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02 Nov 2007

MEMORANDUM FOR: Distribution List

Subject: Procedures for Deployment Health Surveillance

1. Force Health Protection (FHP) provides the conceptual framework for optimizing health readiness and protecting deployed DOD personnel from occupational and environmental health hazards associated with deployments and military service. A comprehensive health surveillance system is a critical component of FHP. Deployment health surveillance includes identifying the deployed population at risk, recognizing and assessing potentially hazardous health exposures and conditions, employing specific preventive countermeasures, daily monitoring of real-time health outcomes, and appropriate reporting of disease and injury data. This memorandum provides standardized procedures for conducting health surveillance in support of US military deployments. General guidance is provided at Enclosure A; which also includes specific definitions of key terms that are used in the included guidance and related DOD policy (Appendix A). These definitions are provided to ensure consistent interpretation of the specific guidance outlined in Enclosures B and C.

2. This memorandum supersedes the health surveillance reporting procedures contained in Joint Staff memorandum MCM-0006-02,[1] and supplements DODD 6490.2,[2] and DODIs 6490.03,[3] 6025.19,[4] and 6055.5.[5]

3. The procedures contained in this memorandum pertain to actions to be taken during deployments. For purposes of this memorandum, the fourth definition of deployment in JP 1-02[6] applies. Deployment is defined as: "The relocation of forces and materiel to desired operational areas. Deployment encompasses all activities from origin or home station through destination, specifically including intra-continental United States, intertheater, and intratheater movement legs, staging, and holding areas." This memorandum applies to deployments: a) OCONUS greater than 30 days with no permanent US medical treatment facilities (i.e., funded by the Defense Health Program); and, b) based on health hazards identified, OCONUS less than 30-days, OCONUS with a permanent US medical treatment facility, and in CONUS. Shipboard operations that are not anticipated to involve operations ashore are exempt from the requirements of this memorandum except for recording individual daily deployment locations or when potential health threats indicate

actions necessary beyond the scope of the shipboard occupational health programs or per the decision of the commander exercising operational control.[3]

4. Required deployment health activities are based on DOD and Service policies and the health risk assessments for the joint operations area or area of operations and for the specific deployment location. Medical readiness requirements are found in DODI 6025.19 and pre-, during, and post-deployment health responsibilities and activities are found in DODI 6490.03.

5. Based on the pre-deployment assessment during the planning process, the combatant commands will develop and maintain an appropriate occupational and environmental health surveillance and monitoring program for the deployment. If the resource requirements are beyond the capabilities of organic preventive medicine assets, the JTF and/or combatant command surgeon should request the required capability or expertise and oversee the assignment of technically specialized unit(s) or detachment(s) to perform these functions in theater.

6. The Joint Staff points of contact are Lieutenant Colonel Aaron Silver, USA; and Captain Michael Fea, USN; J-4/HSSD; DSN 671-9763 or commercial 703-571-9763. This document is also available electronically on the Joint Staff Web site at https://ca.dtic.mil/cjcs_directives/cjcs/general.htm.

For the Chairman of the Joint Chiefs of Staff:

STEPHEN M. GOLDFEIN
Major General, USAF
Vice Director, Joint Staff

Enclosures

References:

1 MCM-0006-02, 1 February 2002, "Updated Procedures for Deployment Health Surveillance and Readiness"
2 DODD 6490.02E, 21 October 2004 (certified current 23 April 2007), "Comprehensive Health Surveillance"
3 DODI 6490.03, 11 August 2006, "Deployment Health"
4 DODI 6025.19, 3 January 2006, "Individual Medical Readiness (IMR)"
5 DODI 6055.5, 10 January 1989, "Industrial Hygiene and Occupational Health"
6 JP 1-02, 12 April 2001, as amended through 31 August 2005, "Department of Defense Dictionary of Military and Associated Terms"

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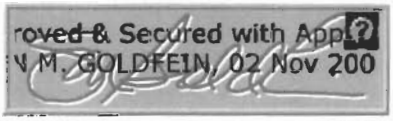
For the Chairman of the Joint Chiefs of Staff:



STEPHEN M. GOLDFEIN
Major General, USAF
Vice Director, Joint Staff

Enclosures

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1 MCM-0006-02, 1 February 2002, "Updated Procedures for Deployment Health Surveillance and Readiness"
2 DODD 6490.02E, 21 October 2004 (certified current 23 April 2007), "Comprehensive Health Surveillance"
3 DODI 6490.03, 11 August 2006, "Deployment Health"
4 DODI 6025.19, 3 January 2006, "Individual Medical Readiness (IMR)"
5 DODI 6055.5, 10 January 1989, "Industrial Hygiene and Occupational Health"
6 JP 1-02, 12 April 2001, as amended through 31 August 2005, "Department of Defense Dictionary of Military and Associated Terms"

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ENCLOSURE A

GENERAL GUIDANCE

1. **Deployment Definition**. For the purpose of joint deployment health surveillance, the fourth definition of deployment in JP 1-02, "Department of Defense Dictionary of Military and Associated Terms," applies (see Appendix A to Enclosure A). Commanders must implement a comprehensive deployment health program, according to DODD 6490.2, "Comprehensive Health Surveillance," and DODI 6490.03, "Deployment Health;" that effectively anticipates, recognizes, evaluates, controls, and/or mitigates health hazards anticipated or encountered during deployments. This memorandum applies to deployments: a) OCONUS greater than 30 days with no permanent US medical treatment facilities (i.e., funded by the Defense Health Program); and, b) based on health hazards identified, OCONUS less than 30-days, OCONUS with a permanent US medical treatment facility (MTF), and in CONUS. Shipboard operations that are not anticipated to involve operations ashore are exempt from the requirements of this memorandum except for recording individual daily deployment locations or when potential health threats indicate actions necessary beyond the scope of the shipboard occupational health programs or per the decision of the commander exercising operational control.[3]

2. **Responsibilities**

a. The Services are responsible for equipping, training, and organizing forces. They are responsible for pre- and post-deployment health surveillance activities including medical surveillance and individual medical readiness requirements based on the health risk assessment provided by the combatant commands or organizations subordinate to the combatant commands (e.g., Joint Task Force (JTF)). (See DODIs 6490.03 and 6025.19.)

b. The combatant commands and organizations subordinate are responsible for supporting occupational and environmental health (OEH) requirements during deployments, directing health risk assessments, and determining required deployment health activities for the joint operations area or area of operations based on health hazards. (See DODI 6490.03.)

3. **Pre-deployment**. The supported combatant command, through deployment orders and separate instructions, will require the supporting combatant commands and Services to accomplish the pre-deployment activities described in DODI 6490.03 (see Table E4.T1) and individual medical readiness requirements in DODI 6025.19. The supported combatant commands will incorporate the requirements of this memorandum into their contingency and crisis action planning. In general, all pre-deployment health activities identified in DODI 6490.03 are required for OCONUS deployments greater than 30 days with no permanent US MTFs. Pre-deployment health activities for

deployment: OCONUS less than 30-days; OCONUS with a permanent US MTF; and in CONUS are based on the health hazards identified.

a. Conduct preliminary hazard assessments (PLHAs) in accordance with JP 5-00.2, "JTF Planning Guidance and Procedures," JP 2-01.3, "Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Battlespace," and Service-specific operational risk management guidance. Ensure these are integrated with related efforts conducted according to JP 4-04, "Joint Doctrine for Civil Engineering Support."

b. The PLHA should summarize and identify anticipated OEH threats and hazards. The PLHA must be accomplished before each deployment to identify the deployment-specific health hazards and appropriate protective measures, and determine the content of health risk communication messages and materials, including pre-deployment health hazard briefings. Specific health risk countermeasures (e.g., immunizations, prophylactic medications, or personal protective equipment) will be based on the health hazards or potential health hazards.

c. Ensure provision of personal protective equipment and other protective measures appropriate to the health hazards identified and enforce their use upon deployment (per DODI 6490.03, section 5). Protective equipment may include, but is not limited to, hearing protection, ballistic eye protection, body armor, foot protection or other protective devices identified as needed to prevent injury.

d. Incorporate OEH risk management and surveillance requirements into the Force Health Protection Appendix, Annex Q (Medical) of the contingency or crisis action plan. Ensure health risks are reflected in the overall operational risk summary evaluation. Communicate this information to subordinate units for inclusion into their unit-level planning. Health hazards should also be integrated into Annex B (Intelligence), as appropriate.

e. The following pre-deployment health activities are required for all deployments defined in DODI 6490.03, E4.A1:

(1) Administer deployment-specific immunizations, prophylaxis, and other medical countermeasures.

(2) Prescribe any necessary Force Health Protection Prescription Products.

(3) Issue personal protective equipment as required by occupational specialty or threat to deploying personnel.

(4) Conduct health hazard briefings whenever health hazards are identified and/or protective measures are required.

