



## 2022 ABSTRACTS OF THE AsMA SCIENTIFIC SESSIONS

92<sup>nd</sup> Annual Scientific Meeting  
May 22 – 27, 2022

Peppermill Resort Hotel  
Reno, NV

The following are the sessions and abstracts with rooms and presentation times for all presentations accepted after blind peer-review—in workshop, panel, slide, or poster sessions—for the 2022 Annual Scientific Meeting of the Aerospace Medical Association. The numbered abstracts are keyed to both the daily schedule and the author index. The Session numbers are listed as S-1 through S-86 (including workshops). Session chairs are included in the index to participants. The order of some sessions may have changed (check the Addendum provided at the meeting for the latest information). Abstracts withdrawn are listed as W/D. Presenters are underlined in the text.

**SLIDES & PANELS:** Each slide presentation is scheduled for 15 minutes (10-min talk and 5-min Q&A). We strive to keep slide presentations on time. Panel presentations have more flexibility and may not keep to a strict 15 minutes per presenter format. There will be a discussion period of 15 minutes at the end of each panel.

**POSTERS:** Posters will be presented digitally this year. Poster authors must be present for the full session in which their poster is scheduled.

**EXHIBITS:** Exhibits will be open Sunday evening during the Welcome Reception, and 9:30 a.m. to 4:30 p.m. Monday and Tuesday. Please wear your badge and visit every exhibit.

**CONFLICT OF INTEREST:** All meeting planners and presenters completed financial disclosure forms for this live educational activity. All potential conflicts of interest were resolved before planners and presenters were approved to participate in the educational activity. Any conflicts of interest that could not be resolved resulted in disqualification from any role involved in planning, management, presentation, or evaluation of the educational activity.

**TEMPLATES:** All Abstracts were submitted according to a certain category and type using provided templates. Not all abstracts submitted fit the mold for Original Research abstracts. We therefore have created an Education category with three additional types: Case Report, Program/Process, and Tutorial. The templates for these are provided for your information.

### **ORIGINAL RESEARCH TEMPLATE:**

This type of abstract describes the results and significance of new research undertaken to address gaps in the current knowledge of aerospace medicine or human performance. It is typically an original analysis of a hypothesis involving data collection and analysis.

**INTRODUCTION:** *<This section includes the background, including a statement of the problem and why it is important, the status of the current research, and the hypothesis to be tested.>*

**METHODS:** *<This section includes a brief description of how the study was conducted, the number, type, and gender of the subjects, and how they were selected and grouped. It should also include the metrics collected, how they were measured, and how frequently they were recorded. The types of scales or questionnaires administered should be identified. Environmental conditions and administered medications should be described. In addition, a summary of the statistical methods should be provided. A statement concerning ethics approval for studies using human or animal subjects is also required.>*

**RESULTS:** *<This section includes a summary of the data and metrics of operational and/or statistical significance. "Results will be discussed" is not acceptable.>*

**DISCUSSION:** *<This section interprets the meaning of the results in terms of their application to the operational/clinical/scientific community and suggests areas for future research.>*

**EDUCATION: CASE STUDY: CLINICAL OR HUMAN PERFORMANCE TEMPLATE:**

This type of abstract describes the analysis of an individual clinical or operational case that is not a research study but provides pertinent information directly applicable to aeromedical practices, safety, or human performance.

**INTRODUCTION:** *<This section concisely summarizes the case.>*

**BACKGROUND:** *<This section describes the importance of the case and provides supporting evidence in the form of a literature review.>*

**CASE PRESENTATION:** *<This section describes the event.>*

**DISCUSSION:** *<This section explains the applicability and relevance to civilian and military operations.>*

**EDUCATION: PROGRAM/PROCESS REVIEW TEMPLATE:**

This type of abstract can describe a new Service thrust, e.g., identifying capability gaps, or reviews of critical areas, e.g., safety. It may be a description of a program or process that is used to solve a problem or accomplish a task.

**BACKGROUND:** *<This section describes why this is important to AsMA attendees and why this needs to be addressed now.>*

**OVERVIEW:** *<This section concisely describes the effort and how it applies to current or future gaps.>*

**DISCUSSION:** *<This section describes (1) the operational or clinical significance, (2) how it will advance aeromedicine/human performance, and (3) address whether it supports cross Service/International/Military–Civilian spheres.>*

**EDUCATION: TUTORIAL TEMPLATE:**

This type of abstract describes new tools, models, techniques, and methodologies pertinent to civilian and military aerospace medicine and human performance.

