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Common Issues in Aviation Safety & Security, Implications on the Legal Framework

- *Definition of serious injury*





Aviation Safety The state in which all elements of the air transport system operate without risk

Aviation Security The protection of the air transport system from unlawful interference



Serious Injury An injury that results in death, fracture, internal organ damage, burns, or requires hospitalization for more than 30 days (ICAO definition)

| The Importance of clear definition of serious injury



Evaluating the extent of damage and preventing accidents

A critical criterion for objectively assessing the severity of accidents and preventing similar accidents from happening



Determining liability and resolving legal disputes

A significant factor in determining liability and the scale of compensation in the event of an accident



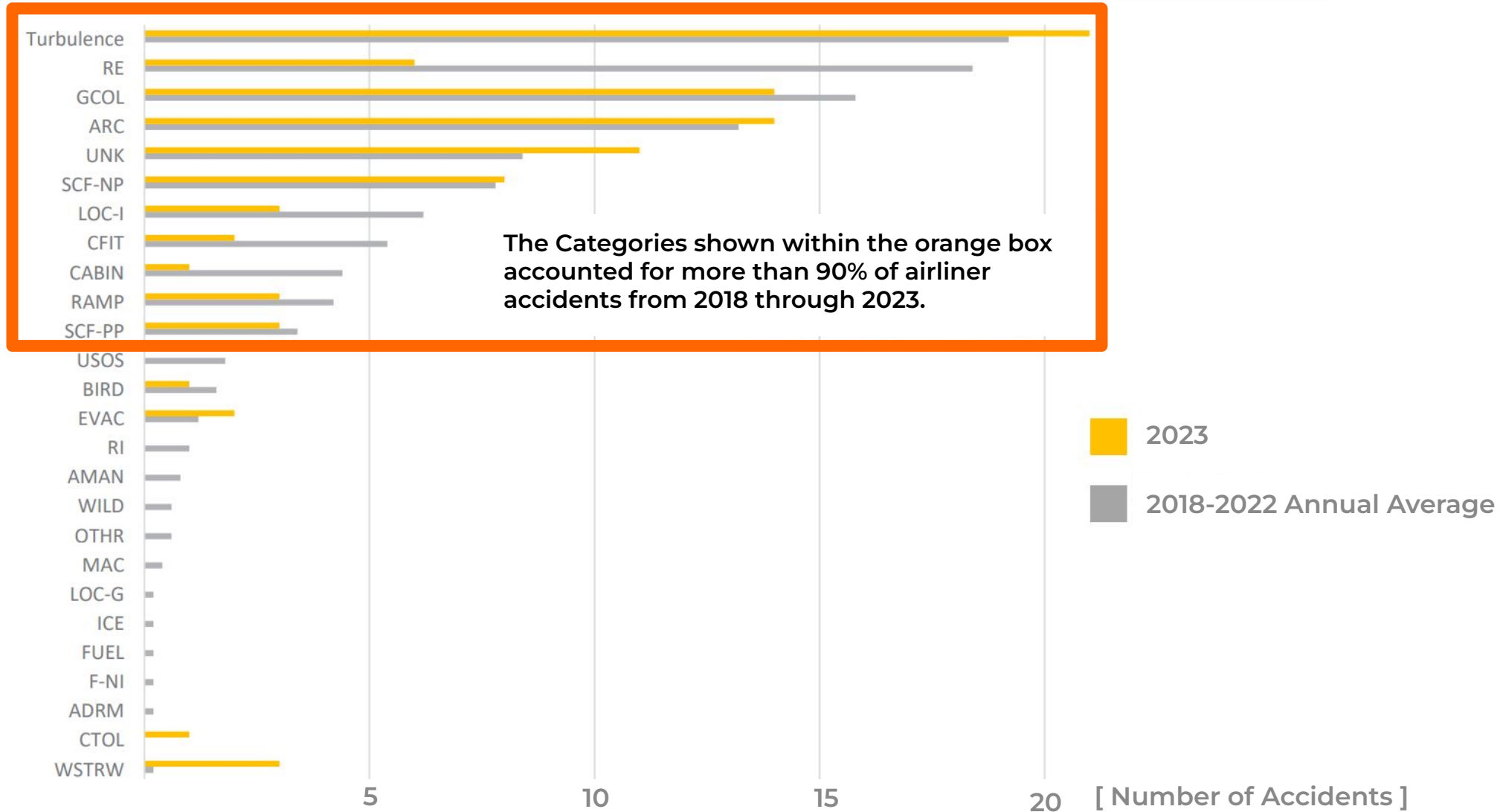
International cooperation and standardization

