



| ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

**Aviation Medicine update
on developments in ICAO**

*4th AME Refresher Workshop,
CAPSCA – AP/17
June 2025, Bangkok*



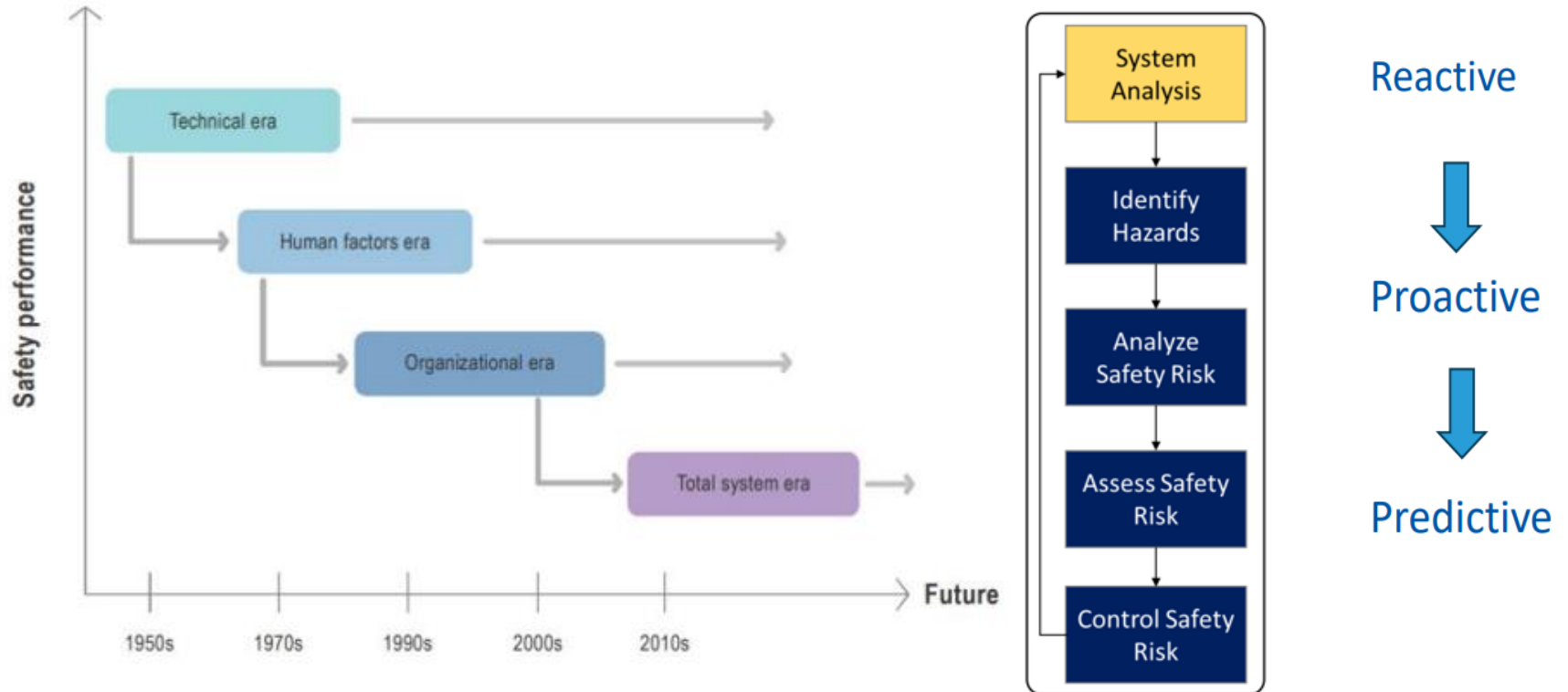
Aviation Medicine Strategic update

- Aviation Medical Risk assessment methodology
- Integrated risk and safety management
- Measurable result-based outcomes
- Principle of no Country Left Behind

