CONCEPT OF OPERATIONS OF MEDICAL SUPPORT IN CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR ENVIRONMENTS

AMedP-7(D)
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AMedP-7(D)

DECEMBER 2007
6 December 2007

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Juan A. MORENO
Vice Admiral, ESP(N)
Director, NATO Standardization Agency
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CHAPTER 1 – INTRODUCTION

Section 1 – Planning for Medical Operations in CBRN Environments

101. One of the most difficult challenges faced by a medical planning staff is defining requirements for adequate force protection and the medical management of casualties in a chemical, biological, radiological, and/or nuclear (CBRN) environment. CBRN attacks by a belligerent nation or by a terrorist organization have the potential to cause significant numbers of casualties. Coordinating an effective response will require access to the full spectrum of military and emergency management resources, the marshalling of most of NATO’s military medical resources, and support from the medical systems of most host nations (HN).

102. The task of the medical planning staff is to coordinate and manage the medical assets of contributing nations to achieve an effective medical defense. Standard solutions supporting conventional warfare may not adequately address a CBRN incident. NATO commanders, theatre surgeons, and the medical planning staff must envision new ways to address the potential for mass casualties (MASCAL), casualty evacuation, and logistical support in planning for CBRN operations. An effective CBRN defense will incorporate a preventive medical strategy to reduce or eliminate the potential impact of a CBRN incident upon the force.

103. Planning for medical operations in CBRN environments requires a multidisciplinary approach involving specialized skills in preventive medicine, medical intelligence, safety, and logistics. The medical planning staff should also include personnel specializing in aeromedical evacuation (AE) requirements and operations. Environmental health personnel and/or an infectious disease physician should develop a system for theatre-wide epidemiological surveillance. Personnel with specialized skills in environmental science or engineering, radiation health, or comparable preventive medicine/environmental health disciplines should be consulted regarding hazards and the effects of a CBRN event.

104. The Allied Command Operations (ACO) Joint Planning Group (JPG) performs CBRN threat assessment in conjunction with Allied campaign and operations planning. While the surgeon’s staff performs key CBRN medical planning functions, each joint staff (J-Staff) area is responsible for CBRN planning functions that directly or indirectly support the CBRN medical mission. In addition, several CBRN medical planning functions require active collaboration between multiple J-Staff areas. Figure 1-1 identifies key J-Staff CBRN planning responsibilities as discussed in STANAG 2451 (AJP-3.8), Allied Joint Doctrine
for NBC Defence, and STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine.

Figure 1-1. Allied Command Operations Joint Planning Group

105. Medical planning considerations for CBRN defensive operations require an approach to risk assessment that acknowledges the challenges unique to each operational phase (pre-event, during event, and post-event) and evaluates the potential impact upon the mission through failure to protect the force. Medical planning begins with an assessment of the current and potential situations, known risks, and available medical capabilities and non-medical capabilities that influence the medical situation. Each nation has its own perspective of the CBRN threat and can provide the most accurate assessment of its CBRN defense capabilities.
106. Effective medical planning and plan execution help prevent or minimize the impact of a CBRN incident. The success of many CBRN defensive operations is dependent on the operational phase in which they are implemented and the other capabilities with which they are deployed. Foresight and careful planning will ensure a mix of deployed capabilities that delivers the greatest protection against possible CBRN hazards.

Section 2 – Aim

107. AMedP-7, *Concept of Operations of Medical Support in Chemical, Biological, Radiological, and Nuclear Environments*, provides guidance for planning CBRN medical operations. The aim of this NATO standardization agreement (STANAG) is to support medical planning for CBRN environments to sustain the force and to ensure mission success. This STANAG proposes an approach to CBRN medical defense that places greater emphasis on pre-event preparation than post-event response.

108. AMedP-7 provides a compilation of CBRN medical planning considerations to supplement existing planning doctrine and CBRN specific guidance found in Allied Joint Publications and Allied Medical Publications. As a consolidated reference to related sources of doctrinal information, this STANAG does not reproduce the content of other STANAGs unless necessary for clarification or completeness.

109. Annex A in AMedP-7 offers the CBRN Incident Cycle (CIC) as a conceptual framework. The CIC is one of many conceptual approaches available to support the medical planning staff in understanding and applying available medical defense capabilities in a CBRN environment. The CIC may be applied to support the analysis and coordination of an effective strategic and operational mix of force health protection measures and required medical capabilities. Several chapters of this document briefly describe the possible application of medical capabilities using the CIC conceptual framework.

Section 3 – Scope

110. AMedP-7 is intended to be used in conjunction with supporting Allied Joint Doctrine, STANAG 2451 (AJP-3.8), *Allied Joint Doctrine for NBC Defence* and STANAG 2228 (AJP-4.10), *Allied Joint Medical Support Doctrine*. The coordination of medical capabilities is detailed in STANAG 2437 (AJP-01), *Allied Joint Doctrine*. AJP-3.8 provides chemical, biological, radiological, and nuclear defense doctrine for the planning, execution, and support of joint operations by establishing fundamental principles for the guidance of operational level commanders and their staffs in a CBRN environment. AJP-4.10 provides medical support doctrine for NATO multinational joint operations.
and essential material for medical planning staffs. In addition, STANAG 2437 (AJP-01), *Allied Joint Doctrine*, provides capstone doctrine for the planning, execution, and support of Allied joint operations.

111. AMedP-7 is also intended to be used in conjunction with other Allied CBRN medical doctrine including Allied Medical Publication 6 (AMedP-6), *NATO Handbook on Medical Aspects of NBC Defensive Operations*, and Allied Medical Publication 8 (AMedP-8), *Medical Planning Guide for the Estimation of NBC Battle Casualties*. AMedP-6 describes treatment and other medical support requirements for patients suffering from CBRN related illness and injury. AMedP-8 provides planners with estimates of CBRN casualties resulting from CBRN attacks against Allied forces. AMedP-8 also provides measures of unit degradation over time. AMedP-7 links these two documents by describing CBRN roles, responsibilities, and medical capabilities to directly support the planning function. The collaborative application of NATO STANAGs and publications such as AMedP-6, AMedP-7, and AMedP-8 promotes the interoperability of the medical components of the force.
CHAPTER 2 – SITUATION AWARENESS AND C4I

201. Situation Awareness (SA) is an important factor in the survival and success of the force in a CBRN environment. SA involves the ability to identify, process, and comprehend the critical elements of information that reveal what is occurring in an area of interest. These observations form the basis for ongoing assessment of the mission environment. SA is important for effective decision-making and performance.

202. This chapter identifies key SA capabilities affecting medical operations that support effective command, control, communications, computers, and intelligence (C4I) in a CBRN environment. SA and C4I capabilities are typically initiated in the pre-event operational phase. Further discussion of these capabilities using the CIC conceptual framework is provided at the end of the chapter.

203. The medical planning staff has specific responsibilities that support SA and C4I:
   a. Evaluate the medical intelligence available and advise the commander and his staff on the potential CBRN health implications of the operating environment.
   b. Prepare the medical risk assessment to support the overall operational risk assessment.
   c. Support the warning and reporting of potential and actual CBRN incidents and hazards into C4I systems to minimize the health effects of toxic or incapacitating exposure to deployed forces.

Section 1 – Medical and CBRN Intelligence

204. Medical intelligence provides an analysis of endemic disease and potential environmental health hazards (naturally occurring and man-made) for a specific geographic location to determine a baseline level of risk. Multinational intelligence sources should produce epidemiological and environmental health hazard assessments to increase SA. The intelligence will help the medical planning staff determine the potential health impact of CBRN hazards on the force. See STANAG 2190 (AJP-2), Joint Intelligence, Counter Intelligence and Security Doctrine, and STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, for CBRN intelligence product guidance.

205. CBRN intelligence focuses on information about potential CBRN threats in an area of interest. Data gathered from NATO sponsored sources will provide information on potential threats. A CBRN threat may exist if an adversary has
both CBRN capability and the intent to use this capability. Intelligence staff will produce the threat assessment based on CBRN intelligence.

206. Each CBRN hazard category has unique risk and impact characteristics that require consideration:

   a. Chemical – The risks and impact of both persistent and non-persistent chemical hazards.

   b. Biological – The risks and impact of a biological hazard, which may include communicability or secondary infection.

   c. Radiological – The risks and impact of radiation from a radiological source or weapon such as a radiological dispersal device (RDD) or radiological exposure device.

   d. Nuclear – The risks and impact of combined injuries and radiation from fallout from a nuclear explosion.

207. Toxic Industrial Material (TIM) and Release Other Than Attack (ROTA) may include any of the CBRN hazard categories. The medical response requirement will be the same whether a release is deliberate or accidental. Potential sources of TIM include but are not limited to: petroleum refineries, fertilizer or pesticide manufacturing facilities, water/sewage treatment plants, chemical storage facilities, chemical production facilities, munitions facilities, or government research facilities.

208. Key guidance regarding CBRN medical intelligence can be found in the following documents:

   a. STANAGs 2461-2463 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations, provides guidance about the symptoms, effects, and countermeasures for CBRN hazards.

   b. STANAGs 2475-2477 (AMedP-8), Medical Planning Guide for the Estimation of NBC Battle Casualties, provides guidance on the scale of an incident.

   c. STANAG 2112, Nuclear, Biological and Chemical Reconnaissance, provides details regarding reconnaissance activities that define the areas of contamination and details on determining the extent of contamination.
d. STANAG 2529, *Rapidly Deployable Outbreak Investigation Team (RDOIT) for Suspected Use of Biological Warfare Agents*, provides details on RDOIT and its operations.

e. STANAG 2133, *Vulnerability Analysis of Chemical and Biological Hazards*, provides details on conducting vulnerability analysis.

f. STANAG 4359 (AEP-10), *NATO Handbook for Sampling and Identification of Chemical Warfare Agents*, provides details on levels of identification and sampling techniques for CBRN agents.

g. STANAG 4590 (AEP-49), *Sampling and Identification of Radiological Agents (SIRA)*, provides guidance for identifying and confirming the use of radiological agents.

