69th International Congress of Aviation and Space Medicine

ICASM 2023

Under the auspices of the International Academy of Aviation and Space Medicine

Save the Date

26 - 29 October, 2023
Conrad at Etihad Towers, Abu Dhabi, UAE

ABSTRACT GUIDELINES & FORM

DEADLINE OF SUBMISSION: JUNE 30, 2023 (23:59 UAE/GST)
NOTIFICATION OF ACCEPTED ABSTRACTS: JULY 21, 2023

The scientific committee is delighted to receive your abstracts for the 69th International Congress of Aviation and Space Medicine on 25-29 October 2023 at Conrad at Etihad Towers, Abu Dhabi, UAE

TOPIC CATEGORIES	SUBGROUP
■ CLINICAL MEDICINE	■ Mental health / PSP - EPPSI
	■ Aeromedical screening
	□ Cardiovascular assessment
	□ Diabetes
	□ Sleep illnesses
	□ Visual assessment
	□ Medications
	□ Neurological and cognitive assessment
	□ Age-limit in pilots
	□ Drug and alcohol testing
	■ Occupational health
	□ Inflight medical support
	□ Musculoskeletal
□ HUMAN PERFORMANCE	□ Fatigue management
	□ Stress management
	□ Hypoxia and hypobaric exposure
	□ Acceleration
	□ Neck and back pain
	□ In-flight and simulator training
□ TRAVEL AND AIR TRANSPORT MEDICINE	□ Medical evacuation
□ SAFETY	□ Aviation accidents
	□ High-performance aircraft ejections

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	□ Regulatory Aviation Medical Examinations (e.g. EASA, FAA, LAPL, Basic Med)
□ **SPACE MEDICINE**	□ Medical screening
	□ New technologies
	□ Mission to Mars or to the Moon
	□ Space research
	□ Emergency response preparation
	□ Inflight medical support
□ **OTHERS:** [please specify] Click or tap here to enter text.	Click or tap here to enter text.

PARTICIPATION	■ IN-PERSON	□ VIRTUAL [E-poster]

*MODE	■ ORAL	□ POSTER

*The scientific committee will make the final decision on accepting submissions and assigning the mode and/or category

GUIDELINES

- Ethical Standards Statement for Abstract Submission Process
  - All authors of abstracts and presentations submitted to, or presented at, Academy Congresses are expected to adhere to the basic principles of scientific ethics. These include:
    - 1) The results of research must be reported accurately;
    - 2) Contributors and collaborators should be fairly acknowledged;
    - 3) Research involving animal or human subjects should be reviewed and conducted in accordance with international guidelines;
    - 4) The authors should report only their own work; the work of others must be properly attributed;
    - 5) Presentations at Academy Congresses should not duplicate previous presentations given elsewhere, although in view of the international Congress audience, the contents of presentations may have been previously delivered to different audiences in different formats;
    - 6) Any potential conflict of interest that could bias, or create the impression of possible bias, must be divulged during the abstract submission process, and during the Congress presentation; and
    - 7) Presentations at Academy Congresses must be free of commercial purpose, bias, advertising, or agenda.
- No more than 2 abstracts can be submitted.
- First author is the poster presenter. Otherwise, let us know if you are the delegated presenter in agreement with the other authors.

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- Abstracts must include sufficient information for reviewers to judge the nature and significance of the topic, the adequacy of the investigative strategy, the nature of the results, and the conclusions.
- Presenter must not use the session as a marketing opportunity for services, products, etc.
- The poster presenter will receive a certificate of attendance and appreciation for their presentation/ participation
- Travel/accommodation expenses will not be provided.

···

ABSTRACT FORM

ABSTRACT CONTENT
[must not exceed 350 words]

Introduction: please use one or two sentences that simply state the purpose of your study

Methods: Provide study details, step by step, for the reader to understand the design of the research. Identify inclusion and exclusion criteria if applicable. If statistics were used for data analysis, please identify your statistical methods.

Results: Please report all outcome measures that were mentioned in the methods section. Please present your most important findings first. Please include measures of central tendency (either mean or median), measures of variance (standard deviation or range) and preferably 95% confidence intervals. If statistical significance is reported, please use exact p-values.

Conclusions: Your conclusions must be based on your data and results. State only what you have found. Do not include any comments that are not backed up by your data.

