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**Aerospace Medicine**

**AEROSPACE MEDICAL OPERATIONS**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFPD 48-1, *Aerospace Medical Program*. It provides guidance and establishes procedures for conducting the multidisciplinary aspects of the Aerospace Medical Program. It describes the key aeromedical program elements that support the operational aerospace mission: Aircrew Health (AH), Disease Prevention (DP), Occupational Health (OH), and Environmental Quality (EQ). This instruction interfaces with Air Force 11, 36, 40, 41 and other 48 series publications. Any organizational level may supplement this instruction. Send comments and suggested improvements on AF Form 847, **Recommendation for Change of Publication**, through channels to HQ AFMOA/SGP, 170 Luke Avenue, Suite 400, Bolling AFB DC 20332-5113.

**SUMMARY OF REVISIONS**

This is the first publication of AFI 48-101 (formerly AFR 161-33); it aligns with AFPD 48-1.

**Section A—Responsibilities**

**1. Office of the Secretary of the Air Force.**

**1.1. SAF/MIQ.** The Deputy Assistant Secretary of Environment, Safety, and Occupational Health (SAF/MIQ) provides overall policy pertaining to the formulation, review and execution of the Aerospace Medical Program plans, policies and budgets.

**1.2. SAF/IG.** The Inspector General (SAF/IG) is office of primary responsibility (OPR) for the Air Force Occupational Safety Program. This office coordinates with the Surgeon General (HQ USAF/SG) on all Air Force Occupational Safety and Health (AFOSH) policies and Environmental programs.

**1.3. SAF/AQ.** The Deputy Assistant Secretary for Acquisition (SAF/AQ) establishes liaison with HQ USAF/SG to ensure occupational health risks associated with new systems are identified and impacts assessed as early as possible in the development and acquisition process.

## **2. HQ USAF.**

**2.1. HQ USAF/SG.** The Surgeon General establishes Aerospace Medical Program policy. HQ USAF/SG also:

- Procures and allocates resources.
- Maintains liaison with Department of Defense agencies for all aircrew health, disease prevention, occupational health, and environmental quality issues.

**2.2. HQ USAF/XO.** The Deputy Chief of Staff for Plans and Operations establishes requirements and policies for flying personnel and squadron operations.

2.2.1. The Director of Operations (AF/XOO) prescribes the operational requirements flight surgeons must meet to maintain qualification.

- Sets policies on physical and physiological qualification for flying personnel.

**2.3. HQ USAF/CE.** The Office of the Civil Engineer develops construction plans and specifications that meet health and welfare standards established by the Surgeon General.

**2.4. HQ USAF/LG.** The Deputy Chief of Staff for Logistics identifies and prepares impact assessment of health risks associated with new systems using comparative alternatives. HQ USAF/LG also:

- Integrates the proper preventive perspective into medical programs including all appropriate engineering controls, protective equipment, and operational procedures required to protect Air Force personnel from unnecessary risks of exposure to occupational health hazards.
- Conducts research to determine health risks associated with hazardous chemicals, physical agents or biological systems.

**3. HQ AFMOA/SGP.** The Director of Air Force Medical Operations Agency carries out approved policies for all organizational elements of the Aerospace Medical Program. The Director:

- Issues guidance for the Air Force Medical Service.
- Maintains liaison with other service and federal agencies.
- Provides SG policy guidance and direction to Air Force Materiel Command/Science and Technology and HSC/CC (Commander, Human Systems Center), for a coordinated program of research, development, and support services responsible to national and Air Force operational goals.
- Supports field identification of Human Systems needs, and advocates their insertion into the requirements and Program Objective Memorandum (POM) process.

**4. MAJCOM/SG (Major Command Surgeons) , AF/REM (Air Force Reserve Surgeon) and ANGRC/SG (Air National Guard Director of Medical Services)** execute the Aerospace Medical Program within their commands. They also:

- Establish Flight Medicine, Bioenvironmental Engineering (BES), Public Health (PH), and Aerospace Physiology Services.

**5. HSC/CC.** The Commander, Human Systems Center, provides aeromedical research, education and technical consultation services for the Air Force community.

**6. MTF/CC.** The Medical Treatment Facility and Air Reserve Component Commanders (ARC/CC) execute the aerospace medical program locally.