Section 2 – Medical Support in Threat Analysis and Vulnerability Analysis

209. CBRN threat analysis is a continual process of evaluating and compiling available CBRN information to identify and prioritize threats. The medical planning staff supports J2 Intelligence in conducting threat analysis for identified CBRN threats. Threat analysis includes the medical planning staff’s evaluation of each CBRN threat and its potential impact on force health. See STANAGs 2475-2477 (AMedP-8), *Medical Planning Guide for the Estimation of NBC Battle Casualties*, for guidance on the potential impact of hazard exposure on forces.

210. CBRN vulnerability analysis is a continual process of evaluating the relative strengths and weaknesses in the CBRN protective posture of a force. The medical planning staff supports J3 Operations in the development of the vulnerability assessment by providing a vulnerability analysis from a medical perspective. The analysis will include the medical planning staff’s review of potential preventive medicine capabilities such as medical countermeasures. The medical planning staff may make preventive medicine recommendations based on available medical intelligence and surveillance data. See STANAG 2451 (AJP-3.8), *Allied Joint Doctrine for NBC Defence*, and STANAG 2133, *Vulnerability Analysis of Chemical and Biological Hazards*, for guidance on conducting the vulnerability analysis.

Section 3 – Detection, Identification, and Monitoring

211. The detection and identification of CBRN hazards requires the integration of monitored sources, medical intelligence and health surveillance data. Reliable detection, identification, and monitoring are an integral part of preparing and
directing the deployment of relevant medical countermeasures. Medical countermeasures must be implemented early to mitigate the effects of a CBRN incident. The implementation of these systems for monitoring should be a priority if the use of chemical agents is anticipated. Conversely, if the use of biological agents is anticipated, accurate lab-based diagnosis should be a priority to determine the most effective medical countermeasures to prevent the hazard from spreading. The medical planning staff will support the implementation of an integrated system to detect and identify CBRN incidents. The integrated system should include health surveillance, sample analysis, and sensor data evaluation.

212. Forces have the capability to detect and identify many different CBRN hazards. However, the medical planning staff should coordinate reach-back capabilities to support the shipment of potentially contaminated samples from the field to a fixed laboratory for further analysis. See STANAG 4359 (AEP-10), NATO Handbook for Sampling and Identification of Chemical Warfare Agents, and STANAG 4590 (AEP-49), Sampling and Identification of Radiological Agents (SIRA), for methods to identify CBRN hazards.

213. Intelligence should be actively gathered at the scene of an event and communicated in a timely manner to support ongoing diagnostic and forensic procedures. Particularly in a bio-incident, the field investigation teams should focus on obtaining samples not only from the suspected cause but also from other sources that may help identify the agent, dispersal mode, area of attack, and population at risk. Warning and reporting centres will evaluate collected data associated with each CBRN event. In addition, epidemiological data is routinely analyzed by medical personnel to monitor for a possible biological release. If a presumptive biological release is detected, medical personnel will inform J3 Operations and the commander. See STANAG 2103 (ATP-45), Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas, for additional details on warning and reporting centres.

Section 4 – Integrated Early Warning

214. Early warning systems enhance the CBRN defensive posture of the force. Once a CBRN release is detected or is presumed imminent, immediate warnings need to be raised at all levels of the force. An effective early warning system alerts the force before harmful exposure to CBRN hazards occurs and enables the force to execute preemptive capabilities. Specific actions and preparations may be implemented at an operational and tactical level based on information from an integrated early warning system. For example, units in the theatre may be relocated or key medical resources may be reallocated in anticipation of increased casualty flow.
215. Currently, the force of each contributing nation monitors for CBRN hazards. The medical planning staff will work closely with the commander to establish an integrated process for managing and distributing critical information. An early warning system ensures that information collected by a contributing nation is available to support deployed forces. See STANAG 2103 (ATP-45), Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas, and STANAG 2497 (AEP-45), Programmer’s Manual For Reporting Nuclear Detonations, Biological and Chemical Attacks and Predicting and Warning of Associated Hazards and Hazard Areas, for guidance on systems that support integrated early warning.

Section 5 – Information Analysis and Dissemination

216. Medical personnel will evaluate medical and field data to detect a CBRN incident. NATO’s highly-integrated intelligence system involves the medical planning staff in the evaluation process. If a CBRN event occurs, the theatre surgeon’s staff, in conjunction with the other J-Staff, will advise the commander on ways to mitigate the effects on the force.

217. Information collected during intelligence, reconnaissance, and detection activities is analyzed and distributed in a format that is easy to assimilate by those who plan or engage in operations. See STANAG 2103 (ATP-45), Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas, for a format for reporting intelligence regarding CBRN hazards.

218. After a CBRN incident, medical personnel may need to transmit and receive large amounts of medical data regarding casualty care, casualty evacuation, and the transfer of medical resources. The medical planning staff will provide J6 Communications with the anticipated requirements for medical communications:

a. Support evacuation coordination
b. Facilitate electronic reporting
c. Enable near real-time communications of medical surveillance data
d. Support casualty tracking and management
e. Distribute epidemiological, diagnostic, sensor, and incident data
f. Provide environmental risk assessment updates
219. The medical planning staff in conjunction with J9 Civil-Military Cooperation should establish lines of communication with the local civilian health authorities. Good communication with local civilian health authorities will facilitate the monitoring of the local population for indicators of disease outbreaks that may endanger the force.

220. The dissemination of CBRN incident and mitigation information to the locally affected civilian population can support force operations. Informing the public of the potential impact of a hazard may help curtail widespread civilian panic. In addition, public information briefings may be used to identify contaminated areas that should be avoided as well as locations where the public may receive assistance. These lines of communication should be in place before a CBRN incident occurs to reduce the potential for delays and misinformation during and after an event.

Section 6 – CBRN Incident Cycle Application

221. The CIC divides the pre-event operational phase into two distinct phases, Situation and Hazard, allowing more detailed analysis by the medical planning staff. The SA and C4I concepts presented in this chapter may be initiated pre-event between the CIC Situation, Hazard, and Event phases as Planning and Prevention activities. However, a CBRN environment usually requires these activities to continue during the event, and throughout the Damage and Impact phases of the cycle. SA and C4I capabilities applied post-event are designed to assist in the Mitigation, Response, and Recovery of medical operations.

222. For additional information on CBRN defensive operations to support medical planning, see Annex A of this STANAG. The following planning considerations may apply to SA:

a. Pre-event CBRN defensive operations include risk and capability assessments. Potential CBRN hazards and their associated indicators will be identified, and information and communication requirements will be defined.

b. During event CBRN defensive operations include warning activities, reporting activities, and ongoing risk assessment updates by location.

c. Post-event CBRN defensive operations include monitoring available assets, mission review, and the development of lessons learned.
CHAPTER 3 – FORCE HEALTH PROTECTION PLANNING

301. Force health protection planning is a critical component of medical operations and poses unique challenges for the medical community in a CBRN environment. Medical personnel should be trained and equipped to perform primary medical duties in a hazardous environment to ensure maximum effectiveness and operational efficiency during a CBRN incident.

302. The medical planning staff should be familiar with the various aspects of force health protection and should work with J-Staff counterparts to conduct CBRN risk, vulnerability, and threat assessments. See STANAG 2451 (AJP-3.8), *Allied Joint Doctrine for NBC Defence*, for the interrelated defensive measures that should be included in medical support planning for a CBRN environment.

303. This chapter identifies specific CBRN defense capabilities required for force health protection in a CBRN environment. Force health protection capabilities are typically initiated during the pre-event operational phase. Further discussion of these capabilities using the CIC conceptual framework is provided at the end of the chapter.

Section 1 – Medical Assessments

304. Regular health monitoring through pre-deployment and post-deployment health assessments is critical for establishing force medical readiness. Pre-deployment health assessments contribute to SA by establishing a baseline for deployed military forces in the theatre. Baseline medical assessments supplement the comprehensive medical assessments conducted periodically during a military member’s career. See STANAG 2235, *Pre- and Post-Deployment Health Assessments*, for guidance on conducting medical assessments.

   a. A pre-deployment assessment provides a baseline for subsequent health evaluations during and after deployment. The pre-deployment health assessment also identifies personnel at higher risk for health problems to help minimize the risk of health problems during missions.

   b. A post-deployment assessment ensures the quality of long-term health monitoring. The post-deployment assessment enables medical personnel to document and track the exposure of NATO forces to CBRN hazards and to identify health problems that could result in negative long-term health issues. Early detection of CBRN related health problems greatly increases the chance to provide an effective treatment.
c. Medical assessments should be provided to the appropriate NATO country for archiving.

305. Complete and accurate inpatient and outpatient medical records are important in a CBRN environment. Medical records should provide patient in-transit visibility and epidemiological data, including known exposures to CBRN hazards, the use of CBRN countermeasures, and any adverse reactions to countermeasures. The medical record will travel with the patient through the medical system in digitized or hard copy format.

306. The exposure of forces to CBRN or TIM hazards should be continuously monitored and recorded to ensure the appropriate management of medical care. The following STANAG references provide specific guidance on maintaining medical records for casualties:

a. STANAG 2050 - *Statistical Classification of Diseases, Injuries and Causes of Death*

b. STANAG 2132 - *Documentation Relative to Medical Evacuation Treatment and Cause of Death of Patients*

c. STANAG 2347 - *Medical Warning Tag*

d. STANAG 2348 - *Basic Military Hospital (Clinical) Records*

e. STANAG 2474 - *Determination and Recording of Ionising Radiation Exposure for Medical Purposes*

**Section 2 – Physical Protection**

307. The avoidance of CBRN hazards is the most effective way to safeguard the physical health and preserve the strength of the force. If avoidance is not possible, the force should be aware of the CBRN threat and adopt the appropriate level of physical protection necessary to reduce morbidity and mortality. See STANAG 2984, *Graduated Levels of NBC Threat and Associated Protection*, for guidance on the physical protection required for each threat level.

308. Individual protective equipment (IPE) and collective protection (COLPRO) provide physical protection against a broad spectrum of airborne CBRN hazards and enable the force to continue operations. IPE provides individual personnel protection when an appropriate dress state (protective suit, boots, gloves, mask, and hood) is adopted for the anticipated CBRN hazard. COLPRO equipped medical facilities may protect groups of casualties and medical personnel without IPE from most CBRN hazards. COLPRO equipped
facilities may also offer respite from the psychological and physiological effects that may accompany prolonged use of IPE.