Relevance (optional but preferable): If relevant to your study, please describe the potential importance of your study from a clinical standpoint.

[RESEARCH ABSTRACT]

Title [English]: Development of a Brief Mental Health Screening Check-List
Name: Pierpaolo Calanna
Affiliation: Italian Air Force, Aerospace Medical Institute, Milan
Address for communication: Viale dell'Aviazione, 2 Milan, Italy
Email: pierpaolo.calanna@aeronautica.difesa.difesa.it

Introduction: Aviation personnel must be physically and mentally fit to safely transport thousands of passengers daily. Aeromedical centers (AeMCs) and aeromedical examiners (AMEs) are responsible for assessing these workers' cognitive and emotional fitness. Mental health checklists are a viable strategy to speed up decision-making. To this aim, we developed a 21-item screening checklist (MHSC) covering the most common psychological conditions and life stressors. Additionally, we created an unsupervised machine learning pipeline to detect

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individuals with outlier profiles (i.e., having responses falling outside the typical range) who may need an in-depth evaluation by mental health specialists.

Methods: Within a cross-sectional design, we collected MHSC data from 240 aviation professionals, including pilots, pilot applicants, and flight attendants. We trained an unsupervised machine learning pipeline built upon five strategies to detect MHSC profiles with anomalous responses: (1) a rule-based system to verify missing items, (2) a rule-based system to spot positively answered sentinel items such as "aggressiveness towards others or self", (3) a rule-based system to identify profiles with unique response patterns, and (4) two isolation forests to assess the degree of outlierness of the MHSC responses and scores. Furthermore, the dataset was projected onto a two-dimensional surface via a dimensionality reduction technique to visualize how extensively the pipeline tracked down anomalous MHSC profiles.

Results: The machine learning pipeline identified about 18% of profiles that required additional scrutiny for mental health risk potential. About 70% of such profiles showed a strong-to-extreme level of outlierness, while the rest had moderate values. The 2D projections of the dataset confirmed that the pipeline correctly marked as extreme outliers the MHSC profiles in the peripheral regions of the representative space.

Conclusions: The MHSC is a fast, easy and unobtrusive way to screen aviation workers for mental health issues; the users perceived MHSC quite well, as it is a "cultural device" proximal to the aviation industry mental toolset. The machine learning pipeline was a valuable tool for automatically flagging individuals who were considered candidates for an in-depth clinical interview. The checklist and the pipeline are available in the public domain.

[EDUCATIONAL / INFORMATIONAL ABSTRACT]

Title [English]:
Title [French]:
use of a translation app is acceptable; should be concise and informative

Name:
Affiliation:
Address for communication:
Email:

Background:
Overview:
Discussion:

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PRESENTER	□ Yes, I am the principal author □ No, I am the delegated presenter

This abstract/study/results have been presented before. Details: Click or tap here to enter text.	□ Yes	■ No
This abstract has already received an award/s	□ Yes	■ No
*This abstract is complete	■ Yes	□ No

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Please submit online via www.icasm23.com

ADDITIONAL INFORMATION

This area is to be filled out by the details of the poster presenter

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<tr><td></td><td></td><td></td></tr>
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Please note that upon acceptance of your abstract, the first author or presenter [if the first author will not be the presenter] must provide the following:

Abu Dhabi Department of Culture & Tourism (DCT requirements)
- Passport copy (coloured)
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I agree on the submission of Abu Dhabi DCT requirements	□ Yes □ No

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AUTHOR DECLARATION

Third party source(s) of funding should be disclosed.

[1] I or my institution has received payment or services from a <u>third party</u> (i.e., from a commercial enterprise, private foundation, etc.) for any aspect of the submitted work.	□ Yes: please list your source of funding, if applicable, below Click or tap here to enter text. ■ No
[2] I or my institution has financial relationships (regardless of the amount) with any entities.	□ Yes: if relevant to your presentation, please list these relationships below Click or tap here to enter text. ■ No
[3] Are there any other relationships or activities that could be perceived to have influenced, or that give the appearance of potentially influencing what you will present at the Congress?	□ Yes: please explain relationships, conditions or circumstances below Click or tap here to enter text. ■ No
Support or conflict(s) of interest must be declared at the beginning of the presentation.	■ I will declare
Submitted by: Pierpaolo Calanna	■ First author / principal author □ Delegated presenter