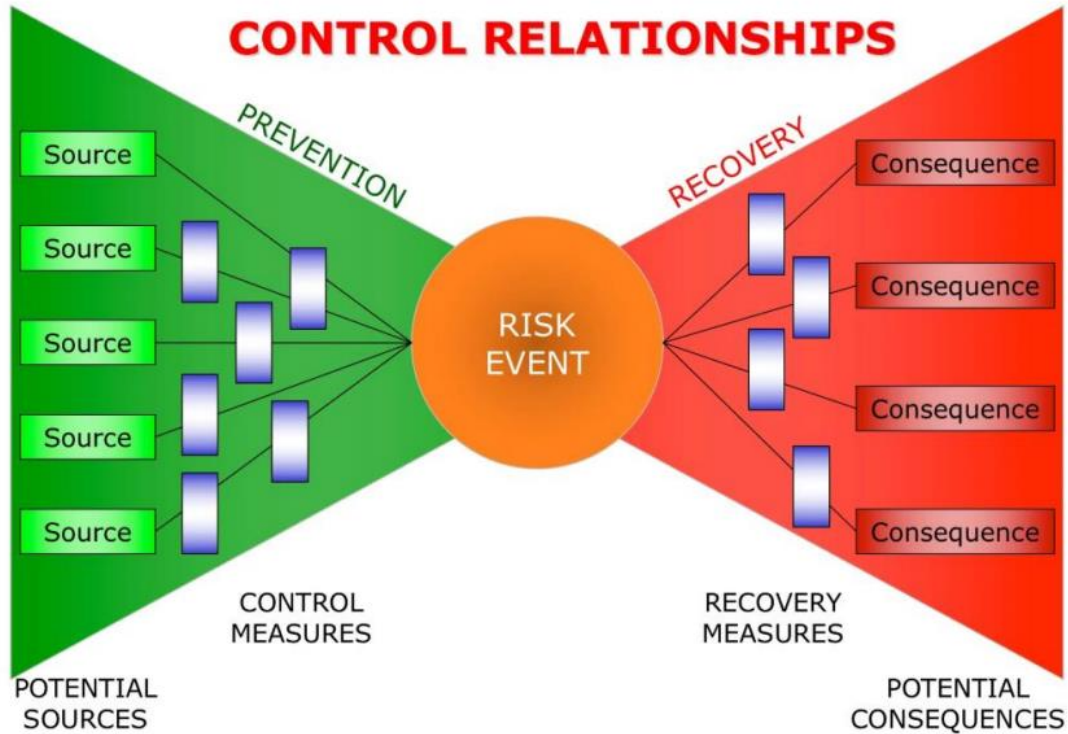
Aviation Medicine Strategic update

- Strengthen aviation medical capacities
 - Aviation Medicine Training
 - Decision making support
 - Digital systems for data collection, analysis and sharing of information and best practices
 - Harmonization to the greatest extent possible
 - Reciprocal acceptance of medical certificates