309. IPE and COLPRO both have limitations. Prolonged use of IPE may degrade operational performance. COLPRO may not be effective against certain agents, compounds, or radiological hazards. In addition, the treatment of infectious casualties within a COLPRO environment may lead to cross-contamination. See STANAG 2451 (AJP-3.8), Allied Joint Doctrine for NBC Defence, for important considerations related to IPE and COLPRO.

310. For maximum effectiveness, IPE and COLPRO must be in place prior to exposure to CBRN hazards. The medical planning staff should ensure that an adequate supply of IPE for casualties is included as a planning factor for casualty movement. Casualty bags equipped with air blowers may be considered for use as patient IPE to enable the safe evacuation of casualties in a CBRN vapor hazard environment.

Section 3 – CBRN Hazard Management

311. CBRN hazard management is an essential component of planning for medical operations and requires careful preparation. The purpose of CBRN hazard management is to limit the operational impact of CBRN hazards through pre-hazard precautions and hazard control measures.

Pre-Hazard Precautions

312. Medical personnel may administer prophylactic drugs or vaccines as a pre-hazard precaution. Additional precautions may include reviewing field hygiene standards, routine monitoring of food and drinking water as a safeguard against the spread of disease, and providing recommendations for sanitation and environmental health.

Hazard Control

313. Medical facilities will provide casualties with proper, efficient, and rapid care while controlling the spread of CBRN contamination or infection. Each medical facility will develop and implement a management plan that restricts and controls patient movement within the facility, without fundamentally changing the operation of the facility or techniques of patient care. See STANAGs 2461-2463 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations, for guidance on the principles of casualty management.

314. The medical planning staff will identify the resources that are necessary for hazard control. Hazard control measures include hazard avoidance, control of spread, exposure management, and decontamination.
a. **Hazard Avoidance** practices prohibit the movement of the force into hazard areas. The avoidance of CBRN hazards will be a key factor in planning for the location of medical facilities. Medical facilities may need to be relocated to avoid contamination. If hazard avoidance is not possible and contamination occurs, an assessment of decontamination requirements should occur as quickly as possible. See STANAG 2451 (AJP-3.8), *Allied Joint Doctrine for NBC Defence*, for guidance on hazard avoidance.

b. **Control of Spread** controls the spread of hazards through the limitation of spread, hazard containment, controlled movement, restriction of movement (RM) for disease control, and waste management. The medical planning staff will coordinate with the engineering staff on design and operational constraints for medical facilities and sites. Planning for isolation, decontamination, and waste containment will be critical for sustaining operations under CBRN conditions. If medical facilities are located in a contaminated area, medical personnel may utilize IPE and COLPRO. The addition of COLPRO will eliminate chemical vapor hazards and reduce the risk of secondary contamination during entry and exit.

c. **Exposure Management** attempts to limit the exposure of personnel to hazards through exposure control, tracking of exposure data, and rotation of assets. Medical personnel need to be aware of the CBRN threat and TIM hazards in-theatre and should receive continual updates. If the avoidance of hazards is impractical because of operational priorities, exposure should be as low as reasonably achievable. Medical personnel will maintain records on the exposure of personnel to CBRN hazards.

d. **Decontamination** is an important capability for CBRN defense and is utilized in conjunction with casualty management, casualty evacuation, and medical sustainment. If hazard avoidance and hazard control measures fail, decontamination may be necessary. See STANAG 2451 (AJP-3.8), *Allied Joint Doctrine for NBC Defence*, for guidance on the types of decontamination and the four principles of decontamination (as soon as possible, only what is necessary, as close to the contamination source as possible, and priority for decontamination). See STANAG 2426, Chemical, Biological, Radiological, and Nuclear (CBRN) *Hazard Management Doctrine for NATO Forces*, for decontamination procedures.
Section 4 – Medical Countermeasures

315. Medical countermeasures are medical interventions designed to diminish the susceptibility of personnel to the lethal and damaging effects of CBRN hazards and to treat any injuries arising from exposure to such hazards. The medical planning staff and the J2 Intelligence staff will work together to evaluate a CBRN hazard, assessing the vulnerability of the force and the available capabilities for reducing the effects of a CBRN incident on the force. Epidemiological data and the associated medical intelligence will be important factors in defining the appropriate medical support for military operations. Recommendations for countermeasures will be presented to the J-Staff.

316. Preventive medicine capabilities in a CBRN environment will include the use of medical countermeasures such as pharmaceutical preparations, medical procedures, diagnostics, self-administered prophylaxis, and basic hygiene. Effective use of immunoprophylaxis and chemoprophylaxis is based on an anticipated release and/or prompt detection of an actual release. The timely implementation of immunoprophylaxis and chemoprophylaxis can significantly reduce the number of casualties. See STANAGs 2461-2463 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations, for guidance on the use of immunoprophylaxis and chemoprophylaxis as medical countermeasures.

317. Medical surveillance will provide data from the theatre epidemiological system to evaluate trends in the symptoms associated with patient injury and illness. Tracking trends across the theatre, in conjunction with medical intelligence, can help identify covert biological, radiological, and chemical attacks.

a. Chemical warfare agents are classified into five categories: nerve agents, vesicant (blister) agents, lung damaging (choking) agents, cyanogen (blood) agents, and incapacitants. See STANAG 2463 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations (Chemical), for descriptions of medical countermeasures for pre- and post-exposure treatment as well as medical procedures to assist in recovery from chemical agents.

b. Biological agents are classified as bacterial, viral, or toxins. Pre- and post-exposure chemoprophylaxis such as antibacterial, antiviral, immunoglobulin (including antitoxins) agents, and active immunotherapy by immunization are effective medical countermeasures against biological weapons. See STANAG 2462 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations (Biological), for guidance on medical countermeasures against biological agents.
c. Radiological material dispersed through conventional explosives may result in casualties. Numerous sources of radiological material exist in industrial and medical facilities. See STANAG 2461 (AMedP-6), *NATO Handbook on the Medical Aspects of NBC Defense Operations (Nuclear)*, for guidance on prophylactic and therapeutic measures to treat exposure to radiological materials.

d. A nuclear detonation has the potential to cause large numbers of casualties with severe, multiple injuries such as burns, fractures, and serious head trauma. The effective medical sorting (triage) of MASCAL and the subsequent treatment will require considerable logistic and manpower support. See STANAG 2879, *Principles of Medical Policy in the Management of a Mass Casualty Situation*, for guidance on the medical principles applicable to MASCAL situations, and STANAG 2461 (AMedP-6), *NATO Handbook on the Medical Aspects of NBC Defense Operations (Nuclear)*, for guidance on prophylactic and therapeutic measures for exposure to radiation or radioactive materials.

318. The procedures, equipment, and training necessary for effective medical countermeasures and support need to be prepared and practiced during the pre-event phase. The remainder of this section identifies medical countermeasures and considerations applicable to medical planning for the pre-event, during event, and post-event operational phases of a CBRN incident.

**Pre-Event Operational Phase**

319. The pre-event phase may include the following countermeasures:

a. Medical pre-treatments

b. Pre-staging of medical materiel’s

320. The medical planning staff should plan to implement preventive health protection measures before a CBRN event:

a. Ensure that personnel from contributing nations are current on required immunizations. See STANAG 2037, *Vaccination of NATO Forces*, and STANAG 2491, *Policy for the Immunisation of NATO Personnel Against Biological Warfare Agents*, for guidance.

b. Safeguard medical supplies and equipment with chemical hazard-resistant coatings or protective coverings, if practical.
c. Provide an early warning capability to maximize the effectiveness of preventive medicine. Establish the ability for reach-back to a fixed laboratory. Establish and maintain a health surveillance system to: identify populations at risk; anticipate, recognize, and assess hazardous exposures; monitor health outcomes; and employ new countermeasures.

d. Integrate available medical facilities into theatre-wide plans.

e. Recommend specific conditions that warrant the use of chemoprophylaxis (e.g., pre-treatments, immunizations), quarantines, pest control, destruction and disposal of livestock and wildlife, and other preventive measures associated with CBRN defense.

f. Identify Host Nation Support (HNS) and the conditions under which it will be available.

g. Train personnel on protective equipment, medical countermeasures, and data collection requirements to support risk assessment during a CBRN event.

h. Produce a risk assessment.

**During Event Operational Phase**

321. Medical countermeasures initiated during a CBRN incident should mitigate the immediate health risks to personnel exposed or potentially exposed to CBRN hazards. These countermeasures may continue through the post-event phase:

a. Physical protection (IPE and COLPRO)

b. Movement of casualties out of the hazard area

c. Preliminary casualty decontamination

d. Hazard control measures

e. Casualty flow

f. Casualty treatment

g. Movement of forces out of contaminated areas

h. Movement of medical personnel and facilities out of hazard areas

i. Isolation of casualties suffering from contagious disease
Post-Event Operational Phase

322. The following countermeasures are important factors in the CBRN medical defense strategy:

a. Decontamination of casualties
b. Treatment of casualties
c. Medical evacuation of casualties
d. Post-exposure prophylaxis and vaccination
e. Disease surveillance and data archiving
f. Field hygiene measures
g. Management of remains, waste, and hazardous waste
h. Provide guidance on delineating areas that may pose health risks because of residual contamination

323. The medical planning staff should plan to implement health protection measures in response to a CBRN event:

a. Identify hazards associated with the contamination of personnel, equipment, and the environment to limit the spread of hazards. Control movement of contaminated patients and equipment. Recommend procedures for protecting personnel from further contamination to include clearance procedures and/levels for verification of adequate decontamination or confirmation of low risk conditions.

b. Establish safe water sources. A designated medical authority should approve all water supplies before distribution and consumption. See STANAG 2136 (AMedP-18), Minimum Standards of Water Potability During Field Operations, for further guidance on the provision of safe drinking water during field operations.

c. Establish policies and systems to transport, store, protect, prepare, serve, and consume safe food supplies. Food should be protected from direct and indirect contamination. The policies and systems should also
support the testing and disposal of contaminated food supplies and materiel.

d. Establish priorities for using medical health resources.

e. Emphasize standard individual hygiene and sanitation measures. In a CBRN environment, strict adherence to public health directives regarding food and water sanitation, general hygiene, and other common disease control measures can significantly decrease the spread of disease.

f. Ensure strict adherence to policies and procedures required for waste treatment and sewage, including water surveillance and sanitation control measures.

