

APPENDIX A: PREPARING THE FORCE

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Air Force preparation efforts involve responsibilities to organize, train, and equip forces. Organize, train, and equip preparations enable the Air Force to conduct operations and missions to accomplish joint activities for counter [weapons of mass destruction](#) (CWMD) that cover the [range of military operations](#) (ROMO) and span all stages of operational planning.

ORGANIZE

CWMD efforts involve all Airmen, assets, functional communities and platforms across the [Total Force](#), working in an integrated and synchronized manner. The development and implementation of applicable doctrine; concepts of operation; concepts of employment; and tactics, techniques, and procedures provides the foundation for how the Air Force integrates and synchronizes CWMD operations and missions across the Total Force.

Although some Air Force CWMD operations and missions require the specialized knowledge, skills, and abilities (KSA) of specific functional Air Force specialty codes, many CWMD operations rely on the integration and organization of multiple non-CWMD specific functional communities. For example, Air Force operations and missions supporting Joint WMD defeat activities require the integrated efforts of multiple functional communities. Intelligence experts, aircrews, weaponeers, targeteers, weather experts, and hazard modelers, among others, may all be required to support Air Force WMD defeat operations. Each community provides some of the mission critical KSAs needed to find, fix, track, target, engage, and assess adversary WMD or related targets.

While cross-functional integration is needed to execute certain CWMD operations and missions, some CWMD-specific KSAs should be well-understood and executable across the USAF. In particular, the ability to effectively defend against and operate through attacks involving chemical, biological, radiological, and nuclear (CBRN) agents is a capability all Airmen must possess. Air Force personnel must be able to perform their duties in a CBRN hazard environment, which in turn requires that all Airmen have a basic understanding of the threat, operational risks, and specialized procedures to mitigate those risks. For example, mobility personnel should understand transload procedures in a CBRN-contaminated environment and mortuary affairs personnel should understand how to handle contaminated remains. Only when every Airman possesses the KSAs required to survive and operate in CBRN-contaminated environments will the Air Force be able to ensure the continuation of mission critical operations against WMD-armed adversaries and actors of concern.

Concepts of Operation (CONOPS): The Air Force has developed and implemented a suite of CONOPS designed to enable the continuation of operations in chemical, biological, and radiological-contaminated environments. The Air Force [Counter-CBRN CONOPS](#) currently includes the *Counter-Chemical Warfare (C-CW) CONOPS*, the *Counter-Biological Warfare (C-BW) CONOPS*, and the *Counter-Radiological Warfare (C-RW) CONOPS*. The Air Force continues to develop CONOPS for other aspects of CWMD. The vignette “Organizing for CWMD Operations” provides a brief description of the *C-CW CONOPS* and its purpose.

The Air Force *C-CBRN CONOPS* makes use of fielded systems, combined with coordinated procedures across the total force. They apply approaches and procedures to mitigate the effects of CBR agents in order to sustain operations and protect the force. Each CONOPS specifically focuses on fixed site operations and uses a risk-based approach to optimize operations against the effects of distinctive chemical, biological, and radiological warfare threats.

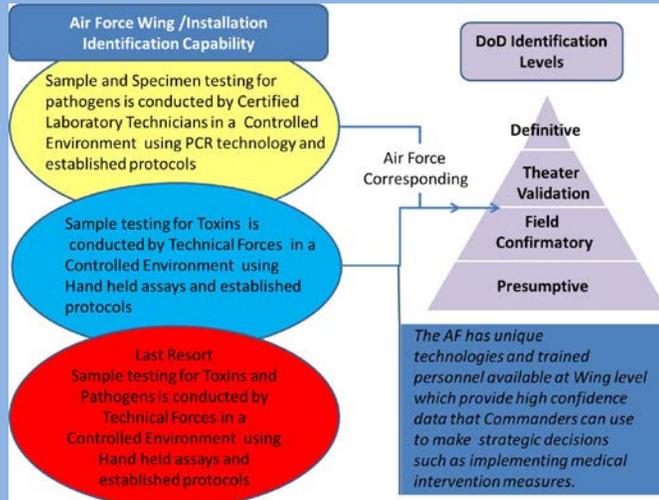
The CONOPS ensure that total base populations, as well as specific functional communities, understand best practices for the mitigation of chemical, biological, and radiological effects to continue the fight.

