NATO STANDARD

AAMedP-1.23

MINIMUM REQUIREMENTS FOR FLIGHT SURGEON TRAINING

Edition A Version 1

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NORTH ATLANTIC TREATY ORGANIZATION

ALLIED AEROMEDICAL PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

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NATO LETTER OF PROMULGATION

28 November 2019

1. The enclosed AAMedP-1.23, Edition A, Version 1, MINIMUM REQUIREMENTS FOR FLIGHT SURGEON TRAINING, which has been approved by the nations in the Military Committee Standardization Board (MCASB), is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 7231.

2. AAMedP-1.23, Edition A, Version 1, is effective upon receipt.

4. This publication shall be handled in accordance with C-M(2002)60.

Zoltán GULYÁS
Brigadier General, HUNAF
Director, NATO Standardization Office

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RESERVED FOR NATIONAL LETTER OF PROMULGATION

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
CZE	AAMedP-1.23(A) Version 1, chapter 1.3.4 Practical Experience and chapter 2.11 PRACTICAL EXPERIENCE/DEMONSTRATION, point b, point c: At present CZE does not ensure the flight surgeon training on a centrifuge and in a ground-based disorientation trainer.
FRA	France does not practice positive pressure breathing.
USA	For paragraph 2.10, U.S. Air Force training in Civilian Aviation Medicine only occurs at the specialist level on the Residency in Aerospace Medicine program.
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CHAPTER 1 INTRODUCTION

1.1 AIM

The aim this publication is to standardise the minimum aviation medicine training for flight surgeons in order to promote safety and efficiency in the operation of military aircraft. The training should:

a. Provide flight surgeons with the required knowledge, skills and attitudes in aviation medicine.

b. Provide awareness of the key regulations and policy documents governing aviation medicine.

c. Provide an understanding of the hazards and issues faced by aircrew in order to deliver effective medical care/advice, and to promote effective healthcare and aviation safety governance.

d. Prepare flight surgeons to respond to aircraft incidents and accidents.

e. Promote aviation medicine and close collaboration between air operations and medical personnel.

1.2 AGREEMENT

The NATO nations agree that:

a. Flight surgeons shall receive, as a minimum, the aviation medicine training detailed below.

b. Flight surgeons must have undertaken the training detailed below before being authorised to undertake authorising medical examinations of aircrew.

c. All flight surgeons engaged in the care of aircrew shall receive periodic refresher training and engage in continuing professional development in aviation medicine. This may be achieved through national civilian or military aviation medicine courses; attendance at international aviation medicine meetings[1]; or other appropriate continuing professional development.

[1] Examples are the Aerospace Medical Association (ASMA), International Congress of Aviation and Space Medicine (ICASM) or Survival and Flight Equipment (SAFE) conferences.

1.3 GENERAL

1.3.1. Basic and Refresher Training.

Flight surgeons must be given appropriate instruction in the physiological, clinical and psychological factors that impact on aircrew's ability to operate in an air environment. A basic aviation medicine course shall comprise instruction/experience and is to be followed by an exit examination to ensure sufficient knowledge has been gained. Refresher training will emphasise the practical application of basic principles and provide updates on the management of conditions relevant to aviation medicine, advances and new issues in life support systems, human performance and aviation psychology.

1.3.2. Life Support Equipment.

Where practical, instruction on the function and fitting of life support and escape equipment should be incorporated into theoretical lessons on their function. In addition to generic teaching on the principles, flight surgeons should be given more detailed training on the life support equipment relevant to their current aircraft type.

1.3.3. Instructors.

Instructors are to have in-depth knowledge of the physiological and clinical aspects of aviation medicine.

1.3.4. Practical Experience.

Where possible, flight surgeons should participate in practical sessions including experience of hypoxia in a hypobaric chamber or ground-based reduced oxygen breathing devices; positive G forces on a centrifuge; and training in a ground-based disorientation trainer.

CHAPTER 2 CORE KNOWLEDGE

2.1 GENERAL

The aviation medicine training shall consist of a common core of academic instruction and practical exercises. The basic training course may consist of a minimum of 60 hours theoretical and practical training including specific examination techniques, experiences and/or demonstrations. The course of instruction shall consist of the following academic and practical elements:

2.2 INTRODUCTION TO AVIATION MEDICINE

a. History of aviation medicine

b. National aviation medicine institutes

c. Provision of aviation medicine support to aviation operations in the land and sea environments