4. **During Deployment**. The supported combatant command will provide guidance and support to component commands to:

a. Ensure subordinate medical activities conduct timely, standardized, and comprehensive surveillance, risk assessments, risk communication, prevention or control of health hazards, and evaluation of controls. These activities are based on the deployment health risk management guidance described in Enclosure B, and disease and injury (D&I) surveillance in Enclosure C. In general, all deployment health activities identified in DODI 6490.03 (see Table E4.T2) are required for OCONUS deployments greater than 30 days to locations without a permanent US MTF. During deployment health activities for deployment: OCONUS less than 30-days; OCONUS to locations with a permanent US MTF; and in CONUS are based on the health hazards identified, the PLHA, and the decisions of the combatant commander, Service component commander, or commander exercising operational control.

b. Ensure DOD health surveillance requirements are met for reporting and archiving of health surveillance data and reports (D&I, reportable medical events, OEH surveillance data, etc.). Ensure documentation in the individual medical records of all individual health treatment provided at all levels of care and any significant occupational and environmental exposures (as defined in Appendix A to Enclosure A). Individual documentation shall be on an SF 600 or equivalent (electronically, when available).

(1) D&I. D&I rates, also known as disease nonbattle injury/battle injury (DNBI/BI) rates, are an important risk management tool at the unit level. Abnormal rates and trends indicate a problem may exist which could negatively impact mission readiness and additional preventive medicine countermeasures may need to be implemented. The most valuable D&I surveillance data is near real-time. Daily D&I monitoring will permit early casualty identification with potential adverse health trends, assessment of countermeasure effectiveness, and determination for enhanced countermeasures. (See Enclosure C.)

(2) Reportable Medical Events. Reportable medical events shall be collected, reported, distributed, and archived according to DOD and Service-specific policies.

c. Ensure occupational and environmental health risk assessments are continuously reviewed and updated throughout the deployment using data collected in theater. Refer to DODI 6490.03, paragraph E4.A2.7., for additional guidance. Ensure newly identified in-theater health hazards are assessed and incorporated into operational risk management processes for commander's

decision making. Collect data that are appropriate for medical record documentation. Deployment occupational and environmental area monitoring and sampling results must be documented. Submit results via Defense Occupational and Environmental Health Readiness System data portal. If additional instructions require submission to Service-specific data collection system, do so in accordance with Service-specific instructions. Newly identified significant risks should be communicated to all appropriate organizations, including the Defense Intelligence Agency (DIA) through the Armed Forces Medical Intelligence Center (AFMIC), JTFs, combatant commanders, Services, and Service Occupational and Environmental Health Centers.

d. Conduct pest control operations using the integrated pest management program described in DODI 4150.7, 22 April 1996, "DOD Pest Management Program," and current Armed Forces Pest Management Board (AFPMB) Technical Guide No. 1, April 2003, "AFPMB Publications," and AFPMB, "DoD Contingency Pesticides."* Document the types, concentrations, amounts, application methods, dates and times, locations, and the personnel potentially exposed to the hazardous substances (i.e., identify specific pesticide similar exposure groups (SEGs)).

5. **Post-Deployment**. Post-deployment health activities are described in DODI 6490.03, and are a Service responsibility.

a. Post-Deployment Health Activities. In general, all post deployment health activities identified in DODI 6490.03, Table E4.T3., are required for OCONUS deployments greater than 30 days in locations without a permanent US MTF. Post-deployment health activities for deployment: OCONUS less than 30-days; OCONUS with a permanent US MTF; and in CONUS are based on the health hazards identified, the occupational and environmental health site assessment (OEHSA), and the decisions of the combatant commander, Service component commander, or commander exercising operational control.

b. Post-deployment health assessments (PDHA) may be conducted at the deployment site or other in-theater location prior to Service member departure, or at the Service member's home station or mobilization station, as part of the reintegration process. In accordance with DODI 6490.03, the PDHA should be completed as close to the redeployment date as possible, but not earlier than 30 days before the expected redeployment date and not later than 30 days after the redeployment, and for Reserve Component members, before they are released from active duty. Under no circumstance shall a Service member's departure from a combat zone be delayed pending completion of a PDHA.

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* AFPMB DOD contingency pesticides can be found at:
www.afpmb.org/pubs/standardlists/DOD%20CONTINGENCY%20PESTICIDES%20LIST.pdf

c. Post-Deployment Health Surveillance. Significant OEH exposures may require long-term medical surveillance. Medical surveillance data may be used retrospectively in epidemiological investigations to identify health outcomes due to exposures, determine new prevention strategies and countermeasures for current or future deployments, and develop risk communication materials.

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APPENDIX A TO ENCLOSURE A

TERMS AND DEFINITIONS

References of previously defined terms are in endnotes.

1. **deployment**. The relocation of forces and materiel to desired operational areas. Deployment encompasses all activities from origin or home station through destination, specifically including intra-continental United States, intertheater, and intratheater movement legs, staging, and holding areas.[1]

2. **deployment occupational and environmental health (OEH) risk assessment criteria**. Refers to the criteria used to assess the severity and probability and characterize the risk associated with OEH hazards present during deployments. Enclosure B further defines the specific criteria and the associated deployment OEH risk management (RM) process. The deployment OEH risk assessment criteria differ from the criteria used for performing risk assessment in garrison operations that are driven by compliance with external federal regulations such as those of the Environmental Protection Agency or the Occupational Safety and Health Administration (OSHA). The OEH RM process includes the basic steps described in Multi-Service Operational Risk Management guidance (FM 3.100-12, Risk Management).[2†] Basic steps include hazard identification, hazard assessment (which includes the probability (exposure) assessment, the severity assessment, and the risk characterization), decision-making, control implementation, and evaluation/surveillance.

3. **disease and injury**. Injury or degradation of functional capability sustained by personnel and caused by disease and non-battle injury and by enemy action.[3]

4. **health effects**. For the purposes of hazard severity categorization, health effects are broken into acute effects and chronic effects.

a. acute effects: Have relatively immediate onset (seconds to hours). While acute effects are typically reversible, chronic effects may occur secondarily. Examples: Noticeable but not disabling—eye/upper respiratory irritation, cough, mild gastrointestinal upset, general malaise. Disabling/incapacitating—difficulty breathing, severe nausea/diarrhea, impaired vision. Severe—pulmonary edema, seizures, coma.

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† NOTE: The Army has changed doctrinal term from "Operational Risk Management (ORM)" to "Composite Risk Management (CRM)" per FM 5-19, but the basic components (steps) of the risk management process, included the risk matrix, have remained the same. Other Services are still using the ORM terminology per FM 3.100-12.

b. chronic effects: Typically have a delayed onset (e.g., months to years) and are generally considered irreversible and/or can lead to varying degrees of disability.

5. **health hazard**. A composite of ongoing or potential environmental, occupational, psychological, geographic, and meteorological conditions; endemic diseases; and employment of chemical, biological, radiological, or nuclear weapons that can reduce the effectiveness of joint forces through wounds, injuries, illness, and psychological stressors.[1] (NOTE: This definition is applicable to this document. It is a modification of the health threat definition in cited reference.)

6. **health surveillance**. The regular or repeated collection, analysis, and interpretation of health-related data and the dissemination of information to monitor the health of a population and to identify potential risks to health, thereby enabling timely interventions to prevent, treat, or control disease and injury. It includes occupational and environmental health surveillance and medical surveillance.[4]

7. **industrial hazard assessments**. Reports developed by the intelligence community (e.g., Armed Forces Medical Intelligence Center), US Army Center for Health Promotion and Preventive Medicine or other Service surveillance centers that identify potential local industrial operations and the hazards normally associated with those operations.

8. **low level exposures**. Low level exposures are occupational and environmental health exposures that do not produce acute health effects of significant clinical or physiological impact and, thus, will not pose significant operational (mission) impact. This involves a range of exposures and points along a hazard's dose-response continuum to include potential for mild non-impairing, minimally noticeable reversible acute effects and, for certain hazards, possibility of latent (post-deployment onset) and/or non-clinical effects (reversible or non-reversible), as well as levels associated with no anticipated effects of any kind. Low level exposures are assigned an appropriate hazard severity using the operational risk management descriptions presented in Table B-2.

9. **medical surveillance**. The ongoing, systematic collection, analysis, and interpretation of data derived from instances of medical care or medical evaluation, and the reporting of population-based information for characterizing and countering threats to a population's health, well-being, and performance.[4]

10. **occupational and environmental health (OEH) hazards**. A subset of health hazards, associated with OEH. This includes hazards associated with the general ambient environment associated with a deployment site (e.g., base

camp) as a well as hazards attributed to specific operations or activities (e.g., fueling operations, burn pit operations).