Section 5 – CBRN Incident Cycle Application

324. The CIC divides the pre-event operational phase into two distinct phases, Situation and Hazard. The post-event operational phase is divided into two distinct phases known as Damage and Impact. These divisions allow more detailed analysis by the medical planning staff. The force health protection concepts presented in this chapter may be initiated throughout the various phases of the CIC.

325. The force health protection concepts presented in this chapter may be initiated pre-event, between the CIC Situation, Hazard, and Event phases, as Planning and Prevention activities. However, a CBRN environment usually requires these activities to continue during the event, and throughout the Damage and Impact phases of the cycle. Force health protection capabilities applied post-event are designed to assist in the Mitigation, Response, and Recovery of medical operations.

326. For additional information on CBRN defensive operations to support medical planning, see Annex A of this STANAG. The following planning considerations may apply to force health protection:

a. Pre-event CBRN defensive operations include medical assessments and medical surveillance. Plans for vaccination of forces, medical countermeasures, and the use of physical protection capabilities, such as IPE and COLPRO, should also be developed. Plans for verification of decontamination to include identification of necessary detection equipment and/or clearance levels should be developed.

b. During event CBRN defensive operations include prophylaxis, physical protection, and hazard control. Plans for verification of decontamination
to include identification of necessary detection equipment and/or clearance levels should be developed.

c. Post-event CBRN defensive operations include decontamination, medical assessments, medical treatment, and continued health surveillance. In addition, post-event operations include the safe disposal of all wastes such as decontamination rinse waters, contaminated food and equipment, hazardous wastes from industrial operations, general wastes, and waste water.
CHAPTER 4 – CASUALTY MANAGEMENT

401. Casualty management refers to a group of post-event medical capabilities that may be applied to preserve the health of the force, to deliver optimal care to casualties, and to maximize the rate at which casualties return to duty. In the aftermath of a CBRN event, the number of casualties may far exceed the capacity of the medical treatment system. The medical planning staff will develop a plan for managing a substantial increase in casualty flow and the demand for treatment. The plan will address handling and movement of CBRN casualties, avoiding contamination spread, and treating infectious diseases. CBRN casualty care will require extensive coordination and negotiation with the hospitals of contributing nations and HNs.

402. This chapter identifies planning considerations specific to the treatment of CBRN casualties. Casualty management capabilities are typically initiated during the post-event operational phase. Further discussion of these capabilities using the CIC conceptual framework is provided at the end of the chapter.

Section 1 – Casualty Care

Continuity of Care

403. Casualty management will be conducted according to the NATO medical support principle of continuity of care. The principle states that a patient both in-transit and passing through the various medical roles must be given care that is relevant, continuous, and progressive regardless of the organization providing the resources. Maximizing the interoperability of medical systems will increase the efficiency and quality of care delivered to CBRN casualties. To ensure continuity of care in multinational operations, the medical planning staff will work closely with contributing nations to determine the standards of care which NATO forces are accustomed to receiving from the medical system in their country of origin. When possible, the standards of care for each nation should be taken into account when determining the continuity of care provided to all forces and decisions affecting patient movement. See STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, for guidance on continuity of care.

404. The volume of casualties in a CBRN environment will likely challenge the ability of medical systems to provide continuity of care. STANAGs 2475-2477, (AMedP-8), Medical Planning Guide for the Estimation of NBC Battle Casualties, serve as a technical reference for the medical planning staff in formulating casualty estimates. AMedP-8 provides planners with estimates of
casualties and measures of performance degradation over time among unit personnel.

405. Depending on the characteristics of the CBRN hazard, the medical planning staff will develop and implement appropriate response strategies to maintain continuity of care. To alleviate strain on the medical system, the medical planning staff will consider methods of expediting the evacuation of patients to civilian or HN medical treatment facilities. The medical planning staff will define all anticipated medical logistics support and resupply requirements to implement these strategies.

MASCAL Management

406. In a MASCAL situation, the focus of treatment changes from meeting the needs of each casualty to doing the greatest good for the greatest number. In accordance with STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, time-consuming treatment and evacuation is withheld from those who would place a high demand on medical resources during MASCAL. This approach allows the same resources to be concentrated on a larger number of casualties with better chances of survival. Triage classifications may vary depending on situational factors such as the hazards involved, the resources available, and the mission objectives. See STANAG 2879, Principles of Medical Policy in the Management of a Mass Casualty Situation, for considerations regarding modification of triage classifications, revised strategies for patient movement, augmentation of medical capabilities within the medical system, and alternate standards of care.

407. The implementation of an efficient and flexible evacuation plan will reduce potential strain on the medical system and will provide the minimum treatment necessary to enable each casualty to progress to the next stage of medical treatment. Prior to evacuation, medical personnel will evaluate a casualty’s condition and consider the length of time that will elapse before critical care is received. Casualties triaged as expectant or requiring minimal care should not be allowed to enter and block the evacuation chain. See Chapter 5, “Casualty Evacuation,” for additional guidance.

408. Operating in a CBRN environment requires that the medical planning staff plan for the decontamination of casualties. Many casualties may still be contaminated when they reach a medical treatment facility (MTF); therefore, MTFs will have a plan for addressing decontamination. Casualties should be triaged prior to decontamination by qualified personnel. See STANAGs 2461-2463 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations, for guidance on the triage of CBRN casualties. In addition, the medical planning staff should prepare for conditions where the medical services must be provided in a contaminated environment. See Chapter 3,
“Force Health Protection Planning,” for guidance on the control of spread and exposure management.

Section 2 – Medical Treatment Capabilities

409. CBRN events have the potential to result in casualties whose treatment needs cannot be met by conventional medical services or the traditional allocation of medical capabilities. The medical planning staff will assess the capabilities of available military and non-military medical facilities when facing a CBRN environment. The assessment will determine the attributes required of each facility, such as size, decontamination capabilities, transportability, medical training, and isolation capabilities. See Chapter 7, “Host Nation Support,” for additional guidance on medical resources that may be obtained through the HN.

410. The type of CBRN hazard will determine the most feasible approach to casualty management. Exposure levels, incubation period, and the risk of secondary infection or contamination will vary depending on the hazard, population, and situation. See STANAGs 2461-2463 (AMedP-6), NATO Handbook on Medical Aspects of NBC Defensive Operations, for a description of treatment and other medical support requirements for casualties suffering from CBRN related illness and injury.

411. The medical planning staff will consider the use of specialized treatment teams, such as burn teams, respiratory care teams, radiation treatment teams, and combat stress control teams to provide care to CBRN casualties.

Section 3 – Special Populations

Civilian Casualties

412. The treatment of civilian and non-military casualties injured during a CBRN incident requires specific direction from the commander as these casualties may overwhelm and overload MTFs. See STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, for considerations regarding the treatment of civilian casualties.

413. If medical personnel are directed to treat non-military and civilian casualties, the medical planning staff should plan for the procurement of additional medical resources. If medical personnel are directed not to treat civilians or other non-military personnel, the medical planning staff should ensure that an appropriate process is in place to refer civilians to other treatment facilities. The medical planning staff may need to coordinate with appropriate personnel to implement crowd control measures. The use of host nation medical facilities to support civilians during a CBRN event should be assumed during pre-
planning activities. See Chapter 8, “NA5CRO and Civilian Support,” for special considerations related to the CBRN medical treatment of civilians.

**Prisoners of War**

414. Potential contamination issues that arise in a CBRN environment may complicate the movement, retention, and medical treatment of prisoners of war (POWs). Medical personnel will work with the J3 Operations staff to ensure that POWs who become CBRN casualties receive appropriate medical treatment.

415. If POWs are to be moved across national borders, the medical planning staff will need to advise the commander of their current health status. The commander will be notified when the movement of POWs poses a health hazard.

**Section 4 – Restriction of Movement for Disease Control**

416. The commander may employ RM, including isolation and quarantine, to prevent the transmission of communicable disease or infection. Isolation and quarantine are critical when contagious disease is suspected or present within the forces or the surrounding civilian population. RM should be consistent with any limitations imposed by HN law, treaty obligations, or agreements/arrangements between the parties.

417. RM is accomplished by limiting ingress and egress routes. However, limiting ingress and egress routes complicates the process of reallocating or supplementing medical resources to support CBRN casualty care. If the commander decides to restrict the movement of CBRN casualties, the medical planning staff will evaluate whether the current allocations and quantities of medical resources are sufficient to provide continuity of care. A capability assessment will help determine whether additional medical resources are necessary, or a reallocation of current medical capabilities is needed.

418. *Isolation.* Isolation separates a person or group of people infected with a communicable disease from the non-exposed population while the disease is in a communicable stage. The isolation of casualties may also be implemented to avoid cross-contamination in a CBRN environment. Isolation measures will be implemented in MTFs, living quarters, or other facilities. The volume of casualties will determine specific isolation requirements. Isolation measures do not reduce the responsibilities of the medical system and medical personnel to provide the best medical care feasible to infected casualties. Medical capabilities will be determined by the resources, protocol, and doctrine of the contributing nation.
419. Quarantine. Quarantine requires compulsory detention or similar restriction of individuals or groups reasonable believed to be infected or exposed to a communicable disease. If transmission of the disease could cause a health emergency, quarantine measures should be implemented. Quarantine areas should minimize transmission of infection and provide adequate food, clothing, medical care, and other necessities. In extreme situations, self-quarantine may be imposed or other alternatives may be considered.

Section 5 – Combat Stress Disorders

420. CBRN environments may add to the frequency or severity of combat stress. Symptoms of combat stress disorder may include poor concentration, confusion, low morale, insomnia, fear, and anxiety. In severe cases of combat stress disorder, individuals may feel depressed or suicidal, and exhibit slower reaction times. Combat stress control teams will offer counseling and therapy in-theatre to treat combat stress disorders. Specialized training equips these teams to identify individuals who are suffering from a stress-related disorder.