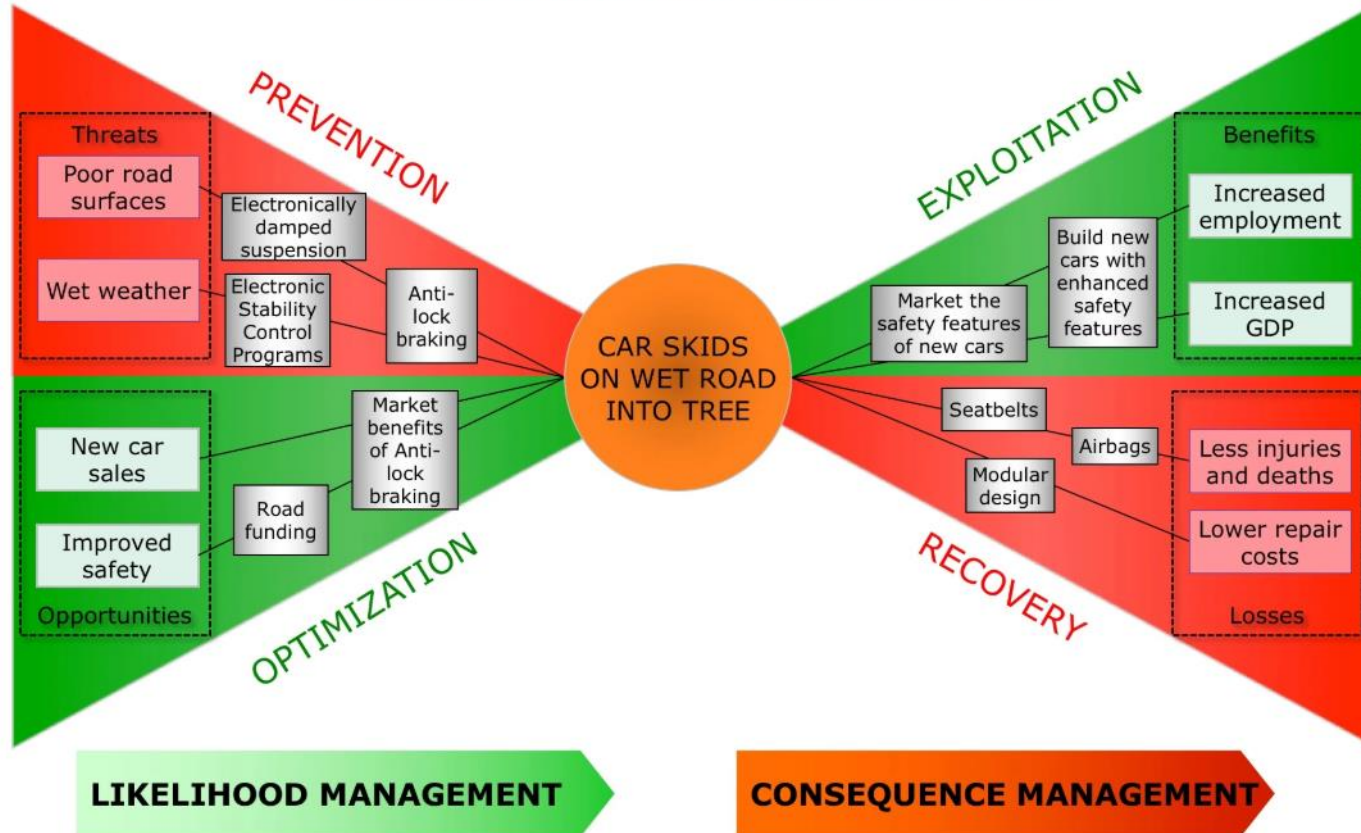
Safety management in aviation



Bow-tie model in risk management



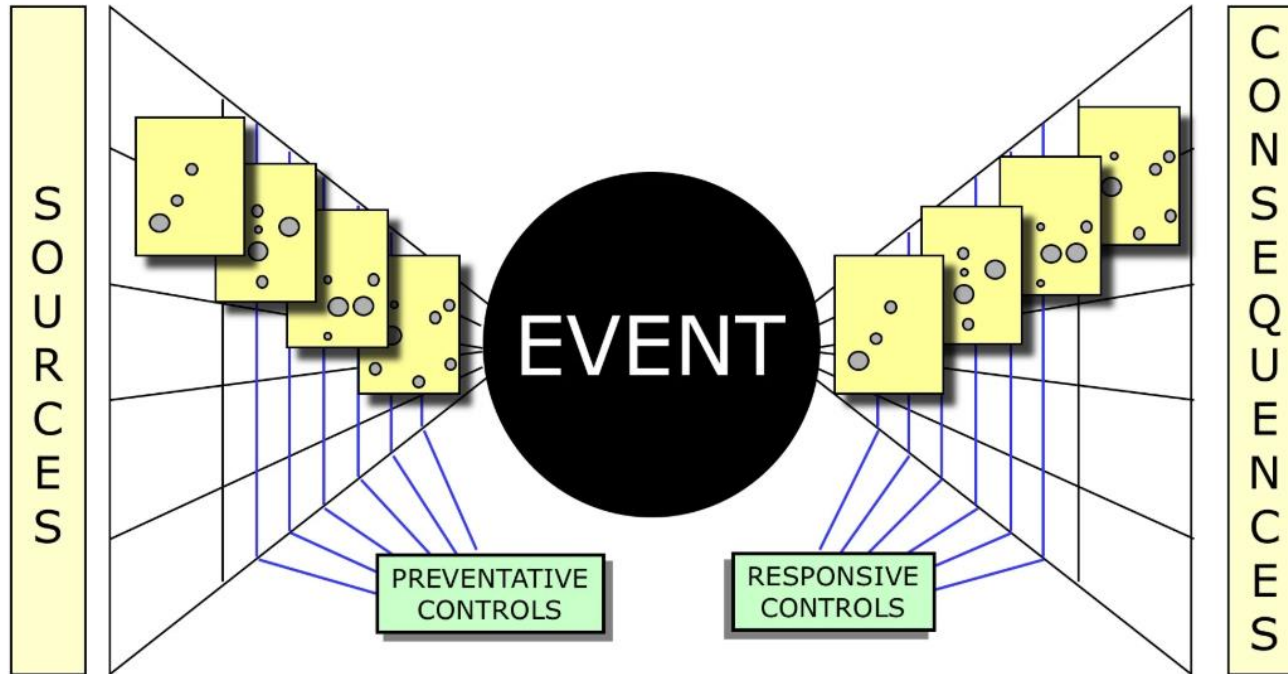
CAR CRASH EXAMPLE



Bow-tie model in aviation

Source: <https://www.juliantalbot.com>

RISK CONTROLS



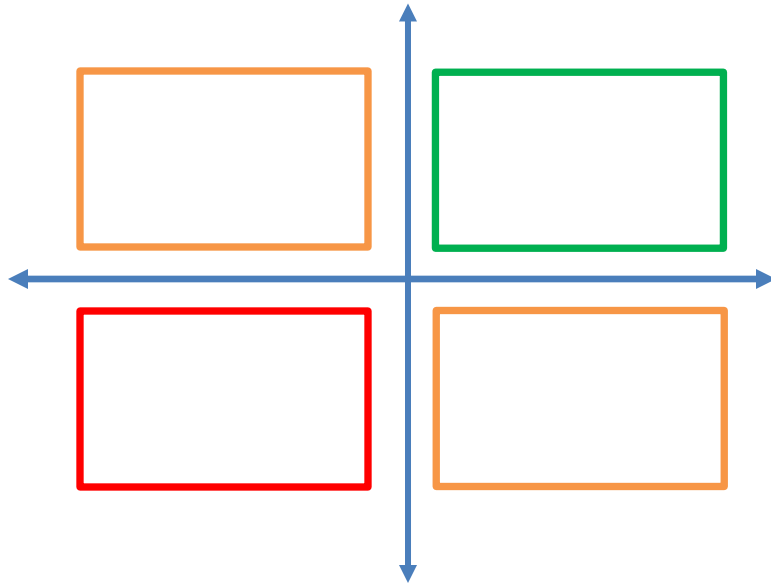
Safety Risk Matrix

Table 3. Example safety risk matrix

Safety Risk		Severity				
Probability		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

Note.— In determining the safety risk tolerability, the quality and reliability of the data used for the hazard identification and safety risk probability should be taken into consideration.

