Overview of ICAO Documents 10151 and 10185

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DISCLOSURE

I have no actual or potential financial conflicts of interest in relation to this presentation.

This presentation does not contain confidential information but does discuss documents that have yet to be published. Please contact ICAO for up-to-date information if you wish to quote the material covered.

While the presentation will mostly cover ICAO documents, when opinions are expressed they represent the opinion of the presenter and not the International Civil Aviation Organisation.

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TOPICS COVERED

01 **Relevant ICAO Documents**

Overview of relevant ICAO Documents

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Human Performance (HP)

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Relevant ICAO Documents

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BIBLIOGRAPHY

The following documents contain information that could be of interest to AME's:

- Document 8984 (Manual of Civil Aviation Medicine)

- Document 9654 (Manual of Prevention of Problematic Use of Substances in the Aviation Workplace)

- Document 9683 (Human Factors Training Manual)

- Document 9806 (Human Factors Guidelines for Safety Audits Manual)

- Document 9824 (Human Factors Guidelines for Aircraft Maintenance Manual)

- Document 9859 (Safety Management Manual)

- Document 10151* (Manual on Human Performance (HP) for Regulators)

- Document 10185* (Manual on Critical Incident Response Programmes for Cabin Crew)

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02

Document 10151

Manual on Human Performance (HP) for Regulators

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BACKGROUND

In 2019, the 40th ICAO Assembly made a Resolution regarding Human Performance in aviation.

It recognized that that …

- human performance, as influenced by physiological and cognitive capabilities and constraints, contributes significantly to the overall safety performance of the aviation system and …

- that the safety and efficiency benefits associated with new technologies, systems and procedures can only be realized when they are designed to enhance the performance of the individuals who use them.

- These future aviation systems will result in changes in roles for aviation professionals requiring work across multi-disciplinary teams to support collaborative decision-making

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HUMAN PERFORMANCE

But what is human performance?

- **human performance (HP)** refers to how people perform their tasks. It represents the human contribution to system performance.

It is distinct from human factors …

- Human factors encompasses knowledge from a range of scientific disciplines that support human performance (HP) through the design and evaluation of equipment, environments and work, in order to improve system performance.

… and from the elements that influence human performance.

- Such as mental health, fatigue, stress, physical health, training, culture and so on.

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STRUCTURE OF DOCUMENT

Document 10151 is divided into two parts: Part 1 is on understanding human performance and Part 2 is on the implications of human performance for regulatory agencies.

This presentation will present information on systems thinking, information on human-centered design and the human performance principles. All from Part 1.

Part 2 is not covered in this presentation. Part 2 includes HP's involvement in the State Safety Program, HP data collection and usage, HP and occurrence analysis, development of regulatory material, HP and equipment and more on the interaction of HP with organisations, systems, procedures and more.

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SYSTEMS THINKING

The word *system* comes from the Greek word "*systema"* which means "a whole composed of parts". Systems thinking represents an attempt to look at the entire assemblage of connected parts rather than separating it into its components and looking at them individually.

While systems thinking includes a number of observations and theories, the distinction between *simple, complicated* and *complex systems* is of particular importance.

Simple systems: Simple systems have one or a small number of known goals or functions that do not change over time. As such, they are easy to repair and ensure that they consistently meet pre-identified performance standards. An aviation example of a simple system is the passenger emergency lighting system used to guide passengers out of an aircraft in an emergency.

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SYSTEM TYPES

Complicated systems: The structure, elements and interactions in a complicated system might be difficult to understand but can be understood and quantified with a high degree of accuracy and completeness by experts. Knowledge of these systems is normally developed in a linear way (where an understanding of one element leads to an understanding of the next element and their impact on another can be reasonably predicted) and, like simple systems, can be designed to meet pre-identified performance standards.

Complex systems: In a complex system, the whole is greater than the sum of its parts. Everything is connected to, and dependent on, something else. Importantly, the behaviour of the system cannot be predicted by examining the behaviour of its separate parts, and the system cannot be understood by only looking at one component or from one perspective. Complex systems are often subject to random and unpredictable events due to the multiple and changing influences and interactions within the system.

HUMANS AND SYSTEMS

Humans are themselves complex systems. An individual may change behaviour, adapting to internal influences, such as health or personal mood, as well as to external influences, such as environment or equipment. Any interaction between a human and technology, regardless of whether the technology itself is simple or complicated, changes the nature of the whole human-technology system, making it a complex system.

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HUMAN-CENTERED DESIGN

The *human-centered design* is an approach to designing systems, procedures, equipment or in fact anything used by a human. It aids in making a product that can be used efficiently and safety for its purpose. When using a human-centered design, 7 steps are followed …

- A concept of use (or operation) is identified.

- Design requirements are identified.

- Prototype designs are developed.

- Prototype designs are tested and evaluated.

- The design is selected.

- Implementation guidance is developed.

