

Chapter 49

MEDICAL ISSUES IN REDEPLOYMENT

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INTRODUCTION

Problems related to the health of military personnel returning home after serving abroad are varied and not easily solved. Veterans expect and deserve recognition for the sacrifices that they have made in service to their country. The expected health effects of a deployment and the normal occurrence of diseases among veterans often blend with the hazards of the war zone to blur the line between expected and unexpected health events among veterans. Because of this, veterans and their health may become a focus of national discussion and inquiry. When this occurs, the most influential triad will be—as it always has been—the veterans, their elected representatives, and the military medical community. Other interested parties will be families of veterans,

the press, other coalition forces, and the scientific community. The general public angst that can occur during and after a major military action often leads to suspicion of the military establishment. In this atmosphere, it can be difficult to establish the cause of service member health problems. As an outgrowth of this, some of the ties between health problems and military service will be tenuous, if not specious. The military's primary response to this situation and to its responsibility to safeguard the health of service members is the redeployment medical plan. While risk communication teaches that perception is reality, the task of the military medical officer is to prepare the redeployment medical plan so that its reality shapes perception.

HISTORICAL PERSPECTIVES ON RECURRING ISSUES IN REDEPLOYMENT

Throughout the long history of warfare, there have been medical problems associated with the redeployment of military personnel to their home country. In the United States, these problems have included such psychiatric manifestations as “nostalgia” in the Civil War,¹ shell shock in World War I,² and post-traumatic stress disorder in the Vietnam War.³ Other problems have included “gas lung” after World War I and the question of that condition's association with the subsequent development of tuberculosis.⁴ After the Vietnam War, veterans and scientists became concerned that the wide use of herbicides might have contributed to a number of postdeployment medical problems.⁵ A similar argument has been made that a possible multiple chemical sensitivity or new clinical syndrome (from the combined use of anti-biological warfare vaccinations and anti-nerve agent medications or exposure to insect repellents, pesticides, or chemical warfare agents) may have resulted in the protean manifestations of Persian Gulf War illnesses.⁶⁻¹⁰

Surviving Battle Trauma

War affects the returning population of veterans and society not just by disease but also in another way: disability. Historically, most of those seriously injured during combat died on the field of battle or in the forward aid stations near the line of battle. Beginning with the Civil War, advances in medical and surgical practice resulted in greater numbers of veterans surviving to return home with amputations or other medical problems. In 1865 assistance to refugees, freed slaves, and veterans of the Civil

War became the duty of the Bureau of Refugees, Freedmen, and Abandoned Lands within the War Department.¹¹ This responsibility grew out of the Congressional requirement in 1862 that the Army provide prostheses to veterans below the rank of captain. From this program developed the military's, and ultimately military medicine's, greatly expanded and improved mission of postwar care of veterans.

Combat Stress

Psychological issues, though incompletely understood, have always been important in returning veterans and are addressed more fully in Chapter 48, Psychological Aspects of Deployment and Reunion. Practical experience with combatants has shown that the immediate treatment veterans receive is an important factor in their likelihood of developing long-term psychiatric morbidity. The simple measures employed since World War I, illustrated by the PIE acronym (proximity, immediacy, expectancy) or the expanded BICEPS (brevity, immediacy, centrality, expectancy, proximity, simplicity), remain effective guidelines for the treatment of acute combat stress reactions. Use of these principles to return the majority of service members to duty quickly decreases long-term morbidity as manifested in chronic post-traumatic stress disorders.¹² Since the military has been unable to develop an efficient method to “screen out” all personnel who are at increased risk for combat stress reactions, medical providers must be ever vigilant to minimize this postdeployment problem.

Infectious Disease

The potential for infectious disease is another redeployment medical issue. There has long been great concern, particularly relating to tropical diseases and diseases with longer incubation periods, of introducing or reintroducing these illnesses into the United States.¹³⁻¹⁶ All countries recognize the potential for disease transmission given the ease of international travel and have established various quarantine measures to help prevent transmission of diseases and vectors of concern. During the great plague pandemic of the 14th century, the Venetians established a council of three men that was to supervise and safeguard the public health of the city. Over time, the Venetians and other cities adopted a 40-day isolation period for ships, goods, and persons, hence the term “quarantine,” derived from the Italian and Latin words for forty.¹⁷ The first record of such restrictions in America was a law enacted by the Massachusetts Bay Colony in 1647.¹⁸ In subsequent years, quarantine regulations were expanded and modified as situations required for the safeguarding of the population. Cholera, plague, and yellow fever were the primary concerns in the early years of the United States. Later, when people began to travel by air more than by ship, the regulations were modified and updated to meet the new challenges of air travel.

