

**BY ORDER OF THE  
SECRETARY OF THE AIR FORCE**



**AIR FORCE INSTRUCTION 48-102**

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**Aerospace Medicine**

**MEDICAL ENTOMOLOGY PROGRAM**

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This instruction implements Air Force Policy Directive (AFPD) 48-1, *Aerospace and Operational Medicine Enterprise*, interfaces with Air Force Instruction (AFI) 48-105, *Surveillance, Prevention, and Control of Disease and Conditions of Public Health or Military Significance*, and complies with Department of Defense Instruction (DoDI) 4150.07, *DoD Pest Management Program*. This instruction assigns responsibilities for the prevention of vector-borne diseases and management of medically important pests through the application of integrated pest management practices. It applies to all civilian employees and uniformed members of the Regular Air Force, Air Force Reserve, and Air National Guard, as well as to government contractors when required pursuant to the terms of their contract(s) and State employees holding traditional Guard positions, when covered under their organizational standards. The standards and processes prescribed by this instruction apply to Air Force operations, activities and organizations located/operating within the Continental United States, as well as to those located/operating Outside the Continental United States (OCONUS) where mandated/included by international agreements, Status of Forces Agreements, or final governing standards issued for the host nations, or where the criteria otherwise have been issued in the Overseas Environmental Baseline Guidance document. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. Field activities must send implementing publications to the higher headquarters (HQ) functional office of primary responsibility (OPR) for review and coordination before publishing. Refer recommended changes and questions about this publication

to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command, Office of the Air Force Surgeon General, Air Force Medical Readiness Agency, Public Health Branch (AFMRA/SG3CM), 7700 Arlington Blvd Ste. 5151, Falls Church, VA 22042-5151. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor’s commander for non-tiered compliance items.

### ***SUMMARY OF CHANGES***

This rewrite revises AFI 48-102 by adopting changes to compliance statements and tiering to comply with AFI 33-360.

## Chapter 1

### OVERVIEW

**1.1. Overview.** AF medical entomology programs are essential to prevent pest and disease vectors of medical importance from adversely affecting military operations in peacetime and during contingency operations. This publication establishes guidance and procedures for the identification and elimination of the threat and transmission of diseases from pests, specifies the responsibilities of Public Health and other organizations under this program, and identifies the basic knowledge needed to execute the program responsibilities. This instruction augments AFMAN 32-1053, *Integrated Pest Management Program*.

## Chapter 2

### ROLES AND RESPONSIBILITIES

#### 2.1. Air Force Surgeon General (AF/SG) will:

2.1.1. Provide policy and resource guidance on the surveillance, prevention, and reporting of vector-borne diseases of medical importance.

2.1.2. Maintain a medical entomology program that includes consultation, training, and surveillance, to support integrated pest management for the prevention and management of vectors and pests of medical importance.

2.1.3. Provide two field grade military entomologists to the Armed Forces Pest Management Board staff in accordance with DoDI 4150.07.

2.1.4. Appoint voting members to represent the AF/SG on the Armed Forces Pest Management Board Council as outlined in DoDI 4150.07.

**2.2. Air Force Civil Engineer Center. Air Force Civil Engineer Center will** coordinate with Air Force Medical Readiness Agency (AFMRA) Public Health Branch (SG3CM) and Bioenvironmental Engineering Branch (SG3CB) on aspects of the pest management program that present potential occupational and environmental health hazards. **Note:** ANG/A7AN provides comparable services for ANG installations.

#### 2.3. Air Force Medical Readiness Agency, Aerospace Medicine Policy and Operations Division (AFMRA/SG3C) will:

2.3.1. Develop and disseminate Air Force Medical Service (AFMS) policies and guidance for the surveillance, prevention, and reporting of vector-borne diseases of medical importance.

2.3.2. Represent AF/SG on issues of surveillance, prevention, and reporting of vector-borne diseases and conditions of public health or military significance, or delegate representation for AF/SG involvement, including collaborative research, with other Department of Defense (DoD) or Federal agencies and organizations.

2.3.3. Coordinate with Major Command (MAJCOM), DoD, and other Federal, state, and international organizations on requirements for developing vector, medical pest and vector-borne disease surveillance and suppression programs. **Note:** This includes the aerial application of pesticides in accordance with AFMAN 32-1053.

2.3.4. Provide consultation to the Air Force Civil Engineer Center and other civil engineer staffs to implement integrated pest management for management of vectors, medically important pests and vector-borne diseases.

2.3.5. Review periodic reports of vector-borne disease surveillance, prevention, and control programs and make recommendations to AF/SG for improvement.

