



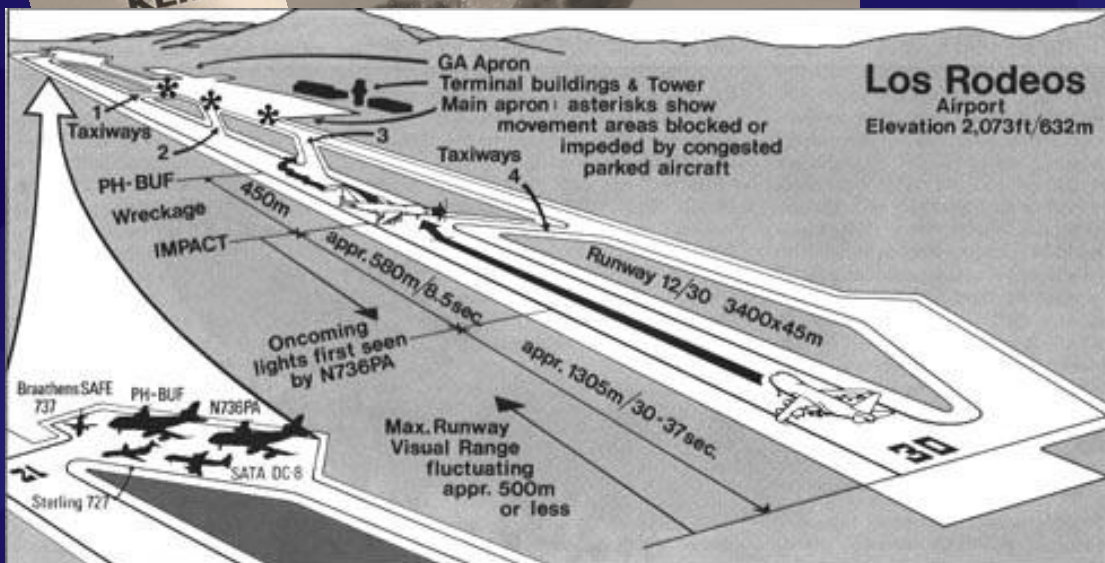
Learning from Airline Industry - IndiGo experience