11. **occupational and environmental health site assessment (OEHSA)**. Documents the OEH conditions found at a site (e.g., base camp, bivouac site or outpost, or other permanent or semi-permanent basing location). The assessment, done by Service preventive medicine personnel, includes site history; environmental health survey results for air, water, soil, and noise; entomological surveys; occupational and industrial hygiene surveys; and ionizing and non-ionizing radiation hazard surveys, if indicated. Its purpose is to identify hazardous exposure agents with complete or potentially complete exposure pathways that may affect the current or future health of deployed personnel.[3] OEHSAs are conducted using the operational risk management process and should address both occupational and environmental hazard sources. While the overall OEH risks should be presented as a comprehensive (combined) risk to troops, the individual steps of the risk management process (described in Enclosure B), may be performed separately to assess unique exposures to "environmental" hazards versus "occupational" hazards. For example, procedures used for sampling, exposure assessment, and control implementation may depend on whether that hazard is associated with an occupational versus environmental source. While there is not necessarily a "hard line" drawn between to two, the following general definitions are provided to help differentiate:

a. environmental health risk assessment (EHRA). EHRAs are evaluations of the potential health impacts associated with exposures to ambient conditions (air, water, soil, noise, etc.). For each environmental health risk assessment, the area of concern is identified by geo-location (e.g., established by military grid reference system/global positioning system), the population at risk (PAR) is defined (e.g., by unit name and/or number of individuals) and the time, duration, and frequency of exposure is established. Hazards and exposure conditions from environmental sources are determined using the established DOD environmental health site assessment framework.[5] Health risk is estimated through the operational risk management process.

b. occupational health risk assessments. *Occupational health risk assessments* are also referred to as *industrial hygiene surveys*. They are evaluations of hazards related to specific tasks or activities at deployment sites. Example activities include refueling areas, motor pools, flight line operations, and hazardous materials and waste disposal management. While the environmental health risk assessment evaluates the ambient conditions at a location, the occupational health risk assessments are typically focused assessments of similar exposure groups (SEGs).[6] SEGs include personnel conducting a similar activity that presents unique exposure conditions: i.e., the exposures may only be experienced by the personnel conducting specific

tasks or the exposures may be present at higher levels or greater frequency than those experienced by an overall site PAR.

12. **occupational and environmental health (OEH) surveillance**. The regular or repeated collection, analysis, archiving, interpretation, and dissemination of OEH-related data for monitoring the health of, or potential health hazard impact on, a population and individual personnel, and for intervening in a timely manner to prevent, treat, or control the occurrence of disease or injury when determined necessary.[4]

13. **operational risk management (ORM) definitions**. Per multi-Service FM 3.100-12,[2] Figure B-2 in Enclosure B represents the standard military risk matrix used to determine the risk posed by any operational hazard. This reference includes general definitions of each risk level (Extremely High, High, Moderate, and Low) as well as general definitions for each supporting category of hazard severity (Catastrophic, Critical, Marginal, Negligible) and hazard probability (Frequent, Likely, Occasional, Seldom, and Unlikely). For consistent deployment occupational and environmental health (OEH) risk assessment and risk management purposes, a more specific OEH interpretation of hazard probability categories and severity categories is provided in Table B1 and B2. These definitions are consistent with the cited ORM definitions as well as currently utilized deployment risk assessment guidance[7] and validated by external review.[8] The hazard severity level descriptions are notably different than those provided in garrison occupational and safety risk assessment guidelines.[9] The differences stem from the need to balance health risk with mission impacts and other concurrent risks (e.g. artillery attacks or other security threats) in deployments versus need to ensure compliance with regulatory exposure limits in garrison.

14. **preliminary hazard assessment (PLHA)**. For the purposes of this document, PLHA is the process of reviewing relevant intelligence data, past hazard assessments, and/or other available pre-deployment data for the area of deployment to identify potential occupational and environmental health (OEH) threats to deploying personnel. The PHLA is also known as a phase I deployment OEH assessment.

15. **significant occupational and environmental health (OEH) exposures**. Referred to in 6490.03.[3] Exposures to OEH hazards that will plausibly result in some clinically relevant adverse health outcome to exposed individuals as determined by an appropriate medical/health professional.

16. **reportable medical event**. An event that meets the following criteria.[10] In addition, a reportable medical event may be defined by the supported combatant command or subordinate organization (e.g., JTF).

a. There must be a clear case definition and a single standard code (from the International Classification of Diseases, 9th revision). See Appendix B to Enclosure A for the basic list.

b. An intervention must be available and/or a public health response indicated.

c. A sufficient, timely source of the required information must not already exist.

d. The condition/event must also meet one of the following criteria:

(1) It represents an inherent, significant threat to public health by having the potential to affect large numbers of people, to be widely transmitted within a population, or to have severe/life threatening clinical manifestations.

(2) It represents a significant military operational threat by having the potential to disrupt military training, deployment, or operations.

(3) It is commonly reportable by state or federal laws, regulations, or guidelines.

e. See Appendix B to Enclosure A for the current Tri-Service Reportable Medical Event List.

References:

1 JP 1-02, 12 April 2001 (as amended through 17 September 2006), "Department of Defense Dictionary of Military and Associated Terms"
2 Multi-Service FM 3.100-12, "Risk Management"
3 DODI 6490.03, 11 August 2006, "Deployment Health"
4 DODD 6490.02E, 23 April 2007, "Comprehensive Health Surveillance"
5 ASTM International, E 2318-03, "Standard Guide for Environmental Health Site Assessment Process for Military Deployments," and DODI 6055.5, 10 January 1989, "Industrial Hygiene and Occupational Health"
6 DOD IH Exposure Model and Business Process, January 2000
7 USACHPPM Technical Guide 230, "Chemical Exposure Guidelines for Deployed Military Personnel and associated Reference Document (RD) 230"
8 National Research Council (NRC), "Review of the Army' s Technical Guides on Assessing and Managing Chemical Hazards to Deployed Personnel," National Academy Press, 2004
9 DODI 6055.1, 19 August 1998, "DoD Safety and Occupational Health (SOH) Program"
10 Tri-Service Reportable Events Guidelines & Case Definitions, Army Medical Surveillance Activity (AMSA), May 2004

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APPENDIX B TO ENCLOSURE A

TRI-SERVICE REPORTABLE MEDICAL EVENT LIST

Condition	ICD-9 code
1. Amebiasis	006
2. Anthrax	022
3. Biological Warfare Agent Exposure	E997.1
4. Botulism	005.1
5. Brucellosis	023
6. Campylobacter	008.43
7. Carbon Monoxide Poisoning	986
8. Chemical Agent Exposure	989
9. Chlamydia	099.41
10. Cholera	001
11. Coccidiomycosis	114
12. Cold Weather Injury (All)	
a) CWI, Frostbite	991.3
b) CWI, Hypothermia	991.6
c) CWI, Immersion Type	991.4
d) CWI, Unspecified	991.9
13. Cryptosporidiosis	007.4
14. Cyclospora	007.5
15. Dengue Fever	061
16. Diphtheria	032
17. E. Coli 0157:H7	008.04
18. Ehrlichiosis	082.4
19. Encephalitis, Arboviral/Tickborne	062
20. Filariasis	125
21. Giardiasis	007.1
22. Gonorrhea	098
23. H. Influenzae, Invasive	038.41
24. Hantavirus Infection	079.81
25. Heat Injuries	
a) Heat Exhaustion	992.3
b) Heat Stroke	992.0
26. Hemorrhagic Fever	065
27. Hepatitis A	070.1
28. Hepatitis B	070.3
29. Hepatitis C	070.51
30. Influenza	487
31. Lead Poisoning	984
32. Legionellosis	482.84
33. Leishmaniasis (all)	
a) Leishmaniasis, Cutaneous	085.4
b) Leishmaniasis, Mucocutaneous	085.5
c) Leishmaniasis, Visceral	085.0
d) Leishmaniasis, Unspecified	085.9
34. Leprosy	030
35. Leptospirosis	100
36. Listeria	027.0
37. Lyme Disease	088.81
38. Malaria (all)	
a) Malaria, Vivax	084.1
b) Malaria, Falciparum	084.0
c) Malaria, Malariae	084.2
d) Malaria, Ovale	084.3
e) Malaria, Unspecified	084.6
39. Measles	055
40. Meningococcal Disease	
a) Meningitis	036.0
b) Septicemia	036.2
41. Mumps	072
42. Pertussis	033
43. Plague	020
44. Poliomyelitis	045
45. Q Fever	083.0
46. Rabies, Human	071
47. Relapsing Fever	087
48. Rheumatic Fever, Acute	390
49. Rift Valley Fever	066.3
50. Rocky Mountain Spotted Fever	082.0
51. Rubella	056
52. Salmonellosis	003
53. Schistosomiasis	120
54. Shigellosis	004
55. Smallpox	050
56. Streptococcus, Group A, Invasive	038.0
57. Syphilis (All)	
a) Syphilis, Primary/Secondary	091
b) Syphilis, Latent	096
c) Syphilis, Tertiary	095
d) Syphilis, Congenital	090
58. Tetanus	037
59. Toxic Shock Syndrome	040.82
60. Trichinosis	124
61. Trypanosomiasis	086
62. Tuberculosis, Pulmonary	011
63. Tularemia	021
64. Typhoid Fever	002.0
65. Typhus Fever	080
66. Urethritis, Non-Gonococcal	099.40
67. Vaccine, Adverse Event	979
68. Varicella, Active Duty Only	052
69. West Nile Virus	066.4
70. Yellow Fever	060

NOTES:

1. This list represents minimum reportable events and can be supplemented by the combatant command or joint task force, as necessary.
2. Tri-Service Reportable Events Guidelines and Case Definitions are available at http://amsa.army.mil under "Documents" heading.

