

# Chapter 5

## Biological Protection

This chapter discusses aspects of protection that must be accomplished before, during, and after a biological attack. An enemy force could use biological weapons or toxins anywhere on the AirLand Battlefield. Therefore, protection against biological agents could apply to both our close and rear operations. Protection against biological agents and toxins employed against soldiers begins long before the actual attack happens. Biological agents enter the body through the skin, respiratory tract and digestive tract. Key preparations begin with personal health maintenance followed by NBC defensive training, which all soldiers must master.

Leaders conduct defensive planning against possible biological agent attack. Units prepare SOPs that specify their biological defense techniques and procedures. Enemy capabilities and intent are continuously assessed to determine whether an enemy might use biological agents. Disease has been part of the human experience throughout the centuries and has long been a problem in time of war and peace, affecting both military and civilian populations, often accounting for more casualties than conventional weapons.

### Actions Before an Attack

Preparations before an attack can be accomplished long before a biological attack happens. Personal health maintenance and realistic training are just a few ways in which the commander can minimize his biological casualties.

### Personal Health Maintenance

All soldiers and leaders must adhere to the basic principles of good health. This applies especially under NBC conditions. Soldiers must continually follow these basic principles such as up-to-date immunizations, good hygiene, area sanitation and physical conditioning so unit efficiency will not suffer severe degradation.

#### Up-to-Date Immunizations

Immunizations reduce the chances of soldiers becoming biological casualties. Many diseases uncommon in the United States such as cholera and plague are prevalent in other parts of the world. Proper immunizations protect against many known disease-producing biological agents. All soldiers receive basic immunizations. Medical

personnel periodically screen these records and keep them up to date. If soldiers or units deploy to areas in which specific diseases are prevalent, readiness preparation may include receiving additional immunizations for needed protection. This prophylactic inoculation should be part of the IPB process and needs to be brought to the commander's attention. Medical and technical intelligence can also furnish information to support assessments. Recommendations may be finished on needed precautions and/or medications that are needed prior to deployment during times of peace or war.

#### Good Hygiene

Soldiers should protect against the spread of disease by practicing good health habits. The best defense against biological agents is good personal hygiene, keeping the body as clean as possible. This means not only washing the face and hands but also all parts of the body, particularly the feet and exposed skin. Hands need to be cleaned before meals or anytime bare hands are used to help ingest food and liquid or when smoking. Soldiers should brush their teeth, and they must shave. Shaving may seem unimportant in the field, but it is required to achieve a proper seal of the mask. This is important because biological agents and toxins are usually most effective when received via the respiratory system or the skin.

Small nicks, scratches, and cuts are unavoidable in a field situation. Germs, either naturally occurring or intentionally employed as biological agents, enter these breaks in the skin and will cause infections if left untreated. Soldiers should clean any breaks in skin with soap and water followed by first-aid treatment.

#### Area Sanitation

Another good way to stop the spread of disease is to keep the area clean. Bury all empty ration packets and residue. Locate, construct, and use field sanitation facilities properly. Latrine facilities should include soap and water for washing of hands. Latrines need to be cleaned daily. Avoid leaving such facilities open, and make sure they are properly filled and marked before moving, to help prevent accidental digging in the areas. Control of insects and rodents is also essential in preventing spread of disease. Additional information on field sanitation may be found in FM 21-10 and FM 21-10-1.

### **Physical Conditioning**

Good physical condition requires maintaining the body in a well-rested, well-fed, healthy state. A good physical fitness program will get soldiers in good shape and also increase their emotional health. Soldiers should get as much exercise and rest as the situation permits, and they must remember to eat properly. Good eating habits will help sustain the soldier. If they keep healthy, their bodies will be better able to fight off germs. A high level of physical fitness also reduces the likelihood of heat stress when MOPP gear is worn for extended periods. Physical and emotional energy levels will be high prior to any action, but can quickly decrease if the soldier is not in good physical condition. Continuous operations will require that soldiers learn to sleep in short naps and in MOPP3 or MOPP4. This is also part of the conditioning process. It may also become necessary for soldiers to eat smaller portions at more frequent intervals. Training to mission-essential task list (METL) tasks in MOPP4 supports physical and emotional conditioning. Do not conduct physical training (PT) in MOPP4. Safety constraints dictate sound judgment, which the commander must weigh.

### **NBC Defense Training**

The complexity of the AirLand Battlefield requires commanders to train their units to live, work, and fight in a contaminated environment.

NBC training must be fully integrated into all areas of unit training: individual and collective. A unit that is well-trained and well-equipped is much better prepared to operate successfully. Leader training is especially critical to unit readiness.

#### **Individual Training**

Small unit leaders are the key to effective training of our soldiers. Leaders must know their soldiers' capabilities and capacities. Starting with basic training and continuing throughout their military careers, soldiers learn, practice, and train to perform individual NBC survival tasks. Leaders are directly responsible for reinforcing these tasks through continuous training, thereby instilling soldier confidence. These survival tasks are in STP 21-1-SMCT. Leaders should master the NBC knowledge and skills required of them as contained in STP 21-24 or STP 21-111 MQS.