Dr K Nageshwar Rao MD
Chief Medical Officer
Indigo



KLM
4805

Tenerife
27 Mar 1977



Hudson River 2009



PAN_AM
1736

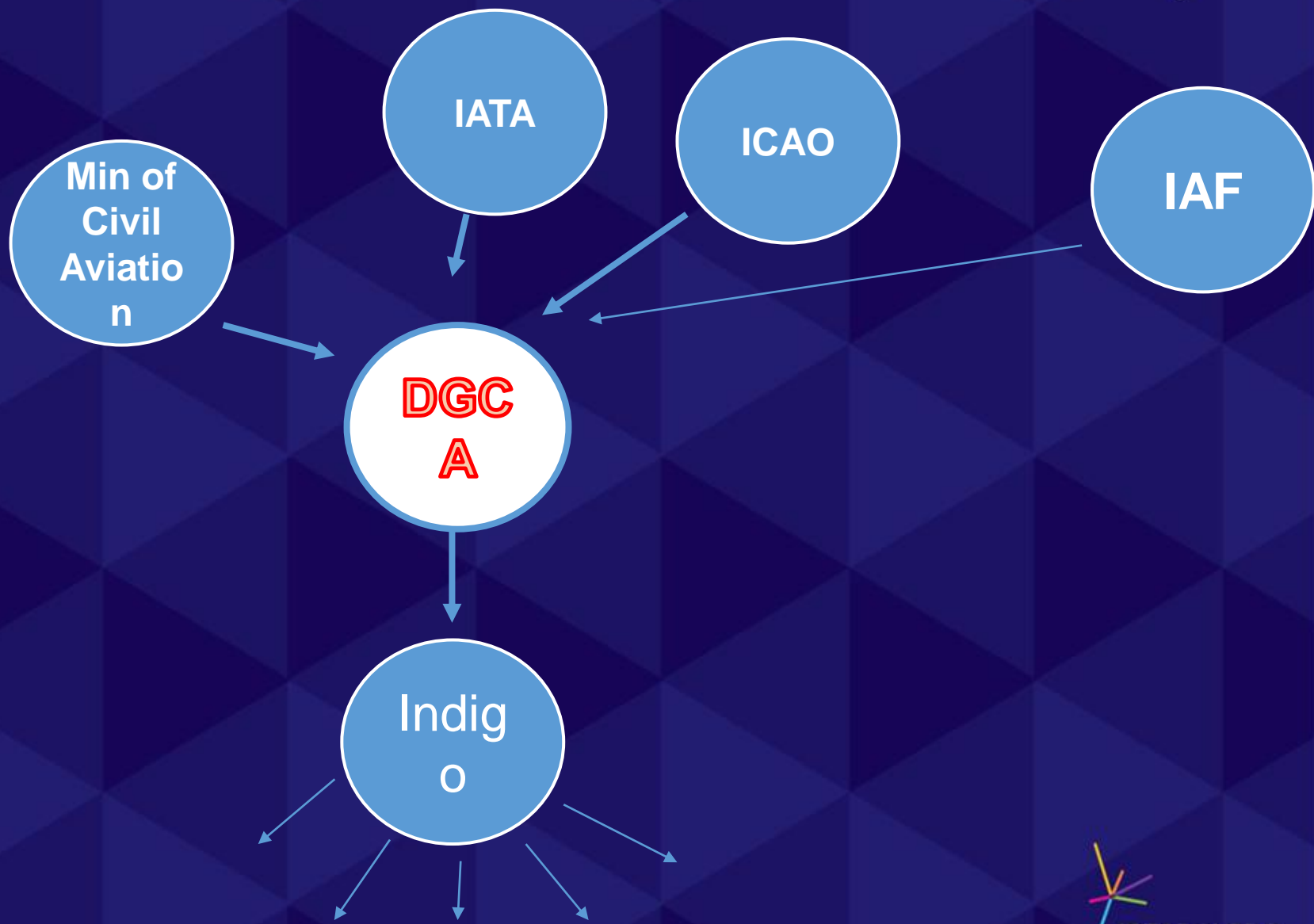




Human Error

Are they similar?

Can practices translate across industries?





@IndiGo

- The Management
- The Pilot/ flight crew
- The employees
- The Policies



- Safety Management System

Safety Culture



SMS Vs QMS

- Safety Management System focuses on the safety, human and organizational aspects of an organization (i.e. safety satisfaction)
- Quality Management System focuses on the products and services of an organization (i.e. customer satisfaction)

The daily routine of a pilot

- Sortie Preparation
- BA Test
- Preflight papers
- Fuel Calculations
- Preflight briefing
- Preflight checks
- Check Lists
- Standardised Communication
- Sterile cockpit
- Post flight Checks

MY DAILY ROUTINE

Wake up



Be awesome



Go back to sleep



The Checklist Culture

- 1935 – B-17 “The flying fortress”