2.3 AVIATION PHYSICS AND AERODYNAMICS

a. Physics of the atmosphere

b. The flight environment

c. Basic aerodynamics

d. Principles of flight in fixed wing and rotary wing aircraft

e. Fundamentals of flying, navigation and basic flight instruments

f. Hypoxia and hyperventilation

g. The effect of pressure change on the body

h. Barotrauma and sub-atmospheric decompression illness

i. Spatial disorientation

j. Limitations of the vestibular system in aviation and the common illusions

k. Motion sickness

l. Short duration acceleration

m. Physiology of long duration acceleration

n. Principles of protection against long duration acceleration

o. Vibration

p. Noise and hearing protection

q. Ionising and non-ionising radiation

r. Vision in aviation and limitations of vision in aviation

s. Night vision goggles

2.4 CLINICAL AVIATION MEDICINE

The flight surgeon should be able to clinically assess a patient, produce a valid differential diagnosis, investigate appropriately, and formulate and implement an aeromedical management plan. The flight surgeon should understand how the clinical presentations can influence licensing decisions, future/continued employment and passenger travel.

a. Prescribing in aircrew and aviation workers
b. Internal medicine
c. Cardiology
d. Gastro-intestinal disease
e. Neurology
f. Respiratory medicine
g. Endocrinology
h. Ophthalmology
i. Aviation musculoskeletal issues
j. Rheumatology
k. Surgery
l. ENT
m. Oncology
n. Psychiatry
o. Aviation dentistry
p. Care of female aircrew
q. Care of older aircrew
r. Travel medicine and health protection

2.5 ACCIDENT AND INCIDENT INVESTIGATION

a. Initial actions to be undertaken by a flight surgeon
b. Principles of accident investigation
c. Accident human factors analysis
d. Principles of forensic medicine
e. Legal aspects
f. National accident investigation forms
g. Major incident management

2.6 HUMAN AND ORGANISATIONAL FACTORS AND AVIATION PSYCHOLOGY

a. Stress, its causes and effects on performance
b. Fatigue and circadian rhythms
c. Crew resource management (CRM) and team working
d. Leadership
e. Errors and error management
f. Communication
g. Organisational safety culture

2.7 AVIATION MEDICINE POLICIES AND DEVELOPMENT

a. Aircrew medical examinations
b. Development of aircrew medical standards through national committees
c. International organisations involved in policy making (e.g. NATO, ASIC, EAG, ICAO)
d. The roles of national aviation medicine staff officers
e. Sources of advice and support
f. The role and function of the national medical boards responsible for determining employability

2.8 SURVIVAL AND LIFE SUPPORT EQUIPMENT

a. Ejection seats and their function
b. Personal oxygen systems (regulators and masks)
c. Principles of head protection
d. Pressurisation schedules for aircraft
e. Principles of aircrew equipment assemblies and their mitigation of specific risks (eg G-forces, fire, dry/wet cold, immersion and small arms fire)
f. Survival equipment provided to aircrew
g. Thermal physiology and the principles of survival/protection
h. Crash restraint
i. Principles anthropometry in flight safety
j. CBRN equipment used by aircrew for personal and collective protection

2.9 AEROMEDICAL EVACUATION (AE)

a. History of aeromedical evacuation
b. Clinical conditions and their relevance to AE

c. Aircraft used in AE
d. Equipment used in AE
e. National organisation of AE
f. Process used for requesting AE

2.10 CIVIL AVIATION MEDICINE

a. Medical standards for civil aviation
b. Inter-relation of national and international regulatory bodies
c. Civilian process for assessing medical fitness and issue medical certificates
d. National legal issues
e. International regulations (e.g. EASA, ICAO etc)

2.11 PRACTICAL EXPERIENCE/DEMONSTRATION

It is recommended the flight surgeons have experience, or understanding, and demonstration of:

a. Hypoxia and hypobaria
b. Centrifuge experience
c. Disorientation trainer experience
d. Ground-based experience in the use of NVG
e. Fitting of aircrew helmets
f. Fitting and assessment of aircrew equipment including oxygen masks, anti-G trousers and other equipment assemblies
g. Ground based experience of positive pressure breathing

CHAPTER 3 REFRESHER TRAINING FOR FLIGHT SURGEONS

3.1 GENERAL.

A flight surgeon should engage in at least 10 hours of refresher training or aviation medicine specific Continual Medical Education (CME) annually.

3.2 CONTENTS OF REFRESHING TRAINING

The flight surgeon should maintain their skills in aviation medicine. Refresher training could consist of:

a. A proportionate number of refresher training hours could be provided by, or conducted under the direct supervision of the competent aeromedical centre or the Medical Assessor.

b. Attendance at scientific meetings, congresses and flight deck experience may be approved by the competent authority for a specified number of hours against the training obligations of the AME.

c. Scientific meetings that should be accredited by the competent authority are:

i. International Academy of Aviation and Space Medicine Annual Congresses
ii. Aerospace Medical Association Annual Scientific Meetings
iii. NATO Science and Technology Organisation
iv. other scientific meetings, as organised or approved by the Medical Assessor

d. Other refresher training may consist of:

i. flight deck experience
ii. jump seat experience
iii. simulator experience
iv. aircraft piloting

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