#### 2.4. MAJCOM/Direct Reporting Unit Public Health will:

2.4.1. Coordinate with a medical entomology consultant to determine medical entomology requirements necessary to support contingency operations or unique wing/base level medical entomology concerns. **Note:** If necessary, the MAJCOM Public Health Officer can request deployment of a Medical Entomologist (43H3E) to provide professional expertise on the

biology, surveillance, identification, and management of vectors and medically important pests.

2.4.2. Coordinate with the MAJCOM Pest Management Consultant on the application of integrated pest management techniques for the management of vectors and medically important pests and mitigation of vector-borne diseases.

**2.5. MAJCOM Civil Engineering Pest Management Consultant will:**

2.5.1. Coordinate with the MAJCOM Public Health Officer on requirements to support contingency operations in accordance with AFMAN 32-1053.

2.5.2. Provide consultation to base/wing level staff in medical entomology and pest management.

2.5.3. Perform on-site pest and vector management program reviews at a frequency determined by DoDI 4150.07.

2.5.4. Review and approve installation pest management plans, pesticide requests, contract performance work statements, aerial spray projects, and facility design and/or upgrades in accordance with AFMAN 32-1053.

**2.6. United States Air Force School of Aerospace Medicine (USAFSAM) Public Health Consultation Branch will:**

2.6.1. Serve as the AF point of contact for DoD medical entomology research, development, testing, and evaluation.

2.6.2. Provide consultation, training and base/wing level staff assistance in medical entomology and pest management for both fixed and deployed AF installations.

2.6.2.1. Provide global support to all AF installations outside of the Indo-Pacific region by providing surveillance sample identification and laboratory analysis services.

2.6.2.2. 18th Aerospace Medicine Squadron, Theater Preventive Medicine Flight serves the Pacific Air Forces for the Indo-Pacific region.

2.6.2.3. United States Air Forces in Europe Air Force Installation and Mission Support Center Det 4, Civil Engineer Operations Branch (AFIMSC Det 4/CEO) provides additional medical entomology and pest management consultation for all USAFE installations.

2.6.3. Evaluate new techniques for surveillance, identification, pathogen screening, insecticide resistance, and managing vectors, medically important pests and vector-borne diseases.

2.6.4. Develop and conduct training for AF training and education programs to include medical and civil engineer personnel on the biology, identification, surveillance, and management of vectors and pests of medical importance. **Note:** This may also include medical entomology support for medical readiness training.

2.6.5. Identify and assist in resolving pest management and pesticide problems involving environmental or occupational health concerns.

2.6.6. Provide representation to the Armed Forces Pest Management Board if directed by AF/SG.

**2.7. Installation Commander will:**

2.7.1. Ensure installation personnel are protected from vector-borne diseases and pests of medical importance by enforcing adherence to non-prescription public health countermeasures (e.g., insect repellent, permethrin-treated bed nets, and other personal protective equipment) when on official travel (e.g., temporary duty and deployments) to areas with vector-borne disease or as reporting instructions indicate to minimize the risk of vector-borne disease. **(T-0)**.

2.7.2. Ensure DoD Foreign Clearance Program, DoD Foreign Clearance Guide, Defense Travel Regulations, and United States Department of Agriculture Customs and Border Clearance Program requirements are followed when applicable to prevent the transmission or introduction of foreign agricultural pests and/or disease vectors (e.g., safeguarding or disposal of in-flight meals, disposal of aircraft garbage, and aircraft or cargo disinfection, if necessary). **(T-0)**.

**2.8. Civil Engineering will:**

2.8.1. Plan and execute vector and medical pest management using integrated pest management techniques in accordance with DoDI 4150.07 and AFMAN 32-1053. **(T-0)**.

2.8.2. Coordinate Installation Pest Management Plan with Bioenvironmental Engineering and Public Health at least every five years and before it is sent to MAJCOM/Civil Engineering for approval. **(T-2)**.

2.8.3. Coordinate with Public Health to develop a vector surveillance plan for disease vectors and medically important pests on the installation, identifying types and locations of surveillance, and pest management action thresholds to reduce or eliminate local vector-borne and zoonotic health threats. Plan will be reviewed by Public Health and Installation Pest Management annually and updated as necessary.

2.8.4. Coordinate with Public Health prior to applying pesticides in food preparation and consumption facilities, medical facilities, and child development centers to ensure pest management operations are based on appropriate surveillance data. **(T-2)**.

2.8.5. Coordinate with Public Health to arrange pre- and post- treatment vector and pest surveillance.

2.8.6. Coordinate with Civil Engineering Environmental for appropriate reporting if pesticide applications are made to waterways or bodies, or drainage ways to satisfy requirements of an installation's National Pollutant Discharge Elimination System permit as mandated by the Federal Clean Water Act.