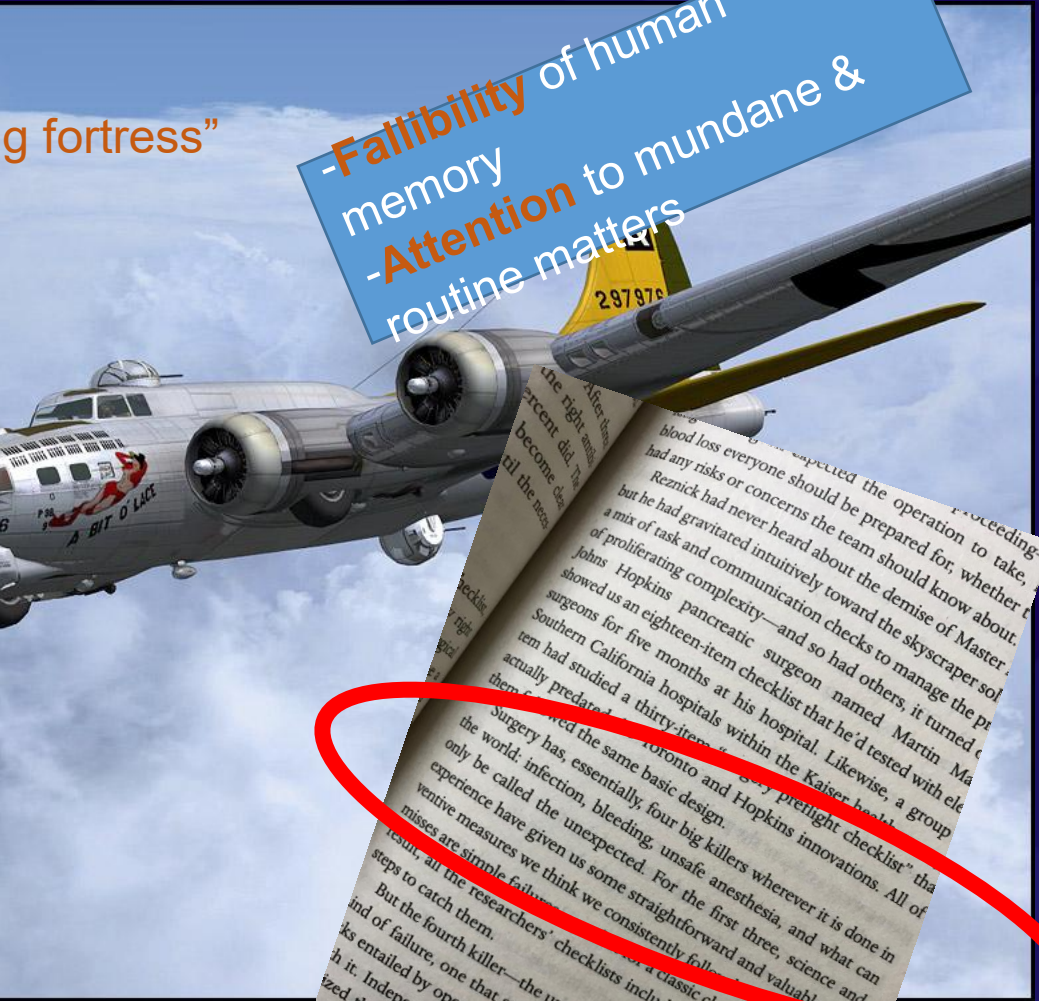
-Fallibility of human memory
-Attention to mundane & routine matters

THE END OF THE MASTER BUILDER 59

component became further specialized and split off, until there were architects on one side, often with their own areas of specialty, and engineers on another, with their various kinds of expertise; the builders, too, fragmented into their own multiple divisions, ranging from tower crane contractors to finish carpenters. The field looked, in other words, a lot like medicine, with all its specialists and superspecialists.

Yet we in medicine continue to exist in a system created in the Master Builder era—a system in which a lone Master Physician with a prescription pad, an operating room, and a few people to follow his lead plans and executes the entirety of care for a patient, from diagnosis through treatment. We've been slow to adapt to the reality that, for example, a third of patients have at least ten specialist physicians actively involved in their care by their last year of life, and probably a score more personnel, ranging from nurse practitioners and physician assistants to pharmacists and home medical aides. And the evidence of how slow we've been to adapt is the extraordinarily high rate at which care for patients is duplicated or flawed or completely uncoordinated.

In the construction business, Salvia explained, such failure is not an option. No matter how designing...