CBRN Concepts of Employment (CONEMPs): The Air Force also develops CONEMPs and decision tools to enhance Air Force C-CBRN capability. These CONEMPs help optimize limited/specialized CWMD equipment and/or assist commanders and Airmen in addressing challenging risk-based decisions in operating environments with CBRN threats. Primarily, the CONEMPs provide a way to organize efforts in a coherent way at the installation level to leverage all available assets to fight the base. For example, the Biological Detection Concept of Employment (BDCOE), highlighted in the box titled, “Biological Detection Concept of Employment Overview,” organizes personnel and equipment to form a layered defense system to provide multiple opportunities for commanders to be informed of, and make decisions to protect, the force against biological threats. The BDCOE not only addresses technical aspects of BW detection and treatment, but also provides decision tripwires or scenarios to foster timely response. In addition, the BDCOE outlines authority levels for decision making—from the Headquarters Air Force level to the installation level, ensuring an integrated and organized response. The Air Force continues to develop C-CBRN CONEMPs, such as *Collective Protection*, to maximize the operational effectiveness of the forces and equipment in WMD threat environments.

Biological Detection Concept of Employment Overview

The Air Force *Biological Detection Concept of Employment (BDCOE)* is a layered defense system designed to provide multiple avenues for commanders to be informed and make decisions on specific biological warfare attacks in time to effectively implement the appropriate medical countermeasures and non-pharmaceutical interventions. The *BDCOE* embodies a detect-to-treat strategy, and attempts to mitigate exposures where possible through limited detect-to-warn.

The Air Force *BDCOE* uses the DOD's four-tier system as the basis for determining what constitutes an actionable level of identification as well as for identifying the steps Air Force organizations at all levels should consider implementing based on the information involved. The four levels are: presumptive, field confirmatory, theater validation, and definitive. Each identification level represents a different level of confidence in the results, due to the various technologies and personnel involved. Some technologies are more effective for the identification of pathogens than others, just as some technologies are more effective for the identification of toxins than others.



The Air Force *BDCOE* enables commanders to detect and identify overt and covert biological threats in a timely manner, thereby enabling medical treatment to be initiated in time to prevent undue casualties, as well as facilitating the accomplishment of critical missions at the affected installations and across the Air Force. Several components must be adequately addressed in order to ensure success at the time of execution. These areas include planning, training, the provision of equipment, integration of efforts between military and civilian agencies, determination of acceptable risk in differing circumstances, and the conduct of meaningful exercises and inspections.

Organize Construct Overview: The Air Force's cross-functional approach to organizing forces for CWMD operations highlights the importance of functional community synchronization when operating in environments containing CBRN threats. CONOPS, CONEMPS, tactics, techniques, and procedures (TTPs), and other capabilities and tools provide a framework for organizing the force to maximize

operational effectiveness against CBRN threats. **Figure 3** demonstrates a general application of the Air Force CWMD organizational construct with regard to a chemical warfare attack scenario.