**INTRODUCTION:** *<This section summarizes what will be covered, e.g., list of topics or syllabus.>*

**TOPIC:** *<Description of new technology, procedure, or methodology.>*

**APPLICATION:** *<This section details how the new material will be implemented and how broadly it applies to aerospace medicine and human performance.>*

**RESOURCES:** *<This is an optional section to provide citations where additional information can be found.>*

**SUNDAY, MAY 22, 2022**

**Sunday, 05/22/2022**  
**Tuscany 3**

**8:00 AM**

### **[S-01]: WORKSHOP: AEROSPACE MEDICINE FACULTY DEVELOPMENT WORKSHOP**

**Chair: Thomas Jarnot**  
**Co-Chair: Paul Newbold**

**WORKSHOP OVERVIEW:** The Accreditation Council for Graduate Medical Education (ACGME) requires faculty members regularly participate in organized clinical discussions, rounds, journal clubs, conferences, and on an annual basis pursue faculty development designed to enhance their skills. Faculty development is intended to describe structured programming developed for the purpose of enhancing transference of knowledge, skill, and behavior from the educator to the learner. This workshop will offer needs-based programming reflective of recent and upcoming changes to residency training as implemented by the ACGME and demonstrate solutions to current resident educational requirements. Focus areas will include Resident Supervision, Learners in Trouble, and Feedback.

#### **[1] AEROSPACE MEDICINE FACULTY DEVELOPMENT WORKSHOP**

Jessica Servey<sup>1</sup>, Diane Hale<sup>2</sup>

<sup>1</sup>Uniformed Services University of the Health Sciences, Bethesda, MD, United States); <sup>2</sup>SAUSHEC, San Antonio, TX, United States

(Education - Program/Process Review)

There is a need to develop and learn the skills required to be more effective educators, assessors, and mentors of healthcare professionals in training, to improve the quality of training and to produce better healthcare professionals. This workshop will provide attendees with core skills and knowledge in the following topics Supervision, Learners in Trouble, and Feedback.

#### **Learning Objectives**

1. 7046 Supervision: 1. Define the ACGME levels of supervision 2. Describe the characteristics of effective supervisors 3. Identify barriers to seeking attending supervision 4. Apply standardized model to communicate supervision needs.
2. 7014 Learners in Trouble: 1. Describe typical deficits at various learner levels 2. List the signal behaviors and Seven Ds for problem learners 3. Discuss intervention in problem cases 4. Develop programs to prevent learning problems.
3. 7001 Feedback: 1. Define feedback 2. Demonstrate the components of effective feedback 3. Identify barriers to giving feedback 4. Review strategies for delivering feedback.

#### **[2] REFLECTIVE PRACTICE IN AVIATION MEDICINE**

Satyam Patel

King's College London, London, United Kingdom

(Education - Tutorial/Review)

**INTRODUCTION:** Having the ability to reflect is a key competency for professionally competent clinical practice, and it has recently been linked to enhancing diagnostic accuracy as well as raising the efficiency with which feedback is used in both medical education and clinical practice. Given the particular nature of their profession, aviation experts are expected to plan ahead for both the health and safety of the crews they treat as well as the possible risks to others if a crewmember becomes unable to perform their duties. It is possible to employ reflective practice in this situation as a tool for self-improvement as well as a teaching tool to teach incoming resident doctors how to think like an aviation medical

specialist. Various forms of reflective writing have developed in both clinical practice and medical education, with the purpose of improving reflective skills as well as empathy and practitioner well-being. **TOPIC:** Application of Gibb's Methodology to reflective practice. **APPLICATION:** To achieve these goals, there are several models for reflective writing that can be used in self-reflection in clinical practice as well as taught to medical students and residents. This essay will define reflection, demonstrate Gibb's method of reflection, and discuss its application in clinical practice and medical education.

#### **Learning Objectives**

1. The participant will be able to apply a typical self-reflective structure by utilising Gibb's reflective cycle.
2. The participant will be able to teach effective reflective practice to other clinical practitioners.