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ENCLOSURE B

DEPLOYMENT HEALTH RISK ASSESSMENT

1. **Background**. Occupational and environmental health (OEH) hazards (as defined in Appendix A to Enclosure A) can seriously impact the mission and erode public confidence in the military's ability to protect US personnel. Exposures to these hazards can cause a range of impacts. High-level exposures have a potential to result in immediate health effects that significantly impact mission capabilities. Low-level exposures may result in delayed or long-term health effects that would not have a significant impact on the mission but which may still be necessary to identify, control, and document. Commanders must utilize monitoring and surveillance systems to identify these hazards, assess the potential risks, determine appropriate risk control measures, and communicate these risks to their forces via operational risk management (ORM) processes. The DOD medical communities will increasingly rely on the OEH risk assessments and data captured by established monitoring and surveillance to identify and track potential OEH-related medical outcomes.

2. **Occupational and Environmental Health (OEH) Risk Assessment and Risk Management**

a. Deployment OEH Risk Assessment. The risk assessment criteria used in deployment settings is focused on using ORM as outlined in Service doctrine; however, the deployment OEH risk assessment criteria differs from the assessment criteria used for performing risk assessment in garrison operations. ORM is a process for identifying, assessing, and controlling risks from all operational hazards including all types of occupational and environmental sources. The OEH risk assessment refers to the first two of the five major components of the OEH Risk Management process as described below:

(1) Hazard Identification

(2) Hazard Assessment

(a) Probability/exposure assessment

1. Use Conceptual Site Model for environmental assessment and/or identify similar exposure groups per industrial hazard (IH) surveillance guidance

2. Collect samples and monitor to quantify exposure levels

(b) Severity Assessment. Use tools to ascertain severity of anticipated effects relative to deployment OEH hazard severity definitions (see Table B-2).

(c) Risk Characterization

1. Use ORM matrix to determine Risk Estimate

2. Determine Confidence in Risk estimate and predicted health outcome

3. Consolidate risk information for all identified OEH risks for comprehensive risk summary

(3) Develop Controls and Make Risk Decisions (Communications)

(a) Communicate OEH risk summary to commanders for decision-making

(b) Document/communicate risk information to:

1. Health care providers

2. Service members, government civilians, and contractors deploying with forces

(4) Implement Controls

(a) E.g., determine if hazards can be avoided or whether PPE or physical controls are feasible

(b) E.g., determine if risk communication and or medical intervention is needed to troops/individuals

(5) Supervise and Evaluate (data archiving and OEH surveillance)

(a) Ensure medical outcome data is obtained and archived

(b) Ensure occupational and environmental data are archived

3. **Occupational and Environmental Health Site Assessment (OEHSA)**. An OEHSA is a comprehensive assessment of both occupational and environmental health hazards associated with a deployment location (e.g., base camp, bivouac site or outpost, or other permanent or semi-permanent basing location) and the activities and mission that occur there. This includes an environmental health site assessment (EHSA) and an occupational health site assessment (e.g., industrial hygiene survey). Ensure OEHSAs are initiated within 30 days of date of

establishment and completed within 3 months for all permanent and semi-permanent base camps, whenever feasible.

a. The OEHSA identifies and quantifies health hazards that pose potential risks to US personnel at US force locations. The OEHSA documents occupational and environmental health hazards for consideration during operational planning as part of the operational force health protection program.

b. The OEHSA document should be initiated at a site before it is first occupied as part of a preliminary hazard assessment. Some monitoring and sampling results may require a multi-phase assessment. Site OEHSA documentation is an iterative process and should be completed as early as possible to meet force health protection mandates and updated as new data becomes available as long as a base is occupied.

c. The OEHSA, done by Service preventive medicine personnel, documents the overall OEH conditions and associated risk. It includes site history; EHSA and sample results for air, water, soil, and noise hazards identified; entomological surveys; occupational and industrial hygiene surveys or monitoring results; and ionizing and non-ionizing radiation hazard surveys, if indicated. Its purpose is to identify hazardous exposure agents with complete or potentially complete exposure pathways that may affect the health of deployed personnel both short- and long-term.

d. Technical guidance for conducting OEHSAs can be found in the American Society for Testing and Materials (ASTM) International, E 2318-03, "Standard Guide for Environmental Health Site Assessment Process for Military Deployments," and DOD IH Exposure Assessment Model and Business Process.

e. The scope of an OEHSA is ultimately determined by onsite preventive medicine personnel but generally should include initial evaluation of the following with continued surveillance as deemed necessary:

(1) Ambient Air. This includes assessment of general air quality as well as other airborne pollutants that troops may be exposed to while deployed to the specified location. Air quality includes an assessment of respirable particulate matter and combustion-related pollutants such as carbon monoxide, sulfur dioxide, ozone, and nitrogen oxides. Other potential industrial pollutants to evaluate may include metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons, pesticides, and/or radiation. Other airborne hazards (e.g., acutely toxic industrial chemicals (TICs), chemical warfare agents, or other military unique hazards) may be present only as unique short term exposures/incidents but exposure levels should still be identified, evaluated, and documented in OEH reports.

(2) Soil. The onsite preventive medicine personnel must determine potential for direct exposures to contaminants that may be present in the soil at a specified location. The initial assessment may include an evaluation of a broad range of potential hazards such as heavy metals, pesticides, herbicides, VOCs, SVOCs, explosives, and/or radiation. Area soils typically do not require continued monitoring; however, additional samples and analyses may be needed if there are hazardous material, petroleum, oil, and lubricant spills. Data to support the soil assessment may be available from the environmental baseline surveys. The OEH assessment data may be useful in determining if and where final soil sampling is needed prior to closure of the site to document final conditions.

(3) Water. In accordance with the DOD Tri-Service Field Water Guidance (Sanitary Control and Surveillance of Field Water Supplies (AFOSH 48-7/NAVMED P-5010-9/TBMED 577)), an assessment of water supplies should include an evaluation for availability of adequate water supply, assessment of the quality of water, as well as vulnerability assessments identifying difficulties in maintaining water source and vulnerability to sabotage or process upsets. The doctrine requires that water quality be evaluated in the field to ensure a limited set of water quality standards for physical, chemical, metal, biological, and radiological parameters are met prior to using potable and non-potable waters. Additional sample collection and rear area laboratory analyses are necessary for a more complete hazards assessment which can include heavy metals, pesticides, herbicides, VOCs, SVOCs, explosives, and/or radiation.

(4) Radiological Surveys. Includes a survey of the site for background radiation, ionizing and non-ionizing radiation sources, and radiological contamination, if indicated. If battle damage is present, a hazard assessment for the identified radiation sources and potential radioactive contamination is conducted. Acceptable exposure levels are established per NATO STANAG 2473.

(5) Noise. Noise assessment identifies ambient as well as occupation-specific noise-producing hazards.

(6) Occupational Health Hazards. Occupational activities (e.g., vehicle maintenance) should be surveyed to identify health hazards and determine whether control measures are in-place and adequate.

(7) Waste Disposal. Includes an assessment of solid waste, hazardous (e.g., chemical) waste, and medical (infectious) waste management and disposal practices. Includes an evaluation of the potential for disposal practices to affect air quality or ground water if ground water is used as a drinking water source.

(8) Sanitation. Generally includes an assessment of sanitation practices associated with living quarters, dining, fitness, and recreational facilities relative to potential microbial hazards, field sanitation, and vectors.

f. Industrial Hazard Assessments (IHA). The Armed Forces Medical Intelligence Center has developed reports that identify potential local industrial operations and the hazards normally associated with those operations. IHAs should be utilized when pre-screening potential bed-down locations and during follow-on validation of the OEHSA when completing the OEH risk assessment.

g. Exposure Incident Investigations. Submit all exposure incident investigation records (including CBRN agents) via DOD- or Service-specific systems (hard copy or electronic) for further disposition and archiving. Ensure unclassified and classified OEH monitoring data and reports are submitted to the Defense Occupational and Environmental Health Surveillance Data Portal (NIPR: oehs@apg.amedd.army.mil, SIPR: oehs@usachppm.army.smil.mil). (See DODI 6490.03, Table E4.T4., for required reports.)