This potential for the international transmission of infectious disease is never more pronounced than in time of war. The influenza pandemic of 1918 and 1919 and the transmission of hepatitis to United Nations peacekeepers assigned to Haiti are two examples at opposite ends of the 20th century.¹⁹⁻²² At the conclusion of hostilities, the fighting force is wounded, tired, parasitemic, and incubating various diseases but anxious to get back home to their loved ones at the first opportunity. In the modern age, the time frame for this return can be literally hours. Because of the modern military’s ability to rapidly transport large numbers of the returning force, service members can lift off the ground half a world away and be on leave with their relatives in as little as 48 hours. Table 49-1 gives a few examples of important medical problems that have few, if any, early symptoms and have been or potentially may be important in redeploying veterans.

Political Ramifications

Another important consideration of redeployment is the political ramifications of veterans who return complaining of new medical problems. A recent example shows how public policy goals can appear to be at odds with the science of the day when considering postdeployment medical syndromes. The Clinton administration announced the day after Memorial Day 1996 that veterans who had served in or near the Republic of Vietnam during the United States’ participation in the Vietnam War are presumed to have a service-connected disorder attributable to Agent Orange exposure if they develop prostate cancer or peripheral neuropathy. These conditions were additions to the list of conditions for which the Department of Veterans Affairs (VA) already compensates Vietnam veterans, including certain respiratory cancers, multiple myeloma, porphyria cutanea tarda, soft-tissue sarcoma, non-Hodgkin’s lymphoma, Hodgkin’s disease, and chloracne.²³ For the first time in history, the administration extended the service-connected presumption to the children of Vietnam veterans by designating spina bifida in veterans’ children as being service-connected. These new designations were an outgrowth of an Institute of Medicine’s report²⁴ that concluded there was “limited/suggestive evidence” of an association between Agent Orange exposure and these conditions. Secretary of the VA Jesse Brown pointed out that public policy as illustrated by pertinent legislation “is clear: If the evidence for an association to Agent Orange is equal to the evidence against, the veteran must be given the benefit of the doubt.”^{25pA20} The validity of the science, however, remains to be established when the exposure of interest becomes “stationed in the Republic of Vietnam” and not the “exposure to Agent Orange.” In choosing to compensate veterans who were in or near the theater and not necessarily exposed to the presumptive agent, the government has based its decision on factors other than epidemiologic data.²⁶

The question thus becomes not if there will be redeployment medical issues but rather what type will they be, how they will present, and how they can best be detected and managed. If history is any guide, the medical aspects of redeployment will continue to be important in future operations.

THE REDEPLOYMENT MEDICAL PLAN AND ITS GOALS

To address these problems that recur after so many conflicts, the military has developed the redeployment medical plan. Its goals are to enable the

military to identify and treat diseases and disability among returning service members, characterize new diseases or new presentations of old diseases

TABLE 49-1

SOME PREVENTABLE, DEPLOYMENT-ASSOCIATED HEALTH CONDITIONS WITH MINIMAL EARLY SYMPTOMS AND POTENTIALLY SERIOUS DELAYED MANIFESTATIONS

Condition	Complication	Latency	Intervention	Example
Tuberculosis	Active tuberculosis	Years	PPD/Rx	WW I, ¹ Vietnam ²
Leishmaniasis	Skin sores, espundia, kala azar	?	Skin examinations, serology	Persian Gulf War ³
Strongyloidiasis	Dissemination	Decades	Stool examinations	WW II ⁴⁻⁶
Syphilis	Tertiary syphilis	Decades	RPR	WW II, ⁷ Vietnam ⁸
Hookworm	Anemia	Months	Stool examinations	Grenada ⁹
Malaria	Malaria	Weeks/years	Terminal prophylaxis	Vietnam, ¹⁰ Korea, ¹¹ Somalia (Operation Restore Hope) ¹²
Toxoplasmosis	Dissemination	?	Stool examinations	Panama
Stress	PTSD	Months/years	Counseling	Vietnam ¹³
Toxic exposure radiation	Cancer	Decades	Education	Vietnam, WW II ^{14,15}
HIV	Immunodeficiency	Years	Screening, counseling, treatment	Uruguayan soldiers ¹⁶

