Basic Standards For
Residency Training Programs In
Osteopathic Aerospace Medicine

American Osteopathic Association
and
American Osteopathic College of Occupational and Preventive Medicine
Basic Standards for Residency Training in Osteopathic Aerospace Medicine

Table of Contents

Article I – Introduction

Article II - Mission

Article III – Education Program Goals

Article IV - Institutional Requirements

Article V - Program Requirements

Article VI - Program Director

Article VII – Resident Requirements

Article VIII – Evaluation

Attachment A: Aerospace Medicine Curriculum Outline
Article I – Introduction

These are the Basic Standards for Residency Training in Osteopathic Aerospace Medicine (AM) as established by the American Osteopathic College of Occupational and Preventive Medicine (AOCOPM) and approved by the American Osteopathic Association (AOA). These standards are designed to provide the osteopathic resident with advanced and concentrated training in aerospace medicine and to prepare the resident for examination and certification in Aerospace Medicine.

Article II - Mission

The mission of the osteopathic Aerospace Medicine (AM) residency training program is to provide residents with comprehensive structured education to prepare them to become Aerospace Medicine specialists to meet the needs of the United States and the world, and to prepare osteopathic physicians to become eligible for certification in Preventive and Aerospace Medicine.

Article III – Education Program Goals

The objective of an OAM training program is to develop the OAM resident’s competency in the following core Competencies:

1. Osteopathic Philosophy and Osteopathic Manual Medicine: Demonstrated in the application of knowledge of accepted standards in Osteopathic Manipulative Treatment (OMT) appropriate to specialty. The practitioner will remain dedicated to life-long learning and to practice habits in osteopathic philosophy and manipulative medicine. Integration and application of osteopathic principles into the diagnosis and management of patient clinical presentations

2. Patient Care: That is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health in AM patients.

3. Medical Knowledge: Specialty training for the physician in aerospace medicine must provide for the attainment of competencies relevant to the diagnosis, prevention, and treatment of disorders associated with the unique environments and the adaptive systems designed to enhance performance and support life under such conditions.
   a. The field of epidemiology and to understand the impact this discipline has on the study of disease and injury.
   b. The principles of health care administration.
   c. The concepts involved in the relationship to man and his environment, study the problems of pollution and waste control as they relate to AM.
   d. Statistical methods and have the resident learn to apply these methods to the study of disease or injury and the evaluation of control procedures.
   e. The concepts of preventive medicine and the promotion of health care.
   f. The completion of a Master of Public Health degree or its equivalent from an accredited institution
   g. Aviation physiology to include the body's response to temperature extremes, pressure changes, acceleration forces and other stress and illusions experienced in the flight environment.
h. The concepts of aircrew selection, to include psychological testing and physical examination.

i. Physical and psychological disorders unique to the aerospace environment.

j. The concepts of safety programs to include accident prevention and accident investigation techniques.

k. The problems of the aerial transport of patients.

l. The practice of clinical AM, including a broad-based, intense study of the exposure to gravitational and barometric effects on human senses, hyperbaric and hyperbaric physiology, diving medicine, and clinical barometric medicine.

m. Emphasis on operational problems derived from excursions within the vertical continuum of pressure, extending from the ocean floor to outer space.

n. Specialized training to select physicians in the discipline of Clinical and Operational AM, including aviation medicine as it relates to the interaction of the human being relative to the normal and abnormal living and working environments, the prevention or treatment of decompression sickness and bubble-related diseases, fitness to fly considerations, flight operations, decompression tables, and chamber safety.

o. In depth experience with clinical processes including the emergent care of carbon monoxide poisoning, gas related injuries to boney cavities and hollow viscus among others.

p. The opportunity to manage individual health status working in all aerospace environmental aspects and provide primary and consultative hyperbaric medical care.

q. Opportunities to be involved in teaching and research in the field of Aerospace and hyperbaric medicine.

r. In-depth knowledge of Aerospace and hyperbaric medicine in a structured environment that includes reading requirements, outside clinic rotations, staff/fellow conferences, and formal courses. Practical patient management skills are obtained through daily patient care, case presentations, new patient evaluations, and on-call duties.