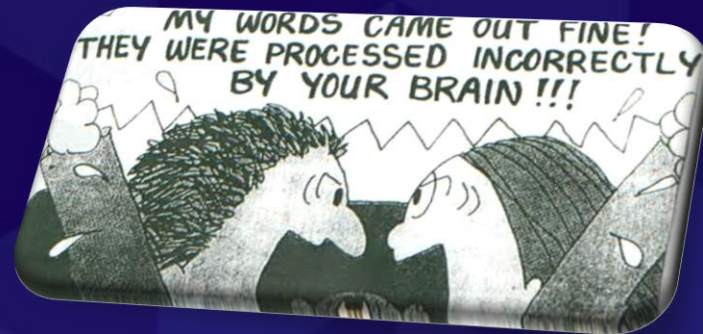
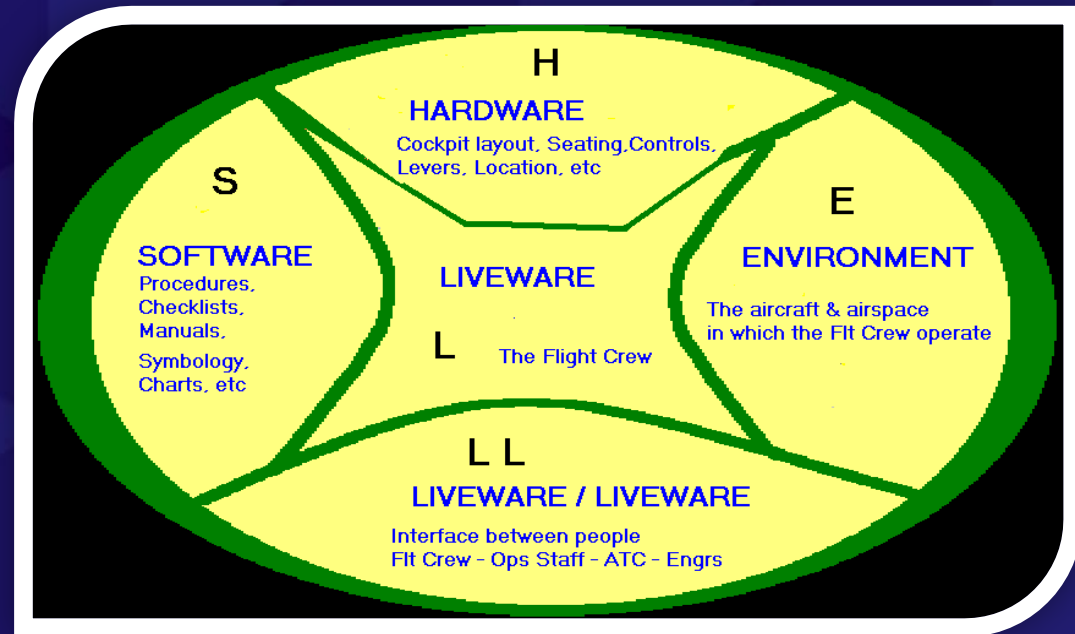
the right man...
percent did...
become clear...
till the next...

blood loss everyone should be prepared for, whether...
had any risks or concerns the team should know about...
Reznick had never heard about the demise of Master...
but he had gravitated intuitively toward the skyscraper sol...
a mix of task and communication checks to manage the pr...
of proliferating complexity—and so had others, it turned e...
Johns Hopkins pancreatic surgeon named Martin Ma...
showed us an eighteen-item checklist that he'd tested with ele...
surgeons for five months at his hospital. Likewise, a group...
Southern California hospitals within the Kaiser health...
tem had studied a thirty-item checklist that he'd tested with ele...
actually prepared...
Toronto and Hopkins innovations. All of...
Surgery has, essentially, four big killers wherever it is done in...
the world: infection, bleeding, unsafe anesthesia, and what can...
only be called the unexpected. For the first three, science and...
experience have given us some straightforward and valuable...
ventive measures we think we consistently follow. These...
misses are simple failures that a classic checklist, and a valua...
But the fourth killer—the unexpected—is an entirely different...
steps to catch them. These...
But the fourth killer—the unexpected—is an entirely different...
steps to catch them. These...
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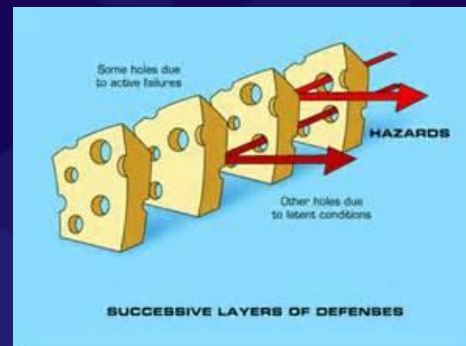
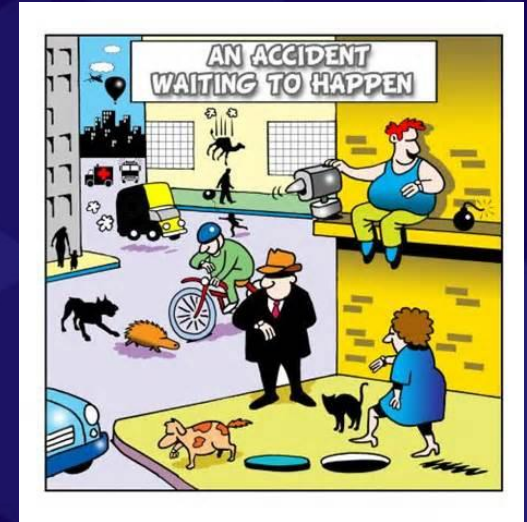
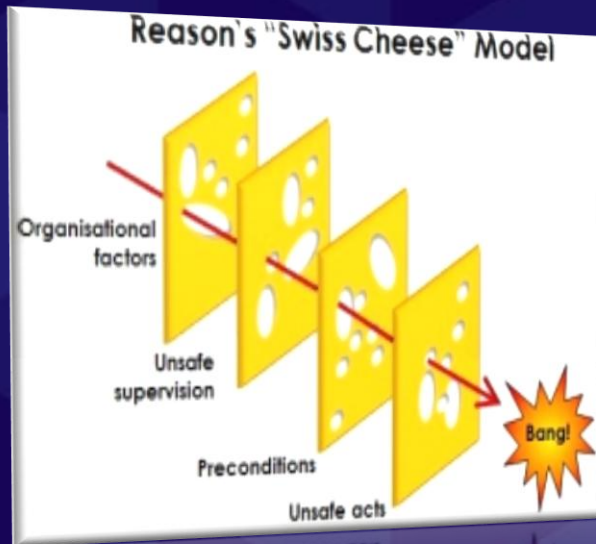
CRM