**Sunday, 05/22/2022**  
**Tuscany A**

**9:00 AM**

### **[S-02]: WORKSHOP: AIRCREW SELECTION: APTITUDE, MOTIVATION, AND MENTAL HEALTH CONSIDERATIONS**

**Chair: Ray King**  
**Co-Chair: Tatana Olson**

**WORKSHOP OVERVIEW: PROBLEM STATEMENT:** Ethically selecting candidates for aviation careers requires consideration of aptitude and motivation, as well as an assessment of mental health. Such a system needs to be psychometrically valid and legally defensible while also cost effective. **TOPIC:** This workshop focuses on the assessment of a candidate's aptitude and motivation to succeed in an aviation career as well as screening mental health. **APPLICATION:** Aptitude is composed of Knowledge, Skills, Abilities, and Other characteristics (which includes the non-pathological domains of personality) that identify someone as capable for successful performance based on formal job analysis procedures. Candidates are assessed on KSAOs through various tests and measures that are validated against key performance indicators to determine whether they meet minimum job qualifications. While the assessment of these KSAOs is designed to identify individuals who CAN become a successful aviation asset, the assessment of personality and motivation can also help predict who WILL become an asset. Mental health also needs to be considered, to include depression, anxiety, substance abuse/dependence as well as personality disorders and maladaptive personality traits. The assessment of mental health for aviation careers is not without controversy as the stakes are high, both to aviation safety as well as to potential aviators' careers and hence livelihoods. While psychological testing is useful, off-the-shelf instruments must be used with caution and with occupation-specific norms as those interested in aviation as well as incumbent aviators present themselves in unique ways. For example, successful aviators typically have compulsive, narcissistic, and histrionic personality traits, which can be adaptive in the aviation environment. Individuals with dependent personalities or who cannot effectively compartmentalize their non-aviation concerns need to be identified early. While it is important to have well-defined medical standards in aviation, it is also important to consider individuals who have received treatment and consider waivers/special issuances. Such an approach will best avoid driving psychiatric information "underground" or discourage treatment. **RESOURCES:** This workshop will enable participants to be better consumers of selection efforts and will employ slide presentations, case vignettes, questions and answers, and video and/or live demonstrations of applicant interviews.

#### **[3] AIRCREW SELECTION APTITUDE, MOTIVATION, AND MENTAL HEALTH CONSIDERATIONS**

Ray King<sup>1</sup>, Tatana Olson<sup>2</sup>

<sup>1</sup>Federal Aviation Administration (FAA), Washington, DC, United States);

<sup>2</sup>Defense Health Agency, J-9, Silver Spring, MD, United States

*(Education - Tutorial/Review)*

**PROBLEM STATEMENT:** Ethically selecting candidates for aviation careers requires consideration of aptitude and motivation, as well as an assessment of mental health. Such a system needs to be psychometrically valid and legally defensible while also cost effective. **TOPIC:** This workshop focuses on the assessment of a candidate's aptitude and motivation to succeed in an aviation career as well as a screening mental health.

**APPLICATION:** Aptitude is composed of the Knowledge, Skills, Abilities, and Other characteristics (including the nonpathological domains of personality) that identify someone capable for successful performance based on formal job analysis. Candidates are assessed on these KSAOs through various tests and measures that are validated against key performance indicators to determine whether they meet minimum job qualifications. While the assessment of KSAOs is designed to identify individuals who CAN become a successful aviation asset, the assessment of personality and motivation can also help predict who WILL become an asset. Mental health also needs to be considered and include depression, anxiety, substance abuse/dependence as well as personality disorders and maladaptive personality traits. The assessment of mental health for aviation careers is not without controversy as the stakes are high, both to aviation safety as well as to potential aviators' careers and hence livelihoods. While psychological testing is useful, off-the-shelf instruments must be used with caution and with occupation-specific norms as those interested in aviation as well as incumbent aviators present themselves in unique ways. For example, successful aviators typically have compulsive, narcissistic, and histrionic personality traits, which can be adaptive in the aviation environment. Individuals who have dependent personalities or who cannot effectively compartmentalize their non-aviation concerns need to be identified early. While it is important to have well-defined medical standards in aviation, it is also important to consider individuals who have received treatment and consider waivers. Such an approach will best avoid driving psychiatric information "underground" or discouraging treatment. **RESOURCES:** This workshop will enable participants to be better consumers of selection efforts and will employ slide presentations, case vignettes, questions and answers, and video and/or live demonstrations of applicant interviews.

**Learning Objectives**

1. Participants will understand the difference between SELECT IN and SELECT OUT in personnel selection.
2. Participants will come to appreciate the unique personality structure of aviators.
3. Participants will understand that aviators face most of the same life stressors that confront the rest of the population.

**Sunday, 05/22/2022**  
**Tuscany B**

**9:00 AM**

**[S-03]: WORKSHOP: MEETING THE  
CHALLENGES OF WORK-RELATED STRESS AND  
MENTAL HEALTH IN AVIATION: ROLE  
OF THE ORGANIZATION, REGULATOR,  
AND AME**