APPENDIX

[SAMPLE RESEARCH ABSTRACTS FORMAT]

[English]: THE NATURAL HISTORY OF ASYMPTOMATIC CORONARY ARTERY DISEASE: LONG-TERM FOLLOW-UP OF 1487 MALE AVIATORS

[French]: HISTOIRE NATURELLE DE LA MALADIE CORONAIRE ASYMPTOMATIQUE: SUIVI À LONG TERME DE 1487 AVIATEURS MASCULINS

Authors: WB KRUYER, PJ FITZSIMMONS, SL BARNETT

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Affiliation: USAF School of Aerospace Medicine, Brooks Air Force Base, Texas, USA

Address for communication: USAF School of Aerospace Medicine, Brooks Air Force Base, Texas, USA

Email: xxyyzz@gmail.com

Introduction: The purpose of this database study was to asymptomatic military aviators with coronary angiography performed for aeromedical indications to determine clinical outcomes for asymptomatic minimal and significant CAD.

Methods: We retrospectively reviewed records of 1487 consecutive coronary angiograms performed on asymptomatic male military aviators between 1971 and 1999. Three angiographic subsets were defined: normal (NL, N = 929) no stenoses, minimal CAD (MCAD, N = 249) maximum stenosis greater than zero but <50%, and significant CAD (SCAD, N = 309) maximum stenosis >50%. SCAD was divided into two subgroups: maximum stenosis 50-70% (N= 124) and maximum stenosis >70% (N = 185). We obtained follow-up via questionnaires, telephone interviews, medical records, and death certificates. Events considered were cardiac death and nonfatal myocardial infarction (MI).

Results: Mean follow-up for the 1487 aviators was 14.2 years. Mean age at angiography was 42.2 years for NL, 46.6 years for MCAD, and 46.0 years for SCAD. Average annual event rates for first cardiac event at 2, 5, 10, and 15 years were as follows: NL = 0.0%, 0.0%, 0.1%, and 0.1% per year; MCAD = 0.2%, 0.1%, 0.3%, and 0.8% per year; and SCAD = 1.5%, 1.1%, 1.1%, and 1.4% per year. For the SCAD subgroups, average annual event rates for first event were as follows: 50-70% maximum stenosis = 1.2%, 1.4%, 1.3%, and 1.3%; and >70% maximum stenosis = 1.6%, 0.9%, 1.1%, and 1.5%.

Conclusion: Event rates for MCAD were higher than for NL, but less than 1% per year. Event rates for asymptomatic SCAD were lower than for similar symptomatic populations, but still greater than 1% per year. The two SCAD subsets also had event rates greater than 1% per year.

[SAMPLE EDUCATIONAL/INFORMATIONAL ABSTRACTS FORMAT]

[English]: **NEXT PANDEMIC PREPARATION USING COVID-19 TOP LESSONS LEARNED - AIRLINE INDUSTRY PERSPECTIVE**
[French]: _____

Author/s: David Powell

Affiliation: IATA, Auckland, New Zealand

Address for communication: USAF School of Aerospace Medicine, Brooks Air Force Base, Texas, USA

Email: xxyyzz@gmail.com

Background: Worldwide aviation has been greatly and negatively impacted by the COVID-19 pandemic. Right from the outset, organisations, businesses, and individuals within the aviation industry have faced unique and complex challenges. As the pandemic evolved, so did knowledge, attitudes, and expectations. Contingency planning has had to adapt. Controversy has not been rare, especially around the relative weight of preventive measures and harmonisation, creating unique opportunities for learning. Procedures have been assessed, reassessed, implemented and made more robust, which may serve the aviation community well in years to come.

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This presentation is expected to be part of a panel to discuss controversies and top lessons learned from the perspectives of the medical side of frontline organisations.

Overview: As the pandemic evolved, so did knowledge, attitudes, and expectations. Contingency planning has had to adapt constantly. Controversy has not been rare, especially around the relative weight of preventive measures and harmonisation. On the other hand, the pandemic has created unique opportunities for learning in both scientific and organisational terms. Procedures have been assessed, reassessed, implemented and made more robust, which may serve the aviation community well in years to come.

Discussion: In this presentation, the author will discuss top lessons learned from the perspective of the medical side of the International Airlin

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