Facilitates information sharing and cooperation between countries, and the establishment of international safety and security standards

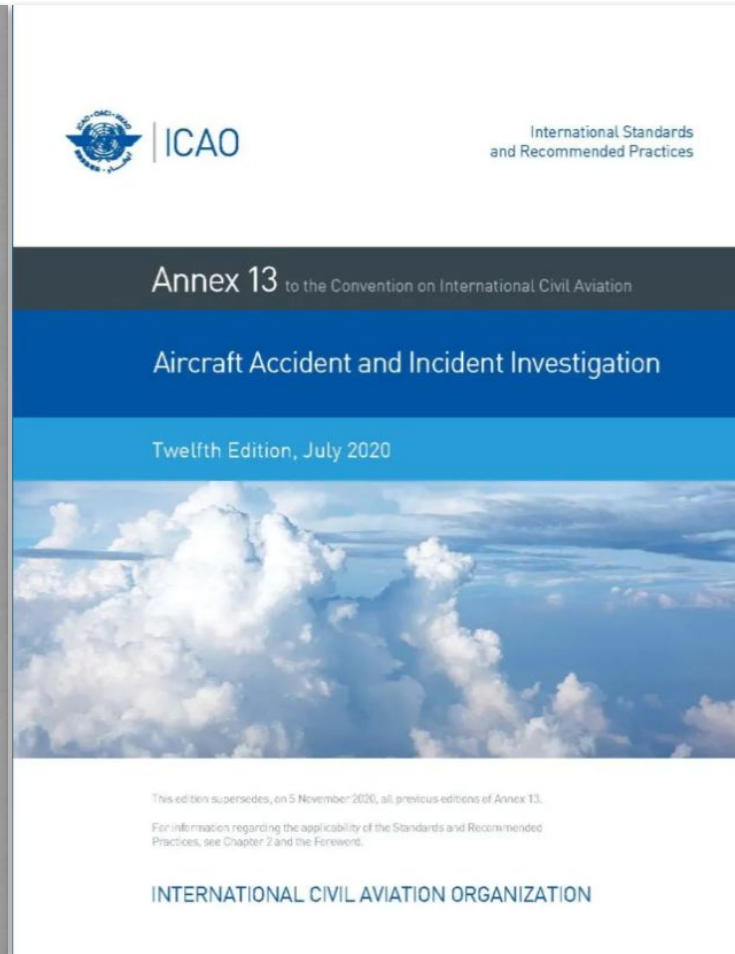
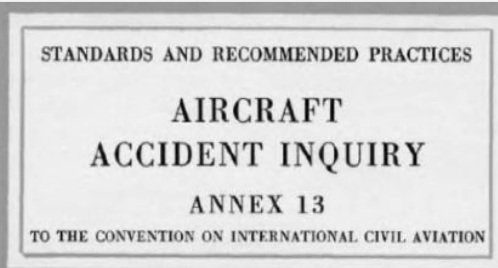


It happens
sometimes...

| 2018-2023 Airliner Accidents by Category



Definitions...



Annex 13 — Aircraft Accident and Incident Investigation

Foreword

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject(s)</i>	<i>Adopted Effective Applicable</i>
8 (7th Edition)	Air Navigation Commission	Addition, in the definition of serious injury, of exposure to infectious substances and injurious radiation; new attachment regarding disclosure of records; editorial changes.	22 January 1988 22 May 1988 17 November 1988

| Definitions...

‘ICAO Annex 13: Aircraft Accident and Incident Investigation’

An serious injury is defined as:

An injury which is sustained by a person in an Accident and which:

- a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
- b) results in a fracture of any bone (**except simple fractures of fingers, toes or nose**); or
- c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or
- d) involves injury to any internal organ; or
- e) involves second or third degree burns, or any burns affecting more than 5 percent of the body surface; or
- f) involves verified exposure to infectious substances or injurious radiation

| Definitions...

Serious injuries



Data on serious injuries are available for most countries from the CARE database. However, there is another common definition of a serious injury which defines a serious road injury as a road traffic casualty with an MAIS (Maximum Abbreviated Injury Scale) score of 3 or more (MAIS3+). EU Member States undertook to collect data on MAIS3+, as part of the 2017 Valletta Council conclusions on road safety.