PTSD: posttraumatic stress disorder

PPD: purified protein derivative

RPR: reactive plasma reagin

1. *Medical Aspects of Gas Warfare*. Vol 14. In: *The Medical Department of the United States Army in the World War*. Washington, DC: US Army Surgeon General; 1926: 876.
2. Greenberg JH. Public health problems relating to the Vietnam returnee. *JAMA*. 1969;207:697-702.
3. Magill AJ, Grogil M, Gasser RA Jr, Sun W, Oster CN. Visceral infection caused by *Leishmania tropica* in veterans of Operation Desert Storm. *N Engl J Med*. 1993;328:1383-1387.
4. Byard RW, Oliver NW, Rowbottom DJ. Strongyloidiasis in veterans. *JAMA*. 1987;258:3258-3259.
5. de Sa Pereira M. Persistence of strongyloidiasis. *JAMA*. 1980;244:2264.
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7. Sternberg TH, Howard EB, Dewey LA, Padget P. Venereal diseases. Coates JB Jr, Hoff EC, Hoff PM, eds. *Communicable Diseases Transmitted through Contact or by Unknown Means*. Vol V. In: *Preventive Medicine in World War II*. Washington, DC: Office of the Surgeon General, Dept of the Army; 1960: 183-188.
8. Minkin W. Treatment of gonorrhea by penicillin in a single large dose. *Mil Med*. 1968;133:382-386.
9. Kelley PW, Takafuji ET, Wiener H, et al. An outbreak of hookworm infection associated with military operations in Grenada. *Mil Med*. 1989;154:55-59.
10. Waterhouse BE, Riggensbach RD. Malaria: potential importance to civilian physicians. *JAMA*. 1967;202:683-685.
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12. Centers for Disease Control and Prevention. Malaria among U.S. military personnel returning from Somalia, 1993. *MMWR*. 1993;42:524-526.
13. Health status of Vietnam veterans, I: psychosocial characteristics. The Centers for Disease Control Vietnam experience study. *JAMA*. 1988;259:2701-2707.
14. Bullman TA, Kang HK. The effects of mustard gas, ionizing radiation, herbicides, trauma, and oil smoke on US military personnel: the results of veteran studies. *Annu Rev Public Health*. 1994;15:69-90.
15. National Research Council Committee on the Biological Effects of Ionizing Radiation. *Health Effects of Exposure to Low Levels of Ionizing Radiation: BEIR V*. Washington, DC: National Academy Press; 1990.
16. Artenstein AW, Coppola J, Brown AE, et al. Multiple introductions of HIV-1 subtype E into the western hemisphere. *Lancet*. 1995;346:1197-1198. Published erratum: *Lancet*. 1995;346:1376.

promptly, compensate fairly those with known disabilities, and safely and expeditiously return the fit to duty or home. There are generally three purposes

for the medical plan for the redeployment of personnel to home or the redistribution of forces within a theater.

The first purpose of the redeployment plan is to recognize the infectious diseases present in the force and to prevent the spread of these diseases to other forces or to the civilian population. The usual way to minimize this problem is to provide some sort of medical screening in the theater of operations before the movement of personnel and then to use vector elimination procedures, such as agricultural washdowns and airline and shipboard fogging operations, to keep the disease vectors from following the forces to the new location.

Preventing or lessening the medical consequences of military occupational exposures on personnel is the second purpose of the redeployment plan. The range of potential exposures in a theater of operations can be very broad. The many common and potential exposures in a military environment are discussed in section 4 of this book and elsewhere.^{27,28} The manifestations of these exposures can be quite varied and therefore require a careful plan for monitoring the consequences of these exposures in the returning force. Planning and documentation must take into account the requirement for professional-quality environmental sampling within the theater of operations. The Department of Defense (DoD) has noted this need for samples in its evolving directives on force medical protection and surveillance.^{29–32} The intent is to quantify, geographically categorize, and link exposure to individuals operating in specified areas within an operations area. As a result, DoD requires not only targeted environmental sampling but also individual serum samples for certain exercises or contingency operations. The intent is to use the enhanced medical and environmental knowledge to influence current and future operations and to help guide redeployment medical care.

Another aspect of deployment occupational exposure is the acute and chronic effect of psychiatric

trauma. Statistics from World War I and World War II indicate that about 25% of veterans seeking care did so for psychiatric complaints.¹² Most of the “preventive psychiatry” guidelines that have been developed since World War II are to be used in-theater, but one important aspect of the redeployment plan is not. It is how quickly personnel return home. The cohesion of mission-oriented small groups has been shown to be essential to prevent breakdowns in combat. Accordingly, the best way for service members to work out their trauma is to discuss it with others in their unit who went through the same experiences. The modern, rapid time frame for redeployment by air, as opposed to the past’s slow transport on troop ships, does not allow for this necessary process. Another aspect to this problem is whether the theater commander routinely redeploys personnel as units or as individuals. Historically, units fought together and went home together. Modern personnel rotation policies, which are based on time exposed, are designed to give combat experience to more personnel, but they work against the psychological health of the individual and the unit.¹² Interestingly, the preventive medicine community may be well positioned to integrate these and similar mental health issues into routine postdeployment education, reminders, and screening because of their proximity to the commanders and their customary involvement with operational plans. Interventions provided by a preventive medicine practitioner may be more acceptable than those of a psychiatric team for the “normal” survivor of the deployment or war-zone experience.

