE HAS COOLED

The device can be moved with caution following a certain period, once it has cooled down and if there is no evidence of smoke, heat, or if there is a reduction in the crackling or hissing sound usually associated with a lithium battery fire (e.g., after approximately 10 to 15 minutes). The waiting period may vary based on the device and its size. The different circumstances (e.g., types of devices, phase of flight, etc.) should be addressed in the operator’s training program.

A suitable empty container, such as a pot, jug, galley unit or lavatory waste bin, must be filled with enough water or non-flammable liquid to completely submerge the device. It is important to wear available protective equipment (e.g., protective breathing equipment, fire gloves), when moving any device involved in a fire. Once the device is completely submerged, the container used must be stowed and, if possible, secured to prevent spillage.

7. MONITOR THE DEVICE AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT

Monitor the device and the surrounding area for the remainder of the flight to verify that the device does not pose further risk.

8. AFTER LANDING AT THE NEXT DESTINATION

Upon arrival, apply the operator’s post-incident procedures. These may include identifying to ground personnel where the item is stowed and providing all information about the item.

Complete the required documentation, as per operator procedures, so that the operator is notified of the event, proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.
OVERHEAD BIN BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE

1. APPLY FIREFIGHTING PROCEDURE

Any occurrence concerning a fire in the cabin should be notified immediately to the pilot-in-command who should be kept informed of all actions taken and of their effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each are kept fully informed of the other’s actions and intentions.

Appropriate firefighting and emergency procedures must be used to deal with an overhead bin fire. In a multi-cabin crew operation, the actions detailed in the firefighting procedure should be conducted simultaneously. On aircraft operated with only one cabin crew member, the aid of a passenger should be sought in dealing with the situation.

A Halon, Halon replacement or water extinguisher should be used to extinguish the fire and prevent its spread to additional flammable materials. It is important to wear available protective equipment (e.g., protective breathing equipment, fire gloves) when fighting a fire.

If fire develops, cabin crew should take prompt action to move passengers away from the area involved and, if necessary, provide wet towels or cloths and give instructions for passengers to breathe through them.

Minimizing the spreading of smoke and fumes into the flight deck is critical for the continued safe operation of the aircraft, therefore it is essential to keep the flight deck door closed at all times. Crew communication and coordination is of utmost importance. The use of the interphone is the primary means of communication unless the interphone system fails.

2. IDENTIFY THE ITEM

It may not be possible to identify the item right away, especially if the fire has started in the overhead bin and the device is not readily accessible.

If the device is visible and accessible or if the device is contained in baggage and flames are visible, the firefighting procedure should be applied as a first step.

If smoke is coming from the overhead bin, but the device is not visible or accessible, or there is no indication of fire, the firefighting procedures should be applied as a first step. Afterwards, all baggage should be removed from the overhead bin with caution until the item can be identified. Once the item is identified, apply steps 3 to 5 of the OVERHEAD BIN BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE checklist.

Caution: In order to avoid injury from a flash fire, it is not recommended to open the affected baggage when there is any indication of smoke or flames. However, in certain situations, cabin crew members may assess and deem it necessary to slightly open baggage to allow entry of the extinguishing agent and non-flammable liquid. This should be done with extreme caution and only after donning appropriate protective equipment, available on the aircraft. Do not open baggage when there is any indication of smoke or flame.
3. **DOUSE THE DEVICE (BAGGAGE) WITH WATER (OR OTHER NON-FLAMMABLE LIQUID)**

Water (or other non-flammable liquid) must be used to cool a battery that has ignited to prevent the spread of heat to other cells in the battery. If water is not available, any non-flammable liquid may be used to cool the device.

Note: Liquid may turn to steam when applied to the hot battery.

4. **WHEN THE DEVICE HAS COOLED**

The device should be moved from the overhead bin to prevent a hidden fire from potentially developing. The device can be safely moved with caution following a certain period, once it has cooled down and if there is no evidence of smoke, heat, or if there is a reduction in the crackling or hissing sound usually associated with a lithium battery fire. The waiting period may vary based on the device and its size. The different circumstances (e.g., types of devices, phase of flight, etc.) should be addressed in the operator’s training program. Following this period, the device can be moved, with caution.