421. In-theatre combat stress control teams will include psychiatrists, psychologists, nurses, and counselors. These teams are capable of providing an array of interventions for the prevention, management, and treatment of combat and operational stress reactions and mental disorders.

422. Casualties suffering from combat stress can retreat to clinics for two or three days to "normalize." Casualties will receive hot meals, rest, appropriate medications, and military task retraining. The goal of stress management is to return individuals to their units ready to perform their military duties without leaving the theatre of operations. The combat stress control teams will perform triage to identify individuals with serious psychological problems. The following STANAG references discuss combat stress training and stress control techniques for psychological casualties:

a. STANAG 2228 (AJP-4.10) – Allied Joint Medical Support Doctrine

b. STANAG 2133 – Vulnerability Analysis of Chemical and Biological Hazards

c. STANAG 2499 (ATP-65) – The Effect of Wearing NBC Individual Protection Equipment on Individual and Unit Performance During Military Operations

d. STANAG 2461 (AMedP-6, Volume 1) – NATO Handbook on Medical Aspects of NBC Defensive Operations
Heat Stress Disorder

423. When CBRN is a hazard or conditions are contaminated, the use of IPE and casualty bags exacerbates the risk of heat stress in patients and medical staff. Protective equipment also makes monitoring casualties difficult. The effects of many chemical agents can interfere with the body’s ability to perspire and pose an additional risk of heat stress. When patient protective equipment is utilized, medical personnel should be vigilant in monitoring patient hydration.

Worried Well/Worried Sick

424. Casualties who exhibit no symptoms but have a heightened level of anxiety (the “worried well”) may also present at MTFs. The worried well may far outnumber actual symptomatic patients. In addition, uninfected and unexposed patients may exhibit physical symptoms that are psychogenic only (the “worried sick”). The worried well/worried sick may increase the spread of a biological epidemic or chemical/radiological contamination through exposure to actual infected or exposed patients. Medical planning staff should consider potential strategies and associated requirements to reduce the impact of the worried well/worried sick on treatment facilities. Strategies for managing the worried well/worried sick might include triage, medical evaluation, counseling, or psychological care.

Section 6 – CBRN Incident Cycle Application

425. The CIC divides the post-event operational phase into two distinct phases, Damage and Impact, allowing more detailed analysis by the medical planning staff. The casualty management concepts presented in this chapter may be initiated post-event, between the CIC Event, Damage, and Impact phases. Casualty Management capabilities applied post-event are designed to assist in the Mitigation, Response, and Recovery of medical operations.

426. For additional information on CBRN defensive operations to support medical planning, see Annex A of this STANAG. When planning for casualty management, post-event CBRN defensive operations may include evaluating treatment options, available decontamination and medical treatment capabilities, and RM for disease control.
CHAPTER 5 – CASUALTY EVACUATION

501. The medical evacuation of casualties is the medically controlled process of moving any person who is wounded, injured, or ill to and/or between medical treatment facilities. The evacuation of CBRN casualties will be implemented in response to a CBRN event to help conserve force strength.

502. The commander establishes the evacuation policy for the theatre in conjunction with operations, medical, logistics, and participating NATO nations. Planning and executing an effective casualty evacuation system is a fundamental aspect of casualty treatment and care and is therefore a medical responsibility. See STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, and STANAG 2406, (ALP-4.2), Land Forces Logistic Doctrine, for guidance on general evacuation principles.

503. This chapter identifies planning considerations for the medical evacuation of casualties from a CBRN environment. Casualty evacuation capabilities are typically initiated during the post-event operational phase. Further discussion of these capabilities using the CIC conceptual framework is provided at the end of the chapter.

Section 1 – Evacuation Challenges in a CBRN Environment

504. Evacuation planning tasks require coordination with J3 Operations and J4 Logistics for transportation of medical supplies and casualties. The medical planning staff will assess the evacuation assets of all contributing nations including local civilian assets, define agreements or limitations on the use of these assets, and resolve any bottlenecks or shortfalls that may be identified based on casualty estimation.

505. Planning for the medical evacuation of casualties includes the following CBRN specific tasks:

a. Identify coalition and HN air, ground, and sea evacuation assets and any limitations on their use.

b. Identify or designate separate clean and dirty movement corridors.

c. Identify decontamination requirements for both casualties and evacuation assets.

d. Identify any agreements with the HN that limit movement of contaminated casualties.
506. The medical evacuation of casualties in a CBRN environment may also present additional challenges:

a. The number of casualties may far exceed conventional planning estimates.

b. Casualties, medical personnel, equipment, and transportation resources may require decontamination.

c. HN and multinational partners may have concerns about exposing their civilian population to contamination or contagion while CBRN casualties are in transport within their borders. The international transport of contaminated casualties is a serious concern requiring coordination, cooperation, and contingency planning.

507. CBRN casualties may present for treatment over a long period of time, requiring an extended period of evacuation. If large numbers of CBRN casualties present for treatment, medical personnel may need to decide which casualties to treat in place and which casualties to evacuate for treatment. Large numbers of CBRN casualties may quickly overwhelm existing evacuation assets as well as the specialized equipment used for evacuation. CBRN casualties who remain in-theatre will require additional resources for their sustained care.

508. An outbreak of a contagious disease may overwhelm available transport and receiving resources. In this situation, consider the capabilities required to stabilize and treat contagious casualties in place.

509. *Evacuation Preparation for Mass Casualty Incidents*. The number of assets available for evacuation may not be adequate. Therefore, the medical planning staff should develop contingency plans for MASCAL evacuation. The medical planning staff should also prepare to hold casualties in the area of operations for longer periods of time than required in non-CBRN situations.

510. If medical personnel are required to remain in an area that contains CBRN hazards, the medical planning staff will develop contingency plans for the provision of additional medical support and COLPRO.

511. *Preventing Contamination*. The transport of CBRN casualties requires special attention to prevent further contamination. The specific requirements for casualty decontamination will be dependent on the agent used, environment, level of exposure, and time. At a minimum, immediate decontamination will be performed as soon as possible, and casualties will be decontaminated before transport. Early decontamination reduces the chance of cross-contamination of medical personnel and facilities from residual contaminants left on clothing or
equipment. The use of patient protective wraps may be considered for the safe evacuation of casualties from a CBRN environment. To minimize secondary contamination, as few vehicles as possible will be used to transport CBRN casualties, and the vehicles will follow a minimal number of routes. Transport vehicles should be decontaminated as necessary to reduce the risk of cross-contamination.

512. *Host Nation Evacuation Support.* The HN’s government may agree to provide services and operate the following in support of evacuation requirements: airfields, railways, highways, waterways, medical transportation assets, and medical or other holding facilities. Evacuation and decontamination activities will require significant logistical support from the HN in terms of equipment, supplies, water, waste water treatment, and solid and hazardous waste disposal. Diplomatic activity may be necessary to use local resources such as services, facilities, and materiel. See Chapter 7, “Host Nation Support,” for additional guidance. HNs play an integral role in support of evacuation requirements and may be able to assist with aeromedical, ground, and/or sea evacuation.

Section 2 – Means of Evacuation

Aeromedical Evacuation

513. AE is typically an expedient means for evacuating casualties. However, CBRN hazards and the resulting casualties are likely to have a negative impact on AE capabilities. In a MASCAL situation, the availability of dedicated medical airlift may be inadequate. At the same time, biologically contagious casualties may reduce the number of casualties that an aircraft can accommodate. The AE plan should include aircraft of opportunity or multinational and civilian aircraft as an integral part of medical support. The medical planning staff will use casualty estimates based on likely scenarios to identify required AE assets. The AE plan will be communicated to the Patient Evacuation Coordination Centre (PECC) for coordination. See STANAG 2228 (AJP-4.10), *Allied Joint Medical Support Doctrine*, for additional information on AE and the PECC, and STANAG 3204, *Aeromedical Evacuation*, for guidance on AE priorities.

514. HN agreements will specify whether a nation’s airlift assets may be used to transport CBRN casualties. Aeromedical evacuation of CBRN casualties can only be accomplished if overflight and landing rights are permitted by the HN. Nations may choose not to transport contagious casualties due to the public health risk and risk of aircraft contamination. Procedures implemented during AE should include precautions to avoid aircraft contamination, as decontamination of an aircraft is often a challenging task. If civilian aircraft are contracted for use in support of AE, standard guidelines for flight readiness and
decontamination will be followed. Aircraft used to transport CBRN casualties or to operate in a CBRN environment will be evaluated for decontamination requirements after completing the casualty transit mission.

**Ground Evacuation (Rail and Road)**

515. Planning for ground evacuation may address situations where AE is not possible due to operational or geographic/climatic factors. Ambulances, buses, and rail may provide effective movement for large numbers of casualties. CBRN casualties being transported using ground assets will be prioritized based on treatment needs and the probable physical impact of time and travel conditions on each patient.

**Sea Evacuation**

516. Sea-based evacuation provides the capability to isolate contaminated or contagious casualties, especially if land-based resources are unavailable. The medical planning staff or PECC will be responsible for ensuring IPE for the medical personnel and the ship’s crew when casualties require isolation during transport.

**Section 3 – CBRN Incident Cycle Application**

517. The CIC divides the post-event operational phase into two distinct phases, Damage and Impact, allowing more detailed analysis by the medical planning staff. The casualty evacuation concepts presented in this chapter may be initiated post-event, between the Event, Damage, and Impact phases. Casualty evacuation capabilities applied post-event are designed to assist in the Mitigation, Response, and Recovery of medical operations.

518. For additional information on CBRN defensive operations to support medical planning, see Annex A of this STANAG. When planning for casualty evacuation, post-event CBRN defensive operations may include monitoring of evacuation assets and issues related to sustainment of the force.
CHAPTER 6 – SUSTAINMENT OF MEDICAL OPERATIONS

601. The medical system has a responsibility to provide patients with appropriate, effective, and timely care. The proper planning and management of logistics, waste, contamination, and facility operations will facilitate the sustainment of medical operations to provide continuity of care.

602. This chapter identifies key considerations and capabilities for the sustainment of medical operations in a CBRN environment. Sustainment capabilities are typically initiated during the post-event operational phase. Further discussion of these capabilities using the CIC conceptual framework is provided at the end of the chapter.