*Sponsored by the AsMA Aviation Mental  
Health Working Group*

**Chair: Quay Snyder**

**Co-Chairs: Kris Belland, David Schroeder**

**WORKSHOP OVERVIEW:** Mental health of aviation professionals is critical to safe operations and personal mental wellness. Numerous barriers exist to seeking mental health assistance. These barriers can be inherent to the aviation professional including personality types, historical cultural norms in aviation and employer work agreements/contracts. Barriers also include the implications of medical certification and regulatory authority oversight, confidentiality protections and lack of mental health professionals familiar with the aviation environment. Studies show that although aviation workers

have significant mental health stressors and varying levels of distress, relatively few seek professional help despite a desire to do so. The evolution of aviation peer support programs (PSP) has removed many barriers to seeking mental health support. Peer support can be very effective in resolving many mental health issues that arise. Candidate selection screening may be helpful. This workshop will begin by exploring the research into the magnitude of mental health challenges in aviation professionals and establishment of programs to address these challenges. Program types include assistance with mental health professionals, those exclusively administered with peers, those utilizing union-based Employee Assistance Programs and military mental health programs. It will then describe methods to integrate mental health support programs into an aviation organization with professional oversight or "safety valves." The workshop will then be led by Civil Aviation Authorities senior leaders in discussing the role of CAA's in supporting mental health programs as part of a safety system. To the public, the scope and magnitude of mental health stressors facing aircrew, particularly during the current pandemic, are unknown. Pilots intimately involved with mental health support of peers will reveal these issues which will persist for years to come. The origins and scope of pilot PSP's and a historical perspective on the successes and ongoing challenges are highlighted. Also, pilot-initiated PSP's with development of training syllabi for peer volunteers will be discussed including critical topics to maximize the effectiveness of PSP's while minimizing risks. The workshop will provide ample time for interaction with expert speakers, networking for attendees and resources for implementing programs. Attendees are encouraged to join current aviation mental health groups supportive of their needs.

**[4] BREAKING THE TABOOS OF MENTAL HEALTH FROM THE  
BEGINNING**

Herwin Bongers

*Aviation Peer Support, Christchurch, New Zealand*

*(Education - Program/Process Review)*

**BACKGROUND:** The genesis of pilot mental health issues can often be laid down very early on in a career. Early education of healthy mental wellness attitudes consistent with aviation could well avert the formation of mental illness sleeper-cells. **OVERVIEW:** The training years for a pilot can be particularly stressful. Often as young adults at a distinctly impressionable period of psychosocial development the impact of maladaptive responses to stress and anxiety can not only inform role impairment but can also go on to inform adult behaviours in the workplace. Aviation is potentially very sensitive to even the smallest negative behavioural trait which can subsequently have a substantive operational safety impact. **DISCUSSION:** Aviation peer support programs (PSP) tackle many mental health issues that arise in the airline context. Case studies show how many pilots demonstrate false perceptions and cognitive dissonance when responding to issues affecting their mental wellness. The formation of these attitudes reaches back to schemas and antecedent traits developed to cope with the stressors which arose during flight training. Even before commencement of training the fledgling pilot must declare the absence of any present or past mental health condition, and so should a state of distress or anxiety occur, the disincentive to self-present or seek out assistance is pre-cast. Instead the student pilot is left to design their own mechanisms to cope. These mechanisms, even if maladaptive, can carry forward into the career context. I wish to present a concept which takes the present emphasis of PSP in the occupational setting and projects the model back along the career timeline towards the epoch of an aviator's career when they are most receptive towards evidenced based mental health instruction. Given a curriculum mandate from the Regulator or Command for the topic to be covered as part of a pilot's matriculation would place the subject of mental health on an equal footing as principles of flight. This would demonstrate the equal impact upon flight safety that a failure of either can cause. This approach has benefits agnostic to Service, State, or military/civilian spheres.

**Learning Objectives**

1. To demonstrate the criticality that an aviator's ab initio training period presents in the formation of schemas and adaptive traits for their

management of mental stress and anxiety which can impact upon their performance for years later.

2. To propose that treating the instruction of evidence based healthy mental wellness awareness and self-regulation, resilience and if required retreat, is as critical to flight safety as principles of flight.

## [5] PEER SUPPORT AND JUST CULTURE: COLLABORATIVE EFFORTS OF MANAGEMENT AND UNIONS

Charles Curreri

*Colorado Christian University/University of Oklahoma, Arlington, TX, United States*

*(Education - Tutorial/Review)*

The United States and European Union issued guidelines and mandates for pilot mental fitness for duty soon following the tragic Germanwings crash in March 2015. Since that time, many airlines have adopted robust pilot peer support programs that include substance abuse and mental health support for pilots on a daily basis. This workshop will examine pilot peer support and Just Culture using a thorough literature review of the past few decades surrounding peer support. Using examples and case studies, we will examine the benefits of peer support, barriers to seeking help, the importance of "Just Culture" in management and union, and the need for a strong, collaborative environment that encourages help-seeking attitudes among aviators.