The third purpose of the redeployment medical plan is to ascertain the force’s medical fitness for subsequent duty. In the modern all-volunteer force, it is very important to determine quickly who is medically fit for continued duty and who must be released from active duty.

BEFORE WRITING THE REDEPLOYMENT MEDICAL PLAN

The epidemiologic method is a useful model for approaching the challenges of developing a medical redeployment plan. This method describes the appropriate actions whenever there is suspicion of new disease in a population.³³ The first five steps of this public health method—observation, counting cases or events, relating cases or events to the population at risk, making comparisons, and developing the hypothesis—are intimately linked to the methodology employed in the medical plan for redeployment. Although there is no established format or gold standard for redeployment medical

planning, focusing on this method and remembering the strengths and weaknesses of various medical screening tools (Table 49-2) provides some guidance.

As a practical matter, the medical personnel writing the medical annex of the redeployment plan must operate within constraints often beyond their control. Any measure that slows the return of the force or creates additional logistical burdens or expense is likely to be challenged. To implement the plan, the medical department will need to obtain the approval of the line commander responsible for the overall movement of personnel. Critical decisions

TABLE 49-2
STRENGTHS AND WEAKNESSES OF MEDICAL SCREENING TOOLS*

	Interim Medical History	Limited Physical Examination	Laboratory Procedures	Biological Monitoring
Sensitivity	+	+/-	++	++
Specificity	+	+/-	—	++
Low cost	++	++	+/-	+/-
Acceptability	++	++	+/-	+/-
Ease of performance	++	++	+/-	+/-
Accuracy	+/-	+/-	++	++
Reproducibility	+/-	+/-	++	++

* Assumes adequate clinical skills and state-of-the-art technology

Reprinted from: Deeter DP, Ruff JM. US Army health programs and services. In: Deter DP, Gaydos JC, eds. *Occupational Health: the Soldier, and the Industrial Base*. In: *The Textbook of Military Medicine*. Washington, DC: Dept of the Army, Office of The Surgeon General, Borden Institute; 1993: 77. Table 3-2.

will need to be made about the implementation of the plan. What portions of the medical plan must be implemented in the theater and what portions will be done after return home? What additional resources will be required in-theater and at home? Will special diagnostic tests be used to validate the threat? If so, will they be biomarkers, various environmental and zoological samples, or something else? Will specialized laboratory support be required, such as the Army's Theater Army Medical Laboratory or the Navy's Forward Deployable Laboratory?

Resistance during this phase of planning often

springs from the perception that these efforts are "just research." This perception exists both in the line and the medical communities. In fact, the efforts may be "just research" or unnecessary in a "healthy" force if the disease and nonbattle injury experience is minimal. Even in the best of times, there is generally great reluctance to dedicate already sparse personnel resources to "new" medical requests. However, pointing out the three purposes listed above as the basis for the efforts, plus the growing DoD emphasis on improved redeployment care and citing pertinent directives, should help lessen resistance to the plan.

ELEMENTS OF THE REDEPLOYMENT MEDICAL PLAN

Redeployment medical plans will have to address certain broad topics. These will include at a minimum service member education, medical screening, surveillance, and establishment of priorities for data gathering. The chances of a smooth redeployment, with a minimum of unexplained or undiagnosed illnesses, increase if these issues are discussed and decided on long before anyone packs a duffel bag.

Education

The first area that the plan should address is service member education. Providing an accurate update of the nature of the medical threat that was encountered and a thorough explanation of any special countermeasures taken helps the exposed population know

when something new may be happening to them. Additionally, good individual knowledge is necessary because many of these individuals will leave the military or go to new duty stations in the first few months after a deployment. Simple measures, such as educating them about how and why to continue their postdeployment medical regimen of anti-malaria prophylaxis or about any special vaccinations they may have received, can have profound effects. Future civilian or military medical providers will need to know these sorts of important points in the patient's medical history. Providing a medical summary sheet of the deployment in each individual's medical record may be the best way to do this. Listing agencies and phone numbers where subsequent questions can be directed may also be helpful.

Medical Screening

The second area that needs to be addressed in the redeployment plan is how to medically screen the returning force. There are many ways that this can be done. The simplest is to screen only those with a current complaint, but this is too easily influenced by service members' desires to return home quickly and would likely miss many prevalent conditions. A more practical but administratively burdensome method is to require personnel to fill out a standardized health screening questionnaire before deployment to verify deployability (Figure 49-1).^{29,30} This has the obvious advantage of providing some documentation of medical conditions that existed before the deployment. These screening questionnaires, when coupled with the individual's record of medical care, provide a better baseline for the service member's health before and during the deployment.^{34,35}

Postdeployment Surveillance

The third area of the redeployment medical plan is postdeployment surveillance for medical problems; implementation of this can become a sensitive issue. "Cradle to grave" medical surveillance is being planned by the Department of Defense.^{29,30} A version of the framework envisioned is illustrated in Table 49-3 and a listing of the guidance provided for postdeployment screening of service members returning from Bosnia (Exhibit 49-1). What is available now is a patchwork of datasets, including inpatient medical datasets and operational weekly disease surveillance for large joint military operations outside the United States. Additionally, computerized casualty datasets, veteran disability datasets, active duty and VA inpatient hospitalization records, pharmacy utilization data, Composite Health Care System records, and summaries of routinely reportable diseases of interest are available through the VA and the individual services.