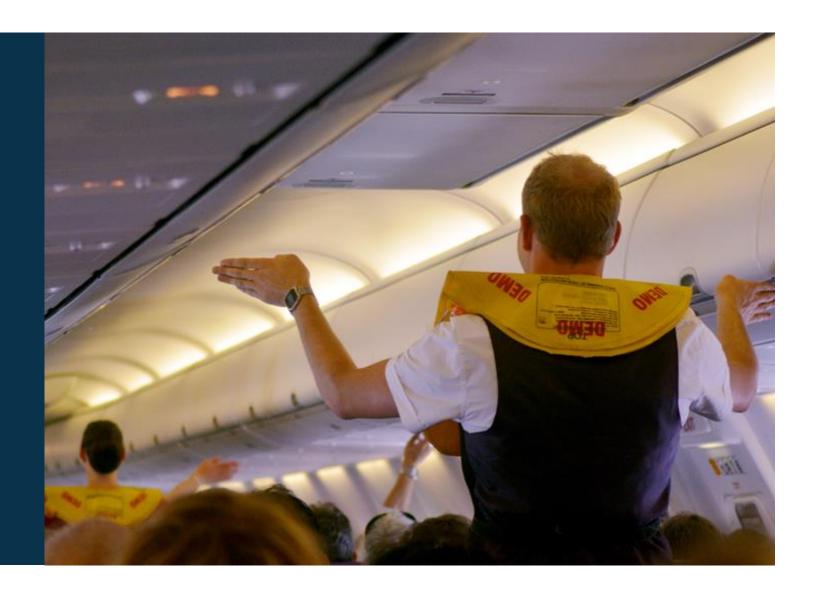- Performance is monitored after implementation.

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HUMAN PERFORMANCE PRINCIPLES

The document also includes a list of the five main factors that influence people's performance.

- **Principle 1:** People's performance is shaped by their capabilities and limitations;

- **Principle 2:** People interpret situations differently and perform in ways that make sense to them;

- **Principle 3:** People adapt to meet the demands of a complex and dynamic work environment;

- **Principle 4**: People assess risks and make trade-offs; and

- **Principle 5:** People's performance is influenced by working with other people, technology and the environment.

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Document 10185

Manual on Critical Incident Response Programmes for Cabin Crew

BACKGROUND

During the Covid-19 pandemic a number of individuals and organisations discussed the importance of mental health.

ICAO published Electronic Bulletin on *Promoting, maintaining and supporting mental well-being in aviation during the Covid-19 pandemic* (EB2020/55), but also began work on the *Manual on Critical Incident Response Programmes for Cabin Crew* (Document 10185).

As there were published guidelines for peer support and critical incident support for pilots and air traffic controllers, but none for cabin crew, there was a specific need for this manual.

While focused on cabin crew, however, the manual does provide information on critical incidents, post-critical incident stress, interventions and CIRP (*critical incident response program*) design, implementation and training, that can be used by all aviation stakeholders.

The Manual is currently finishing its Review Phase and will be published in Q1 of 2023.

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CRITICAL INCIDENTS

A critical incident is any event that has the potential to cause an unusually strong emotional reaction and interfere with a person's routine functioning level. Its impact goes beyond the bounds of normal stress not only by the level of distress it evokes but also by how much and by how long it overwhelms a person's coping mechanisms. Critical incidents often involve:

a)   a threat to life, safety and a person's core beliefs;

b)   a high degree of identification;

c)   feelings of helplessness / powerlessness;

d)   intense distress, shock and / or fear;

e)   disruption to a person's state of psychological balance;

f)   failure of usual coping mechanisms; and/or

g)   impairment or dysfunction.

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ACTIONS FOLLOWING A CRITICAL INCIDENT

There are three different types of interventions a Critical Incident Response Program (CIRP) can deploy to assist in recovery from critical incidents.

- Type 1- pre-incident interventions
  - Awareness, training, fostering a wellbeing culture

- Type 2 - acute stress, or post-critical incident interventions; and
  - Individual crisis intervention
  - Group crisis management briefing
  - Group defusing
  - Group critical incident response debriefing

- Type 3 - follow-up and referral intervention.
  - Referral to mental health professional (MHP)
  - Sick leave

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PEER SUPPORT

Within aviation, peers have become the primary mode for delivery of the majority of critical incident interventions and monitoring / follow-up services. The reasons for this are both practical and evidence-based:

- the use of peers leverages the mutual support that already exists among flying partners;

- due to the non-medical role of peers, cabin crew members are more likely to participate in peer support interventions;

- there is an immediate connection and trust with getting assistance from "one of their own". Peer support offers a level of acceptance, understanding, and validation not found in professional relationships;

- peers understand the demands of the profession and can anticipate downstream stressors and needed support;

… and more

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POSITIVE SAFETY CULTURE

The implementation of a CIRP is a proactive safety activity rather than a reactive one. The programme enables anticipation and planning for wellness issues that can impact safety rather than waiting for safety to be compromised by a wellness issue and then responding to it. CIRPs may be seen as a part of a safety management system (SMS). Specifically, CIRPs recognize that:

- critical incident exposures and subsequent stress reactions will happen;

- employees need to be educated about their vulnerability;

- initial support and intervention services need to be made available for all, whether a person's exposure is direct or indirect; and

- continued monitoring and follow-up services need to be available for some individuals, who may require them.

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DEVELOPMENT OF A CIRP PROGRAM

There are numerous aspects that need to be considered, however, when designing a CIRP program. This includes …

- Types of interventions

- Program governance

- Link to emergency response plan

- Interaction with unions, regulators, MHP's and other aviation stakeholders.

- Cultural issues (safety, organisational, national, etc.)

- Roll-out and implementation of program

- Training of peers

- … and more.

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Summary & questions

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Thank You