### Learning Objectives

1. The participant will be able to understand the history of peer support, the benefits of peer support, and barriers to seeking help.
2. Participants will be able to understand the benefits of Just Culture between management and unions and the keys to building a collaborative relationship.
3. Participants will be able to understand the critical components of a robust peer support program.

## [6] USE OF THE INTERNET IN ACCESSING PEER SUPPORT PROGRAMMES

David Fielding

*Girton College, Cambridge University, Cambridge, United Kingdom*

*(Education - Program/Process Review)*

**BACKGROUND:** The traditional methods of accessing Pilot Peer Support Programs (PPSPs) have been by telephone or face-to-face contact. The new generation of PPSPs, driven by EASA mandating in Feb 2021 pilot access to PPSPs for all EASA AOC's, is increasingly utilising the internet to access the programs. There are advantages to this approach.

**OVERVIEW:** Critical to this method of accessing PPSPs is the EASA requirement for PPSPs to be audited. Case documentation must be transparent whilst respecting confidentiality, and the data collected must be compliant with GDPR (data protection) law. Having the portal into the program be internet-based allows the user to click an 'Accept Terms & Conditions' box before proceeding, which protects both the program itself and Peer volunteers. Additional benefits of access being via the internet have been realised with experience. These include: No need for a duty phone or paid call handling agent for inbound calls. The system sends out an automated text to Peers when a case comes in and Peers then self-select according to their workload. If a case is not picked up within the requested time frame, repeater texts are sent out until the case is taken. No case is ever missed under this system. Case handling data is simple to obtain and does not rely on Peers back-filling contact forms. Peer workload can be better handled through an admin dashboard. All case notes are stored securely on the portal for access by the MHP. Unexpected psychological benefits of asking for help by clicking a button rather than picking up a phone. **DISCUSSION:** Persuading independent problem-solvers (pilots) to seek help for mental health issues is the major challenge facing any PPSP. Reducing the barriers to contact is a primary consideration. Picking up the phone or physically asking someone for help takes courage. Logic dictates that making the process of asking for

help as easy as possible will encourage more self-reporting. Feedback and data indicate that an internet access system works well. Users feel comfortable and in control clicking the button to ask for help. It is anonymous and completely confidential: an easy, positive first step in addressing the pilot's mental health issues. The confidentiality of the internet could prove particularly useful to the military, as personnel may feel unwilling to approach unit resources directly for help for fear of revealing their issues to their superiors.

### Learning Objectives

1. The presentation will demonstrate that internet-based access to a PPSP reduces administrative burdens on a program whilst guaranteeing no case ever gets missed.
2. The presentation will demonstrate that internet-based access to a PPSP has additional benefits that encourage self-reporting of mental health issues in pilots, such as confidentiality and an extremely straightforward access method (clicking a button to ask for help).
3. The presentation will argue that confidentiality of the internet offers an additional 'safe zone' for access to a PPSP. This may be of particular interest to the military, whose personnel may be fearful of revealing any mental health issues to their superiors.

## [7] MENTAL HEALTH SUPPORT IN NAVAL AVIATION

Roderick Borgie<sup>1</sup>, Robert Lippy<sup>2</sup>

<sup>1</sup>*Naval Air Force Reserve and* <sup>2</sup>*Naval Air Force, Coronado, CA, United States*

*(Education - Program/Process Review)*

**BACKGROUND:** Mental health of aviation professionals is critical to safe operations and personal mental wellness. Numerous barriers exist to seeking mental health assistance. USN has a unique culture and aircrew mental health support network including, Flight Surgeons, Aeromedical Dual Designated Flight Surgeon and Pilots, Chaplains, embedded CVN psychologists, Human Factors Boards, Cultural Workshops, and is considering Pilot Peer Support. **OVERVIEW:** Barriers can be inherent to the aviation professional including personality types, historical cultural norms in aviation and employer work agreements/contracts. Barriers also include the implications of medical certification and regulatory authority oversight, confidentiality protections and lack of mental health professionals familiar with the aviation environment. **DISCUSSION:** Studies show that although aviation workers have significant mental health stressors and varying levels of distress, relatively few seek professional help despite a desire to do so. The evolution of aviation peer support programs (PSP) has removed many barriers to seeking mental health support. Peer support can be very effective in resolving many mental health issues that arise. United States Naval Aviation (USN and USMC) has several internal programs to assist with aircrew mental health, including embedded Naval Flight Surgeons (including Aeromedical Dual Designated Flight Surgeon Pilots), Training, Education, Squadron Briefs/stand owns, Human Factors Councils, and Cultural Workshops. Commander Naval Air Forces is interested in expanding into pilot peer support.