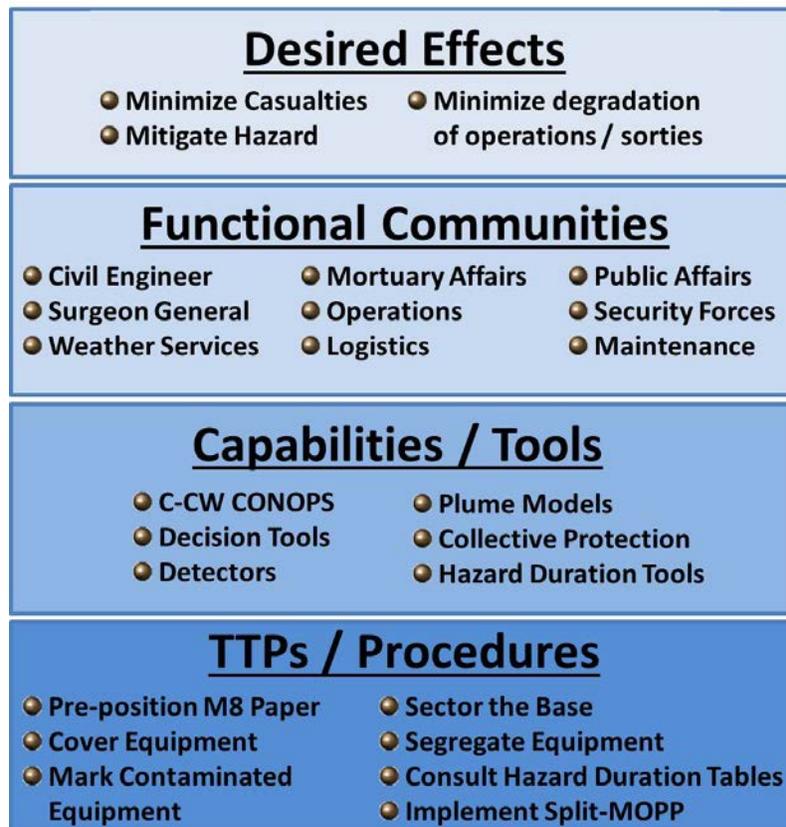


Figure 3: Air Force Organize Construct – Focus on Counter-Chemical Warfare Operations

TRAIN

CWMD capabilities are inculcated through a life-cycle approach that aims to improve KSAs from accession-to-separation using targeted force development principles.

Figure 4 depicts the Air Force’s integrated CWMD approach to preparing Airmen for operations and missions against WMD-armed adversaries to include the ability to survive and operate in CBRN-contaminated environments. Air Force CWMD Education and Training Enterprise (ETE) targets multiple audiences to include individual Airmen, functional communities, and leadership.

Individual Airmen: Airmen are the foundation for all Air Force CWMD capabilities. These capabilities are developed through proper education and training. This ensures that Airmen can survive and operate in a CBRN environment. Examples of specific CBRN training for all Airmen

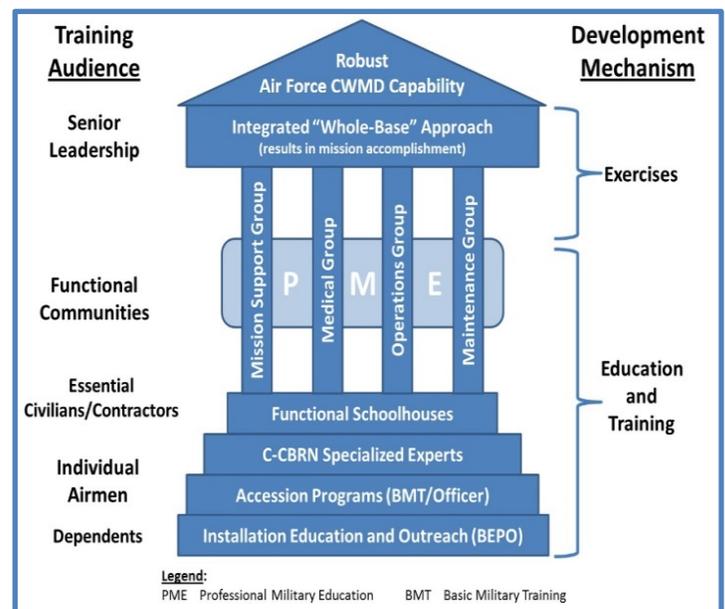


Figure 4: Air Force Integrated Approach to CWMD ETE

include how to don individual protective equipment, respond to mission-oriented protective posture (MOPP) declarations, administer nerve agent antidotes, or shelter in place. All Airmen should be able to take the protective measures needed to execute the mission in CBRN-contaminated environments.