Dimensional Risk Matrix application in aviation medicine



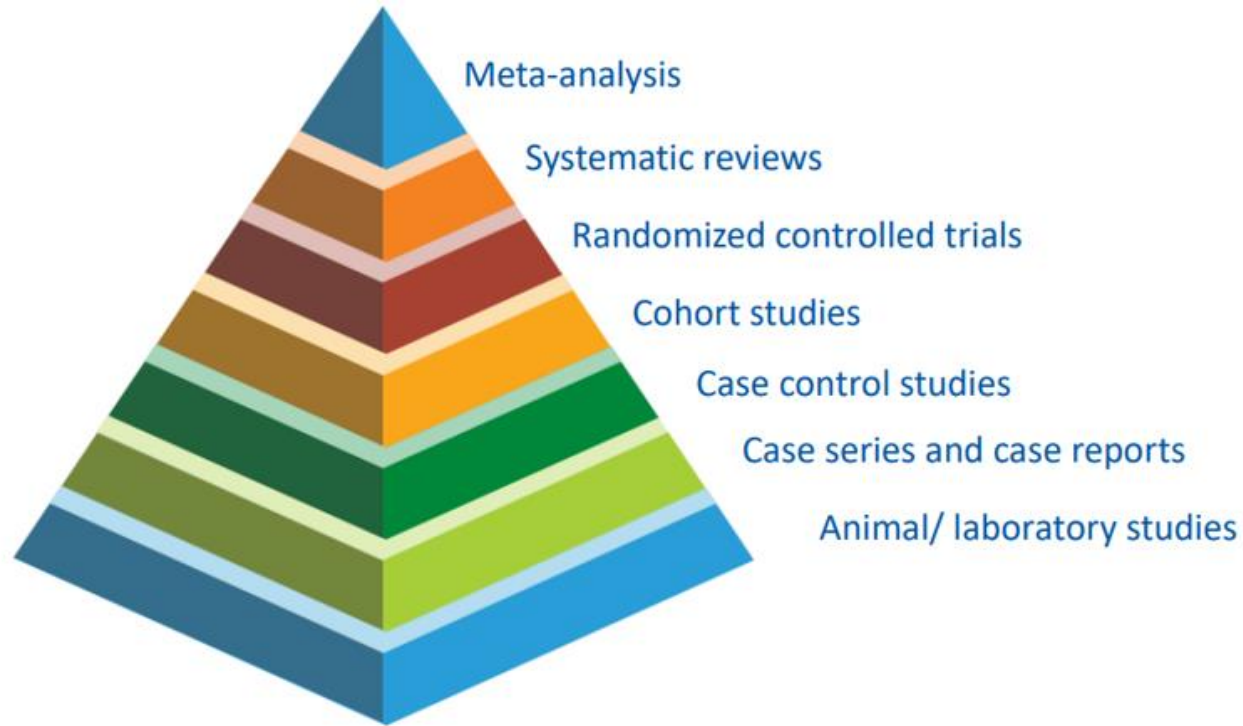
Aircrew role 1				
Aircrew role 2				
Aircrew role 3				