The ability to accumulate active, ongoing disease surveillance is crucial to understanding the medical consequences of deployment. Until the services have data that more clearly delineate the baseline rates of various medical conditions, it will be very difficult to count cases or events or to relate cases or events to the population at risk—both crucial steps in the epidemiologic method. Before active surveillance is made the norm, inpatient datasets or targeted screening of representative subpopulations will have to be used to look for diseases and conditions of interest.

Active, "real-time," weekly disease surveillance was first used successfully on a large scale by the US military during the Persian Gulf War.^{36,37} The focus of the surveillance effort was to identify diseases and conditions that have effective public health intervention strategies. This weekly data summary provided the medical personnel and the line commanders with accurate information about what diseases and conditions were active in the deployed personnel throughout the theater of operations; it also made possible the rapid application of appropriate interventions to limit the impact of disease on the forces. Continuing to use this surveillance tool among elements of the redeploying force may be an interim solution to the problem of identifying new conditions or increased rates of disease among service members. Due to the recognized success of these efforts, a Joint Staff memorandum institutionalized this effort for all joint military operations outside the United States.³⁸ This effectively began the DoD effort to institutionalize active disease surveillance for military personnel.

Another important initiative during the Persian Gulf War was the deployment of a public health laboratory into the theater of operations. The Navy Research and Development Command deployed a forward lab to Al Jubayl, Saudi Arabia, under the control of the Navy Central Command Surgeon. This laboratory could use modern research laboratory techniques to rapidly identify infectious threats.^{37,39} Medical threat information generated by the forward laboratory helped define and quantify the medical threat in the theater. This type of information is crucial to identifying the areas of concern for the redeployment medical plan. Although the command relationships of the laboratory were blurred somewhat during this deployment, a consensus has formed that this capability was critical to the medical officers advising the operational commander.⁴⁰ A forward laboratory formally tasked to support the efforts of the force preventive medicine advisors could be responsive to the mini-outbreaks of disease identified through active surveillance and provide the scientific characterization of the threat necessary to focus appropriate public health interventions, provide medical treatment recommendations, and advise the affected line commanders about the exact nature of the medical threat.

The ability to couple this in-theater disease incidence and laboratory identification information with postdeployment medical surveillance via record linkage will be crucial to future efforts to analyze deployment-related disease. This is being done by the Comprehensive Clinical Evaluation



PRE-DEPLOYMENT Health Assessment

Authority: 10 U.S.C. 136 Chapter 55. 1074f, 3013, 5013, 8013 and E.O. 9397

Principal Purpose: To assess your state of health before possible deployment outside the United States in support of military operations and to assist military healthcare providers in identifying and providing present and future medical care to you.

Routine Use: To other Federal and State agencies and civilian healthcare providers, as necessary, in order to provide necessary medical care and treatment.

Disclosure: **(Military personnel and DoD civilian Employees Only)** Voluntary. If not provided, healthcare WILL BE furnished, but comprehensive care may not be possible.

INSTRUCTIONS: Please read each question completely and carefully before marking your selections. Provide a response for each question. If you do not understand a question, ask the administrator.

Demographics

Last Name

Today's Date (dd/mm/yyyy)

 / /

First Name

MI

Social Security Number

 - -

Deploying Unit

DOB (dd/mm/yyyy)

 / /

Gender

- ☐ Male
☐ Female

Service Branch

- ☐ Air Force
☐ Army
☐ Coast Guard
☐ Marine Corps
☐ Navy
☐ Other

Component

- ☐ Active Duty
☐ National Guard
☐ Reserves
☐ Civilian Government Employee

Pay Grade

- | | | |
|--------------------------|---------------------------|-----------------------------|
| ☐ E1 | ☐ O1 | ☐ W1 |
| ☐ E2 | ☐ O2 | ☐ W2 |
| ☐ E3 | ☐ O3 | ☐ W3 |
| ☐ E4 | ☐ O4 | ☐ W4 |
| ☐ E5 | ☐ O5 | ☐ W5 |
| ☐ E6 | ☐ O6 | ☐ Other |
| ☐ E7 | ☐ O7 | |
| ☐ E8 | ☐ O8 | |
| ☐ E9 | ☐ O9 | |
| | ☐ O10 | |