A suitable empty container, such as a pot, jug, galley unit or lavatory waste bin, must be filled with enough water or non-flammable liquid to completely submerge the device. It is important to wear available protective equipment (e.g., protective breathing equipment, fire gloves), when moving any device involved in a fire. Once the device is completely submerged, the container used must be stowed and, if possible, secured to prevent spillage.

5. **MONITOR THE DEVICE AND THE SURROUNDING AREA FOR THE REMAINDER OF THE FLIGHT**

Monitor the device and the surrounding area for the remainder of the flight to verify that the device does not pose further risk.

6. **AFTER LANDING AT THE NEXT DESTINATION**

Upon arrival, apply the operator’s post-incident procedures. These may include identifying to ground personnel where the item is stowed and providing all information about the item.

Complete the required documentation, as per operator procedures, so that the operator is notified of the event, proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.
OVERHEATED BATTERY OR ELECTRICAL SMELL INVOLVING A PORTABLE ELECTRONIC DEVICE (PED) - NO VISIBLE FIRE OR SMOKE

1. IDENTIFY THE ITEM
Identify the source of overheat or electrical smell. Ask the passenger concerned to identify the item.

2. INSTRUCT THE PASSENGER TO TURN OFF THE DEVICE IMMEDIATELY
It is important to instruct the passenger to turn off the device immediately.

3. REMOVE POWER
It is important to instruct the passenger or crew member to disconnect the device from the power supply, if it is deemed safe to do so. A battery has a higher likelihood of catching fire due to overheating during or immediately following a charging cycle, although the effects may be delayed for some period of time. By removing the external power supply from the device, it will be assured that additional energy is not being fed to the battery to promote a fire.

Turn off the in-seat power to the remaining electrical outlets until it can be assured that a malfunctioning aircraft system does not contribute to additional failures of the passengers’ portable electronic devices.

Visually check that power to the remaining electrical outlets remains off until the aircraft’s system can be determined to be free of faults, if the device was previously plugged in.

The removal of power may occur simultaneously to other cabin crew actions (e.g., obtaining water to douse the device). Depending on the aircraft type, in-seat power may have to be turned-off by the flight crew members.

It is important to verify that the device remains powered off for the duration of the flight.

Caution: Do not attempt to remove the battery from the device.

4. INSTRUCT THE PASSENGER TO KEEP THE DEVICE VISIBLE AND MONITOR CLOSELY
The device must remain visible (i.e., not stowed in baggage, seat pocket or in the passenger’s pocket) and should be monitored closely. Unstable batteries may ignite even after the device is turned off. Verify that the device is stowed for landing.

5. IF SMOKE OR FLAMES APPEAR
If smoke or flames appear, apply the BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE checklist.
6. AFTER LANDING AT THE NEXT DESTINATION

Upon arrival, apply the operator’s post-incident procedures. These may include identifying to ground personnel where the item is located and providing all information about the item.

Complete the required documentation, as per operator procedures, so that the operator is notified of the event, proper maintenance action is undertaken and the emergency response kit or any aircraft equipment used is replenished or replaced, if applicable.
PED INADVERTENTLY CRUSHED OR DAMAGED IN ELECTRICALLY ADJUSTABLE SEAT

Due to the design of some electrically adjustable passenger seats, a PED can slip under a seat covering and/or cushion, behind an armrest or down the side of a seat. Inadvertent crushing of the device poses a risk of fire.

1. NOTIFY THE PILOT-IN-COMMAND AND OTHER CABIN CREW MEMBERS

Any occurrence concerning a risk of fire in the cabin should be notified immediately to the pilot-in-command who should be kept informed of all actions taken and of their effect. It is essential that the cabin crew and the flight crew coordinate their actions and that each are kept fully informed of the other’s actions and intentions.

2. OBTAIN INFORMATION FROM THE PASSENGER

Ask the passenger concerned to identify the item, and where he/she suspects it may have dropped or slipped into, and if he/she has moved the seat since misplacing the item.

3. RETRIEVE AND USE PROTECTIVE EQUIPMENT, IF AVAILABLE

If available, cabin crew members should don fire gloves before trying to retrieve the item.