**7. MTF/SGP.** The Chief, Aerospace Medicine, provides medical support for the installation operational mission. The MTF/SGP is the Aerospace Team Leader who:

- Provides and executes all aerospace medicine activities with an integrated team approach that includes officers and enlisted flight medicine, physiological training, bioenvironmental engineering, public health, health promotion, and medical readiness personnel. These personnel collectively comprise Team Aerospace.
- Directs aircrew and special operational duty personnel health activities.
- Integrates with aerospace physiology on aircrew human performance training.
- Coordinates with PH, BES, HP, and Flight Medicine/PES on disease and injury prevention health surveillance activities, and occupational health programs.
- Integrates with BES on environmental quality matters.
- Directs medical education and training for all Team Aerospace personnel.
- Directs base-wide Health Promotion activities.
- Coordinates with operational squadron commanders on all contingency medical support programs.
- Ensures assigned personnel are trained and prepared to provide medical support for contingency operations.
- Collaborates with base operations and mobility planners to incorporate preventive medicine activities into the war mobilization plan.
- Ensures coordination of all Team Aerospace activities through the aeromedical council or similar forum.
- Reviews, coordinates, and negotiates when necessary, host tenant support agreements, memoranda of understanding, interservice support agreements, letters of agreement, etc., to ensure the specific support dictated is within the capabilities and resources of the unit, and is realistic.

### ***Section B—Program Elements***

**8. Aircrew Health (AH).** AH is responsible for the preventive health, medical treatment, physiological training, and welfare of all aircrew and other special duty personnel. AH activities include family care on a space available basis.

8.1. The Chief of Flight Medicine (AFSC 48AX or 48GX) supervises the specific AH activities that support the aerospace medical program in regards to aircrew fitness, mission safety, and combat readiness. These activities require the combined expertise of Team Aerospace personnel in PH, BES, and AP who:

- Advise the flying commander of aviator's fitness and qualification for flying activities.
- Apply appropriate medical standards to military and civilian personnel to maintain a vital and fit operational force. These medical standards and physical examinations requirements are in AFI 48-123, *Medical Examination and Standards*. Guidance and procedures for completing examinations are in AFPAM 48-133, *Physical Examination Techniques*.

- Appoint a senior enlisted manager (AFSC 4F0S1) or his designee to supervise and conduct PES operations.
- Provide primary medical care for aircrew and special operational duty personnel and families of aircrew when possible.
- Supervise non-physician paraprofessional activities.
- Coordinate with MTF Aerospace Physiologist (where assigned) in providing hypo- and hyperbaric chamber operations and physiological education for aircrew and special operations personnel IAW AFI 11-403, *Air Force Aerospace Physiological Training Program*.
- Apply aviation medicine knowledge of aircrew life support equipment, escape systems, survival conditions, and life support training program.
- Assess, monitor, and mitigate the physical, physiological and psychological stress factors involved in flying.
- Support public education programs on environmental quality and safety.
- Conduct, with PH, visits to installation facilities to support food safety and facility sanitation programs.
- Provide flying commanders and supervisors advice concerning aeromedical problems related to aircraft equipment, mission plans, human systems interface, occupational health, and environmental stress that affect mission completion.
- Provide medical support for the flying safety program and assist in the investigation of aviation mishaps.
- Provide primary medical response to airborne emergencies, aircraft mishaps, and other emergency disaster situations.
- Participate in frequent and regular flying as outlined in current flying regulations.
- Ensure medical, dental, and support staff are aware of aviation medicine requirements when dealing with aircrew and special operations personnel.
- Coordinate with theater surgeons and air evacuation (AE) personnel to assist in clinical aspects of peacetime and operational AE.
- Provide AE inflight medical care as required.
- Develop and monitor operational and emergency medicine training programs for squadron medical elements.
- Participate with BES personnel in environmental surveillance and health risk appraisal activities.
- Deploy with wing units to provide medical support and care at deployed locations.

**9. Disease Prevention (DP).** DP is the cornerstone of primary health prevention activities ensuring the fitness of the force to conduct combat operations. Flight surgeons (AFSC 48GX) will provide consultation and guidance for DP activities, if assigned, preventive medicine specialists (AFSC 48SX) will oversee these duties. A team composed of PH, BES, HP, and Flight Medicine personnel accomplish these activities through a team oriented, multidisciplinary approach of primary prevention and health promotion.