(1) Promptly investigate and assess exposures to occupational and environmental health hazards (including CBRN agents) that may result in an acute illness or potentially cause a latent illness.

(2) Determine and create a roster of all of the personnel affected or possibly exposed in the incident.

(3) Document any acute and any known or anticipated latent health outcomes and any medical follow-up required, personal protective equipment or countermeasures used, effectiveness of and compliance with countermeasures, and any other exposure incident response activities.

(4) Conduct and document environmental monitoring and sampling. All significant exposures must be documented in the deployment medical record (e.g., SF 600 or equivalent).

(5) Ensure the health risks are communicated to the population at risk. Document the health risk communication messages and materials used that are relevant to the incident investigation.

4. **Risk Assessment Matrix**

a. The Risk Assessment Matrix (Figure B-1) should be used to combine severity and probability estimates to determine risk estimates, which are used to develop an overall health risk assessment. It is a qualitative tool, but the process of categorizing the health effects is largely quantitative. The quantitative parameters include, but are not limited to: dose, exposure time,

route of exposure, and comparisons to established scientific data (e.g., toxicological, epidemiological) regarding acute and chronic health outcomes.

(1) Hazard Probability (horizontal-axis). The likelihood of personnel encountering a health hazard.

(2) Hazard Severity (vertical-axis). A measure of the impact of the interaction of the health hazard with the human, this relates biochemical and/or physiological side effects (short- and long-term) to health outcome.

(3) Risk Estimate. The body of the matrix defines the risk estimate ranging from extremely high to low. The risk categories are defined in Annex D of FM 3-100.12/MCRP 5-12.1C/NTTP 5-03.5/AFTTP(I) 3-2.34 Risk Management: Multiservice Tactics, Techniques, and Procedures for Risk Management, 15 February 2001.

Figure B-1. Risk Assessment Matrix

HAZARD SEVERITY	HAZARD PROBABILITY				
	Frequent (A)	Likely (B)	Occasional (C)	Seldom (D)	Unlikely (E)
Catastrophic (I)	Extremely High	Extremely High	High	High	Moderate
Critical (II)	Extremely High	High	High	Moderate	Low
Marginal (III)	High	Moderate	Moderate	Low	Low
Negligible (IV)	Moderate	Low	Low	Low	Low
	RISK ESTIMATE				

(4) The severity, probability, and risk estimate of the health hazards should be recorded to document the information provided to commanders and for future use. The deployment OEH risk management process will be iterative during deployments as control measures are evaluated for effectiveness and new information about health hazards become available. It facilitates the decision-maker's ability to prioritize risks, determine control options, and standardize risk communication or response actions.

b. Health Hazards and Contributing Factors. Health hazards should be evaluated in the context of the deployment conditions and contributing factors, and assessed without consideration of controls or countermeasures. The following categories of health hazards and contributing factors should, at a

minimum, be considered for the accomplishment of the OEHSA and for determining deployment health requirements:

(1) Health hazards

(a) Climate conditions (including temperature extremes, humidity, precipitation, and wind)

(b) Altitude

(c) Infectious diseases (based on endemicity in local population, third-country nationals, coalition forces, presence of reservoirs and vectors, method of transmission, and communicability, general health and vaccination status of local population)

(d) Hazardous animals and plants

(e) Environmental factors (such as toxic industrial chemicals or materials, historical contamination, CBRN agents, waste, or pollution in food, air, soil, and water) capable of affecting the health of the force or population at risk

(f) Occupational health hazards such as hazardous chemicals or noise

(g) Physical hazards such as ionizing or non-ionizing radiation

(h) Any specific hazards/threats identified in planning orders and/or intelligence based reporting

(2) Contributing factors. The following contributing factors should be considered with the health hazards to help characterize the potential exposure or effects of the health hazards:

(a) Exposure patterns to include: exposure duration (often deployment length), exposure rates (frequency and amounts), and routes of exposure (e.g., ingestion, inhalation, dermal contact)

(b) Anticipated living conditions such as field conditions or hardened facilities (exposure potential may increase in field conditions)

(c) Ambient air conditions (including the presence of sand or dust)

(d) Climate conditions (including temperature, humidity, precipitation; wind patterns)

(e) High altitudes

(f) Noise or other physical hazards including ionizing and non-ionizing radiation

(g) Working conditions and efforts (e.g., exertion level), personal protective equipment (carried or worn) and duration of occupational exposures

(h) Preventive medicine support and capabilities

(i) Medical treatment source(s) such as local national, deployed US military, coalition forces, or nongovernmental organizations

5. **Determining the Risk Estimate**. In determining the risk estimate for each health hazard (low, moderate, high or extremely high), both the severity (health effects) and the probability of encountering the health hazard (exposure pathway completion) must be estimated.

a. Estimating the Probability. Determine the probability of personnel exposure to the health hazard. This may be described as the expected occurrence, frequency, and duration of an exposure to health hazards in the population at risk. Table B-1 provides descriptions for the exposure probability categories.

b. Estimating the Severity. Determine the severity of the health hazard by evaluating the expected extent or intensity of the health hazard to cause tissue damage, undesirable physiological responses, illness, disease, other adverse health conditions or death integrated with the significance of the untoward health consequences in accomplishing mission tasks and maintaining medical readiness. Table B-2 provides descriptions for the OEH hazard severity categories.

Table B-1. Probability Categories (derived from FM 3.100.12)	
(A) Frequent	Occurs very often, continuously experienced during the deployment
(B) Likely	Occurs several times during the deployment (such as monthly pesticide applications for mosquito control)
(C) Occasional	Occurs sporadically during the deployment (once or twice; occurrence is not predictable, but it is expected to occur)
(D) Seldom	Remotely possible; could occur at some time during the deployment
(E) Unlikely	Can assume will not occur, but not impossible during the deployment

Table B-2. Hazard Severity Categories

OPERATIONAL SEVERITY RANK →	NONE	NEGLIGIBLE	MARGINAL	CRITICAL	CATASTROPHIC
DESCRIPTION OF TYPES OF HEALTH EFFECTS DRIVERS FOR SEVERITY CATEGORY	**Acute Effects**				
	No effects are anticipated.	Few exposed personnel (if any) are expected to have noticeable health effects during mission. Exposed personnel are expected to be able to effectively perform all critical tasks during mission operations. Minimal to no degradation of abilities to conduct complex tasks are expected.	Exposed persons are expected to have noticeable but not incapacitating health effects. Observable effects require minimal if any medical attention but may reduce some individual physical capabilities and/or may enhance stress-related casualties. Exposed personnel able to perform most critical tasks. Note: Ability to accomplish complex tasks may be degraded.	Personnel are expected to have incapacitating health effects that require immediate medical treatment or support (i.e., are considered 'casualties.') There may be limited numbers of fatalities. Personnel not experiencing these more serious effects are expected to have at least noticeable, but not incapacitating health effects. Exposed personnel will have limited ability to perform most critical tasks. Note: Ability to accomplish complex tasks likely to be degraded.	Casualties with severe incapacitating effects requiring immediate and significant medical attention and/or additional support for survival. Increasing number of fatalities are expected. Exposed personnel unable to perform critical tasks.
	and/or ↓	*and/or:* ↓	*and/or* ↓	*and/or* ↓	*not a driver* ↓
	Chronic Effects				
	No effects are anticipated.	Few exposed personnel (if any) are expected to develop delayed onset, irreversible effects.	Many exposed personnel are plausibly[3] expected to develop delayed onset, irreversible effects. While this may not affect the immediate physiological capabilities of individuals, commanders must consider long-term implications and appropriately communicate the potential risks. Operational stress related implications may adversely impact operations particularly over extended operational periods.	Majority to all exposed personnel are plausibly[3] expected to develop delayed onset, irreversible effects due to the specified exposure. While this may not affect the immediate physiological capabilities of individuals, commanders must consider long-term implications and appropriately communicate the potential risks. Psychological implications may adversely impact operations particularly over extended operational periods.	This level of hazard severity is reserved for the most serious of conditions where immediate survivability against acute effects is the priority. Those that survive may be at increased risk for certain chronic effects.

Note: This matrix applies to all health hazards encountered during deployment. Health effects associated with chemical exposures are typically either acute or chronic, but in some cases may be both. In general, short-term, one-time chemical exposures are primarily associated with acute effects, while repeated long-term exposures are associated with chronic effects.

c. OEH Risk Assessment Components. The risk assessment component of the deployment OEH RM process includes the identification and assessment of the OEH hazards (steps one and two described above). The OEHSA for a specified deployment site and timeframe represents this part of the deployment OEH RM process. The OEHSA should include an evaluation of occupational health exposures from deployed operational tasks and ambient environmental health exposures: air, soil, potable, and non-potable waters, ionizing and non-ionizing radiological sources, CBRN hazards, vector borne disease threats, and other physical hazards such as environmental or occupational noise. Information found in food and water vulnerability assessments or other reports may be useful. OEH hazards may also be present as contamination from historical site usage, battle damage, stored stockpiles, and adjacent commercial or residential sites.

d. Health Surveillance. Based on the pre-deployment OEH risk assessment conducted during the planning process, the combatant commands will develop and maintain an appropriate OEH surveillance and monitoring program for the deployment. If the resource requirements are beyond the capabilities of organic preventive medicine assets, the JTF and/or combatant command surgeon should request the required capability/expertise and oversee the assignment of technically-specialized unit(s) or detachment(s) to perform these functions in theater.