Crew Resource Management

- Leadership
- Situational Awareness
- Aeronautical decision making
- Communication
- Stress management

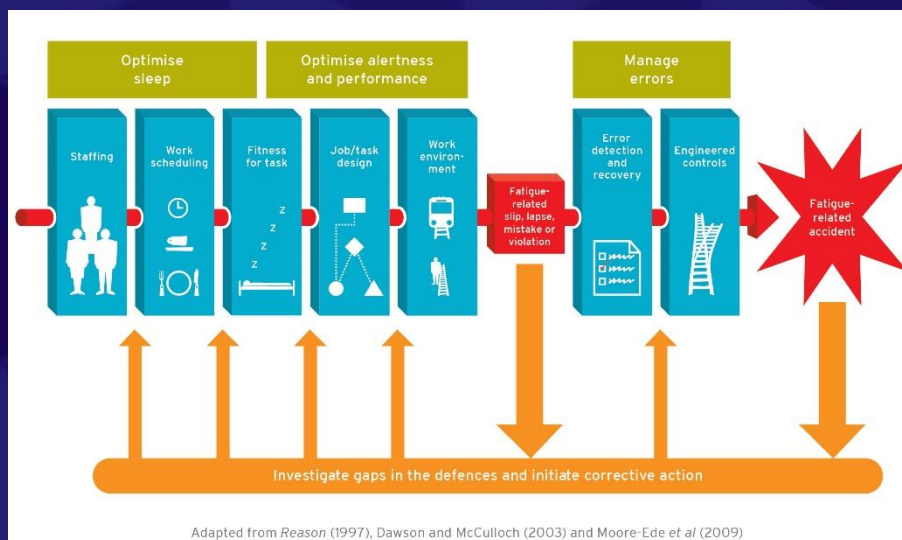


Accident Causation



FRMS

- Predictive
- Proactive
- Reactive



FDTL



6. REQUIREMENTS FOR DOMESTIC AND NEIGHBOURING COUNTRIES OPERATIONS

6.1 Daily maximum flight time limitations during any 24 consecutive hours:

| Crew Complement | Maximum Flight Time Limitation/ Max Number of Landings* |
|----------------------|--|
| Two-Pilot Operations | 8 hours/ up to 6 landings |
| | <i>For day operations</i> 9 Hours/up to 3 landings |
| | <i>For night operations</i> 9 Hours/up to 2 landings |

* Maximum Number of Landings is further dependent on Flight Duty Period.