4. Systems Based Practice: As manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

5. Practice Based Learning and Improvement: That involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care.

6. Professionalism: As manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to a diverse patient population.

7. Interpersonal Skills and Communication: That result in effective information exchange and teaming with patients, their families, and other health professionals.

**Article IV - Institutional Requirements**

4.1 The institution must provide the time and resources for each resident to attend the annual convention and scientific sessions or another educational program sponsored by the AOCOPM at least once during their residency.
Article V - Program Requirements

5.1. After completion of an MPH degree or its equivalent (as approved), the AM residency must be at least twelve (12) months in duration.

5.2. The faculty shall include osteopathic physicians certified or board eligible in preventive or AM.

5.3. Non-physicians who hold advance degrees in areas pertinent to AM may serve as faculty and supervise AM residents and conduct evaluations of the residents.

5.4. The focus of the training will be the acquisition of skills in the AM assessment of patients and the therapeutic management of these patients.

5.5. The facilities and equipment shall include, but not limited to:
   a. Clinical facilities for the evaluation and treatment of aviation/aerospace personnel.
   b. Exposure and actual experience in the operation of hyperbaric (altitude) chambers, resigned and ejection seat simulators.
   c. The training program shall have and maintain in good working condition Hyperbaric Oxygen chambers capable of providing therapeutic hyperbaric oxygen.
   d. Training shall include: Diagnosis, therapeutic plan, treatment and follow-up of gravity induced illness or injuries, air or gas embolism; carbon monoxide poisoning; decompression sickness; and all hazardous environmental exposures.

5.6. Curriculum: The program curriculum must address, as a minimum, the following content and skill areas:
   a. Administrative medicine programs
   b. Aviation safety programs
   c. Environmental health programs
   d. Preventive medicine programs
   e. Medical care programs

5.7. The teaching and evaluation of the AOA's AM Core Competencies, which are required to be validated during all specialty residency programs, shall be continued during this program.

5.8. Specialty training for the physician in aerospace medicine must provide for the attainment of competencies relevant to the diagnosis, prevention, and treatment of disorders associated with the unique aerospace environments and with the adaptive systems designed to enhance performance and support life under such conditions, INCLUDING:
   a. Manage the health status of individuals working in all aspects of the aerospace environment
      1. A minimum of 80 days of direct clinical care of aerospace medical problems must be provided to assure competency in managing aerospace and general medical problems in aerospace personnel.
      2. The resident must develop and apply medical standards and grant exceptions and to facilitate prevention, early diagnosis, and treatment of health hazards.
3. **For programs with a training track in space medicine:** The resident is expected to perform all activities of a crew surgeon for a space flight, develop and apply medical care standards and programs, evaluate the physiologic effects of spaceflight on crewmembers, and conduct and evaluate longitudinal studies on astronauts.

   b. Promote aerospace passenger health, safety, and comfort. The resident is expected to acquire skills to educate passengers and physicians about the hazards of flight with certain medical conditions and to serve as passenger advocates in order to promote flight safety.

   c. Facilitate optimum care of patients transported in the aerospace environment. The resident is expected to identify appropriate patients for aeromedical transport and to provide guidance for safe aeromedical transport of patients with common medical problems.

   d. Apply human factors/ergonomic concepts to the aerospace environment: The resident will acquire skills to advise in the development of air and space flight equipment, biomedical equipment, and vehicles for flight and space flight; techniques for enhancing performance; and techniques of crew resource management.

   e. Promote aerospace operational safety and mishap prevention: The resident will acquire skills to provide appropriate safety information and education and to conduct the medical aspects of any mishap investigation, including recommendations to prevent recurrences.

   f. Interpret, integrate, and/or perform aeromedical research: The resident will acquire skills to effectively conduct aeromedical research into health, safety, human factors, and biomedical engineering aspects of the flight environment.