2.8.7. Provide (Continental United States only) bulk trash disposal according to US Department of Agriculture guidelines, for aircraft arriving from outside Continental United States to prevent the introduction of foreign agricultural pests and/or disease vectors. **(T-0)**.

**2.9. Public Health will:**

2.9.1. Establish a risk-based program to evaluate community and location-specific medically important pests and vector-borne diseases, incorporating local, civilian health department data to supplement installation data, as necessary. **(T-1)**.

2.9.2. Assist in contingency site selection to minimize vector-borne disease potential in order to promote the management and control of vector-borne disease. **(T-2)**.

2.9.3. Educate deploying personnel on the endemic threat of vector-borne disease emphasizing the importance of prevention in the application of personal protective measures (e.g., chemoprophylaxis, insect repellent, permethrin-treated bed nets, and other non-prescription personal protective equipment). **(T-0)**.

2.9.4. Develop a vector surveillance plan for installations to evaluate health threats and efficacy of controls periodically. **(T-1)**.

2.9.4.1. Ensure the vector surveillance plan includes, at a minimum, the following elements:

2.9.4.1.1. An assessment of local area vector-borne and zoonotic disease threats.

2.9.4.1.2. List of vectors or medically important pests associated with those health threats.

2.9.4.1.3. A strategy for sampling those vectors or pests; [sampling strategy is frequency of sampling, duration of sampling, type of sampling method used, etc.].

2.9.4.1.4. An installation map with risk areas identified, and rationale for selecting those risk areas.

2.9.4.1.5. Identified triggers, or action thresholds, for pest management actions, which shall be developed collaboratively with Installation Pest Management using the Armed Forces Pest Management Board and/or any other applicable guidance for this process.

2.9.4.1.6. A rationale for establishing risk-estimates for local area vector-borne and zoonotic disease threats, using the required information elements.

2.9.4.2. Submit to the Aerospace Medicine Council for approval and serves the dual role of maintaining baseline data on vectors and medically important pests while maintaining war readiness core competency skills. Vector surveillance plan must be approved every 3 years (or sooner if a new vector or disease is identified), or at a frequency determined by the Aerospace Medicine Council. **(T-2)**.

2.9.4.2.1. Coordinate review of the vector surveillance plan with the USAFSAM Medical Entomology Consultant prior to submitting to the Aerospace Medicine Council for approval. **(T-1)**.

2.9.5. Coordinate with Installation Pest Management on the elements of the vector surveillance plan. Establish triggers, or action thresholds for vector management to mitigate human health threats when vectors or medically important pests pose a public health threat, interfere with duty performance, or affect unit morale. **(T-0)**.

2.9.5.1. Report all results of installation public health surveillance to Installation Pest Management to include numbers, locations and identifications of medically important pests, and any results of pathogen testing of those pests whether positive or negative, within 24 hours of receipt of such information. **(T-2)**.

2.9.5.2. Coordinate with Installation Pest Management to arrange pre- and post-treatment vector surveillance to determine effectiveness of vector control efforts. **(T-0)**.

2.9.6. Consult with Federal, state, local health authorities and USAFSAM Public Health Consultation Branch on common vectors and pests of medical importance. Integrate installation surveillance data with civilian programs, whenever possible. **Note:** In overseas areas, provide and obtain comparable assistance in accordance with applicable international agreements/host nation agreements (e.g. Status of Forces Agreements) and when requested by the appropriate host nation or foreign medical authority. **(T-2)**.

2.9.7. Assist base agencies to meet customs inspection program requirements when requested. **(T-2)**. **Note:** The United States Department of Agriculture is the office of primary responsibility for the Customs and Border Clearance Program. Public Health acts as consultant to the United States Department of Agriculture and base organizations such as the Security Forces, Civil Engineering, Base Operations and the Installation Commander. Guidance can be found in Defense Transportation Regulation 4500.9-R, Part V, *Department of Defense Customs and Border Clearance Policies and Procedures*, AFD 16-6, *International Arms Control and Nonproliferation Agreements and the DoD Foreign Clearance Program*. **(T-0)**.

2.9.8. Provide information to installation health care providers on prevention and control of vector-borne diseases in the local area. Information shall include an overview of location-specific disease threats at the time of provider in-processing, as well as time sensitive disease specific alerts **(T-3)**.

2.9.9. Participate in planning for emergency medically related vector or pest management using aerial application of pesticides in accordance with AFMAN 32-1053. Ensure that pre- and post-treatment surveys are accomplished to evaluate mission effectiveness. **(T-2)**.