The Abbreviated Injury Scale (AIS) is a globally accepted anatomical-based trauma classification of injuries published by the Association for the Advancement of Automotive Medicine (AAAM). It is used by medical professionals to describe injuries and rank their severity on an ordinal scale from 1 (minor injuries) to 6 (non-treatable injuries). As one person can have more than one injury, the Maximum Abbreviated Injury Scale (MAIS) is the maximum AIS of all injury diagnoses for a person. There are three main methods to collect this data all of which are in one way or another based on hospital data: 1. create a link between police and hospital data; 2. report the number of injured based on data from hospitals; 3. continue to use the police data but apply a correction coefficient derived from samples of hospital data.

| Definitions...

The U.S. Department of Transportation defines a serious injury based on the definition of “suspected serious injury” as found in the Model Minimum Uniform Crash Criteria (MMUCC) guideline. According to the [Federal Highway Administration \(FHWA\)](#), injuries that meet the criteria for a serious injury as of 2019 include:

- Severe lacerations that result in exposed tissue, muscle, or bone or excessive blood loss
- Broken or distorted arms or legs
- Injuries that result from being crushed
- Skull, chest, or abdominal injuries beyond minor lacerations and bruises
- Second- or third-degree burns that cover 10% or more of the body
- Unconsciousness at the scene of the accident
- Paralysis

Definitions...

SUSPECTED SERIOUS INJURY (A) CLASSIFICATIONS

- UNCONSCIOUSNESS**
 - Breathing but not awake and not talking
 - Only qualifies if victim remains unconscious when taken from scene
- PARALYSIS**
 - Loss of movement
- CRUSH INJURIES**
 - Part of the body is pinned or trapped
 - Victim cannot escape
- SKULL, CHEST, OR ABDOMINAL INJURIES**
 - Confused or acts irrational or unusual
 - Impression on windshield might indicate a head injury
 - Bruising, swelling, bleeding, or deformities of chest or abdomen
 - Bulging eyes or veins popping in the neck

- SIGNIFICANT BURNS**
 - Second- or third-degree burns on ten percent of body (majority of extremity, chest or back)
- SEVERE LACERATION**
 - Exposure of underlying tissue and/or oozing and active bleeding
- BROKEN OR DISTORTED EXTREMITIES**
 - Limb is deformed
 - Can see bone

➔ **When in doubt, ask EMS personnel for assistance**



| Definitions...

《人体损伤程度鉴定标准》

1 范围

本标准规定了人体损伤程度鉴定的原则、方法、内容和等级划分。本标准适用于《中华人民共和国刑法》及其他法律、法规所涉及的人体损伤程度鉴定。

2 规范性引用文件

下列文件对于本文件的应用是必不可少的。本标准引用文件的最新版本适用于本标准。GB18667道路交通事故受伤人员伤残评定GB/T16180劳动能力鉴定职工工伤与职业病致残等级GB/T26341-2010残疾人残疾分类和分级。

3 术语和定义

3.1 重伤使人肢体残废、毁人容貌、丧失听觉、丧失视觉、丧失其他器官功能或者其他对于人身健康有重大伤害的损伤,包括重伤一级和重伤二级。

| Definitions...

"Standards for Identification of Human Body Injury Degrees"

1 Scope

This standard specifies the principles, methods, content and classification of human body injury levels. This standard applies to the assessment of human body injury involved in the Criminal Law of the People's Republic of China and other laws and regulations.

2 Normative reference documents

The following documents are essential for the application of this document. The latest versions of the documents cited in this standard apply to this standard. GB18667 Disability assessment of persons injured in road traffic accidents GB/T16180 Labor ability assessment of employees' work-related injuries and occupational disease disability levels GB/T26341-2010 Disability classification and classification of disabled people.

| Definitions...