Aircrew role 4				

Risk based decision making in Aviation Medicine

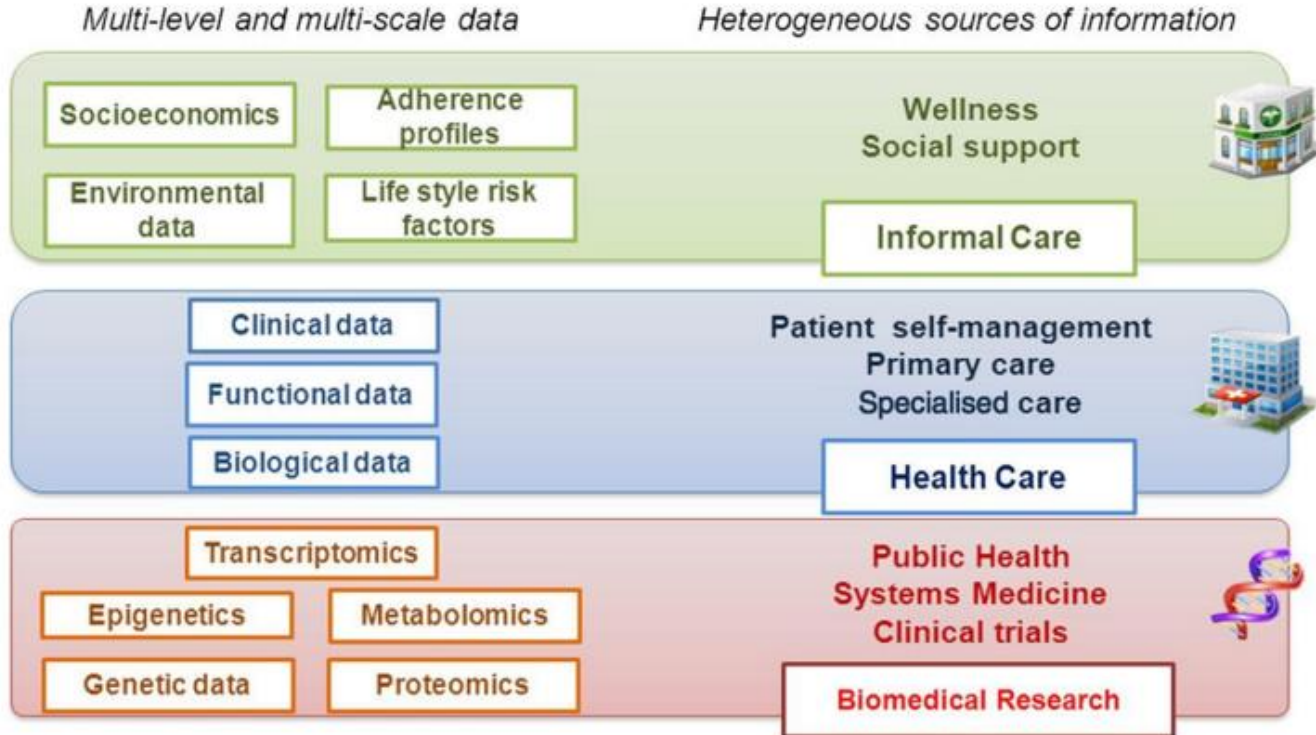
More sophisticated 1% rule?