Location of Operation

- | | |
|-------------------------------------|---------------------------------------|
| ☐ Europe | ☐ Australia |
| ☐ SW Asia | ☐ Africa |
| ☐ SE Asia | ☐ Central America |
| ☐ Asia (Other) | ☐ Unknown |
| ☐ South America | |

Deployment Location (IF KNOWN) (CITY, TOWN, or BASE):

List country (IF KNOWN):

Name of Operation:

Administrator Use Only

Indicate the status of each of the following:

- | Yes | No | N/A | |
|-----------------------|-----------------------|-----------------------|---------------------------------------|
| ☐ | ☐ | ☐ | Medical threat briefing completed |
| ☐ | ☐ | ☐ | Medical information sheet distributed |
| ☐ | ☐ | ☐ | Serum for HIV drawn within 12 months |
| ☐ | ☐ | ☐ | Immunizations current |
| ☐ | ☐ | ☐ | PPD screening within 24 months |




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PLEASE FILL IN SOCIAL SECURITY # - -

Health Assessment

1. Would you say your health in general is: ☐ Excellent ☐ Very Good ☐ Good ☐ Fair ☐ Poor
2. Do you have any medical or dental problems? ☐ Yes ☐ No
3. Are you currently on a profile, or light duty, or are you undergoing a medical board? ☐ Yes ☐ No
4. Are you pregnant? (FEMALES ONLY) ☐ Don't Know ☐ Yes ☐ No
5. Do you have a 90-day supply of your prescription medication or birth control pills? ☐ N/A ☐ Yes ☐ No
6. Do you have two pairs of prescription glasses (if worn) and any other personal medical equipment? ☐ N/A ☐ Yes ☐ No
7. During the past year, have you sought counseling or care for your mental health? ☐ Yes ☐ No
8. Do you currently have any questions or concerns about your health? ☐ Yes ☐ No

Please list your concerns: _____

Service Member Signature

I certify that responses on this form are true.

Pre-Deployment Health Provider Review (For Health Provider Use Only)

After interview/exam of patient, the following problems were noted and categorized by Review of Systems. More than one may be noted for patients with multiple problems. Further documentation of problem to be placed in medical records.

REFERRAL INDICATED ☐ None ☐ Cardiac ☐ Combat / Operational Stress Reaction ☐ Dental ☐ Dermatologic ☐ ENT ☐ Eye ☐ Family Problems ☐ Fatigue, Malaise, Multisystem complaint	☐ GI ☐ GU ☐ GYN ☐ Mental Health ☐ Neurologic ☐ Orthopedic ☐ Pregnancy ☐ Pulmonary ☐ Other _____
--	---

FINAL MEDICAL DISPOSITION: ☐ Deployable ☐ Not Deployable
 Comments: (If not deployable, explain)

I certify that this review process has been completed.
 Provider's signature and stamp:

Date (dd/mm/yyyy)
 / /

End of Health Review

DD FORM 2795, MAY 1999

ASD (HA) APPROVED SEPTEMBER 1998 Ver 1.3

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Fig. 49-1. Predeployment Health Assessment, Department of Defense Form 2795

TABLE 49-3
COMPONENTS OF MEDICAL SURVEILLANCE BY THE PHASE OF DEPLOYMENT

Tasks	Predeployment	During Deployment	Postdeployment
Identify population at risk	Field a seamless DoD ambulatory health data system Ensure deployment readiness of individuals using automated record system	Collect data on unit strength and locations and on individuals' deployment histories	Archive deployment information related to units and individuals Disseminate findings
Assess health	Perform continuous health status surveillance and track deployability status Maintain serum bank	Do real-time disease surveillance Analyze surveillance data and report to commanders	Do scenario-specific screening and targeted medical evaluations Continue medical surveillance
Identify exposures of medical interest	Prepare and distribute threat assessments for potential AORs Identify threats during planning phase for specific contingencies	Do special assessments of occupational and environmental exposures while in theater Look for related clinical cases	Update medical threat assessment based on special assessments, ongoing intelligence collection activities, and disease surveillance data
Institute individual and unit force protection measures	Determine PM countermeasures and incorporate into OPLANS Execute predeployment countermeasures (train, equip, supply, immunize)	Reinforce or introduce added protective countermeasures based on analysis of disease surveillance data	Identify requirements for new countermeasures Incorporate measures into OPLANS

PM: preventive medicine

DoD: Department of Defense

AOR: area of operations

OPLANS: operations plans

Adapted from: US Dept of Defense. *Implementation and Application of Joint Medical Surveillance for Deployments*. Washington, DC: DoD; 1997. DoD Instruction 6490.3.