Section 1 – CBRN Logistics

603. CBRN medical defense operations can place significant demands on the logistics function. Medical operations depend upon logistics for supply/resupply and patient movement resources. CBRN hazards present unique challenges to logistics functions because of the potential for contamination and higher consumption rates. Contributing nations should develop a cooperative multinational program that includes identification and prearrangement of assets and logistics support, as well as provisions for transfer of authority to sustain the logistical requirements of a CBRN environment.

604. The medical planning staff will consider the following logistical requirements:

a. CBRN specific consumables, supplies that may be depleted quickly, or assets particularly vulnerable to CBRN contamination

b. Identification of suitable substitutions for standard medical material and equipment for casualty management

c. Testing of food and water, ambient environment, and medical supplies for CBRN contamination

d. Protection of food, water, medical supplies, and assets from contamination

e. Management of decontamination assets

f. Support requirements related to the CBRN casualty evacuation policy

g. Procedures for handling CBRN contaminated remains, contaminated medical waste, and decontamination rinse waters
h. Locations of critical supplies such as CBRN medical stockpiles
i. Coordination of HNS (see Chapter 7, “Host Nation Support”)

Section 2 – Contaminated Medical Waste Management

605. CBRN contaminated medical waste requires disposal considerations or procedures in addition to medical waste typical of trauma-related injuries. Enhanced considerations or procedures may be required to mitigate the potential impact on medical operations. See STANAG 2451 (AJP-3.8), Allied Joint Doctrine for NBC Defence, and STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, for guidance on the management of CBRN contaminated medical waste.

606. A CBRN event has the potential to generate large quantities of hazardous waste. The medical planning staff will provide advice on CBRN hazards and associated mitigation requirements for the disposal of medical waste. Coordination with J4 Logistics, J3 Operations, and J9 Civil-Military Cooperation staffs is necessary with respect to the decontamination, handling, and disposal of hazardous waste. Proper planning and education of medical personnel is necessary to ensure that personnel, facilities, and other medical resources are adequately protected from unnecessary exposure.

607. HNs may be capable of supporting waste management but may have unique standards and regulations with respect to CBRN contaminated waste. The medical planning staff should consider HN requirements when planning or contracting for waste management operations.

Section 3 – Contaminated Human Remains

608. The medical planning staff will provide advice on procedures for handling contaminated or potentially contaminated human remains. Considerations for the management of contaminated human remains include decontamination, storage, shipment, and disposal. The procedures and precautions will be based on the characteristics of the anticipated CBRN hazard.

609. After human remains have been decontaminated, conventional handling and disposal procedures may be used. If operational conditions limit the ability to decontaminate human remains, the contaminated remains may be buried at a clearly marked site for future recovery. The management of contaminated human remains is a sensitive issue that requires careful consideration. While consideration of these options during planning is desirable, implementation cannot occur without command authorization. See STANAG 2002, Warning Signs for the Marking of Nuclear, Biological and Chemical Contaminations, and

**Section 4 – Facilities Management**

610. The medical planning staff will address the following CBRN defense considerations and capabilities that are unique to medical facilities and operations:

a. Facility and site security to adequately address the protection of medical materiel from theft or misappropriation

b. Availability of critical medical logistics to support anticipated casualty volumes

c. Facility decontamination capabilities for casualties, equipment, logistics, personnel, potable water, waste water treatment, and isolation of contagious casualties

d. Containment and disposal of contaminated medical waste and disposition of human remains

e. Augmentation of personnel to manage an increase in patient volumes that exceed normal capacity

f. Facility relocation to avoid or extract a unit from CBRN contamination

**Section 5 – CBRN Incident Cycle Application**

611. The CIC divides the post-event operational phase into two distinct phases known as Damage and Impact. These divisions allow for more detailed analysis by the medical planning staff. The sustainment concepts presented in this chapter may be initiated post-event, between the CIC Event, Damage, and Impact phases. Sustainment capabilities applied post-event are designed to assist in the Mitigation, Response, and Recovery of medical operations.

612. For additional information on CBRN defensive operations to support medical planning, see Annex A of this STANAG. Post-event CBRN defensive operations may include strategies for sustaining medical operations such as monitoring available medical assets, maintaining decontamination capabilities, and managing contaminated waste and human remains.
CHAPTER 7 – HOST NATION SUPPORT

701. Host Nation Support (HNS) refers to civil and military assistance rendered in peace, crisis, and war by a HN to the force and NATO organizations that are located on or in transit through the HN's territory.

702. This chapter identifies the special medical planning considerations related to HNS agreements and contractual requirements designed to ensure continuity of care for medical assistance rendered in peace, crisis, and war, regardless of the patient's national origin. However, the threat of a CBRN incident may restrict or limit the ability of a HN to provide support as agreed.

703. J4 Logistics is responsible for HNS coordination encompassing both civil and military assistance. The J9 Civil-Military Cooperation staff is responsible for advising the commander and the JPG. The medical planning staff will work with local government, the civilian population, international organizations, non-governmental organizations (NGOs), and other agencies of the countries involved in planning for a CBRN incident. See STANAG 2234 (AJP-4.5), Allied Joint Host Nation Support Doctrine and Procedures, for guidance on planning considerations.

Section 1 – Special Considerations

704. Political, ethical, and legal considerations related to transporting, handling, or accepting contaminated or contagious patients across borders will be addressed during deliberate planning. Strict requirements govern the disposal of contaminated or hazardous waste and waste water from decontamination. Nations will need to ensure individually or by collective arrangements the provision of resources and medical support for their forces.

705. Medical personnel will be involved in HNS development. The Joint Implementing Arrangements will clarify the elements of medical HNS that are specific to the technically specialized and highly sensitive considerations of CBRN environments. Medical personnel will submit any requests for HNS to the commander. In a CBRN incident, HNS may be required for MASCAL management, provision or storage of time critical supplies, and the management or disposal of contaminated materials.

706. Medical resources that may be obtained through HNS include:
   a. Casualty evacuation assets (air, ground, and sea) for both intra-theatre and inter-theatre evacuation
   b. Treatment capability at every level of care
c. Medical logistics support, including the provision of drugs, consumables, disposables, and blood products

d. Essential medical support infrastructure

e. Medical intelligence

707. The medical planning staff will be directly involved in the assessment of medical HNS capabilities and development of HNS agreements in the medical field. The use of local resources will be authorized or coordinated with national medical personnel on the ground. The medical planning staff should consider resource availability, equipment compatibility, interoperability of medical support structures (both military and civilian), acceptability of procedures, and quality of medical care available. The medical planning staff should also consider the logistical demands of HN hospitals during a CBRN event. Stockpiled CBRN response materiel should be strategically located to facilitate distribution and the inventory and monitoring of expiration dated items.

Section 2 – Contracts

708. The lack of preexisting HNS agreements that address CBRN medical planning places an additional burden on the force when providing medical support. The situation may be compounded by the lack of infrastructure in areas where these types of operations may be conducted, resulting in competition between contractors for scarce resources.

709. The medical planning staff will identify resources and capabilities that are scarce or unavailable. Some shortfalls may be alleviated by contracted local civilian resources. Resources and services such as casualty care facilities or evacuation assets (e.g., use of airstrips or ports) may be contracted through HN civilian contractors.

710. The medical planning staff will be trained to make the quality of care determinations necessary for the safe and effective procurement of pharmaceuticals, medical materiel, and services. While the provision of medical materiel and services can be contracted locally, medical expertise will be required from the earliest stages of the contracting process. The contracted support will conform to respective national regulations, NATO policies, and NATO STANAGs that govern materiel and support.

711. A Non-Article 5 Crisis Response Operation (NA5CRO) will typically require additional stockpiled resources and a much greater effort by the commander and staff in coordinating the contracting effort. If no legitimate HN government exists, NATO forces will be self-sustaining in terms of contract support.
Chapter 8, “NA5CRO and Civilian Support,” for additional information regarding NA5CRO.
CHAPTER 8 – NA5CRO AND CIVILIAN SUPPORT

801. This chapter identifies key CBRN medical planning considerations unique to NATO Non-Article 5 Crisis Response Operations (NA5CROs) in which Alliance forces provide support beyond Article 5 “Individual or Collective Self-Defense.” Article 5 binds member nations to consider an armed attack against one or more of them in Europe or North America to be an armed attack against them all. In contrast, NATO nations are under no formal obligation to participate in collective activities that fall outside the scope of Article 5.

802. Common NA5CROs include civil agencies support, peace support, humanitarian operations, disaster relief, non-combatant evacuation, and extraction operations. See STANAG 2180 (AJP-3.4), Non-Article 5 Crisis Response Operations, for guidance on the various types of NA5CROs, principles of conduct for NA5CROs, and considerations relevant to the success of NA5CRO operations.

803. The threat of complications from a CBRN attack or ROTA is a factor in NA5CROs as it is in Article 5 conflicts. Medical forces supporting disaster or humanitarian operations may face the additional stress of a CBRN incident. The presence of potentially compromised industrial installations increases the risk of exposure to TIM. See STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, for risk factors that should be considered during the medical planning process.

804. A NA5CRO situation with a realized or possible CBRN threat may be especially challenging to the medical staff. In general, NA5CROs may be characterized by several factors that make these situations particularly complex. These factors may include increased use of asymmetrical means by belligerents, collapse of civil infrastructure, the presence of many refugees or internally displaced persons, and the possible absence of general law and order, and displaced animals (pets, wildlife, livestock, birds, etc.). Effective planning and SA become even more essential when managing CBRN casualties in this environment.

Section 1 – Situation Awareness and C4I

805. Early communication with the requesting nation regarding both the specific medical support expected and the population to be treated is crucial in planning the response to a NA5CRO CBRN incident. The population to be treated should be well-defined in order to plan an effective response. For example, it is important to clarify whether the population to be treated includes the civilian population or just the deploying force.
806. A clear definition of the population that Allied forces will be expected to treat drives myriad planning considerations. Projections of logistics, medical staffing, and facilities depend on a complete definition of the population to be treated. A well-developed definition of the population to be treated enables the force to coordinate more effectively with the affected HN on issues of public health, bed capacity, and medical surge capacity. If the civilian population requires medical support but is not in the population to be treated, the HN should redirect the civilian population to alternative HN treatment facilities.