Risk based decision making in Aviation Medicine



Risk based decision making in Aviation Medicine

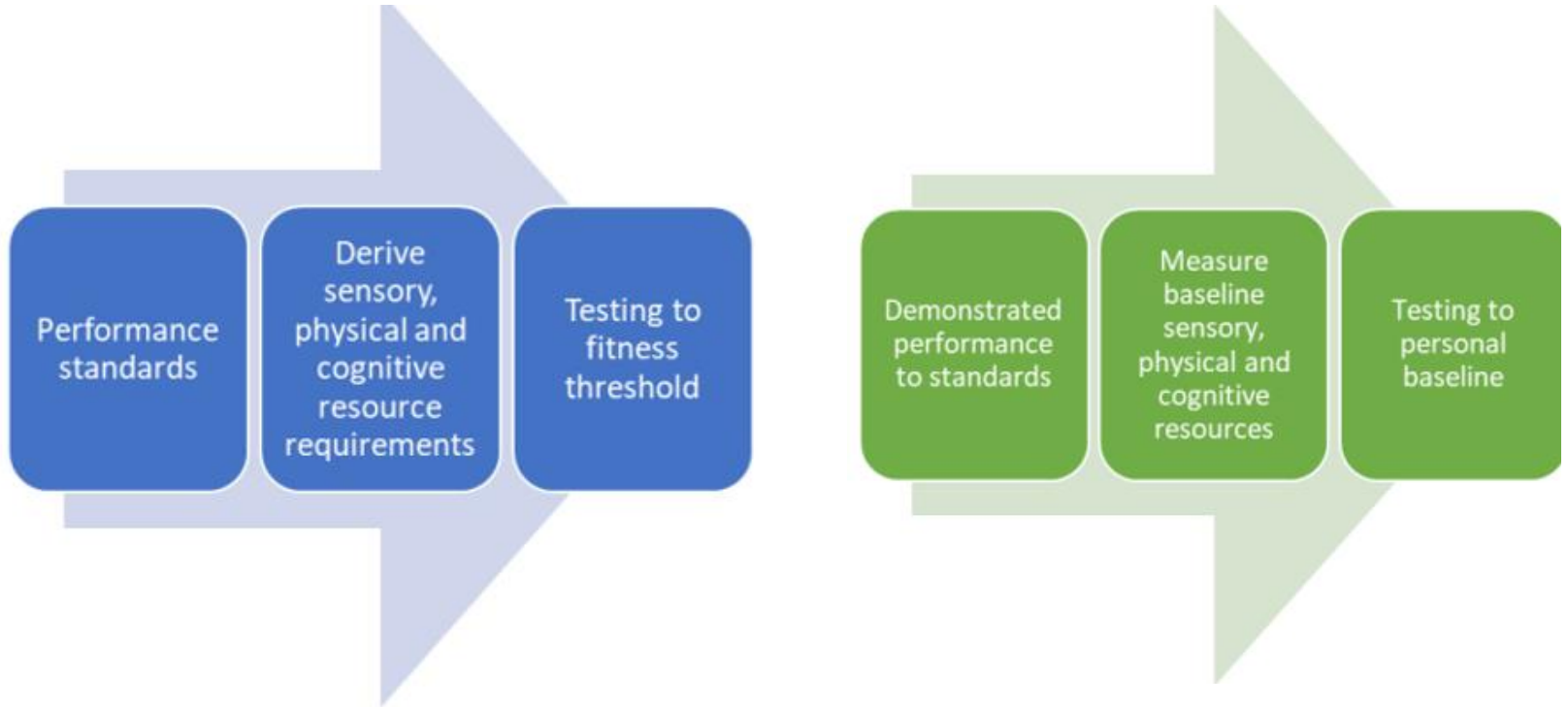


Risk based decision making in Aviation Medicine

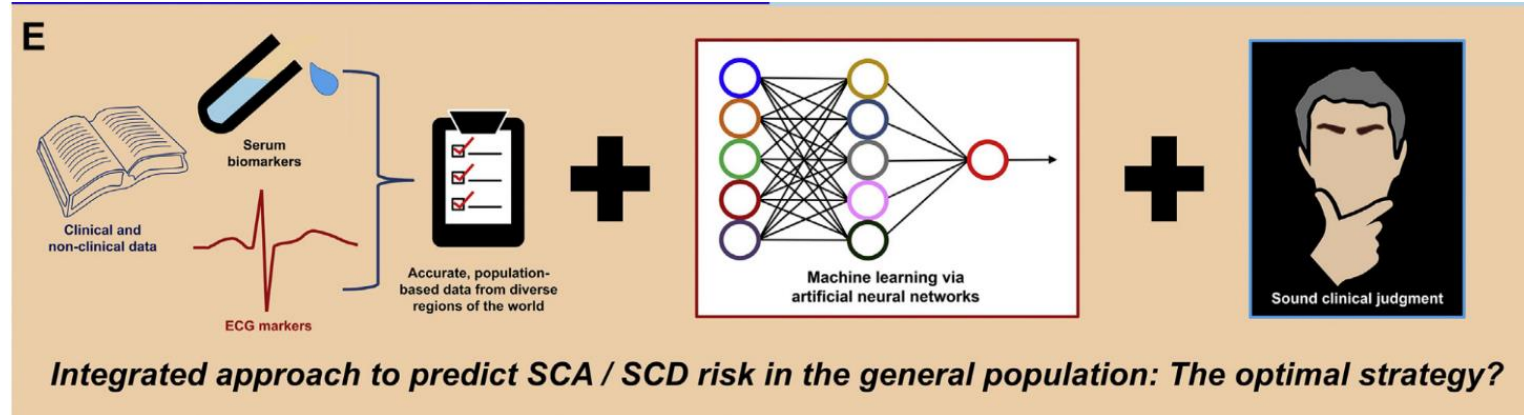


Integrated Risk Based Decision Making

Determine and test in different environments



Decision making in Aviation Medicine



Technology and AI

- Telemedicine
- Virtual training/ assistance
- Digital records/ certificates
- Electronic pilot licenses
- Bio-monitoring of pilots
- Remote diagnosis - EMS
- Chat GPT and others
- AI analysis - radiologists
- Commercial space medicine