#### **Collective Training**

Unit NBC NCOs and officers must provide guidance and help develop training programs for their units. The guidance must include long- and short-range attainable

goals. Unit Army training and evaluation programs (ARTEPs) will indicate tasks that are to be accomplished under NBC conditions. Units must train to standard those NBC-specific tasks that are found in the ARTEPs. Units will be severely hampered in mission execution if they have not prepared for operations under NBC conditions. Units train to standard based on their METL. Leaders must plan and conduct tough training in support of their METL and under realistic conditions, including operations of critical collective tasks under NBC conditions.

### **Actions During an Attack**

If threat forces attack with biological agents, there may be little or no warning. This will depend on the S2's and your IPB assessment. We cannot detect or identify biological agents with our currently fielded detector kits and systems. Soldiers in a unit automatically mask when there are high probability indicators of an attack to protect themselves against contamination.

#### **Biological Attack Indicators**

Biological agents may be disseminated as aerosols, liquid droplets or dry powder. Biological attack indicators fall into two groups to indicate a high probability or possible attack.

##### **High probability.**

Attacks with biological agents will be very subtle if favorable weather conditions prevail. Symptoms can appear from minutes to days after an attack has occurred. Indicators may be the following:

- Mysterious illness-many soldiers and civilians sick for unknown reasons.
- Large numbers of insects or unusual insects.
- Large numbers of dead wild and domestic animals.
- Mass casualties with flu-like symptoms, fever, sore throats, skin rash, mental abnormalities, pneumonia, diarrhea, dysentery, hemorrhaging or jaundice.

##### **Possibility.**

Indicators of a possible biological attack are any of the following:

- Artillery shells with less powerful explosions than HE rounds.
- Aerial bombs that pop rather than explode.
- Mist or fog sprayed by aircraft or aerosol generators.
- Unexploded bomblets found in the area.

#### **Immediate Actions**

Putting on the protective mask and keeping the clothing buttoned up protects adequately against living biological agents. But, an agent can gain entry through clothing using two routes: one, openings such as button holes, zipped areas, stitching, and poor sealing at

ankles, wrist, and neck and two, through minute pores in the fabric of clothing. Putting on one's protective ensemble greatly increases the protection level of the individual soldier. Toxins, however, require the same amount of protection as liquid chemical agents. Since no rapid-warning, biological agent detection device is fielded, consider any known agent cloud as a chemical attack, and take the same actions prescribed for a chemical attack.

For collective protection, personnel must be housed inside a shelter with an efficient air filter system. Many buildings can be converted into temporary shelters if cracks are carefully sealed and a filter system with a ventilating mechanism is installed. Chapter 6 discusses different collective-protection systems that provide the needed protection.

It must be emphasized that in order to counter a biological attack, protective measures must be initiated before an attack. The use of the NBCWRS is ' an effective and established means for giving advanced warning, along with intelligence data provided by the intelligence community.

## **Actions After an Attack**

Actions after a biological attack include taking samples with the M34, M256-series, or CBASK and identifying a casualty by the symptoms they exhibit and treating those symptoms. Early recognition of symptoms and their treatment will increase recovery time and hopefully decrease fatalities.

It is necessary to isolate soldiers showing symptoms of disease. This isolation helps prevent possible spread to others if the disease is communicable. It is also necessary to limit the number of personnel providing care to these casualties. Treatment of live biological agent or toxin casualties requires medical assistance as soon as possible. An indication of a live biological agent attack is a large number of soldiers and civilians with unexplained illness

over a short period.

The threat also has a wide variety of . toxins. These can be dispensed alone or with other carriers or agents. Symptoms associated with some toxins mimic other illness or chemical casualty symptoms. Toxin symptoms may include any of the following:

- Dizziness, mental confusion, or double or blurred vision.
- **Tingling of skin, numbness, paralysis, or convulsions.**
- Formation of rashes or blisters.
- Coughing.
- Fever, aching muscles, and fatigue. \*Difficulty in swallowing.
- Nausea, vomiting, and/or diarrhea.
- Bleeding from body openings or blood in urine, stool, or sputum (spit).

### **Shock.**

These symptoms appear in minutes or hours after the toxin attack. Soldiers should decontaminate immediately after a toxin attack. They should either wash with soap and water or use the M258A1 or M291 decon kits.

Appropriate self-aid and buddy-aid vary, depending on the agent. Soldiers first mask to prevent inhaling or ingesting agents. They then should remove agents from exposed skin, observe each other for early symptoms of a toxic exposure, and request medical assistance.

## **Operation in Special Environments**

Biological protection must be considered when operating in different weather and terrain environments. Biological agents and toxins will be altered depending on where they are employed. Appendix A discusses several types of special operations and how biological agents or toxins affect operations in those environments.