(1) Preventive medicine personnel will assess the need to collect on-site environmental and occupational (e.g., industrial hygiene) samples. Unless adequate, pre-existing data is available, preventive medicine personnel will employ appropriate environmental and occupational (e.g., industrial hygiene) field sampling, laboratory, and analytical techniques to conduct these assessments in the minimal time required to accurately assess the OEH risk. However, baseline occupational and environmental health site assessments (OEHSAs) are required for all permanent and semi-permanent base camps or bed down sites.

(a) Potential "High" and "Extremely High" risk situations require rapid health risk assessment using real/near real time on-site methods. On site methods usually require confirmatory laboratory analysis.

(b) Potential "Moderate" risk situations may be assessed by collection of samples for off-site analysis, with rear area laboratory support as required.

(c) Potential "Low" risk situations may be assessed off-site, using mathematical models to assign risks, with sampling and rear area laboratory support as operational resources allow.

(2) Assistance regarding potential hazard severity, hazard probability, assessment techniques, and rear area laboratory support can be obtained from the Service Health Surveillance Centers.

e. Record Keeping and Reporting Requirements

(1) Document the following data for each sample collected: a unique sample number/designation, country, base camp, sample geo-location (established with military grid reference system (MGRS)/global positioning system (GPS), if available), date and time the sample was taken, sample type (e.g., bulk, grab, composite, blank), sample media (air, water, soil), sampling method, sample site conditions, any immediate corrective actions required, sampling personnel information, and laboratory information. Water samples collected must indicate on the sample documentation whether or not the water is being, or will be consumed, or if not consumed, its intended use, for archiving purposes. Submit all exposure incident investigation records and associated personnel rosters via DOD- or Service-specific systems (hard copy or electronic) for further disposition and archiving. Ensure unclassified and classified OEH monitoring data and reports are submitted to the Defense Occupational and Environmental Health Surveillance Data Portal (NIPR: oehs@apg.amedd.army.mil, SIPR: oehs@usachppm.army.smil.mil).[1]

(2) As operations allow, report sample results and risk assessments as quickly as possible to local medical units and JTF surgeon in accordance with theater policy [DODI 6490.03, Table E4.T4]. Summary reports will be sent from the JTF surgeon to the combatant command surgeon. Copies of all data, data summaries, final reports, and investigations will be forwarded, at least quarterly, from the JTF surgeon to the combatant command surgeon and to the Occupational and Environmental Health Surveillance Data Portal (NIPR: oehs@apg.amedd.army.mil, SIPR: oehs@usachppm.army.smil.mil) or the Environmental Surveillance Integration Program (ESIP), US Army Center for Health Promotion and Preventive Medicine, ATTN: MCHB-TS-RDD, 5158 Blackhawk Road, Aberdeen Proving Ground, MD, 21010-5403. Telephone number: 1-800-222-9698, DSN 584-4320, or commercial 410-436-4320.

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[1] The DOEHRS data portal is maintained and operated by USACHPPM. For submission of unclassified Occupational and Environmental Health Surveillance (OEHS) data and reports, users should go to https://doehsportal.apgea.army.mil/doehrs-oehs/ to establish an account. Unclassified electronic OEHS data, information, and reports may also be submitted via email to NIPR: oehs@apg.amedd.army.mil, Electronic classified OEHS data, information, and reports should be submitted to SIPR oehs@usachppm.army.smil.mil. All hard copy classified OEHS information should be sent to CDR USACHPPM, ATTN: MCHB-CS-SIP, 5158 Blackhawk Road, Aberdeen Proving Ground, MD, 21010-5403 (ensure packages are appropriately marked with classification and double wrapped). For pesticide reporting, all deployed units are required to record pesticide use and send reports directly to USACHPPM for archiving. These reports should be consolidated and forwarded to USACHPPM monthly. They should be sent submitted at http://chppm-www.apgea.army.mil/ento/Deployment/Archiving.htm.

(3) Documentation of negative results is just as critical for future analysis to identify the lack of environmental or occupational hazard exposures. Therefore, it is extremely important that all results are reported per above instructions.

6. **Health Risk Communication Plans**. A specific plan that documents means of delivery and development of key messages on deployment health threats and risks (including actual and potential exposures), associated countermeasures, and any necessary medical follow-up for deployed personnel. The plan should document how OEHSA data and IHA information will be used to develop appropriate written and oral materials to communicate deployment health risks. The plan should identify how health risk communications will be updated as new information about health risks becomes available.

7. **Health Hazard and Countermeasures Briefing**. A health briefing to deploying Service members, government civilians, and contractors deploying with the force that identifies potential health and safety hazards, including operational stress, hazardous and nuisance noise, and endemic diseases expected to be encountered during or as a result of the deployment; identifies countermeasures to be used to reduce risks; and reinforces safety, health, and field hygiene and sanitation procedures. The briefing addresses topics such as endemic diseases, hazardous plants and animals, entomological hazards, CBRN agents, toxic industrial chemicals and materials (agricultural and industrial), deployment-related stress, and climatic or environmental extremes (e.g., heat, cold, high altitude, wind-blown sand and/or other particulates), and noise hazards.

ENCLOSURE C

DISEASE AND INJURY SURVEILLANCE

1. **Disease and Injury (D&I) Events**

a. D&I event trends, whether counts or rates, are an important type of surveillance for use at all levels (unit, site/installation, regional, component command, theater, etc.) and must be monitored regularly. Abnormal patterns and trends may indicate a problem that could negatively impact mission accomplishment and indicate the need for additional investigation and, if validated, the need to implement appropriate preventive medicine countermeasures.

b. The purpose of D&I surveillance is to promote and maintain healthy and fit deployed forces, through monitoring illnesses and injuries and instituting interventions as needed. Specific objectives include:

(1) Communicable disease outbreak detection

(2) Sentinel event detection, primarily related to reportable medical events

(3) Other relevant areas of public health and preventive medicine, such as injury prevention and exposure monitoring of environmental and occupational sources

c. D&I surveillance is **not** meant to capture the overall clinic/hospital caseload, justify specific resources, or track other business-oriented aspects of healthcare operations. Nor should it track the incidence of chronic diseases where preventive efforts in the theater of operation are generally neither effective nor available (e.g., cardiovascular disease or cancer). Such conditions should have been identified, prevented, or treated in the garrison setting prior to deploying as part of the periodic health assessment and pre-deployment health assessment programs.

d. The scope of personnel involved in D&I surveillance are US military and other authorized personnel eligible for DOD medical care. Also recommend is capturing and archiving D&I surveillance data on other individuals (e.g., third-country nationals, local nationals (military and civilian), detainees, prisoners of war and refugees) seen by US military medical assets.

e. Local disease and injury data must be evaluated at least once daily with more frequent attention to infectious disease categories during periods of increased threat (e.g., intelligence reports of planned attack with biowarfare agent, known ongoing outbreak, etc.). Electronic health event data collection systems, such as the Joint Medical Work Station (JMeWS), AHLTA-T (a patient

encounter module formerly known as CHCS2-T), and the Joint Patient Tracking Application are available at most levels of care in any theater of operation. Others, such as ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics) will be available in the future. These systems should be utilized as the primary public health and preventive medicine surveillance tools, eliminating the need for paper-based reporting in most situations. Advantages of these electronic systems include graphical presentations of trends, including statistical testing, over time for the various disease and injury categories, filters to identify reportable medical events based on ICD-9 codes, and role-based access to patient identifying information to facilitate local public health efforts. In addition, upstream authorities, e.g., component command, JTF/SG, combatant command/SG, Service-specific public health centers (USACHPPM, NEHC, and AFIOH), and the Armed Forces Health Surveillance Center are available to monitor regional or command-focused aggregates, possibly identifying larger patterns and trends.

f. For sites without AHLTA-2 or other patient electronic modules (PEMs) that feed JMeWS, e.g., Global Expeditionary Medical System (GEMS) or SNAP Automated Medical System (SAMS), the local staff will need to revert to manual procedures and/or electronic data on local computers/networks. For sites without a PEM, but with SIPRNET access, the Annex Q reporting portion of JMeWS is available for input of local data for review by higher HQ. During prolonged periods without SIPRNET access to JMeWS, a weekly report (see Appendix B to Enclosure C) will be submitted via secure phone, e-mail (preferred), fax through command channels to the JTF surgeon and to the combatant command surgeon. The supported combatant command surgeon will release D&I reports to the Joint Staff and the Services/components when significant medical threats are encountered.

g. US forces participating in NATO joint operations may also be required to report surveillance findings following EPINATO definitions and guidelines. This is an additional requirement and cannot supplement for JCS D&I surveillance as the categories are different in design due to the different focus, purpose, and objectives of EPINATO (more in keeping with providing humanitarian relief and capturing total workload, including chronic diseases). To minimize this additional administrative burden, an EPINATO report will be available in JMeWS with the local health events mapped directly to EPINATO categories based on the recorded ICD-9 diagnostic codes.

h. D&I surveillance derives from electronic patient records, sick call logs, safety mishap reports, or other sources. The attending medical staff must capture the following information, at a minimum, on every patient encounter.