**Article VI - Program Director**

6.1. Qualifications of the AM Program Director

   a. The program director must be certified by the American Osteopathic Association, through the American Osteopathic Board of Occupational and Preventive Medicine (AOBPM), or an osteopathic physician certified by the American Board of Preventive Medicine (ABPM) in AM.

   b. Demonstrated evidence of continuing medical education in AM.

   c. The program director must be actively involved in the delivery of AM care, have training and experience in academic medicine and have administrative ability and expertise to direct and supervise a residency program.

6.2. The program director must submit quarterly program reports to the Director of Medical Education. Annual reports shall be submitted to the AOCOPM.

**Article VII – Resident Requirements**

7.1. Applicants for training in Aerospace medicine must:

   a. Completed an MPH degree or its equivalent (as approved)

   b. Have satisfactorily completed an AOA OGME 1 year.

7.2. During the training program, the resident must:
a. Submit an annual report to the American Osteopathic College of Occupational and Preventive Medicine (AOCOPM).

b. Submit a scientific paper and/or research paper, suitable for publication and pertaining to AM and/or hyperbaric medicine. Established guidelines shall be used in preparation of the paper.

c. Keep a log, recording each case and procedures assigned for all treatment settings, identified by the institution number. This log shall be submitted each quarter to the program director and Director of Medical Education for review and evaluation.

d. Participate in an in-service exam when available and required by a AOCOPM

**Article VIII – Evaluation**

A. The residency program shall maintain a system of programmatic reviews, as follows:

8.1. Provide written evaluation that documents the resident’s knowledge, skills and overall performance at regularly scheduled intervals throughout the training period and a final evaluation, which documents satisfactory completion of all program requirements for each resident at the end of training. The evaluation must include a review of the resident’s performance during the final period of training and shall verify that the resident has demonstrated an ability to practice competently and independently. This final evaluation shall be part of the resident’s permanent record maintained by the institution. This must be available to the resident, the AOCOPM Committee on Education & Evaluation, the assigned inspector, and other authorized personnel

* Aerospace Medicine Resident is used in this document as follows:

AM Resident implies that the two years of training are “stand alone” years not linked to any other training requirements to be eligible for full board certification in Aerospace Medicine, and that the MPH year may be used in conjunction with other Osteopathic board certifications.
Attachment A: Aerospace Medicine Curriculum Outline

1. **HISTORY** The Beginnings: Past and Present

2. **PHYSIOLOGY, ENVIRONMENT, HUMAN FACTORS**
   a. Respiratory Physiology and Protection Against Hypoxia
   b. Physiology of Decompressive Stress
   c. Human Response to Acceleration
   d. Vibration and Acoustics
   e. Spatial Orientation in Flight
   f. Thermal Stress
   g. Cosmic Radiation
   h. Aerospace Toxicology
   i. Space Environments

3. **CLINICAL**
   a. Pilot Health and Aeromedical Recertification
   b. Respiratory Diseases: Aeromedical Implications
   c. Clinical Aerospace Cardiovascular Medicine
   d. Ophthalmology in Aerospace Medicine
   e. Otolaryngology in Aerospace Medicine
   f. Aerospace Neurology
   g. Aerospace Psychiatry
   h. Endocrine System and Nephrology
   i. Infectious Diseases
   j. Dental Considerations in Aerospace Medicine

4. **OPERATIONS**
   k. Occupational and Environmental Medical Support to the Aviation Industry
   l. Women's Health Issues in Aerospace Medicine
   m. An Introduction to Human Factors in Aerospace
   n. Space Operations
   o. Aircraft Accidents: Investigation and Prevention
   p. Aviation Medicine in Unique Environments
   q. Aerospace Medicine Issues in Unique Aircraft Types
   r. The Practice of International Aerospace Medicine
   s. Aviation, Government Space, Biomedical Innovations, and Education
   t. Commercial Human Space Flight
   u. Aircraft Mishap Investigations