4. RETRIEVE THE ITEM

To prevent crushing of the PED and to reduce the potential fire risk to the device and the surrounding area, cabin crew members and/or passengers must not use the electrical or mechanical seat functions in an attempt to retrieve the item. Move the passenger and, if applicable, the passenger seated next to the affected seat from the area to facilitate the search. Do not move the seat. If the cabin crew member is unable to retrieve the item, it may be necessary to move the passenger to another seat.

5. IF SMOKE OR FLAMES APPEAR

If smoke or flames appear, apply the BATTERY / PORTABLE ELECTRONIC DEVICE (PED) FIRE / SMOKE checklist.

6. AFTER LANDING AT THE NEXT DESTINATION

Upon arrival, apply the operator’s post-incident procedures. These may include identifying to ground personnel where the item is located and providing all information about the item.

Complete the required documentation, as per operator procedures, so that the operator is notified of the event, proper maintenance action is undertaken and any aircraft equipment used is replenished or replaced, if applicable.
APPENDIX C – LITHIUM BATTERY FIRE PREVENTION - PORTABLE ELECTRONIC DEVICE INADVERTENTLY CRUSHED OR DAMAGED IN ELECTRICALLY ADJUSTABLE SEATS

Lithium batteries are widely used as a power source in portable electrical devices (PED). The overall rate of failures associated with the use of lithium batteries is very low when compared with the total number of batteries in use worldwide. Lithium batteries are required to be manufactured to high safety standards and are subjected to testing protocols, including a crush test.

Nevertheless, there have been reported incidents on board aircraft as a result of the inadvertent crushing or damage of a PED. This has raised safety concerns.

Small PEDs (i.e., mobile phones, smartphones, mini-tablets, e-readers, MP3 players, etc.) can become a potential fire hazard if they inadvertently slip or are dropped between the mechanical parts of an electrically adjustable seat and are crushed or damaged. These types of seats are primarily installed in premium-class cabins such as First Class and Business Class.

Due to the design of some electrically adjustable passenger seats, it is possible for a PED to slip under a seat covering and/or cushion, behind an armrest or down the side of a seat. Cabin crew should not move the seat electrically or mechanically when attempting to retrieve the passenger’s PED. The seat movement may crush/damage the PED’s lithium battery and potentially result in a lithium battery fire.

Passenger awareness on how to use and stow their devices while in flight can help mitigate these incidents. This can be mass communicated to passengers via a verbal announcement, the inflight magazine or the inflight entertainment system (IFE).

Recommended Practice

Cabin crew should always advise the flight deck of the situation. To prevent crushing of the PED and to reduce the potential fire risk to the device and the surrounding area, cabin crew and/or passengers must not use the electrical or mechanical seat functions in an attempt to retrieve a PED. Ask the passenger concerned to identify the item, where they suspect it may have dropped or slipped into, and if they have moved the seat since misplacing the PED. Move the passenger and, if applicable, the passenger seated next to the affected seat from the area. If available, don fire gloves before trying to retrieve the item. Do not move the seat! If unable to retrieve the item, it may be necessary to move the passenger to another seat and request maintenance and engineering to retrieve the item upon/after landing.

10 IATA published its first edition of the Lithium Battery Risk Mitigation Guidance for Operators. This free online guidance material provides airline operators with critical information related to the safe handling and transport of lithium batteries by air. www.iata.org/publications/Documents/lithium%20battery-risk-mitigation-guidance-for-operators-1st-ed.pdf
In the event that the situation develops into a lithium battery fire, cabin crew should apply the following in accordance with their respective airline procedures:

- Lithium battery firefighting procedures;
- Post-event procedures (on board); and
- First point of landing offloading procedures.
APPENDIX D – CABIN CREW SEAT SAFETY AND LITHIUM BATTERIES

In further preventing lithium battery events, the following crew seat safety precautions must be adhered to at all times:

**CABIN CREW SEAT SAFETY**

- PEDs or spare batteries may not be placed on a crew seat.
- If a crew member experiences difficulty in lowering a crew seat:
  - The seat must not be forced into the open (lowered) position;
  - If the crew seat has not been opened (lowered) and the PED/spare battery is accessible, remove the PED/spare battery;
  - Check the wedges in the seat for potential PEDs or spare batteries and remove the article(s) if possible without injury or damage to the crew seat;
  - Do not attempt to remove the PED, spare battery if someone has attempted to open (lower) the crew seat, as the crew seat motion may have damaged the PED/spare battery which may cause a fire as a result of thermal runaway.
- Report the situation to the PIC and follow the MEL procedures for an inoperative crew seat.
- Document the malfunction as established by the operator.
- Remove all emergency equipment (e.g., life vests, oxygen bottles, etc.) that are in close proximity (i.e., under the crew seat) and ensure they are secured elsewhere. Notify all crew members of the location of the relocated equipment.
- Ensure there is a halon or BCF extinguisher and sufficient non-flammable liquid nearby to initiate firefighting procedures should thermal runaway occur due to damaged PEDs/spare batteries.
- In the event of a fire originating in the crew seat as a result of the damaged article(s), follow the firefighting procedures for lithium batteries.
## APPENDIX E – SAMPLE FATIGUE REPORT FORM FOR CABIN CREW

<table>
<thead>
<tr>
<th>Fatigue Report Form – Cabin Crew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Flight date</td>
</tr>
<tr>
<td>/ / (UTC*)</td>
</tr>
<tr>
<td>Roster type</td>
</tr>
<tr>
<td>☐ Full roster</td>
</tr>
<tr>
<td>☐ Reserve roster</td>
</tr>
<tr>
<td>☐ Swapped flight</td>
</tr>
</tbody>
</table>

### Describe what happened and what you observed


### Tick off how you felt

- ☐ 1. Fully alert, wide awake
- ☐ 2. Very lively, somewhat responsive, but not at peak
- ☐ 3. OK, somewhat fresh
- ☐ 4. A little tired, less than fresh
- ☐ 5. Moderately tired, let down
- ☐ 6. Extremely tired, very difficult to concentrate
- ☐ 7. Completely exhausted, unable to function effectively

### Potential contributing factors (more than one may apply)

| ☐ Fatigue prior to duty | ☐ Duty itself | ☐ In-flight rest | ☐ Hotel |
| ☐ Circadian dysrhythmia* | ☐ Roster or combination of duties | ☐ Not rested during rostered rest (personal, health)* | ☐ Not rested during rostered rest (company)* |
| ☐ Extended delay (technical, weather, etc.) | ☐ Operating with reduced crew complement | ☐ Extensive in-flight turbulence | ☐ In-flight passenger issues (medical, disruptive pax, etc.) |
| ☐ Other / Comments | |

* Circadian dysrhythmia refers to disruptions in a person's internal biological clock, which can be caused by factors such as flight time zone changes and irregular sleep patterns.
What actions were taken to manage or reduce fatigue:

- □ Arrange/request extra rest on board  
- □ Caffeine
- □ Other / Comments

If on board rest was used, was the length in accordance with the cabin crew rest policy and/or the published crew rest strategy:

- □ Yes
- □ I don’t know
- □ Not applicable, this flight does not have on board rest
- □ No (please explain)

Which rest period did you take, if any

- □ First period
- □ Second period
- □ Third period
- □ Fourth period
- □ None, there is no rest on this flight
- □ Other (please explain)

What corrective action do you suggest

- □ More home pre-flight rest
- □ More home post-flight rest
- □ Shorter layover (to reduce circadian shift)
- □ More layover rest
- □ Crew augment
- □ Other / Comments

* Instructions

Date and time in UTC:
UTC stands for Coordinated Universal Time. This is the date and time used by the flight crew and company systems and must be used for the flight date and for the time the fatigue occurred.

Contributing factors:
You should circle all factors that may have contributed to the fatigue.

- Circadian dysrhythmia: is better known as ‘jet lag’ or body clock shift.
- Not rested during rostered rest (personal, health): you did not achieve (enough) rest for personal reasons (such as due to stress or family issue) during a roster rest period or on days off.
- Not rested during rostered rest (company): you did not achieve (enough) rest for reasons that are concerned with the company (for instance, a noisy hotel or accommodation, a call from crewing while you were resting), during a roster rest period or on days off.