6.2 Cumulative flight time limitations

| Cumulative Period | Flight Time Limitation (Hours) |
|-------------------------|-----------------------------------|
| In 7 consecutive days | 35 |
| In 30 consecutive days | 125 |
| In 365 consecutive days | 1000 |

6.3 Maximum Daily Flight Duty Period – Two Pilot Operations

6.3.1 Maximum Daily Flight Duty period for two pilot operation shall be as per the following table:

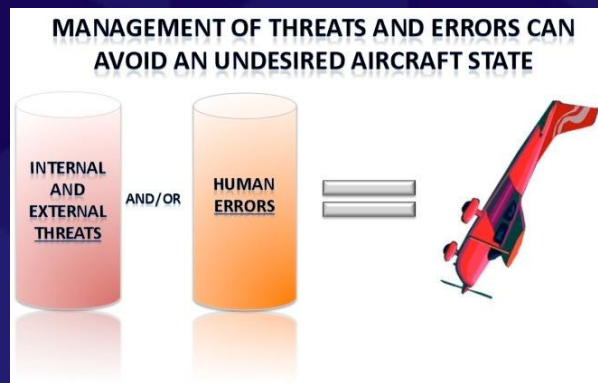
| Maximum Daily Flight Duty Period (FDP) Limitation** | Maximum Number of landings | Maximum Flight Time Limitation |
|---|----------------------------|--------------------------------|
| 12.5 hours | 2 for night operations | 9 hours |
| | 3 for day operations | |
| 12 hours | 4 | 8 hours |
| 11.5 hours | 5 | |
| 11 hours | 6 | |

** Reduction of Flight duty period due to operation in WOCL

LOSA



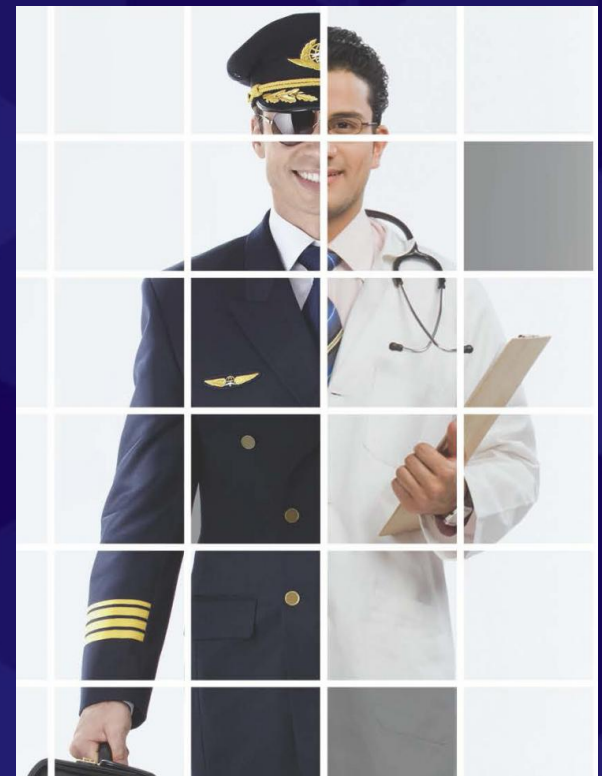
- “Threats, errors and undesirable states”.
 - “NO-JEOPARDY CONDITIONS”
 - Potential threats to safety;
 - How the threats are addressed;
 - The errors such threats generate;
 - How flight crews manage these errors;
 - Specific behaviours that have been known to be associated with accidents and incidents



Preventive Care

- Crew Medicals
 - Flight Crew
 - Cabin Crew

Civil Aviation Requirements,
Section 7, Series „C“, Part I
dated 26th August, 1999



Pre Flight Medical Check



CIVIL AVIATION REQUIREMENTS
SECTION 2 – AIRWORTHINESS
SERIES 'F', PART III,
ISSUE II, DATED 25TH NOVEMBER 2014
Revised: Nov 2016





The Take Aways

- Crew Resource Management
- Protocols & briefings
- **Checklist culture**
- **Fatigue Management/ FDTL**
- Presurgery – Breath Alcohol check???
- Line Oriented Safety Audit

.....Food for thought



-Happy Landings