**9.1. A Public Health Officer (AFSC 43HX) or technician (AFSC 4E0X1):**

- Collects and reviews morbidity and mortality data to establish baselines, identify trends, and propose intervention strategies.
- Directs epidemiological investigations and reporting of communicable disease outbreaks with appropriate actions IAW AFI 48-105, *Control of Communicable Diseases* and AFI 48-109, *USAF Epidemiological Services*.
- Maintains liaison with federal, state, and local public health authorities.
- Conducts food safety programs and facility sanitation inspections IAW AFI 48-116, *Food Safety*, and AFI 48-117, *Public Facility Sanitation*.
- Conducts the fetal protection program.
- Collects, analyzes, and reports pediatric blood lead screening data. Conducts blood lead toxicity investigations. Assists community lead poisoning prevention education programs.
- Conducts the tuberculosis control program IAW AFI 48-115, *TB Detection and Control*, the sexually transmitted disease program IAW AFI 48-106, *Prevention and Control of Sexually Transmitted Disease*, and AFI 48-132, *Immunodeficiency Virus Program*.
- Identifies the sources and prevalence of pests impacting Air Force health and efficiency IAW AFI 48-102, *Medical Entomology Program*.
- Develops, in collaboration with the infection control committee, admission and quarantine policies to prevent the spread of disease from contagious patients to the community, the medical staff and other patients.
- Establishes appropriate disease vector surveillance.
- Supports public education programs on environmental quality and safety.
- Provides operational support as the medical intelligence officer for deploying personnel by incorporating disease prevention strategies.
- Provides public health briefings and debriefings for deployment locations.
- Provides water sanitation/safety surveillance and consultation services.
- Develops and exercise patient decontamination capabilities.

9.2. The health promotion manager executes the activities of the Air Force Health Promotion program following guidance in AFI 40-101, *Health Promotion*.

**10. Occupational Health Program.** The Air Force promotes good health in its employees through the Clinical Occupational Health Program (COHP), the medical provisions of the OSHA of 1970 (29 USC 668 (a) and Public Law 70-568 (5 USC 7901) and 48 series standards.

10.1. Occupational Medicine (AFSC 48CX) and Public Health (AFSC 43H, 4E0XX) Specialists or a civilian equivalent, if local requirements dictate, provides guidance for and oversight of OHP activities. These efforts are interdisciplinary in nature and represent combined efforts of flight surgeons, bioenvironmental engineers, health physicists, public health officers, audiologists, and physical exams personnel.

10.2. Specific components of the OHP fall under the integrated activities of PH, BES, and Flight Medicine personnel who:

- Conduct Federal Hazard Communications Training and provide technical assistance to supervisors.
- Identify base personnel requiring occupational medical exam and formulate exam requirement based on BES survey of hazardous workplaces.
- Make recommendations to the Aerospace Medicine Council in the formation of the occupational examination requirement utilizing BES identified occupational exposure data.
- Advise supervisors responsible for occupational health education programs.
- Support the USAF hearing conservation program.
- Conduct occupational illness surveillance IAW USAF and OSHA Standards.
- Provide clinical occupational medicine services.
- Provide advice to medical and operational staffs on occupational disease prevention.
- Brief deploying personnel on preventive measures to protect themselves.
- Perform epidemiological investigations of environmental and occupational problems.
- Correlate worker compensation losses to operational and occupational factors in epidemiological methods.
- Conduct occupational health surveillance of installation workplaces in support of the *Air Force Occupational Safety and Health Act* and other federal laws and regulations, as well as applicable host nation laws.
- Perform required analyses, interprets results, assists in health risk assessments, and advises commanders of hazards and corrective action.
- Provide mobility personnel for the specific mission of the unit assigned, and ensure they are trained and prepared for the assignment.
- Monitor work areas and personnel involved with radioactive sources and ionizing/non-ionizing radiation generation devices to ensure their protective and safe use.

**11. Environmental Quality (EQ).** Activities that assess impact, analyze risks, and advise commanders of actions to protect Air Force personnel and resources from health and environmental hazards. EQ elements ensure the continued use of these assets per AFI 48-119, *Medical Service Environmental Quality Programs*.

11.1. A bioenvironmental engineer (AFSC 43EX) or technician (AFSC 4BOX1) identifies, monitors, and assesses impact of emissions and exposures from Air Force operations, and performs oversight of work practices, controls, and compliance with relevant requirements. These individuals coordinate with other Team Aerospace personnel to:

- Respond to all accident and disaster sites to provide technical support and consultation to the commander on all peacetime disaster situations, to include aircraft accidents, natural disasters, chemical spills, alerts, and hazardous material accidents.
- Perform environmental analyses to assess health and environmental impact of physical, chemical, radiation and biological agents, maintains exposure and emission data, prepares emission inventories, interprets results, communicates risks, and advise commanders on risk management actions to ensure compliance.