### Learning Objectives

1. Attendees will be able understand the different types of aviation peer support programs and critical elements in establishing programs appropriate for their organization.
2. Attendees will be able to explain the roles of civil aviation authorities, aircrew unions, mental health professionals, aviation employers, aviation medical examiners and peer volunteers in developing, financing, improving and maintaining aviation peer support programs.
3. Attendees will have resources to assist them in establishing aviation peer support programs in their organizations.

## [8] ADAPTING PILOT PEER SUPPORT GROUPS FOR THE ORGANIZATION

Robert Bor

*Centre for Aviation Psychology, London, United Kingdom*

*(Education - Program/Process Review)*

**OVERVIEW:** The Centre for Aviation Psychology's provides peer support services to over 75 AOCs, in 8 languages and across 15 countries. These programmes range from bespoke programmes for large AOCs to network programmes specific to regions or sectors within aviation (e.g., Business Aviation, Rotary Wing). In all instances the aim is to ensure pilots receive support from trained peers who understand their working culture and organisation. There are often differences in attitudes toward PPSPs and to the meaning of mental well-being. This presentation will define the primary features of PPSPs and the roles and responsibilities of the employees and managers within the organization (EPPSI guidelines). Information will be provided to identify elements of the PPSPs that may need to be adjusted in response to the organizational and work environment of the cabin crew, ATC, and maintenance organizations. Certain features will be common across operational settings: (a) Managerial commitment, (b) program management, monitoring & feedback, (c) confidentiality and trust, and (d) psychologist or mental practitioner who has an adequate aviation background and knowledge concerning operational features of the work environment. **DISCUSSION:** Studies have shown that work-related stress plays an important role in employee well-being, performance, and workplace safety. The evolution of PPSPs has removed many barriers to seeking mental health support and can be very effective in resolving many mental health issues that arise. Further efforts are needed to adapt PPSPs to support the cabin crew, air traffic controllers, and maintainers. Guidance has been provided to identify how the programmes can be adjusted to different cultures and work environments.

**Learning Objectives**

1. Attendees will be able understand the different types of aviation peer support programs and how the programs need to be adapted to the structure and culture of the organization.
2. Attendees will be able to explain the roles of civil aviation authorities, aircrew unions, mental health professionals, aviation employers, aviation medical examiners and peer volunteers in developing, financing, improving, and maintaining aviation peer support programs.
3. Attendees will have resources to assist them in establishing aviation peer support programs in their organizations.

**[9] RECENT RESEARCH ON MENTAL HEALTH ISSUES AND SUPPORT ACROSS AVIATION**

Joan Cahill<sup>1</sup>, Paul Cullen<sup>2</sup>

<sup>1</sup>Psychology, Dublin, Ireland; <sup>2</sup>Trinity College Dublin, Dublin, Ireland

*(Education - Program/Process Review)*

Prior to the COVID pandemic, there was ample evidence of work stress issues impacting on pilot wellbeing (Demerouti et al, 2018; Cahill et al, 2019; Cullen et al, 2021). This includes disengagement, burnout, and depression amongst pilots (Wu et al, 2016; Demerouti et al, 2018; Cahill et al, 2020, 2021). However, there was little if any focus on the wellbeing of other aviation workers. The issue of aviation worker wellbeing/mental health has received increased attention since the Germanwings accident in 2015. Changes to mental health regulation introduced by the regulator (2016), have led to peer support services (PSS) for pilots. This is a positive step. However, PSS are not available to all aviation workers. This presentation discusses the role of employee support groups in the context of recent research addressing mental health issues and the culture of support across aviation. This includes research pertaining to the following topics: Levels of wellbeing and prevalence of depression and anxiety; Aviation staff need for wellbeing and mental health support; Culture of reporting/disclosing mental health (MH) challenges to (1) employer and (2) others (outside organisation); Culture of seeking support in relation to coping with mental health challenges from (1) employer and (2) others (outside organisation); Organisational support provided during the COVID 19 pandemic; Use of organisational supports provided; Perceived effectiveness of organisational supports; Peer support (including provision of peer support, awareness of peer support, attitude to peer support, use of peer support); Perception that organisation cares about employee health and wellbeing (including mental health). Currently, health and wellbeing approaches at an aviation organisational level are not

addressing both human and safety needs. Feedback from an anonymous online survey administered on two occasions during the COVID 19 pandemic, indicates that aviation workers are experiencing considerable challenges in relation to their health and wellbeing. This includes challenges arising from sources of work-related stress (WRS) and their impact on wellbeing, and the impacts of COVID 19. Further, existing supports are not adequate. This creates risk both at an individual level (impact on individual wellbeing) and a flight safety level (impact of wellbeing problems on operational performance and flight safety).