807. Forces responding to a NA5CRO may encounter a HN medical infrastructure that is severely stressed. Effective coordination between NATO forces and the HN will be critical for the optimal use of limited resources. If possible, an evaluation team should be sent in advance to assess local operating conditions prior to deployment. See STANAG 2228 (AJP-4.10), Allied Joint Medical Support Doctrine, for more detail about coordination with the HN.

808. When providing medical support in a NA5CRO CBRN operation, it will be important for Alliance forces to track the movement of the non-military population. The movement of large numbers of self-evacuating ambulatory civilian casualties, internally displaced persons (IDPs), or displaced persons and refugees (DPRE) may lead to significant public health risks. Plans should be developed to mitigate the impact of contamination or communicable disease present in these populations.

Section 2 – Force Health Protection Planning

809. The lack of critical infrastructure during a NA5CRO and the potential for a large IDP and DPRE population may lead to poor sanitation and the spread of naturally occurring diseases. Depending on the agent, biological hazards may be spread through contact with the local population, contaminated food and water, vermin, biting insects and other vectors, contaminated and/or displaced animals (pets, livestock, wildlife, birds, etc.) may threaten the force. The early integration of preventive medicine practices, including a medical surveillance program, is critical for reducing the risk of uncontrolled disease spread. See Chapter 3, “Force Health Protection Planning,” for additional guidance on preventive measures.

810. In a NA5CRO situation, the likelihood of civilian casualties may increase the demand for decontamination capacity. The decontamination plan for medical facilities must be comprehensive and allow for the addition of non-medical and non-military personnel to assist in the process.

811. Controlling the spread of a hazard is critical in a CBRN incident. Managing the spread of a CBRN agent may be complicated by the presence of large
numbers of non-military seeking treatment during a NA5CRO. See STANAG 2451 (AJP-3.8), *Allied Joint Doctrine for NBC Defence*, for guidance on hazard control.

812. After a CBRN incident, food and water sources may be contaminated. Precautions should be adopted to ensure that deploying forces have access to safe food and water sources. In addition, the HN may request support from forces to ensure that the civilian population has safe food and water supplies. See STANAG 2136 (AMedP-18), *Minimum Standards of Water Potability During Field Operations*, for guidance on the suitability of drinking water.

Section 3 – Casualty Management

813. A NA5CRO may introduce a larger and more varied population requiring treatment than is involved in Article 5 planning. The addition of personnel with specialized medical training may be required to meet the expanded medical support role. Additional personnel might include such disciplines as neonatology, pediatrics, obstetrics, internal medicine, psychiatry, and geriatrics. In accordance with STANAG 2954, *Training of Medical Personnel for NBC Operations*, the medical personnel of participating nations are required to have additional training for CBRN operations.

814. A CBRN incident during a NA5CRO may result in a higher incidence of worried well. Fear and panic in the general population may be compounded by lack of experience and understanding, resulting in considerable strain on medical assets. Medical planners should plan for the increased psychiatric requirements of the civilian population. A public information policy should coordinate plans across participating organizations for regular briefings to the public. See STANAG 2180, (AJP-3.4), *Non-Article 5 Crisis Response Operations*, for additional guidance on public information implications.

Section 4 – Civilian Patient Tracking

815. A patient identification and tracking system is essential in a NA5CRO that may involve a large population of civilians. Language barriers and the misspelling of names may lead to the misplacement or misrouting of patients and the loss of critical patient information. A methodology for tracking patients and maintaining medical treatment records will be defined by patient administration staff prior to deployment.

Section 5 – Sustainment of Medical Operations

816. For many situations, the required numbers of consumable medical supplies may be adequate. However, the diversity of the potential casualty population
during a NA5CRO CBRN incident may require a greater variety and quantity of medical supplies. Logistics planning should consider the needs of infants, children, expectant women, and the elderly. See STANAG 2361, *Minimum Essential Medical Supply Items in Theatres of Operations*, for guidance on consumable medical supplies.

817. Medical treatment services and medical materiel will be in demand after a CBRN event. The combination of many worried well seeking treatment and the likely depletion of local medical materiel due to contamination or rapid consumption may create a need for enhanced facility security. Extra precautions may be necessary to protect MTFs and patients.

818. The sharing of medical resources will be a challenge for Allied medical planners. Experience levels and standards for treating CBRN injuries may vary across the agencies and organizations involved in providing medical support. NGOs, the United Nations (UN), and HN medical services, for example, may vary in CBRN medical competencies and training. In addition, organizations may not share a common knowledge on the use of CBRN specific equipment, pharmaceuticals and supplies. The sharing of medical resources requires careful consideration when planning for interoperability and the delivery of quality care.

819. A system for tracking medical personnel and their CBRN treatment credentials should be employed to ensure that assets are used to their maximum potential. See STANAG 2228 (AJP-4.10), *Allied Medical Support Doctrine*, for guidance on evaluating resource options for CBRN treatment.

820. Local authorities may seek guidance and support from NATO regarding the burial or disposition of contaminated remains and hazardous waste. Experts in environmental health science or engineering may recommend handling procedures for contaminated remains and hazardous waste. See Chapter 6, “Sustainment of Medical Operations,” and STANAG 2070, *Emergency War Burial Procedures*, for guidance on the disposition of contaminated remains.
ANNEX A – CBRN INCIDENT CYCLE

A101. The CIC provides a conceptual framework for understanding the cyclical nature and key phases of a CBRN incident. This framework may be useful to the medical planning staff in identifying required medical capabilities and understanding how capabilities support and depend on each other at each phase of the cycle.

Section 1 – Introducing the CBRN Incident Cycle

A102. Effective medical planning and plan execution help prevent or minimize the impact of a CBRN incident. The CIC divides the operational phases of CBRN defense (pre-event, during event, and post-event) into the five phases of a CBRN incident. This resolution allows the medical planning staff to identify key areas of concern associated with each phase of a CBRN incident. Figure A-1 depicts the progression of a CBRN incident through the five phases of the cycle corresponding to each operational phase of CBRN defense.

Figure A-1. The CBRN Incident Cycle

A103. The medical planning staff may perform an analysis of various medical courses of action to determine the appropriate application of medical capabilities. These capabilities may be applied individually or in combination to influence the cycle toward desired outcomes before the next phase occurs.
A104. The medical planning staff must consider the most likely medical capabilities to be employed to avert a CBRN hazard or to reduce the risk of damage and ensure required medical capabilities are available. If interventions are applied before and/or immediately after an incident, the damage and response effort required to support casualty impact on the medical system should be minimized. The goal of medical operations is to maintain medical readiness and force strength at all times.

A105. The CIC is described in terms of phases and interventions due to the potential for variation in CBRN situations. This design provides the medical planning staff with a flexible planning tool that may be tailored to a wide range of CBRN planning conditions.

Section 2 – CBRN Incident Phases

A106. The CBRN incident phases identify specific states of CBRN incident evolution. The phases include Situation, Hazard, Event, Damage, and Impact.

A107. The Situation phase begins with a definition of the population at risk, enemy capabilities, environmental factors, and medical capabilities. The medical planning staff will support ongoing situation assessment, including threat analysis. Significant changes in enemy capability or the availability of medical resources may increase risk and warrant re-planning or initiate crisis action planning.

A108. The Hazard phase begins when the risk assessment indicates that a CBRN hazard may be present. A CBRN hazard has associated characteristics that determine its potential medical impact including lethality, morbidity, communicability, and persistence. A CBRN hazard encompasses all CBRN threats, including ROTA. A chemical or industrial facility using CBRN agents is a potential ROTA hazard and should be included in the risk assessment.

A109. The Event phase begins with the release of an agent or hazardous material that results or may result in potential exposure of some or all of the population. The beginning of the Event phase may not be overt, depending on the CBRN hazard type, the means of delivery, and the degree of exposure. Confirmation of the Event phase may be determined retroactively, based on medical evaluation.

A110. The Damage phase indicates that there is some degree of harm or loss realized from the Event phase. Damage includes casualties requiring medical treatment, fatalities, and casualties of combat stress disorders. The Event phase may also result in damage to MTFs and evacuation routes. Non-physical implications such as logistics demands or lost duty time will also be considered throughout the planning process.
The *Impact* phase will be influenced by the application of medical capabilities to improve casualty management outcomes. Effective response to the damage will minimize medical impact.

**Section 3 – CBRN Incident Interventions**

A112. The CIC incident interventions identify capabilities that may be used to disrupt the cycle of a CBRN incident. The interventions are applied prior to the progression to the next phase. Interventions include Planning, Prevention, Mitigation, Response, and Recovery.

A113. *Planning* activities occur as a result of the analysis of potential CBRN hazards. The ongoing evaluation of assumptions and capabilities will determine if the current plan is consistent with current threats.

A114. *Prevention* activities occur prior to the Event phase. Prevention activities reduce the risk of release of the CBRN hazard and the resulting medical consequences. In the biological weapons scenario, prevention activities could also occur after the exposure. Prevention activities include proactive measures such as RM, the administration of vaccine or prophylaxis, and use of individual or collective protection capabilities.

A115. *Mitigation* activities occur after the Event phase. These activities will help prevent damage and eliminate or reduce the impact of a CBRN incident. Mitigation activities include post-exposure prophylaxis, decontamination, and RM.

A116. *Response* activities begin after the damage occurs. These activities eliminate, reduce, or prevent further damage from the impact of a CBRN incident.

A117. *Recovery* activities begin after the impact of a CBRN Event phase. Recovery activities focus on restoring full operational capability.

**Section 4 – Applying the CBRN Incident Cycle to Medical Planning**

A118. Effective CBRN defensive operations may require the application of one or more capabilities applied at multiple interventions of the incident cycle. Medical capabilities that are applied “early” in the cycle may help reduce the potential demand for casualty management, casualty evacuation, and logistics resources. “Windows of opportunity” apply to the beneficial implementation of some medical capabilities to derive desired outcomes.

A119. The medical planning staff should account for temporal relationships during planning. For example, immunization may not prove effective after symptoms appear. However, RM may control the spread of a communicable disease and...
enhance contamination control. Force health protection capabilities may be applied before and after symptoms are observed to reduce casualties.