- Recommend control measures to the MTF and installation commander and implements procedures to reduce risks to human health and the environment.
- Act as technical advisor for hazardous material use and management.
- Maintain records of usage, management, exposure, and emissions from routine operations.
- Perform oversight for regulatory compliance and stipulate management practices.
- Compile, maintain, and report emission inventories.
- Characterize waste and waste streams, and examines the environmental fate and effect of hazardous materials during periodic workplace surveillance.
- Participate in installation environmental management via membership on the base Environmental Compliance and Management Program (ECAMP) team and the installation Environmental Protection Committee.
- Coordinate technical health and environmental consultation and oversight of base contracts and construction projects to protect health and the environment.
- Monitor, evaluate, and advise on chemical, physical, radioactive and biological agents, and their effects, real or perceived, on the community. Examples of BES community environment functions include: environmental noise assessments, and housing and administrative work area health assessments.
- Conduct biological surveillance of recreational areas and swimming pools.
- Monitor the quality of the base potable water supply and distribution system to ensure health of the consumers and compliance with stipulated requirements.
- Support the installation's pollution prevention goals through hazardous material acquisition, control, and risk reduction analyses and consultation.
- Monitor indoor air and environmental quality
- Recommend management practices, controls process changes and product substitutions to reduce hazardous waste emissions, impacts, and risks to health and the environment.
- Provide consultation and review of technical plans and program documents to ensure restoration decisions of environmental accidents are based on sound health risk assessment and management principles.
- Participate in the Installation Restoration Program technical review committee.
- Serve as the installation point of contact for all Agency for Toxic Substances and Disease Registry (ATSDR) activities.
- Monitors radioactive wates.

ALEXANDER M. SLOAN, Lt General, USAF, MC  
Surgeon General

## Attachment 1

### GLOSSARY OF REFERENCES, ABBREVIATIONS, AND ACRONYMS

#### *References*

AFPD 11-4, *Aviation Services*  
AFPD 40-1, *Health Promotion*  
AFPD 40-2, *Radio Active Materials*  
AFPD 41-3, *Worldwide Aeromedical Evacuation*  
AFPD 48-1, *Aerospace Medical Program*  
AFPD 91-2, *Safety Programs*  
AFI 11-401, *Flight Management*  
AFI 11-403, *Air Force Aerospace Physiological Training Program*  
AFI 32-7080, *Polution Prevention Programs*  
AFI 36-2105, *Officer Classification*  
AFI 40-101, *Health Promotion*  
AFI 48-102, *Medical Entomology Program*  
AFI 48-105, *Control of Communicable Disease*  
AFI 48-106, *Prevention and Control of Sexually Transmitted Disease*  
AFI 48-109, *USAF Epidemiological Services*  
AFI 48-115, *TB Detection and Control*  
AFI 48-116, *Food Safety*  
AFI 48-117, *Public Facility Sanitation*  
AFI 48-119, *Medical Service Environmental Quality Programs*  
AFI 48-123, *Medical Examination and Standards*  
AFI 48-125, *USAF Personnel Dosimetry Program*  
AFI 48-132, *Immunodeficiency Virus Program*  
AFPAM 48-133, *Physical Examination Techniques*

#### *Abbreviations and Acronyms*

**AE**—Air Evacuation  
**AFMOA**—Air Force Medical Operations Agency  
**AFSC**—Air Force Specialty Code  
**AH**—Aircrew Health

**ARC**—Air Reserve Component  
**ATSDR**—Agency for Toxic Substances and Disease Registry  
**BES**—Bioenvironmental Engineering Service  
**COHP**—Clinical Occupational Health Program  
**DP**—Disease Prevention  
**EQ**—Environmental Quality  
**HP**—Health Promotion  
**HSC**—Human Systems Center  
**MSDS**—Material Safety Data Sheets  
**MTF**—Medical Treatment Facility  
**OH**—Occupational Health  
**OPH**—Occupational Health Program  
**OSHA**—Occupational Safety and Health Administration  
**PES**—Physical Exams Section  
**PH**—Public Health  
**SME**—Squadron Medical Element