## **2.10. Bioenvironmental Engineering will:**

2.10.1. Provide technical information to Civil Engineering on the safe storage and use of pesticides. **(T-2)**.

2.10.2. Monitor the potential occupational health and environmental impact of pesticide application, including aerial spraying. **(T-0)**.

## **2.11. Unit Commanders will:**

2.11.1. Ensure personnel are protected from vector-borne diseases and pests of medical importance by enforcing adherence to non-prescription public health countermeasures (e.g., insect repellent, uniform permethrin treatment kits, permethrin-treated bed nets, and other personal protective equipment) when appropriate to minimize the risk of vector-borne disease. **(T-0)**.

2.11.2. Ensure Unit Deployment Monitors issue non-prescription public health countermeasures (e.g., insect repellent, uniform permethrin treatment kits, permethrin-treated bed nets, and other personal protective equipment) to deployers or exercise participants if those items are not prepositioned, but are required by MAJCOM or Unified Combatant Command reporting instructions. **(T-0)**.

2.11.3. Unit logistics personnel should consult with the local Public Health Flight on DoD approved non-prescription public health countermeasures. Information on DoD approved non-prescription public health countermeasures and their corresponding National Stock Numbers are published in Armed Forces Pest Management Board Technical Guides.



**2.12. Deployed Commanders. Deployed Commanders will** ensure personnel are protected from vector-borne diseases and pests of medical importance by enforcing adherence to non-prescription public health countermeasures (e.g., insect repellent, permethrin-treated bed nets, and other personal protective equipment) when appropriate to minimize the risk of vector-borne disease. **(T-0).**

**2.13. Installation Contract Office. Installation Contract Office will** ensure that this publication is incorporated and referenced in any Pest Management contracts. **(T-0).**

DOROTHY A. HOGG, Lieutenant General, USAF,  
NC  
Surgeon General

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 48-1, *Aerospace and Operational Medicine Enterprise*, 7 June 2019

DoDI 4150.07, *DoD Pest Management Program*, 29 May 2008

Defense Transportation Regulation 4500.9-R, Part V, *Department of Defense Customs and Border Clearance Policies and Procedures*, 13 May 2019

DoD Foreign Clearance Guide: <https://www.fcg.pentagon.mil>

AFMAN 33-363, *Management of Records*, 1 March 2008

AFPD 16-6, *International Arms Control and Nonproliferation Agreements and the DoD Foreign Clearance Program*, 27 March 2018

AFI 33-360, *Publications and Forms Management*, 1 December 2015

AFMAN 32-1053, *Integrated Pest Management Program*, 6 August 2019

AFI 48-105, *Surveillance, Prevention, and Control of Disease and Conditions of Public Health or Military Significance*, 15 July 2014

Armed Forces Pest Management Board Technical Guide No. 36, *Personal Protective Measures against Insects and Arthropods of Military Significance*, November 2015

***Adopted Forms***

AF Form 847, *Recommendation for Change of Publication*

***Abbreviations and Acronyms***

**AFI**—Air Force Instruction

**AFMS**—Air Force Medical Service

**AFMRA**—Air Force Medical Readiness Agency

**AFPD**—Air Force Policy Directive

**ANG**—Air National Guard

**DoDI**—Department of Defense Instruction

**SG**—Surgeon General

**USAFSAM**—United States Air Force School of Aerospace Medicine

***Terms***

**Integrated Pest Management**—A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as monitoring for pest presence, establishing treatment threshold levels, using non-chemical practices to make the habitat less conducive to pest development, improving sanitation, and employing mechanical and physical controls. Pesticides that pose the least possible hazard and are effective

in a manner that minimizes risks to people, property, and the environment, are used only after careful monitoring indicates they are needed according to pre-established guidelines and treatment thresholds.

**Medical Entomology**—The study of vectors and medically important pests emphasizing prevention and management.

**Medical Entomology Consultant**—Individual with training in the ecology and control of vectors and medically important pests.

**Medically Important Pests**—Animals or plants that do not directly transmit a disease pathogen but are medically important because of biting, stinging, or other annoyance including secondary skin infection.

**Pesticides**—Chemicals used to kill pests, including disease vectors, intermediate hosts, and reservoirs. These include insecticides, acaricides, molluscicides, rodenticides, herbicides, fungicides, and other toxicants.

**Vectors**—Animals such as mosquitoes, biting flies, filth flies, flesh flies, lice, kissing bugs, fleas, mites, ticks, snails, rodents, bats, etc. capable of inoculating or transferring disease pathogens to humans or domestic animals.