**Learning Objectives**

1. Understand current levels of wellbeing for aviation workers, based on recent research undertaken with aviation workers.
2. Understand the case for going beyond compliance requirements in relation to supporting wellbeing for aviation workers.
3. Understand the roles and responsibilities of different stakeholders in relation to supporting wellbeing for aviation workers.

**[10] THE REGULATOR'S ROLE IN AVIATION MENTAL HEALTH: THE EASA PERSPECTIVE**

Virgilijus Valentukevicius, Janis Vegers

European Union Aviation Safety Agency, Cologne, Germany

*(Education - Program/Process Review)*

**BACKGROUND:** Aviation regulators have a primary responsibility for the safe conduct of aviation operations within their jurisdiction. A key element for ensuring safe operations is the physical and mental health of medically certified aircrew members and ATCOs. Historically, perceived threats to continued medical certification, and thus employment and career longevity, have served as barriers crewmembers recognizing and admitting to mental health (MH) challenges and to seeking help to restore full mental wellness. Aviation safety is potentially compromised by crew members with ongoing mental health challenges. **OVERVIEW:** Aircrew mental health has received public attention since the Germanwings murder-suicide in 2015. EASA updated European provisions for air operations and medical certification and provided guidance material on pilot MH after convening expert panels to study strategies to improve MH resources and the mental wellbeing of aircrew members. The COVID-19 pandemic added to MH disruption of aviation personnel in many ways.

**DISCUSSION:** Barriers to aircrew and ATCOs seeking MH assistance include fear of loss of medical certification, Aero-Medical Examiner (AME) non-familiarity with evaluation tools and resources available for obtaining help, and a lack of aviation savvy mental health providers. Varying confidentiality and privacy of personal data laws complicate the roles and responsibilities of all involved. EASA has mandated implementation of peer support programs and testing for substances of abuse for is member states' operators. EASA initiated efforts to educate AMEs on examination techniques and methods to engage aircrew and ATCOs during periodic examinations. The development and implementation of peer support programs supported by NAA's is an important new step in addressing MH and wellbeing needs. New strategies for engaging with MH professionals and NAA's with the goal of optimizing aircrew and ATCOs mental health, safe continued participation in or return to active duty are developing. The use of tools such as peer support groups may be extended to other categories of aviation personnel and to AMEs. EASA is recommending the use of peer groups for AMEs especially in geographical areas where AMEs work in isolation. This presentation will address each of these issues and seek audience participation and suggestions to remove barriers for seeking help, optimizing aircrew MH and maximizing the safety of flight operations.

**Learning Objectives**

1. Participants will be familiar with the European programs for education AMEs on conducting periodic mental health evaluations and referring pilots for assistance.
2. Audience members will understand strategies to reduce barriers to aircrew seeking mental health assistance and the Regulators' role in supporting those efforts.
3. Participants will be familiar with aviation peer support programs and their relationships with the National aviation authorities and the operator/employer.

**[11] PEER PILOT VOLUNTEER TRAINING**

Ellen Brinks

Air Line Pilots Association, International, McLean, VA, United States

(Education - Program/Process Review)

**BACKGROUND:** Current mandates and recommendations have been issued by governing states around the world for peer programs to be implemented in aviation to support flight crew members. Developing a training protocol that will be most effective for the crew members that are utilizing the services are key in making a successful peer program to be used by crew members. **OVERVIEW:** Recruiting and training effective volunteers for individual program models vary based on culture, country, and laws. Incorporating psychological, medical, and communication tools as well as aviation subject matter experts are imperative when building an effective education training program. Being able to quantify and demonstrate the level of knowledge needed in a peer with practical application is crucial in the foundation development. **DISCUSSION:** Discussion will include what makes a good volunteer, what makes a good training protocol, what type of oversight is required within peer program training, and what type of recurrent or continuing education and knowledge should occur for a peer to continue acting as a qualified peer.

**Learning Objectives**

1. The audience will learn about what information should be imparted on peer volunteers during a training.
2. The audience will learn about different training mechanisms for creating a confident peer within their peer program.
3. The participant will learn about practical application models that will demonstrate their mastery of effective communication when handling a peer interaction.