Functional and Specialized Communities: The objective of educating and training functional communities in CWMD operations is to ensure they have the knowledge, competencies, training, equipment and funding required to execute their responsibilities in an operational environment containing CBRN threats. For example, mortuary affairs personnel are trained to handle CBRN-contaminated remains. Similarly, cargo handlers need to understand transload procedures in a CBRN-contaminated environment if they are to avoid the spread of hazardous agents that could adversely impact operations. In addition, Airmen may require education and training to conduct specialized CWMD roles and responsibilities. For example, Air Force civil engineer emergency management personnel require significant training in detection, decontamination, shelter procedures, post-attack reconnaissance, and other CBRN defense operations. Likewise, medical personnel are educated and trained in appropriate treatment options for CBRN casualties, health risk assessments, patient decontamination, epidemiology, biological surveillance, and identification and detection. Another example involves Air Force

TCO Training Prepares Airmen to Execute Across the Spectrum of CWMD Operations

Treaty Compliance Officer (TCO) training is a required course for all new Arms Control TCOs and is a key part of their preparation to serve as base treaty experts and to manage and coordinate treaty implementation and compliance activities. The Defense Threat Reduction Agency (DTRA) offers initial orientation courses on each of the major arms control agreements impacting the USG and Air Force arms control personnel are required to attend courses relevant to their duty area. Additionally, the Air Force augments DoD-level training with specialized training for Air Force TCOs and Wing/unit level personnel. One such example is the Chemical Weapons Convention (CWC) training and exercise program. The Air Force conducts an annual series of computer-based and classroom training, and table top and field exercises at rotating locations to prepare MAJCOM, Wing and unit-level personnel to respond in the event of a short-notice CWC Challenge Inspection. The Air Force also trains and annually certifies a Base Assistance Team (BAT) composed of Headquarters Air Force and MAJCOM treaty experts who provide support to base personnel and integrate Service assistance with DTRA in the event of a CWC Challenge Inspection.



Inspection Control Group meeting during a CWC FTX at Patrick Air Force Base

treaty compliance implementation measures that support USG nonproliferation agreements and regimes. Treaty Compliance Officers (TCOs) must be specially trained to understand mandatory Air Force obligations including those relating to CBRN weapons and agents as described in the vignette below. For example, TCOs involved in Air Force efforts to implement the New Strategic Arms Reduction Treaty must understand the formal reporting requirements associated with treaty-imposed central limits on Air Force nuclear force structure.

CWMD Exercises: In addition to educating and training personnel, Total force preparedness is achieved through the execution of realistic exercises. Peacetime activities with partners—particularly interagency and multinational training and planning exercises focused on building CWMD capabilities—enable the accomplishment of complex multinational CWMD operations. Air Force personnel regularly participate in exercises involving operations to counter CWMD threats. For example, Air Force

personnel contribute to and participate in several [National Exercise Program](#) events including ARDENT SENTRY—an annual joint exercise led by North American Aerospace Defense Command and U.S. Northern Command, and EAGLE HORIZON—a federal continuity-of-government exercise focused on coordination between federal agencies. Moreover, Air Force personnel participate in Proliferation Security Initiative exercises, briefing topics such as legal principles of air [counterproliferation](#) interdiction (ACPI) and developing ACPI scenarios.

EQUIP

The AF emergency management program equips Airmen to conduct operations and missions across the full range of CWMD military activities: cooperate with and support partners; understand the environment, threats, and vulnerabilities; control, defeat, disable, and dispose of WMD; safeguard the force and manage consequences; and deter WMD proliferation and use. Depending on the type operation or mission, the Air Force may use CBRN-specific systems, such as the employment of CBRN defense equipment to protect aircrews in CBRN-contaminated environments. However, equipment designed for other missions may also be leveraged in CWMD operations, such as the use of strategic airlift to transport CBRN materials of concern as part of WMD disposal activities.