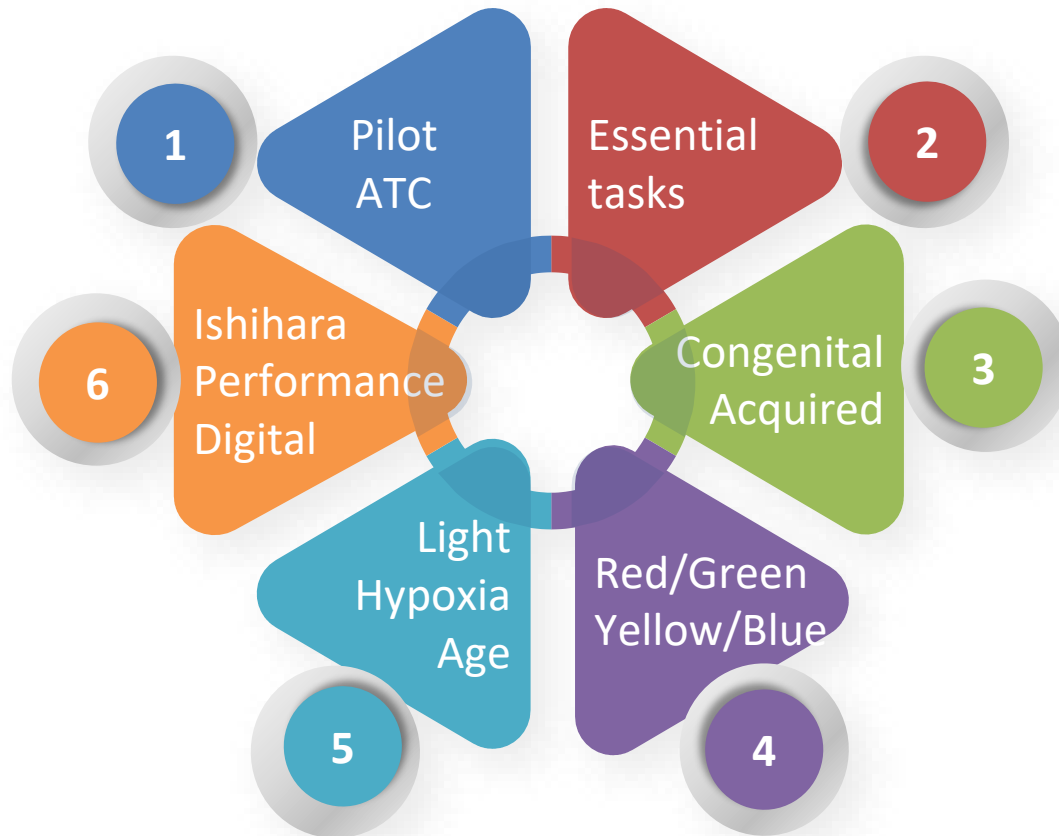
Integration

- Accommodate the global rapidly advancing technology into increasingly complex aviation operations
- Balance acceptable level of risk with benefits of evolving technologies, considering societal acceptance
- Collaborate with all stakeholders for the highest level of harmonization

Aviation Medicine Technical update

- Colour vision
- Insulin dependent diabetes
- Mental health

Colour vision developments



Guidance material

- Science
- Practical concerns
- Risk Management
- Screening
- Assessment
- Performance tests
- Data reporting
- Review

Insulin Dependent Diabetes Mellitus

- Harmonized SARPs
 - Some countries allow e.g. Australia, New Zealand, US
 - Differences in application e.g. for single and multi-crew
 - Trilateral collaborative study: UK, Ireland, Austria
 - EASA study 2025
- Concerns
 - Risk of hypoglycemia
 - Insulin pump delivery during decompression events
 - Effectiveness of CGM

Insulin Dependent Diabetes Mellitus

- Risk assessment and risk management
 - Risk matrix approach could include:
 - flight experience
 - pilot management of diabetes
 - medication schedule
 - Risk mitigation
 - Diet
 - Protocols for testing and monitoring
 - Record keeping
 - Data analysis

Insulin Dependent Diabetes Mellitus

- Training and support
 - Pilot guidance, including reporting requirements
 - Pilot peer support programmes
 - AME and medical assessor training
 - AME and medical assessor decision-making matrices
 - AME and medical assessor support

Mental health terminology

- Differentiate between well-being, building resilience and fitness to fly
- Salutogenic vs. pathological approach
- Specific terminology for application in aviation
- Starting point: terminology in ICAO publications
- Aligned to other publications in aviation
- Industry review

Mental health awareness

- Mental health literacy/ mental health advocacy
- Initial questions
 - Why?
 - Who?
 - What?
 - Where?
 - When?
 - How?
 - How often?

Aviation Medicine Manuals

- Updated manuals
 - COVID-19 Cross Border risk management manual (Doc 10152)
 - Selected chapters of Civil Aviation Medicine manual (Doc 8984)
 - Manual on the problematic use of substances (Doc 9654)
- New manuals
 - Health Promotion and Psychological Well-being manual
 - Comprehensive CAPSCA manual
 - CAPSCA coordinator and focal point manual



Thank You