**MONDAY, MAY 23, 2022****Monday, 05/23/2022**

Tuscany C,D,E,

**8:00 AM****OPENING CEREMONIES AND 67<sup>TH</sup>****LOUIS H. BAUER LECTURE****Michael A. Berry, M.D., M.S.****"Historical Issues in U.S. Aerospace Medicine:****What did we know?****When did we know it? Could we have predicted it?"****Monday, 05/23/2022**

Tuscany C,D,E,

**8:00 AM****ERIC P. KINDWALL MEMORIAL LECTURE****Lindell Weaver, M.D.****"Decision Making for Hyperbaric Oxygen  
for Brain Injury"****Monday, 05/23/2022**

Tuscany C,D,E

**2:00 PM****[S-04]: PANEL: UNDERSTANDING AND  
MODIFYING INTRACRANIAL PRESSURE, RESULTS  
OF A RANDOMISED CONTROL TRIAL MAY HAVE  
NOVEL IMPLICATIONS FOR SPACEFLIGHT****Chair: Susan Mollan**

**PANEL OVERVIEW:** Raised intracranial pressure (ICP) has the potential to cause significant morbidity and mortality in a range of conditions including idiopathic intracranial hypertension (IIH), traumatic brain injury (TBI) and spaceflight associated neuro-ocular syndrome (SANS). The full consequences of SANS are not yet comprehensively determined and cannot be reliably predicted, particularly in those undergoing longer duration space missions (>3 months). In those with SANS and prolonged optic nerve oedema of any cause there is a significant risk of visual loss. This loss can be permanent, as seen in patients with IIH. The medications currently used for raised ICP are not well tolerated, and indeed likely contraindicated for long-term use in space medicine. There are no current treatments or countermeasures for SANS. There are also wide-reaching consequences of elevated ICP, for example raised ICP affects cognitive performance acutely and in the longer term in people with IIH. This might also be a consideration in astronauts, where there may be the potential to impair performance. This panel will report the findings of the first human randomised control trial utilising telemetric, intraparenchymal ICP monitors to investigate the biological effect of a Glucagon-like Peptide 1 receptor agonist (GLP1-RA) on ICP in a cohort of participants with IIH: the IIH:Pressure study. Our pre-clinical work has demonstrated that the incretin, Exenatide, GLP-1RA, can cross the blood-brain-barrier and reduces cerebrospinal fluid secretion and consequently lowered ICP by 43% in vivo. Exenatide is an established drug, widely used to treat diabetes, with a favourable side effect profile. Hypoglycaemia does not occur with GLP-1RA administration. The associated studies of IIH:physiology and IIH:Pressure Medicine, will also be presented here. The importance of how ICP behaves in a raised ICP human model is invaluable, where we have gained new insights into both the physiology and the impact on cognitive performance. By providing evidence of a direct effect of drug therapies on ICP and cognition will allow physicians to select optimal treatment options when faced with raised ICP. The impact of SANS on astronaut health is a growing concern. Spaceflight duration is anticipated to increase, particularly in the context of missions to Mars and spaceflight commercialisation. A well tolerated therapy reducing ICP would be beneficial to alleviate SANS and the associated long-term sequelae.

**[12] EARLY DETECTION OF SPACEFLIGHT ASSOCIATED  
NEURO-OCULAR SYNDROME (SANS) BY PRAGMATIC NON-  
INVASIVE METHODS****Susan Mollan<sup>1</sup>, James Mitchell<sup>2</sup>, Alex Sinclair<sup>2</sup>**<sup>1</sup>University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom; <sup>2</sup>University of Birmingham, Birmingham, United Kingdom

(Education - Program/Process Review)

**BACKGROUND:** Spaceflight Associated Neuro-ocular Syndrome (SANS) has been described in astronauts during and after long duration (>3 months) spaceflight. SANS describes a constellation of signs predominantly affecting vision. As intracranial pressure (ICP) elevation is a feature, many groups have sought to estimate ICP non-invasively. Determining a non-invasive method would be a key step forward for SANS which requires the method to be portable as well as exquisitely reliable. **OVERVIEW:** The following databases were searched: Embase <1980 to 2021 Week 44> and Ovid MEDLINE(R) <1946 to 2021 Week 44>. The search terms for articles in all year ranges with multiple combinations of search terms, included: "papilledema", "Idiopathic intracranial hypertension", "pseudotumor cerebri", "intracranial hypertension", "pulsatile tinnitus", "raised intracranial pressure", "imaging", "optical coherence tomography", "doppler ultrasound", "ultrasound", "intracranial pressure monitor", "non-invasive", "tympanic membrane", "transcranial", "ocular", and "spontaneous venous pulsation". A further search was performed between week 44, 2021 and week 17, 2022 to update recent literature. Language was restricted to English and articles chosen were based on relevance to keywords. **DISCUSSION:** This analysis was divided into those non-invasive techniques that are earth based; those that have been utilized in SANS such as transcranial doppler before and after long duration spaceflight; and those that have been used in Space such as optical coherence tomography (OCT) imaging of the eye. There are