Aircrew Flight Equipment: Focus on Counter-CBRN Operations

One of the primary missions of Air Combat Command's Aircrew Flight Equipment (AFE) Program is to provide aircrew protection from the effects of CBRN weapons. AFE includes activities to coordinate and organize efforts to manage aircrew CBRN equipment, prepare aircrew for flying CBRN operations, and process contaminated/potentially contaminated aircrew through the Aircrew Contamination Control Area (ACCA). ACCA operations, capabilities, and manpower support can be bolstered while deployed with a deployable AFE team (unit type code 9ALCW). AFE provides significant combat capability for aircrews in relation to C-CBRN operations.

Equipping for CBRN Defense: There are four broad categories of CBRN defense equipment:

- ✦ Sense: describes those systems that are designed to detect CBRN hazards
- ✦ Shape: covers those systems that characterize the operational environment and provide warning of CBRN hazards through the collection and assimilation of real-time data needed to inform operational decision making
- ✦ Shield: systems that protect personnel/assets from the effects of CBRN hazards
- ✦ Sustain: systems that provide the ability to conduct decontamination as well as the medical actions needed to return facilities and equipment to pre-threat conditions

Equipping to Control, Defeat, Disable, and Dispose (CD3) of WMD Threats: The Air Force is a provider of key capabilities used to conduct tasks comprising CD3 activity. Critical Air Force capabilities include the ability to defeat WMD and related targets; deliver close air support in joint and/or combined land component operations to seize WMD capabilities (e.g., facilities in non-permissive or uncertain environments); as well as deliver strategic airlift in support of joint, national, or coalition efforts to dismantle

WMD programs. While the Air Force has developed and sustained some CWMD-specific systems, most weapon systems used in CD3 operations and missions are designed to execute operations and missions other than, or in addition to, those involving CWMD.

The Air Force also provides materiel and capabilities needed to conduct WMD defeat operations. A complicating factor in equipping the force to strike WMD and related targets is the requirement to limit collateral effects. In addition to the operational considerations associated with WMD target strike planning, diplomatic and coalition concerns may significantly limit a COMAFFOR's ability to effectively remove a WMD threat via kinetic means. Allied or coalition partners may object to targeting CBRN facilities that may produce collateral effects due to the potential for placing noncombatants, livestock, wildlife, and the environment at risk. To prevent potential negative world opinion and potential fracture of alliances and/or coalitions, strikes against WMD targets should be weaponeered to achieve the desired objective while producing as little collateral damage as possible. If adversary WMD use is imminent, a COMAFFOR may have no other reasonable option than to order a strike against a WMD target using available conventional weapons.

CBRN Survivability of Mission Critical Systems. CBRN survivability is the capability of a system to avoid, withstand, or operate during and/or after exposure to a CBRN contamination environment, without losing the ability to accomplish its assigned mission. The CBRN survivability of a system is divided into two categories based on the weapons effects it is expected to operate through. First, nuclear survivability is the capability of a system to withstand exposure to nuclear environments, including air blast, electromagnetic pulse, and thermal radiation, without losing the ability to accomplish its designated mission throughout its operational lifecycle. Second, chemical, biological, and radiological (CBR) contamination survivability is the ability of a system to withstand CBR-contaminated environments and decontamination processes without losing the ability to accomplish the assigned mission. A system's CBR contamination survivability capability is comprised of three factors: hardness, decontaminability, and compatibility. Systems that can survive CBR events are hardened against these agents, as well as from the decontaminants the Air Force uses to remove persistent hazards. They also can be decontaminated to reduce the hazard to personnel operating, maintaining, or resupplying them. Finally, they can be operated, maintained and resupplied by Airmen wearing [individual protective equipment](#) (IPE) in all climates and for the period of time needed to conduct required operations.