(1) Patient's name, SSN, gender, unit, unit identification code (UIC or RUC), and duty location.

(2) Type of visit – new vs. follow-up. Note: Providers must be trained to use the ICD-9 V-code (V67.9) to identify follow-up visits.

(3) Primary (chief) complaint, the reason for seeking care.

(4) Final diagnosis(es), in order of importance related to the primary complaint. Ongoing training and feedback to the local medical staff is the most effective way to improve the accuracy of coding.

(5) Injuries, which must be classification into recreation/sports, motor vehicle accident, work/training, or other. The attending healthcare provider should provide an e-code for any injury.

(6) Final projected disposition into one of the following categories:

(a) Full duty

(b) Light (limited) duty (number of days)

(c) Sick in quarters (number of days)

(d) Inpatient admissions (number of days)

(e) Transported to another facility (CASEVAC/AIREVAC)

(7) D&I category (case definitions in Appendix A, Enclosure C)

i. For sites/units without a PEM or other records of raw data compiled to create D&I reports, the D&I reports must be retained by the unit medical department at the conclusion of the deployment for at least 1 year. Any written medical encounter records (i.e., SF-600s) must be returned to home station where they will be filed in the physical medical record or scanned and appended to the electronic health record in AHLTA.

2. **D&I Monitoring Procedures**. Electronic D&I surveillance.

a. Log in to the classified JMeWS Web site (https://jmews.fhp.smil.mil) at least once daily.

b. The default opening page (Unit Status/Current Status) includes a link near the top of the page that will open a list of any recent reportable medical events (RME). Investigate, validate, and document RMEs as required by combatant command or Service guidance.

c. Use the "Surveillance" tab to access the various surveillance functions. These functions provide the user with daily incident counts, via tabular or

graphical representations, for each of the D&I categories for their identified unit or any aggregation of units (as determined by the user-defined filter). Select ESSENCE or z-score algorithm to evaluate the data using different statistical methods. Users can also export data for additional analysis in local applications (Microsoft Excel, EpiInfo™, etc.), as desired.

d. Many factors, including geography, climate, seasonal variation, local vectors and endemic diseases, exposure, success of protective measures, and type of military operations, can affect the expected number of cases or incident rates at a given site. For this reason, historical reference rates derived during other operations are of little value. Rather, it is vital to develop local reference values at the earliest opportunity. Counts and rates will usually be grossly stable after 7-10 days and much more stable after 28 consecutive days of data. As a general guideline, the overall D&I rate (excluding hostile-related injuries) in OEF and OIF consistently averaged between 4 and 5 percent per week over the years, with 25 percent of the total due to non-hostile injuries. However, this may not be the expected breakout for a new operation in a different environment (e.g., tropical, arctic, etc.).

e. Rates are ideal for health surveillance, but have always been problematic, especially in regional/aggregate analyses. Counts are "easier" to obtain and very useful, though you must be beware of abrupt, large changes in the local denominator (population at risk, aka PAR). Appropriate statistical analyses mitigate some of the possible deficiencies for counts compared to rates. JMeWS currently provides surveillance information based on counts and this will remain the standard approach until such time as Deployable Theater Accountability System, Deliberate and Crisis Action Planning and Execution Segments, or an equivalent personnel system is available throughout the theater and these real-time personnel tracking systems have been validated as accurate and timely. Then JMeWS will incorporate automatic PAR feeds and convert to rate-based monitoring. Another alternative, if accurate denominators are unavailable, is to calculate and monitor the proportion of each category in comparison to the total incident events each day, week, or month. For example, the percentage of influenza like illness (ILI) cases out of all outpatient visits.

f. Local staff should provide additional detail, such as interventions taken and results of same, about any validated outbreak as part of the daily medical situational report and as required by component command or combatant command SG directive.

g. For units/sites without AHLTA, GEMS, or SAMS, the Annex Q Report tab allows users to enter D&I data into JMeWS.

h. Note: JMeWs supports role-based access and individuals must apply for an account (http://www.fhp.smil.mil). Supervisor validation is necessary

for access to protected health information (full medical entries with identifying information). Individuals may apply for access prior to deploying and on-line JMeWS training is available at https://fhp.osd.mil/index.jsp. It is essential that the deployed medical unit submit a joining report via the JMeWS portal. This establishes the deployed unit in JMeWS and ensures that any records submitted from AHLTA-T are properly assigned to the correct UIC for analysis and display.

3. **Manual D&I Surveillance**

a. Manual reporting should rarely be necessary. In the unusual event of no electronic system availability for a prolonged period of time, the attached worksheet is a useful way to focus local surveillance work (see Appendix B to Enclosure C). It can be used daily and summarized weekly. For rate calculation, obtain the average troop strength (PAR) for the reporting period from the local personnel shop.

b. Review available records and add up the total number of new cases (excluding follow-ups) seen during the day/week in each D&I category. Fill in the appropriate block. Add up the total D&I and record the number in the space provided.

c. To calculate rates, divide the total number of patients seen in each category by the average troop strength, and multiply by 100. Remember to calculate an overall D&I total rate.

Example. If there were 20 dermatological cases this week in 500 troops, the rate (percent) for dermatological cases would be calculated as follows:

$$D\&I\ (\%) = \left(\frac{\#Patients}{\#Troops}\right)\times 100$$

$$D\&I_{derm}(\%) = \left(\frac{20}{500}\right)\times 100$$

$$D\&I_{derm}(\%) = (0.04)\times 100$$

$$D\&I_{derm}(\%) = 4\%$$

d. Next, add up the total number of estimated lost work days in each category, and fill in the appropriate block.

e. Compare counts or calculated rates for each category with the local reference values for that category (comment is required under the section "Problems Identified - Corrective Actions" for all categories where the results

exceed the expected values by more than 3 standard deviations or an equivalent statistical analysis. When comparing values, keep the following information in mind.

(1) Exceeding an expected count or rate by a small amount is not necessarily an indication of a significant problem. Results between 2 and 3 standard deviations should heighten surveillance. Results exceeding 3 standard deviations require urgent investigation and, if validated, intervention and reporting to the JTF/combatant command surgeon.

(2) Use professional judgment in interpreting the D&I rates. Track counts/rates over time and compare them with your unit's past D&I rates for comparable situations; to include seasonal variation when such data are available.

f. Provide weekly summaries (daily during times of high threat or in the presence of an ongoing outbreak) of D&I findings to the unit commander and to medical personnel at higher echelons (as noted in the first paragraph of these instructions). The combatant command is the releasing authority for all reportable D&I outcomes. The Armed Forces Health Surveillance Center and Service surveillance centers are available to coordinate with deployed theater medical surveillance teams or the JTF surgeon when adverse trends occur. Theater surveillance teams will augment organic preventive medicine units to investigate the cause of the adverse D&I outbreaks or other events as needed.

APPENDIX A TO ENCLOSURE C

CASE DEFINITIONS

Notes

1. Count only the initial visit. Do not count follow-up visits.

2. Some patients with multiple ailments diagnosed during a single visit may need to be counted in more than one category. Example: Soldier with sprained ankle and diarrhea. Count in Gastrointestinal Infections and Injury, Recreational/Sports.

3. Estimate number of patient dispositions for each category (returned to duty (RTD), light duty/limited duty/profile (LD), sick in quarters (SIQ), hospitalized (HOSP), or evacuated (EVAC)) and anticipated lost work days.

CATEGORIES FOR OUTBREAK DETECTION (NATURAL OR DELIBERATE)

Fever, Unexplained – oral temperature of ≥100.5°F (38°C) or greater for 24 hours or history of chills and fever without a clear diagnosis. Such fever cannot be explained by other inflammatory/infectious processes such as respiratory infections, heat, and overexertion. INCLUDES septicemia and viremia. EXCLUDE entry if more specific diagnostic code is present allowing categorization as respiratory, neurological, or gastrointestinal illness syndrome. Targeted Conditions - tropical diseases such as malaria, dengue, yellow fever, and typhoid fever.