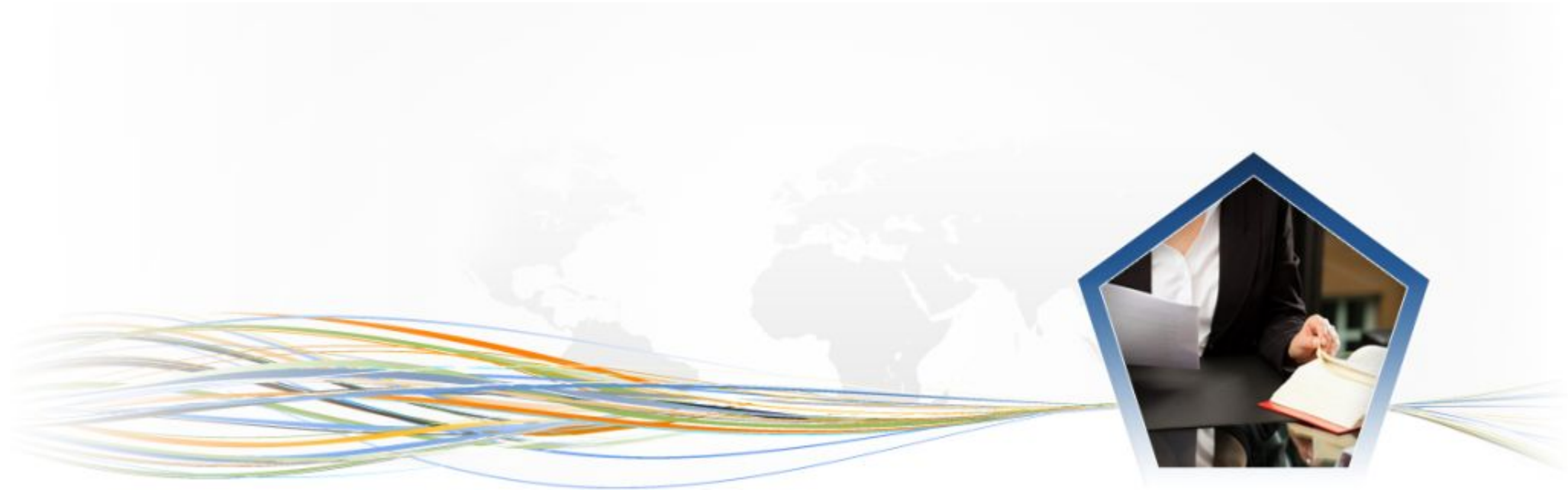
3Terms and Definitions

3.1 Serious injuries cause physical disability, disfigurement, loss of hearing, loss of vision, loss of other organ functions, or other injuries that cause significant harm to personal health, including serious injury level one and serious injury level two.

3.2 Minor injuries cause damage to a person's limbs or appearance, partial impairment of hearing, vision or other organ functions, or other injuries that cause moderate damage to personal health, including minor injuries of the first level and minor injuries of the second level.

3.3 Minor injuries refer to primary injuries caused by various injury factors, resulting in slight damage to tissue and organ structures or slight dysfunction.

| Principles of Legal Interpretation



| Definitions...

ICAO Annex 13: Aircraft Accident and Incident Investigation'

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- a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
- b) results in a fracture of any bone (**except simple fractures of fingers, toes or nose**); or

'Korean Aviation safety Law Enforcement Rules of the Aviation Safety Act'

Article 7 (Scope of Death or Serious Injury)

2. **Fractures (excluding simple fractures such as nasal, finger, or toe etc.)**

3. Severe bleeding due to lacerations, nerve, muscle, or tendon damage

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Suggestion |

International standards centered on ICAO Annex 13 and reflect them in each country's laws and regulations.

1. Definition of serious injury needs to be **readdressed**
2. At least the provision of **Fracture** has to be **clarified**

ICAO

b) results in a fracture of any bone (**except simple fractures of fingers, toes or nose**);

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2. Fractures (**excluding simple fractures such as nasal, finger, or toe etc.**)



KE Efforts |

The concerns regarding redefinition of “Serious Injury” In ICAO Annex 13 and countermeasures for injuries by turbulence, were addressed in international conferences with consensus of participants

- International Aviation Safety Summit 2023
- ICAO Regional Aviation Safety Group - Pan America 2023

Specifically, it was delivered to ICAO AIG(Accident Investigation Group) and it will be introduced to Panel Group discussion



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Redefining Serious Injury

Clarification of the Fracture example

Guidance for the Rule Application



Directions for Improvement |

Establish Clear Definitions



Develop clear and specific definitions for medical criteria, incapacity duration, and other relevant factors to minimize the potential for misinterpretations

Foster international collaboration to establish a universally accepted definition of "serious injury" within the framework of ICAO



Develop International Standards

Continuous Evaluation and Improvement



Regularly evaluate the effectiveness of the definition through accident data analysis and make adjustments as needed

Conclusion |

-  **Clarifying definition** of serious injury is **essential for protecting the lives of passengers and ensuring the sustainability of the aviation industry**
-  **Clear and harmonized definitions** of serious injury are needed **at national and international levels**
-  **Continuous efforts and cooperation** are required to **strengthen safety and security measures to prevent serious injuries** in aviation

Thank you!

[Sources]

- ICAO Annex 13
- 2023 Flight Safety Foundation Safety Review
- The Montreal Convention
- IATA Guidance Material on Serious Injury
- Korean Aviation safety Law Enforcement Rules
- etc.