Program as it looks at the medical complaints of previously uncharacterized Persian Gulf War illnesses. Additionally, reporting of sentinel events through the DoD or the Centers for Disease Control and Prevention, when coupled to emerging, laboratory-based, automatic electronic surveillance, will allow comparisons that have been impossible in prior deployments. These comparisons will provide a better understanding of the actual health situation of redeploying personnel and help to firmly establish (or rule out) multifactorial deployment syndromes.

Final questions include: How will we assess the quality of the data gathered? What are the sensitivity and specificity of the measures to be used? Have those measures been validated on the population of concern or a similar one? These questions are important to the immediate plans for deployment,

but their answers also will form the basis for any subsequent investigation into health effects from the deployment.

Setting the Priorities

The final general area that the redeployment medical plan must address is how to establish the data points of medical interest in this population. The clinical or administrative surveys mentioned previously are one important part, but the service medical departments have the ability to collect other potentially important medical information. Will information be collected about stress and mental health? Should medical personnel collect serum samples, hair samples, or other body fluids? What type of environmental or zoological sampling should be done before leaving the theater of operations? Can

EXHIBIT 49-1

DEPARTMENT OF DEFENSE (HEALTH AFFAIRS) GUIDANCE FOR POSTDEPLOYMENT SCREENING FOR BOSNIA

- On departure from Bosnia or within 30 days of return to home station, personnel shall receive a redeployment medical briefing and medical evaluation and the information shall be documented on Standard Form 600, Chronological Record of Medical Care. Completed assessments shall be placed in the member's medical record, and a copy forwarded to the Bosnia Deployment Surveillance Office.
- As part of the medical evaluation, medical staff will collect serum (one 10 cc red top tube spun down) from all personnel within 30 days of return from deployment. This shall be used for diagnosis, medical surveillance, and other purposes if needed in the future. They shall not be used for any genetics related testing.
- As part of the redeployment medical assessment, all Service members shall complete a diagnostic battery to identify individuals at risk for development of mental health diagnoses known to be related to deployment.
- The Services shall ensure that members receive a medical debriefing within 30 days after arrival at their home station, or as soon as possible in the case of Guard/Reserve personnel. These briefings shall reinforce medical guidance and provide additional information. Additionally, stress management and family advocacy resources shall be made known and readily available to Service members and their families.
- A representative sample of units and personnel may be identified to receive diagnostic evaluations in order to more definitely assess overall health status and evaluate possible medical sequelae of deployment.
- The Services' epidemiologic/surveillance centers shall maintain rosters of deployed personnel to conduct active postdeployment medical surveillance.
- Deployed medical staff shall document lessons learned.

Reprinted from: Assistant Secretary of Defense. *Medical Surveillance Plan for U.S. Ground Forces Deploying to Bosnia*. Washington, DC: Department of Defense; 1996.

personnel records be linked to the service member's geographic location within the theater for subsequent analysis of the exposure? The answer to these questions seems to be yes. Early efforts were made to do all of these in the deployments to Haiti and Bosnia. This rational approach is in line with the recommendations of the Presidential Advisory Committee on Gulf War Veterans Illnesses and the requirements of public law.⁴¹ But no one knows for certain which, if any, of these measures will prove truly useful for subsequent analysis. Additionally, the ability to link datasets in a rational, retrievable, relevant fashion that can be continually updated from a forward deployed force is as necessary as it is daunting. In the

interim, retrospective data analysis that uses surrogate markers for exposure in place of documented exposure has yet to be validated. Also, the purely retrospective nature of the analysis is less desirable than a prospective analysis, which could look more robustly at the medical consequences of deployment.⁴² Carefully designed prospective studies would be very expensive and labor intense but may be necessary in some cases, such as to look at the known relationship between deployments, combat, and stress. It may be time to study more carefully the relationship between deployment, stress, and subsequent somatic complaints since this is a question that has seemed to linger after all major deployments (Table 49-4).⁴³

THE ROLE OF THE DEPARTMENT OF DEFENSE, THE DEPARTMENT OF VETERANS AFFAIRS, AND SELECTED ADVISORY PANELS

The Department of Defense

The role of the DoD regarding medical problems associated with a deployment historically has been 3-fold. First, the DoD is responsible for maintain-

ing a fit and ready fighting force. This includes treating the sick and wounded so they can return to duty or separating them if they are no longer able to serve. Second, it is responsible to the country to implement any medical lessons learned in the plans