Influenza-like Illness – illnesses characterized by fever (oral temperature > 100.5°F or 38°C) AND either cough OR sore throat. INCLUDES pneumonia. Targeted Conditions – pandemic influenza, adenovirus, pulmonary anthrax, tularemia, pneumonic plague, or emerging febrile respiratory infections (e.g., SARS).

Rash – acute condition that may be consistent with smallpox (macules, papules, or vesicles predominantly of face, arms, and legs of unclear etiology or rule out smallpox). INCLUDES specific diagnoses such as chicken pox or smallpox and non-specific diagnoses such as viral exanthems. EXCLUDES allergic or inflammatory skin conditions such as contact or seborrheic dermatitis, rosacea, rash not otherwise specified, rash due to poison ivy, sunburn, and eczema. Targeted Conditions – smallpox, WMD blister agent.

Localized Cutaneous Lesion – localized edema and/or cutaneous lesion (vesicle, ulcer, or eschar) that might be consistent with cutaneous anthrax or tularemia. INCLUDES insect bites. EXCLUDES generalized rashes, diabetic ulcers or ulcers associated with peripheral vascular disease. Targeted conditions – cutaneous anthrax or tularemia; diseases reflecting insect infestations, like cutaneous leishmaniasis.

Hemorrhagic Illness – acute systemic illness characterized by fever, chills, back pain, or generalized myalgia and varying hemorrhagic manifestations such as bleeding gums, epistaxis, hematemesis, melena, metrorrhagia, strawberry tongue, disseminated intravascular coagulation, petechiae, or bruising; consistent with viral hemorrhagic fever (VHF). Associated acute blood abnormalities may include leukopenia, neutropenia, thrombocytopenia, decreased clotting factors, or albuminuria. Targeted Conditions – any virus that causes VHF, e.g., Yellow Fever, Dengue, Rift Valley Fever, Crimean Congo Hemorrhagic Fever, Kyasanur Forest Disease, Omsk Hemorrhagic Fever, Hantaan, Junin, Machupo, Lassa, Marburg, or Ebola.

Gastrointestinal, Infectious – All diagnoses consistent with infection of the intestinal tract, upper or lower. INCLUDES any type of diarrhea, gastroenteritis, "stomach flu," "food poisoning," nausea/vomiting, hepatitis, etc. EXCLUDES non-infectious intestinal diagnoses such as hemorrhoids, ulcers, hernias, etc., and chronic conditions such as irritable bowel syndrome. Targeted Conditions – salmonella, shigella, campylobacter, e.coli, noroviruses, cholera, typhoid, GI anthrax, etc. Note: though not infectious in nature, cases of illness due to emetic chemical warfare agents would be captured by this category.

Botulism-like – acute paralytic conditions consistent with botulism: CN VI (lateral rectus) palsy, ptosis, dilated pupils, decreased gag reflex, media rectus palsy; acute descending motor paralysis (including muscles of respiration); or acute symptoms such as diplopia, dry mouth, dysphagia, difficulty focusing on a near point. Targeted Conditions – botulism.

Neurological – acute infection or intoxication of the central nervous system (CNS). INCLUDES meningitis, encephalitis, or encephalopathy and acute non-specific symptoms such as meningismus and delerium. EXCLUDES alcohol intoxication or any chronic, hereditary, or degenerative conditions of the CNS such as obstructive hydrocephalus, Parkinson's, Alzheimer's. Targeted Conditions – pneumococcal or meningococcal meningitis, viral encephalitides, rabies, toxic material/chemical exposures, etc.

Shock/Coma/Death – acute onset of shock or coma from potentially infectious causes. INCLUDES sudden death (of unknown cause or <24 hours after onset of symptoms), death in ER. EXCLUDES shock from trauma.

CATEGORIES FOR OTHER CONDITIONS OF PUBLIC HEALTH CONCERN

Combat/Operational Stress Reactions – Acute debilitating mental, behavioral, or somatic symptoms thought to be caused by operational or combat stressors, that are not adequately explained by physical disease, injury, or a preexisting mental disorder, and that can be managed with reassurance,

rest, physical replenishment, and activities that restore confidence. INCLUDES acute situational reaction. EXCLUDES post-traumatic stress disorder and adjustment disorders.

Dermatological – Diseases of the skin and subcutaneous tissue, including, heat rash, fungal infection, cellulitis, impetigo, contact dermatitis, blisters not associated with trauma, ingrown toenails, unspecified dermatitis, etc. INCLUDES sunburn. EXCLUDES trauma; laceration; items mapped to rash or localized cutaneous lesion.

Ophthalmologic – Any acute diagnosis involving the eye, including conjunctivitis, sty, corneal abrasion, foreign body, sudden blindness or low vision, etc. EXCLUDES routine referral for refraction (glasses).

Psychiatric/Mental Disorders – Debilitating mental, behavioral, or somatic symptoms that meet diagnostic criteria for or have been previously diagnosed as a psychiatric/mental disorder including Post Traumatic Stress Disorder and adjustment disorders. EXCLUDES symptoms due to identified physical disease or injury, or symptoms better explained as a transient combat/operational stress reaction.

Respiratory, Upper – acute upper respiratory infections, allergic/irritant conditions, and other disorders of the ear, nose, and throat. INCLUDES "common cold," tonsillitis, otitis, sinusitis, vertigo, hearing problems, and allergic rhinitis. Also exacerbation of chronic conditions, e.g., hay fever EXCLUDES stable chronic conditions or acute laryngitis/tracheitis (map to ILI).

Reactive Airway Disease (RAD)/Asthma – acute non-febrile RAD/asthma. RAD is coughing, wheezing, or shortness of breath without a known infectious cause. EXCLUDES non-specific diagnoses of bronchitis or pneumonia (map to FVR or ILI).

Reportable Medical Events – all items listed in the Tri-Service Reportable Medical Event List (see Appendix B to Enclosure A) plus any additional items designated by combatant command or JTF SG. Based on working diagnoses and any available laboratory results.

INJURIES

Heat/Cold Injuries – Climatic injuries. INCLUDES heat stroke, heat exhaustion, heat cramps, heat-related dehydration, hypothermia, frostbite, trench foot, immersion foot, and chilblain.

Injuries, Sports/Recreational/Physical Training (not including unit physical fitness) – Any injury occurring as a direct consequence of the pursuit of personal and/or informal group fitness, e.g., non-command sanctioned game

of soccer. EXCLUDES injuries incurred during command-sanctioned formal training programs, e.g., formation running (map to Work/Training).

Injuries, Motor Vehicle Accidents – Any injury occurring as a direct consequence of a motor vehicle accident.

Injury, Work/Military Ops/Training (including Unit Physical Training) – Any injury occurring as a direct consequence of military operations/duties or of an activity carried out as part of formal military training, to include organized runs and physical fitness programs.

Injury, Other – Any injury not included in the previously defined injury categories. INCLUDES rape and injuries secondary to fights (not related to hostile action).

Injury, Other Hostile Action – Any injury that is the result of hostile activity. INCLUDES direct injuries such as projectile, fragments, amputations, brain injuries due to explosive blast exposure, and indirect injuries such as spraining an ankle while driving for cover due to sniper fire. EXCLUDES any injuries that map to the categories above.

ALL OTHER – Any medical condition not fitting into any category above.

Definable – A category established (in addition to others in this section) for a specific deployment based on public health concerns (e.g. occupational, environmental, and/or CBRN exposures of concern; malaria; dengue; and airborne high altitude and/or low open injuries, etc.).

APPENDIX B TO ENCLOSURE C

DISEASE AND INJURY RATES

D&I Reporting Form for Joint Deployments

Period Covered (Dates):_____ (Sunday 0001Z) through (Saturday 2359Z)
Medical Unit Name:_____ UIC:_____ Unit and/or Command Supported:_____
Total Population Supported:_____
Latitude and/or Longitude or Grid Coordinates:_____ Country:_____
Location Name (if available):_____ Individual Preparing Report:_____
Telephone number:_____ E-Mail:_____

CATEGORY	INITIAL VISITS	RATE	LOCAL REFERENCE RATE	DISPOSITION (RTD, LD, SIQ, HOSP, EVAC)	ESTIMATED LOST WORK DAYS
Fever and Unexplained Infections					
Influenza-like Illness					
Rash					
Localized Cutaneous Lesion					
Hemorrhagic Illness					
Gastrointestinal, Infectious					
Botulism-like					
Neurological					
Shock/Coma/Death due to Infection					
Combat/Operational Stress Reactions					
Dermatologic					
Ophthalmologic					
Psychiatric, Mental Disorders					
Respiratory Illness, Upper					
Reactive Airway Disease/Asthma					
Reportable Medical Events					
Heat/Cold					
Injury, Recreational/Sports					
Injury, Motor Vehicle					
Injury, Work/Training					
Injury, Other (Non-hostile)					
Injury, Other Hostile Action					
All Other					
Definable					
TOTAL D&I					

Problems Identified:_____ **Corrective Actions:** _____

(INTENTIONALLY BLANK)