A120. The medical planning staff will also consider any dependencies between capabilities, such as one capability relying on information or results from the application of another capability. For example, SA is essential for the proper application of many capabilities.

A121. During the planning process, the medical planning staff will assess medical risks, identify available resources, and analyze how medical capabilities might be applied during the course of an operation. The medical plans should also address medical dependencies on non-medical capabilities. Table A-1 provides a summary of some key medical planning considerations pertinent to each operational phase and the corresponding relationships to CIC phases.

A122. CBRN defensive operations require thoughtful implementation planning. For example, the anticipated use of prophylaxis, IPE, and COLPRO for force health protection requires medical surveillance, medical assessment, and occupational and environmental health surveillance. Reliable warning and reporting systems will also be necessary to implement appropriate medical and non-medical countermeasures.
# Table A-1. Medical Planning Considerations

<table>
<thead>
<tr>
<th>Operationa l Phases</th>
<th>CBRN Defensive Operations</th>
<th>CBRN Incident Cycle (AMedP-7 Annex A)</th>
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<tr>
<td></td>
<td>CBRN Defensive Operations</td>
<td>Phases</td>
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<tr>
<td></td>
<td>• Assess population characteristics related to identified hazards (e.g., vaccination/use of prophylaxis, use of other medical countermeasures)</td>
<td>Situation</td>
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<td></td>
<td>• Conduct CBRN risk assessment (e.g., enemy capabilities, intent, possible course of action (COA), environment, ROTA, and effects on friendly forces)</td>
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<tr>
<td></td>
<td>• Identify information sources and requirements for operations</td>
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<td></td>
<td>• Define communication requirements</td>
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<td></td>
<td>• Review existing agreements and propose updates</td>
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<td></td>
<td>• Review status of multinational training</td>
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<td></td>
<td>• Perform capability assessment (e.g., availability of medical and non-medical capabilities, training on use of capabilities)</td>
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<td></td>
<td>• Identify capabilities for maintaining awareness, monitoring hazards, and observing and communicating the medical situation</td>
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<tr>
<td></td>
<td>• Identify hazards (e.g., medical risk assessment)</td>
<td>Hazard</td>
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<td></td>
<td>• Determine indicators</td>
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<td></td>
<td>• Adjust plans for incorporating preventive capabilities (e.g., vaccination, prophylaxis, IPE, COLPRO, training, and detection)</td>
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<tr>
<td></td>
<td>• Conduct medical surveillance, medical assessment, and occupational and environmental health surveillance</td>
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<tr>
<td>Pre-Event Preparation</td>
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<tr>
<td>Actions</td>
<td>• Conduct warning and reporting</td>
<td>Event</td>
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<td></td>
<td>• Practice hazard control</td>
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<td>During-Event Actions</td>
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<tr>
<td></td>
<td>• Monitor available assets (e.g., treatment facilities, evacuation assets, medical personnel, support personnel, medical supplies)</td>
<td>Damage</td>
</tr>
<tr>
<td></td>
<td>• Consider treatment options and decontamination capabilities</td>
<td></td>
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<tr>
<td></td>
<td>• Sustain medical units</td>
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<tr>
<td>Post-Event Actions</td>
<td></td>
<td>Impact</td>
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<tr>
<td></td>
<td>• Continue health protection measures (e.g. RM, water and food testing, etc.)</td>
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<tr>
<td></td>
<td>• Conduct mission review and develop lessons learned</td>
<td></td>
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<td></td>
<td>• Sustain the force</td>
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# ANNEX B – GLOSSARY OF ACRONYMS

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<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>ACO</td>
<td>Allied Command Operations (AAP-15)</td>
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<tr>
<td>AE</td>
<td>aeromedical evacuation (AAP-15)</td>
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<tr>
<td>AMedP</td>
<td>Allied Medical Publication (AAP-15)</td>
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<tr>
<td>C4I</td>
<td>command, control, communications, computers, and intelligence</td>
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<tr>
<td>CBRN</td>
<td>chemical, biological, radiological, and nuclear (AAP-15)</td>
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<tr>
<td>CIC</td>
<td>CBRN Incident Cycle</td>
</tr>
<tr>
<td>COA</td>
<td>course of action (AAP-15)</td>
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<td>COLPRO</td>
<td>collective protection (AAP-15)</td>
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<tr>
<td>DPRE</td>
<td>displaced persons and refugees (AAP-15)</td>
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<tr>
<td>HN</td>
<td>host nation (AAP-15)</td>
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<tr>
<td>HNS</td>
<td>host nation support (AAP-15)</td>
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<tr>
<td>IDP</td>
<td>internally displaced person (AAP-15)</td>
</tr>
<tr>
<td>IPE</td>
<td>individual protective equipment (AAP-15)</td>
</tr>
<tr>
<td>JPG</td>
<td>joint planning group (AAP-15)</td>
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<tr>
<td>J-Staff</td>
<td>joint staff</td>
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<td>MASCAL</td>
<td>mass casualties (AAP-15)</td>
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<td>MTF</td>
<td>medical treatment facility (AAP-15)</td>
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<td>NA5CRO</td>
<td>non-Article 5 crisis response operation (AAP-15)</td>
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<tr>
<td>NBC</td>
<td>nuclear, biological and chemical (AAP-15)</td>
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<tr>
<td>NGO</td>
<td>non-governmental organization (AAP-15)</td>
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<tr>
<td>PECC</td>
<td>patient evacuation coordination centre (AAP-15)</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
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<tr>
<td>POW</td>
<td>prisoner of war (AAP-15)</td>
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<tr>
<td>RDD</td>
<td>radiological dispersal device (AAP-15)</td>
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<tr>
<td>RDOIT</td>
<td>Rapidly Deployable Outbreak Investigation Team</td>
</tr>
<tr>
<td>RM</td>
<td>restriction of movement (formerly called ROM) (AAP-15)</td>
</tr>
<tr>
<td>ROTA</td>
<td>release other than attack (AAP-21)</td>
</tr>
<tr>
<td>SA</td>
<td>situation awareness (AAP-15)</td>
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<td>STANAG</td>
<td>NATO standardization agreement (AAP-15)</td>
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<td>TIM</td>
<td>toxic industrial material (AAP-21)</td>
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<td>UN</td>
<td>United Nations (AAP-15)</td>
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<tr>
<td>2002</td>
<td>Warning Signs for the Marking of Nuclear, Biological and Chemical Contaminations, 28 March 2006.</td>
</tr>
<tr>
<td>2037</td>
<td>Vaccination of NATO Forces, 4 February 2005.</td>
</tr>
<tr>
<td>2070</td>
<td>Emergency War Burial Procedures, 6 April 1999.</td>
</tr>
<tr>
<td>2087</td>
<td>Medical Employment of Air Transport in the Forward Area, 09 September 1997.</td>
</tr>
<tr>
<td>2103</td>
<td>ATP-45(A) - Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas, 1 December 2005.</td>
</tr>
<tr>
<td>2112</td>
<td>Nuclear, Biological and Chemical Reconnaissance, 12 September 2005.</td>
</tr>
<tr>
<td>2132</td>
<td>Documentation Relative to Medical Evacuation, Treatment and Cause of Death of Patients, 7 August 1974.</td>
</tr>
<tr>
<td>2133</td>
<td>Vulnerability Analysis of Chemical and Biological Hazards, 9 March 2004.</td>
</tr>
</tbody>
</table>
STANAG 2180  AJP-3.4 - Non-Article 5 Crisis Response Operations, 4 March 2005.

STANAG 2182  AJP-4(A) - Allied Joint Logistic Doctrine, 9 March 2004.

STANAG 2190  AJP-2 - Joint Intelligence, Counter Intelligence and Security Doctrine, 3 December 2003. This publication replaced AINTP-1 that was canceled on 20 January 2004.

STANAG 2228  AJP-4.10(A) - Allied Joint Medical Support Doctrine, 3 March 2006.

STANAG 2234  AJP-4.5(A) - Allied Joint Host Nation Support Doctrine and Procedures, 10 May 2005.

STANAG 2235  Pre- and Post-Deployment Health Assessments, 04 April 2002.

STANAG 2347  Medical Warning Tag, 1 January 1975.

STANAG 2348  Basic Military Hospital (Clinical) Records, 10 March 1998.


STANAG 2367  AAP-21(B) - NATO Glossary of CBRN Terms and Definitions, 14 July 2006.


STANAG 2426  Chemical, Biological, Radiological, and Nuclear (CBRN) Hazard Doctrine for NATO Forces, 8 August 2007.


STANAG 2462  AMedP-6(C), Volume II - NATO Handbook on Medical Aspects of NBC Defensive Operations (Biological), 11 May 2005.
STANAG 2463  AMedP-6(C), Volume III - NATO Handbook on Medical Aspects of NBC Defensive Operations (Chemical), 14 December 2006.


STANAG 2474  Determination and Recording of Ionising Radiation Exposure for Medical Purposes, 21 May 2003.


STANAG 2478  Medical Support Planning for Nuclear, Biological and Chemical Environments, 10 February 2006.

STANAG 2490  AJP-3(A) - Allied Joint Operations, 2 July 2007.

STANAG 2491  Policy for the Immunisation of NATO Personnel Against Biological Warfare Agents, 22 May 2003.

STANAG 2497  AEP-45(B) - Programmer’s Manual For Reporting Nuclear Detonations, Biological and Chemical Attacks and Predicting and Warning of Associated Hazards and Hazard Areas, 8 August 2007.


STANAG 2506  AJP-4.4(A) - Allied Joint Movement and Transportation Doctrine, 12 December 2005.

STANAG 2529  Rapidly Deployable Outbreak Investigation Team (RDOIT) for Suspected Use of Biological Warfare Agents (Study Draft 5), 19 October 2007.


STANAG 2984  Graduated Levels of CBRN Threats and Associated Protective Measures, 8 August 2007.

STANAG 3204  Aeromedical Evacuation, 1 March 2007.

STANAG 3345  Data/Forms for Planning Air Movements, 5 February 1988.

STANAG 3680  AAP-6 - NATO Glossary of Terms and Definitions, 16 April 2007.


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