TABLE 49-4

SOMATIC SYMPTOMS COMMONLY ASSOCIATED WITH WAR-RELATED MEDICAL AND PSYCHOLOGICAL ILLNESSES

Symptom	War and Illness					
	US Civil War, Da Costa Syndrome	World War I, Effort Syndrome	World War II, Combat Stress Reaction	Vietnam, Agent Orange Exposure	Vietnam and Other Conflicts, Post- Traumatic Stress Disorder	Persian Gulf War, Unexplained Illnesses
Fatigue or exhaustion	+	+	+	+	+	+
Shortness of breath	+	+	+		+	+
Palpitations and tachycardia	+	+	+		+	
Precordial pain	+	+			+	+
Headache	+	+	+	+	+	+
Muscle or joint pain				+	+	+
Diarrhea	+		+	+	+	+
Excessive sweating	+	+	+			
Dizziness	+	+	+	+	+	
Fainting	+	+				
Disturbed sleep	+	+	+	+	+	+
Forgetfulness		+	+	+	+	+
Difficulty concentrating		+	+	+	+	+

Reprinted with permission from: Hyams KC, Wignall FS, Roswell R. War syndromes and their evaluation: from the U.S. Civil War to the Persian Gulf War. *Ann Intern Med.* 1996;125:399.

for future operations to lessen disease and injury. And third, it is responsible to disseminate medical information that may be of interest to military veterans and to the country from any ongoing research or intelligence activities. Administratively, the DoD usually provides lists of personnel and service history information for postservice medical claims. In this regard, the DoD role has expanded in light of its actions with the Comprehensive Clinical Evaluation Program and other database creation and linkage activities.

The DoD has undertaken several initiatives designed to expand its capacity to study deployment medical syndromes. These efforts build on the 1993 Joint Staff memorandum that instituted active disease surveillance for all joint military operations taking place outside the United States. Arguably the next major step was the participation of the Office of the Assistant Secretary of Defense (Health Affairs) in the preventive medicine guidance given by

the US Commander in Chief, European Command, for the US forces involved in the peace implementation mission in Bosnia.^{34,35} These memorandums were released at a time when the Office of the Assistant Secretary of Defense (Health Affairs) and other DoD agencies were extensively involved with the investigation into Persian Gulf War illnesses. It seems clear that this input was designed to collect what all involved hoped would be useful information if investigations of future syndromes were required. The DoD has since increased its efforts to study the health of military forces before, during, and after deployments. Public Law 105-85, enacted in January 1997, mandates improved medical tracking for deployments, tracking of new investigational drugs, and reports on medical tracking efforts. The DoD Instructions and Directives mentioned earlier and a policy charter designed to expand the surveillance capability and preventive medicine input into military activities have all been promulgated.

The Joint Preventive Medicine Policy Group Charter was signed in January 1997.⁴⁴ This group improves preventive medicine support in joint operations and facilitates coordination between DoD agencies by acting as a single clearinghouse for preventive medicine recommendations for those formulating DoD policy.

The Department of Veterans Affairs

In addition to the DoD, there are three civilian governmental agencies that are likely to be involved in evaluating the scientific basis of postdeployment medical problems of service members and veterans. The first of these, the VA, is the primary partner to the DoD in the treatment and investigation of postdeployment medical problems.⁴⁵ The VA provides treatment to those with service-connected injury and illness through a large network of VA hospitals and rehabilitation centers. It coordinates the large body of research on veterans' health problems. It also aids in determining benefits for veterans with service-connected conditions and associated disability.

Selected Advisory Panels

The second governmental agency involved in

service member and veteran health matters is the Medical Follow-up Agency (MFUA). The MFUA began epidemiologic research on military veteran populations after World War II. It publishes periodic proceedings of ongoing and planned research, sources of data on veterans, and methodological considerations for those who are interested in the results and techniques of health research on military populations. In 1970, the Institute of Medicine was chartered as a component of the National Academy of Sciences to enlist distinguished members of appropriate professions to examine policy matters pertaining to the health of the public.^{46,47} Since that time, the MFUA has been placed under the Institute of Medicine, where its expert panels continue their work analyzing the health of veterans.

The third important civilian epidemiologic oversight agency is the Armed Forces Epidemiological Board. The Board was formally chartered as a civilian scientific and medical advisory board to the Department of the Army in 1953.⁴⁷ It was first conceived of in 1940 and was the logical outgrowth of a series of commissions started before World War II to look at medical and scientific questions of interest to the Army (see Chapter 5, *Conserving the Fighting Strength: Milestones of Operational Military Preventive Medicine Research* and Chapter 8, *The Basic Training Environment*).

SUMMARY

There is no gold standard method for preparing for redeployment and postdeployment medical problems. However, using emerging computer information technology with older public health methods may enable military medical personnel to find new ways to locate and analyze disease trends and so allow a better understanding of the health effects of deployments. These efforts may uncover new syn-

dromes, whether they be new psychological patterns of disease or new infectious diseases. But it must be remembered that preparation for redeployment begins before deployment and continues throughout the deployment. The redeployment plan is the best opportunity to institutionalize a redeployment medical process that may minimize postdeployment medical problems in the active duty and veteran populations.

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